

**How does using a digital story influence Registered Nurses' perceptions of safety culture and patient safety-related behaviours within an Acute NHS Trust? A mixed methods explanatory sequential study.**

**Valerie Ann Nixon**

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## **Abstract**

**Background:** From 2000 to the present day, patient safety and safety culture continues to be a significant global concern as patient harm rises. As the most trusted profession and significant workforce, nurses are fundamental to preventing harm and promoting a positive safety culture. Conversely, the unpredictability of the clinical environment makes it the ultimate focus where patient safety systems fail, resulting in patient harm. Patients also have a role in improving patient safety, yet despite the political intention to involve and engage patients, the uptake is relatively low, and there is limited evidence to suggest that patient involvement improves patient safety. Digital stories, a method of patient engagement, have the potential to enhance patient safety, yet no studies have substantiated this claim. Studies using digital stories have reported positive outcomes. However, these studies are scarce with the majority focusing on pre-registration nurse education. Furthermore, no studies have used digital stories to examine perceptions of safety culture and patient safety.

**Aim:** The study was designed to explore the impact of using a digital story in assessing RNs' perceptions of safety culture and patient safety-related behaviours. It sought to measure and explore safety culture perceptions at four different timepoints to establish how the digital story may have changed RNs' perceptions of safety culture and patient safety-related behaviours.

**Methods:** A mixed methods explanatory sequential design was chosen and took place from September 2017 to December 2017. The quantitative study used a non-experimental descriptive design using a Safety Attitude Questionnaire (SAQ) (Short Form) to measure safety culture perceptions across four timepoints. A total of 103 RNs from six specialised medical wards participated in the quantitative study using a purposive sampling method. Of the 443 surveys distributed across the four timepoints, 335 were returned, yielding an overall response rate of 81%. The qualitative study adopted an Interpretative Phenomenological Analysis method. A subsample of 15 RNs who were purposively selected from the quantitative sample were randomly allocated (n=5/group) into one of the following intervention groups: Trust education (G1), digital story (G2), or digital story and 30 minutes reflection time (G3).

Fifty-one (out of 60) one-to-one, semi-structured interviews were conducted across the four timepoints, yielding a total response rate of 86%.

**Findings:** The qualitative interviews revealed three group experiential themes: *Professional Duty of Care*, *Professional Duty of Candour*, and *Professional Duty to Continuing Professional Development*. These themes reflected the RNs' perceptions of safety culture and the impact of the digital story. The quantitative findings represent the RNs' perceptions of safety culture against six domains in the SAQ survey. The merged data sets revealed mixed perceptions of the factors that created a negative or positive safety culture and their implications for patient and nurse outcomes. The qualitative findings showed that the digital story had many qualities as a learning resource compared to trust education. The RNs in the digital story groups reported positive changes relating to patient assessment and compliance with risk assessment tools, communication skills, decision-making, reporting behaviours, and personal and professional development.

**Conclusion:** The RNs' perceptions of safety culture illustrate the complexities of safety culture that incorporate many influential facets in promoting a positive or negative safety culture. These are influenced by external factors such as communication, teamwork, inadequate staffing, and leadership, which all impact their working environments, reporting behaviours, job satisfaction, and stress levels. Using a digital story has the potential to promote positive changes. The qualities of digital stories make them an effective learning tool and alternative source of knowledge that can be used to positively change safety culture perceptions and patient safety-related behaviours, leading to a positive safety culture and safer quality nursing care.

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### **List of Abbreviations**

AE	Adverse Event
AHRQ	Agency for Healthcare Research and Quality
CPD	Continuing Professional Development
CQC	Care Quality Commission
DH	Department of Health
DPS	Digital Patient Story
DST	Digital Storytelling
ES	Experiential Statements
GET	Group Experiential Theme
IOM	Institute of Medicine
IPA	Interpretative Phenomenological Analysis
IQR	Interquartile Range
HSOPSC	Hospital Survey of Patient Safety Culture
ICPS	International Classification of Patient Safety
MD	Moral Distress
MMR	Mixed Methods Research
MNC	Missed Nursing Care
NHS	National Health Service
NRLS	National Reporting Learning System
NMC	Nursing and Midwifery Council
PSCAS	Patient Safety Culture Assessment Scale
PET	Personal Experiential Theme
QDAS	Qualitative Data Analysis Software
PRR	Positive Response Rate
RN	Registered Nurse
SAQ	Safety Attitude Questionnaire
SBTT	Simulation-based Team Training
SCS	Safety Climate Survey
SPSS	Statistical Package for the Social Sciences
US	United States
UK	United Kingdom
WHO	World Health Organisation

# CHAPTER 1: INTRODUCTION AND BACKGROUND

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## 1.1 Introduction

Patient safety is a global phenomenon experienced across all healthcare systems (Flott *et al.*, 2018; World Health Organisation (WHO), 2021a). Since the 1990s, evidence has shown an alarming rise in patient incidents and associated costs directly caused by harm (Department of Health (DH), 2000; Institute of Medicine (IOM), 2000). This provided compelling evidence for urgent action to improve patient safety worldwide, which has led to an increase in the number of international and national organisations addressing this issue. In today's modern healthcare systems, healthcare delivery is a global challenge as patient harm due to unsafe care continues to rise and is one of the leading causes of death and disability worldwide (WHO, 2021a).

This chapter contextualises the research study by first offering an overview and general background on the evolution of patient safety and safety culture both internationally and nationally. The conceptualisation of patient safety, safety culture, and safety climate will follow, including the definitions of these concepts that have been operationally adopted for this thesis. Registered Nurses (RNs) working on the frontline are fundamental to preventing harm, but some barriers prevent nurses from delivering safe care, which will be explained. Equally, patients and their families can play an active role in improving patient safety. However, there are many reasons why patient engagement and involvement have been slow. The factors promoting and affecting patient engagement is discussed, paying particular attention to the use and impact of using a patient-focused digital story. The structure of this thesis will conclude this chapter.

## 1.2 Evolution of Patient Safety

Patient harm caused by errors has been recognised for over a century. Historical evidence indicates that concerns for patient safety have existed long before modern healthcare

(Farohkzadian *et al.*, 2018). In 1863, Florence Nightingale recognised the dangers of hospital care, and the essential requirement in a hospital was '*to do the sick no harm*' (Nightingale, 1963, p6). Other early examples include Ignaz Semmelweis in the 1850s, who reduced mortality related to puerperal fever by introducing hand decontamination. Florence Nightingale in 1860 made observations about infection and sepsis, and Ernest Codman, a surgeon in Boston in the early 20<sup>th</sup> century, was one of a few clinicians to explicitly address error (Sharpe and Faden, 1998; Vincent, 2010).

Although the concept of patient safety was not new, the rates of adverse events (AE) initially captured the full attention of the medical professional. The rising cost of litigation in the United States (US) led to the establishment of the Harvard Medical Practice Study (HMPS) to review patient records across 51 hospitals in New York in 1984 (Brennan *et al.*, 1991). It was initially designed to assess the number of compensable cases, nevertheless, its ultimate legacy became the study of quality and safety. The HMPS study estimated the number of AEs from 30,121 randomly selected case notes, which exposed the true extent of harm in hospitals. Brennan *et al.* (1991) concluded that 4% (1,208) of people admitted to the hospital were unintentionally harmed by treatment, of which 27.6% (314) were due to negligence. Of the 4% (1,208) who were injured, 70% (846) were left with slight or temporary disability, 7% (85) were permanently disabled, and 14% (169) died due to their treatment. As the study used a random sampling method, it was able to provide population estimates of AEs due to negligence (Brennan *et al.*, 1991). They concluded that out of 2,671,863 people who were discharged, an estimated number of 98,609 (3.7%) AEs occurred, with an alarming 27,179 (28%) of AEs caused by negligence (Brennan *et al.*, 1991).

A later study by Thomas *et al.* (2000) utilised a similar method to the HMPS to estimate the number of negligent AEs in Colorado and Utah in 1992 and reported similar findings. Thomas *et al.* (2000) randomly sampled 15,000 (5,000 in Utah and 10,000 in Colorado) hospital records of nonpsychiatric discharges in 1992. The results revealed 587 (4%) AEs, of which

28.8% (169) were in Utah and 71.2% (418) in Colorado, with an alarming 97% (569) being caused by negligence. Negligence in this study was defined by the standard tort criteria as the *'actual injuries proximately resulting from physicians' failure to meet the standard expected in his practice community'* (Keeton *et al.* 1984, cited in Thomas *et al.*, 2000, p252). Similarly, in Australia, Wilson *et al.* (1995) conducted a retrospective review of 14,197 hospital records from 28 hospitals across two states. Out of 6,205 records that were reviewed by specialists, 16.6% (2,353) of AEs occurred during admissions, of which 51.2% (1,205) were highly preventable.

Despite the evidence, there was little collective action worldwide to improve the safety of healthcare provision (Mitchell *et al.*, 2016) until 2000, when the revolutionary report *'To Err is Human'* (IOM, 2000) was published. This was undoubtedly a landmark report that transported the issue of patient safety to the forefront and created an international sense of urgency to reduce harm from errors in healthcare. Using the findings from the US studies (Brennan *et al.*, 1991; Thomas *et al.*, 2000), the report estimated that between 44,000 and 80,000<sup>1</sup> hospitalised Americans die each year due to preventable errors. The cost associated with these errors ranged from \$17 billion to a staggering \$50 billion (IOM, 2000). The critical message recommended implementing key patient safety strategies to reduce errors and improve patient safety in healthcare. These strategies included establishing a national focus to create leadership and research to enhance the knowledge base about patient safety, to identify errors and learn from them, set performance standards and expectations for quality, and implement patient safety systems in healthcare organisations (IOM, 2000). In addition, it sent a clear message to the layperson about the extent of harm in hospitals (Elwyn and Corrigan, 2005). According to Vincent (2010), this report marked the beginning of the global modern patient safety movement. For the first time, patient safety captured considerable attention among the public, media, and health workers. In 2004, the WHO created the world's

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<sup>1</sup> Deaths caused by errors, exceeds the deaths caused by motor vehicle accidents (42,978), or breast cancer (43,458) (IOM, 2000).

only global World Alliance for Patient Safety<sup>2</sup> (now known as the WHO Patient Safety Programme) to coordinate, facilitate, and accelerate patient safety improvements across the globe (WHO, 2004).

### **1.2.1 Classification of Patient Safety**

Since the launch of *'To Err is Human'* report (IOM, 2000), patient safety has been discussed worldwide and is captured in various definitions. The IOM (2000, p211) defined patient safety as the *'freedom from accidental injury'*. In their following seminal report, the IOM (2001) set out a vision to create a new healthcare system for the 21<sup>st</sup> century. The report emphasised that patients should be free of danger or risk and defined safe care as *'avoiding injuries to patients from the care intended to help them'* (IOM 2001, p39). Later, Vincent (2006, p14), a distinguished author in the patient safety discipline, defined patient safety as:

*'The avoidance, prevention and amelioration of adverse outcomes or injuries stemming from the healthcare process'.*

Despite the different meanings, all mention the critical role of unsafe care given to patients and the incidence of medical errors. However, over time, the lack of a universal definition and conceptualisation of patient safety has constricted comparisons of information, learning and systems improvement (Sherman *et al.*, 2009). To address this issue, the WHO successfully aggregated the data across the countries and disciplines to formalise an internationally agreed conceptual framework (WHO, 2009a). It was later subjected to a two-stage Delphi survey involving stakeholders and patient safety experts and it was later changed to produce a universal conceptual framework. This comprised 48 concepts grouped into ten International Classification of Patient Safety (ICPS) categories (e.g., incident type, patient, and organisational outcomes (WHO, 2009a). The standardised framework also facilitated the

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<sup>2</sup> World Alliance for Patient Safety is a project encompassing all aspects of patient safety involving patients, developing a patient safety taxonomy. Researching patient safety and creating solutions to reduce of harm and promote safety (WHO, 2004)

description, comparison monitoring analysis and interpretation of patient safety information to improve patient care (WHO, 2009a). In the long term it would allow for comparisons to be made (internationally) and for trends in patient safety to be tracked over time. The introduction of this framework offered a refined definition of patient safety as '*reducing the risk of unnecessary harm to an acceptable minimum*' (WHO, 2009a, p22), which is the adopted operational definition in this thesis. This was chosen as it accepts that humans are fallible, as unintended, well-intentioned people do make mistakes and work in systems that have failed around them. Consequently, it is unrealistic to expect faultless performance in an increasingly complex and highly stressful environment. Recognising that a system that can enable harm to occur is the beginning of safety improvement, as it should provide an open and transparent environment (Agency for Healthcare Research and Quality, (AHRQ), 2019) where healthcare professionals can speak up and learn from errors and AEs when harm occurs.

### **1.2.2 The Evolution of Patient Safety in the United Kingdom (UK)**

Following the publication of '*To Err is to Human*' (IOM, 2000), the UK's National Health Service (NHS) published the UK equivalent in 2000, '*An Organisation without a Memory*' (DH, 2000). This was a damning report that illustrated a poor record for patient safety in the UK (as illustrated in Table 1.1). The cost of these errors was a staggering £400 million a year of settlement claims, which had a potential liability of approximately £2.4 billion for existing or expected claims. The report highlighted that £1 million was attributed to avoidable hospital-acquired infections and £2 billion a year in more hospital stays due to harm (DH, 2000). In a retrospective study by Vincent *et al.* (2001), they reviewed 1,014 medical and nursing notes across two London hospitals. The results also revealed that 10.8% (109) of patients admitted to these two London hospitals suffered some kind of AE during their treatment. Of the 1,014 notes reviewed, 50% (50) of AEs were preventable with ordinary standards of care, and 33% (36) led to moderate or more significant disability or death (Vincent *et al.*, 2001). Although it may not be the first measure of patient harm in the UK healthcare system, the study became the cornerstone in the patient safety literature. According to the Altmetric Scores (2023) (on

behalf of the BMJ), the paper had been cited in 1490 publications (510 times more citations than average), with 46 of those in the last two years (2021 to 2023) mentioned in 11 policy sources (up to 2023) and is in the top 5% of all research outputs.

**Table 1.1 Patient Safety Record in the UK NHS**

Four hundred people die or are seriously injured in adverse events involving medical devices.
Ten thousand people are reported to have experienced severe adverse reactions to drugs.
Around 1,150 people in recent contact with mental health services commit suicide.
Twenty-eight thousand written complaints are made about aspects of clinical treatment in hospitals.
Hospital-acquired infections – around 15% of which may be avoidable.
Adverse events in NHS hospitals where harm is caused to patients occur in around 10% of admissions – or at a rate above 850,000 a year.

Source: Department of Health (DH) (2000 p vii-viii)

A year later, *Building a Safer NHS for Patients: Implementing an Organisation without a Memory* (DH, 2001) was published, which outlined the UK government's plans for promoting and implementing patient safety initiatives in the NHS. The publications by the IOM (2000), DH (2000, 2001), and Vincent *et al.* (2001) undeniably catalysed the safety movement in the UK. In response to key policy documents (e.g., Berwick, 2013; DH, 2006, 2010, 2016, 2019, 2021), several national patient safety bodies were formed to improve quality and safety in the UK, as illustrated in Table 1.2.

**Table 1.2 Development of National Patient Safety Bodies in the UK 2001-2023**

Year	National Developments for Improvement in Patient Safety
2001	Establishment of the National Patient Safety Agency (NPSA). Disbanded in 2012 To lead and contribute to improvements in the safety of care by informing, supporting, and influencing the health sector.
2003	The National Reporting and Learning System (NRLS) was established. A national central database of patient safety incident reports in the UK to increase the culture of reporting incidents to improve safety. Replaced by Learn from patient safety events (LFPSE) in 2022.
2004	The Health Foundation for Patients Initiative was launched. The UK's first significant quality improvement programme focused on organisation-wide approaches to patient safety.
2004	Healthcare Commission (HCC) was established. Disbanded in 2009 and replaced by the Care Quality Commission (CQC) To assess standards of care provided by the NHS.
2005	Saving Lives was established. Initially, to reduce the harm caused by MRSA and Clostridium difficile, it covers all Hospital Associated Infections (HCAI).
2009	Establishment of Care Quality Commission (CQC). Replaced HCC Ensures that all services meet the fundamental standards of quality and safety. Reports are publicly available, which include performance ratings.
2009	Introduction of Commissioning for Quality and Innovation (CQUIN) national goals To secure improvements in the quality of services and better outcomes against national goals.
2012	Quality, Innovation, Productivity and Prevention (QIPP) developed the NHS Safety Thermometer CQUIN (NHS ST). To incentivise measured improvements and harm-free care associated with falls, urinary infection in patients with indwelling catheters, pressure ulcers and venous thromboembolism (VTE) risk assessment.
2014	Patient Safety Collaboratives across the UK were established. To provide structure, processes, and networks to drive patient safety across the UK.
2016	NHS Improvement - responsible for overseeing NHS foundation trusts, NHS trusts and independent providers, Supporting healthcare providers to deliver consistently safe, high-quality care within local health systems.
2019	National Patient Safety Improvement Programmes (SIPs) were established. Led by the National Patient Safety Team (NPST) to deliver safety and quality improvements across NHS.
2021	The National Patient Safety Committee (NatPSC) was established and replaced by the National Patient Safety Alerting Committee (NAPSAC), established in 2018. Cross organisational committee to review the current landscape of national patient safety planning, response, and improvements within the healthcare system.
2022	Learn from patient safety events (LFPSE), previously called Patient Safety Incident Management System (PSIMS), was established to replace the NRLS National service led by the NHS England for recording and analysing patient safety events in healthcare in the UK. The service provides a range of innovations to support the NHS in improving learning from the patient safety events recorded.



### **1.2.3 Patient Harm and Adverse Events in the UK**

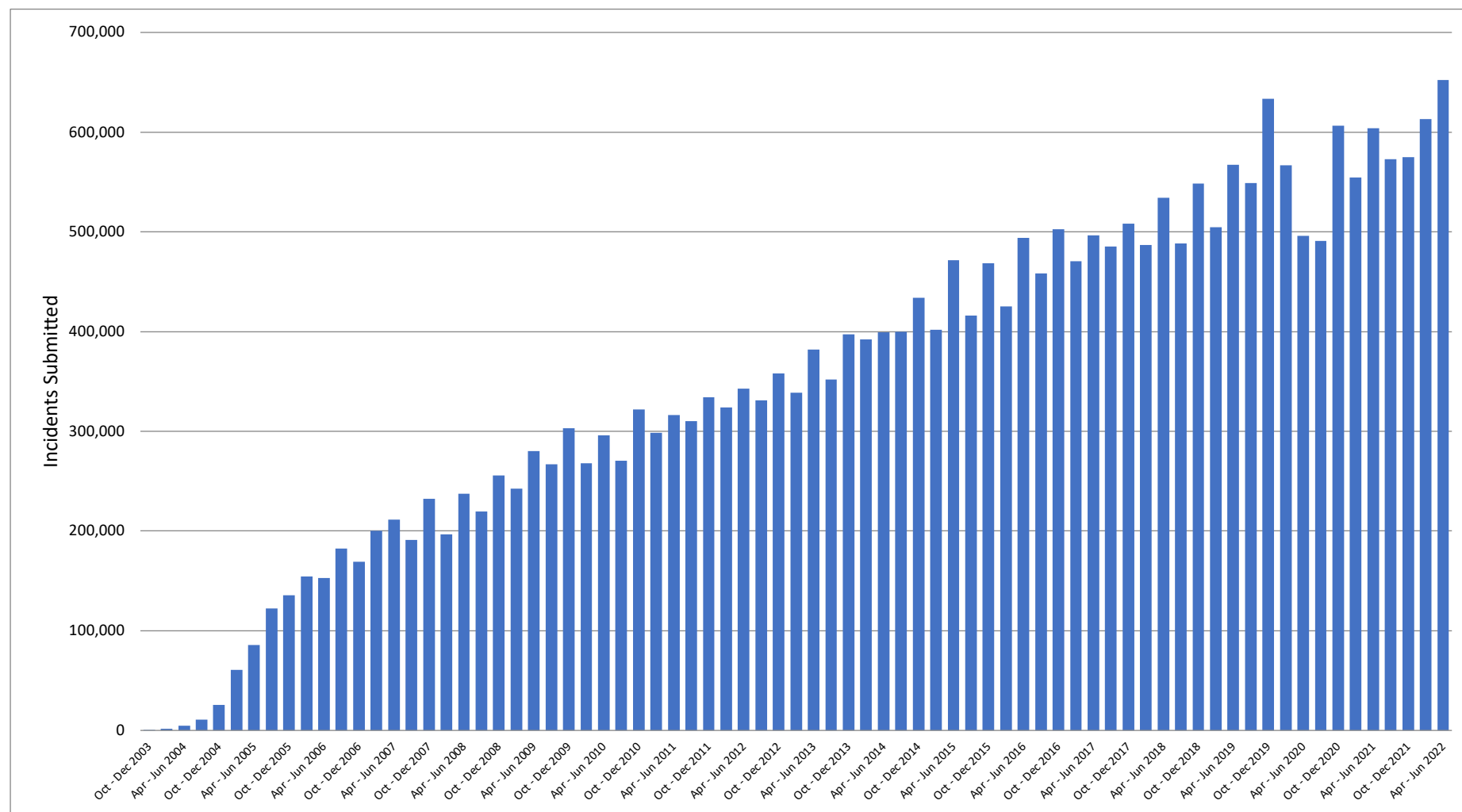
Considerable progress has been made since the publication of '*To Err is Human*' (IOM, 2000). The Organisation for Economic Co-operation and Development (OECD) (2017) (cited in Slawomirski *et al.*, 2018) survey uncovered an array of patient safety initiatives that are used to minimise AEs in healthcare organisations in the UK. Figure 1.1 illustrates a snapshot of these interventions that are applied at the system, organisational, and clinical levels. Although the DH (2019) acknowledged the significant improvements over the years, there is still much more to do as the prevalence of patient safety incidents and subsequent harm continues to rise in England (see Figure 1.2).

**Figure 1.1 Survey of Patient Safety Interventions**

1. System level interventions	2. Organisational (institutional) level interventions	3. Clinical-level interventions
1.1 Safety Standards linked to accreditation and certification	2.1 Clinical governance systems and frameworks related to safety	3.1 Medication management / reconciliation
1.2 Public reporting of patient safety indicators	2.2 Clinical incident reporting and management system	3.2 Transcribing error minimisation protocols
1.3 Mandatory reporting of specified adverse events	2.3 Integrated patient complaints reporting system	3.3 Smart infusion pumps and drug administration systems
1.4 Pay-for performance schemes for patient safety	2.4 Monitoring and feedback of patient safety indicators	3.4 Aseptic technique protocols and barrier precautions
1.5 Professional education and training	2.5 Person- and patient-engagement initiatives	3.5 Urinary catheter use and insertion protocols
1.6 Electronic Health Record (EHR) systems	2.6 Clinical communication protocols and training	3.6 Central line catheter insertion protocols
1.7 No-fault medical negligence legislation	2.7 Digital technology solutions for safety	3.7 Ventilator-associated pneumonia minimisation protocols
1.8 System-level public engagement and health literacy initiatives	2.8 Human resources interventions	3.8 Procedural / surgical checklists
1.9 National interventions based on specific safety themes	2.9 Building a positive safety culture	3.9 Operating room integration and display checklists
1.10 A national agency responsible for patient safety	2.10 Infection detection, reporting and surveillance systems	3.10 Peri-operative medication protocols
	2.11 Hand hygiene initiatives	3.11 VTE prevention protocols
	2.12 Antimicrobial stewardship	3.12 Clinical care standards
	2.13 Blood and blood management protocols	3.13 Pressure injury (ulcer) prevention protocols
	2.14 Medical equipment sterilisation protocols	3.14 Falls prevention protocols
		3.15 Acute delirium & cognitive impairment management programs
		3.16 Response to clinical deterioration
		3.17 Patient hydration and nutrition standards
		3.18 Patient identification and procedure matching protocols

Source: OECD (2017) cited in Slawomirski *et al.* (2018, p34)

**Figure 1.2 Number of incidents in England, reported by quarter from Oct 2003 to Jun 2022**



Source: NHS England (2022a)

### 1.2.3.1 Defining Patient Harm and Adverse Events

Harm is a subset of measurable patient safety and is recognised as harm arising from or associated with plans or actions taken while providing healthcare (Runciman *et al.*, 2009). The NHS is expected to treat patients in a safe environment while protecting them from avoidable harm. Other terms commonly used in practice to describe and record harmful events are 'patient safety incident', 'near miss', and 'never event'. This thesis will refer to harmful events as an adverse event (AE) to avoid confusion of these terms. The simplest definition of a healthcare AE that will be operationally defined throughout this thesis is a *'negative effect of care, whether evident or harmful to the patient'* (Health Foundation, 2011a, p.4). This definition was chosen for its simplicity and reflects contemporary healthcare, as earlier reports refer to injuries caused by medical management (Brennan *et al.*, 1991) or physical and psychological injury (DH, 2001).

The National Reporting and Learning System (NRLS) is a national database that collects data on patient safety incidents in England and Wales. This is a mandatory requirement for all NHS and other healthcare organisations to report AEs against the following incident types (NHS England, 2022a):

1. Implementation of care and ongoing monitoring / review.
2. Patient accident.
3. Access, admission, transfer, discharge (including missing patient).
4. Treatment, procedure.
5. Medication.
6. Infrastructure (including staffing, facilities, environment).
7. Self-harming behaviour.
8. Clinical assessment (including diagnosis, scans, tests, assessments).
9. Documentation (including electronic and paper records, identification, and drug charts).
10. Consent, communication, confidentiality.

11. Infection control incident.
12. Disruptive, aggressive behaviour (includes patient-to-patient).
13. Medical device/equipment.
14. Patient abuse (by staff/third party).
15. Other.

These incident types are further reported against one of five categories that describe the seriousness of harm as defined by NHS Improvement (2018) and are illustrated in Table 1.3.

**Table 1.3 Categories for the Degree of Harm**

Degree of Harm	Description
No-harm	A situation where no harm occurred: either a prevented patient safety incident or a no-harm incident
Low harm	Any unexpected incident that required extra observation or minor treatment and caused minimal harm to one or more persons
Moderate harm	Any unexpected or unintended incident that resulted in further treatment, possible surgical intervention, cancelling of treatment, or transfer to another area and which caused short-term to one or more persons
Severe harm	Any unexpected or unintended incident that caused permanent or long-term to one or more persons
Death	Any unexpected or unintended event that caused the death of one or more persons

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Source: NHS Improvement (2018, p12)

### **1.2.3.2 Prevalence of Patient Harm and Adverse Events**

The incident rate of AEs can be viewed as an indicator of patient safety (Abadi, 2017). Notwithstanding the concerted efforts in the UK to avoid, prevent, and minimise patient harm, there has been a significant rise in AEs (see Figure 1.2). Table 1.4 illustrates the increasing numbers of AEs in England against four commonly reported incident types. The data is presented in the number and percentages of AEs reported from NHS providers for

acute/general care (non-specialised) (NHS England, 2020, 2022a), as this relates to this study setting. Remarkably, in March 2022, a total number of 2,364,869 incidents were reported<sup>3</sup>, an increase of 10% from the previous year, of which 78% (1,767,264) were within the acute/general (non-specialised) services (NHS England, 2022a). In March 2020, this increased by 9% (73,591) and by an alarming 46% (711,721) in March 2022. This was an expected rise due to the changes in healthcare provision, COVID-19, the continuation and backlog of services, and a rise in infection control incidents related to COVID-19 (NHS England, 2022a). It is difficult to ascertain the reliability of this explanation as there is no incident category aligned with those reasons apart from infection control. Nonetheless, in March 2021, only 3.8% (58,691/1,550,533) of infection control incidents were reported compared to 23% (354,097/1,550,533) of incidents relating to the implementation of care and ongoing monitoring/review.

**Table 1.4 Reported Adverse Events for NHS Acute/General Services**

	Oct 18- Mar 19	Oct 19-Mar 20	Apr 20-Mar 21	Apr 21- Mar 22
<b>INCIDENT CATEGORY</b>	<b>N (%)</b>	<b>N (%)</b>	<b>N (%)</b>	<b>N (%)</b>
Patient Accidents*	113,235 (15)	117,761 (14)	214,513 (14)	238,970 (14)
Access. Admissions. Transfer. Discharge*	96,505 (12)	103,801 (12)	164,982 (11)	213,061 (11)
Treatment procedures*	89,950 (12)	89,823 (11)	187,255 (11)	198,481 (11)
All other incidents	343,375 (45)	350,320 (42)	629,686 (41)	721,602 (41)
<b>TOTAL NUMBER</b>	<b>765,221</b>	<b>838,812</b>	<b>1,550,533</b>	<b>1,767,264</b>

NB \*Top four commonly reported incidents  
Source: NHS England (2020, 2022a)

<sup>3</sup> (includes all NHS providers of acute/general (non-specialist, specialist), mental health, community, and ambulance services).

When classified into the degree of harm, 74.2% consistently resulted in no harm (either a prevented patient safety incident or a no harm incident). The rise in severe harm and deaths (NHS England, 2020, 2022a) is low compared to no harm and low harm, however, they continue to increase (see Table 1.5).

**Table 1.5 Degree of Harm Associated with Reported Adverse Events**

DEGREE OF HARM	Apr 19- Mar-20 N (%)	Apr 20-Mar 21 N (%)
No harm	622,652 (74.2)	1,300,060 (73.6)
Low harm	198,164 (23.6)	421,111 (23.8)
Moderate harm	15,370 (1.8)	38,977 (2.3)
Severe Harm	1,870 (0.2)	4,603 (0.3)
Death	666 (0.1)	2,513 (0.1)
<b>Total</b>	<b>838,733</b>	<b>1,767,264</b>

Source: NHS England (2020, 2022a)

### 1.2.3.3 Causes of Harm and Adverse Events

The preventability of patient harm is fluid over time because healthcare has always been and will always be a complex, risk-laden organisation (Slawomirski *et al.*, 2018). Subsequently, when patients are harmed, the causes are often multifaceted, complex, dynamic, and diverse in the structures, processes, and delivery points across all healthcare system levels and system behaviour. Contributory factors include all facets of health care and healthcare delivery, as it requires involvement from various members across different organisations and settings, who also interact with complex technologies, organisations, and procedural infrastructures. Likewise, modern therapies, diagnostics, and interventions are complex, and these factors significantly increase the risks of complications, errors, and harm (Slawomirski *et al.*, 2018). These are primarily administered to a considerable proportion of patients whose access to healthcare is greater, thus increasing demands for NHS services.

Today, over half of the population has long-standing health problems such as asthma, coronary heart disease, lower back pain, high blood pressure, and depression (Office of National Statistics, 2022). People live longer as 18.6% (11 million) are 65 years and over (Office for National Statistics, 2023), and this increases the probability of illness and frailty due to the higher prevalence of multiple long-term conditions, frailty, and dementia (Kingston *et al.*, 2017). Finally, according to the Joseph Rowntree Foundation (2016), approximately 22% (14.4 million) of the population lives in poverty, making maintaining a healthy lifestyle more complex and leading to more significant adverse health outcomes. For example (e.g.) there is a strong relationship between a poor diet and a range of diet-related health problems, including diabetes (Jannasch *et al.*, 2017), obesity (Public Health England, 2017; Srouf *et al.*, 2019), cardiovascular disease (Srouf *et al.*, 2019), and some cancers (Fiolet *et al.*, 2018). Poverty makes it harder for people to access services for earlier stages of ill health, and for those living in deprived areas, the services are not always available. Subsequently, they get sicker and access services later. According to Mallorie (2024), accident and emergency (A&E) attendances are twice as high, emergency admissions are 68% higher, patient numbers are higher, and patients spend longer in critical care.

Common causes of preventable harm among patients include hospital-acquired infections, poor clinical monitoring, misdiagnosis, delay in treatment, injuries caused by improper utilisation of medical equipment, and medication errors (WHO, 2009b, NHS England, 2020, and 2022a). Preventing harm is vital to all healthcare staff, but nurses play a key role in patient safety and report most AEs due to their proximity and interaction with patients (Johnstone and Kanitsaki, 2005). Critical sources of preventable patient harm could include the actions of healthcare professionals (errors of omission or commission), healthcare system failures, or a combination of errors made by individuals, system failures, and patient characteristics (Brennan *et al.*, 2004; Chang *et al.*, 2005). A systematic review by Giles *et al.* (2015) concurs, as they found that organisational factors (staff workload, education and training, leadership, and patient characteristics (personality, multimorbidity) contributed to patient harm. In relation



to these factors, adequate staffing levels are therefore integral to providing safe care to patients. Nevertheless, there is a national shortage of RNs, as currently there are approximately 46,628 vacancies in the UK (NHS England, 2023b). Therefore, recruiting and retaining nurses is a significant concern for healthcare providers and patients. The impact of inadequate staffing levels on patient-related and healthcare staff-related outcomes is well-documented in the literature and discussed in section 1.3.

The increasing rise of AEs reported by NHS staff may suggest the development of a more open and transparent reporting culture that provides opportunities to learn from errors (Elmonstri *et al.*, 2017; Sammer *et al.*, 2010). Yet, causative factors are consistently attributed to most types of harm, including insufficient education, knowledge and skills, and inadequate organisational culture (Sandelowski, 2018). However, most patient harm can be traced to failures in communication (Giles *et al.*, 2015; Greenberg *et al.*, 2007; Guttman *et al.*, 2021; Kripalani *et al.*, 2007), accounting for 70% of AEs (Guttman *et al.*, 2021). In acute hospital settings, speaking up about AEs has been identified as a positive precursor to patient safety outcomes (Robbins and McAlearney, 2016; Schwappach and Richard, 2018). Speaking up is an important communication strategy to prevent patient harm (Schwappach and Niederhauser 2019), and is defined as the:

*'Assertive communication in clinical situations that require (immediate) action through questions or statements of opinion or information with appropriate persistence until there is a clear resolution to prevent error or harm from reaching the patient' (Schwappach and Gehring, 2014, p2).*

This is fundamental to safe health care; however, not all AEs and resultant harms are reported as nurses choose to remain silent by actively not voicing their concerns or raising questions that may be useful in each situation (Okuyama *et al.*, 2014). Speaking up and silent behaviours when reporting AEs is a well-recognised phenomenon in nursing (Schwappach and Richard, 2018; Soydemir *et al.*, 2017). Indeed, Schwappach and Niederhauser's (2019) cross-sectional study found that nurses experience greater difficulty speaking up than other healthcare professionals. Several factors contribute to these behaviours, which are discussed further in Chapter 2 (s2.1).

Communication failures include withholding concerns, questions, or information when patient safety is jeopardised (Guttman *et al.*, 2021) or when critical and essential information has not been transmitted to healthcare teams and patients at the right time (Sandelowski, 2018). These causes can often be found in the hierarchies and cultures of organisations and systems (Francis 2013). Indeed, in several high-profile cases across the UK, communication breakdowns across the systems, organisation, and clinical levels were undoubtedly a significant contributor that led to severe failings in the quality and safety of care provided. Below is a snapshot of these that have occurred within different healthcare professional groups.

- **Bristol Royal Infirmary Inquiry (2001):** High mortality of babies after cardiac surgery through substandard care and lack of monitoring of the doctor's poor performance when undertaking surgery.
- **The Victoria Climbié Inquiry (Laming, 2003): Local Safeguarding Children's Board Harringay, (2009):** A gross failure of the system to safeguard vulnerable children resulting in the fatal death of a child.
- **Winterbourne View Hospital Scandal (2011):** Exposed by BBC Panorama in 2011. Failure to safeguard vulnerable adults resulted in neglect and severe abuse of patients with learning disabilities and autism. The final health review was published by the DH (2012).
- **The Report of the Mid-Staffordshire NHS Public Inquiry** (Francis, 2013): The tragedy of Mid-Staffordshire Hospital, where substandard care (between 2005 and 2009) led to high mortality rates from unavoidable causes and patients suffering from unnecessary embarrassment and harm.
- **Ockenden Report** (Ockenden, 2022): A gross failure of the maternity services at Shrewsbury and Telford NHS Hospital (between 2000 and 2019) to safeguard mothers and their babies, resulting in high mortality or severe health complications.

The Mid-Staffordshire NHS Foundation Trust (MSFT) tragedy is the most notorious lapse in care in the UK NHS, as detailed and catalogued for posterity within the Francis Inquiry (2013). This report is now considered a permanent part of the history of the NHS in England (Berwick, 2013, p7) that showed the suffering of many patients. It was estimated that 400 to 1,200 patients died due to severe failures by a provider Trust Board (Francis, 2013). These failures were contributory to financial pressure, staff shortages, and a negative organisational culture related to managerial and leadership responsibilities. The organisation did not listen sufficiently to its patients and staff, and they did not address the insidious negative culture that resulted in acceptance of substandard practices (Francis, 2013). The 290 recommendations were intended to change the culture of the NHS to avoid future catastrophic systematic failures across UK hospitals. Nevertheless, healthcare organisations across the UK should deliver the desired quality and safety improvements. The report findings and recommendations pressured healthcare organisations to cultivate a positive safety culture if they were to achieve the desired outcomes to safeguard the safety of patient care (Francis, 2013).

The following section will introduce the evolution and conceptualisation of safety culture, providing a brief overview of safety culture and climate. A comprehensive exploration and further critique of the safety culture and climate literature is discussed in Chapter 2, which includes the associated dimensions and how safety culture and climate are measured.

#### **1.2.4 Safety Culture in Healthcare**

Safety culture was introduced to the literature at the beginning of the 20<sup>th</sup> century. Initially, little attention was given to this term until the catastrophic Chernobyl Nuclear Disaster in 1986, when it appeared in the International Nuclear Safety Advisory Group (INSAG) post-accident summary report (International Atomic Energy Agency (IAEA) 1986, p9). The report stressed that the safety culture reflected the consequences of organisational and human factors on safety performance and later concluded that a poor safety culture that resulted in a *'range of human errors and violations of operating rules'* (IAEA, 1986, p9) caused the disaster. It was

not until five years later that the IAEA (1991, p1) carefully composed a definition that related to personal attitudes, habits, thoughts, and the style of the organisation and offered the following description of safety culture in connection with nuclear plant safety:

*'Safety culture is that assembly of characteristics and attitudes in organisations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance'.*

Other safety-critical industries, such as aviation, energy, nuclear power, and railways, adopted safety as an essential standard that changed the culture within their industries. Safety culture encompasses what is valued, beliefs about how things work, and behavioural norms for how work is carried out (Vogus and Sutcliffe, 2007). The most used and widely influential definition in the literature (Sammer *et al.*, 2010; Feng *et al.*, 2008; Willmott and Mould, 2018) is by the UK Health and Safety Commission (HSC, 1993, p23), who defined it as:

*'An organisation's safety culture is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style of proficiency of, an organisation's health and safety management'.*

This definition will be adopted as the operational definition in this thesis as it outlines what an organisational safety culture should include. This was derived from the Advisory Committee on the Safety of Nuclear Installations and the Health and Safety Commission of Great Britain (ACSNI-HSC) and emulated within organisations in safety-critical industries, including healthcare. Furthermore, it is personified by the shared values, attitudes, behavioural norms, and procedures that individuals, units, or teams hold within an organisation (Feng *et al.*, 2008; Weaver *et al.*, 2013).

In contemporary healthcare, efforts have been made to shift the healthcare system's focus to quality and safety, where errors (safety) are recognised as a breakdown in processes (quality) and reported to a central database. The errors are investigated to find the steps in every related process to decide where different decisions or actions could have prevented the error (Sutcliffe, 2011). Undeniably, safety culture is often referred to as a leading indicator (Choudhry *et al.*, 2007; Xu *et al.*, 2021) or a distal antecedent of safety (Beus *et al.*, 2016),

where safety culture has an indirect effect on accidents/injuries via safety-related behaviours (Zohar, 2003). Safety culture is considered strong when positive attitudes and beliefs are shared, where mistakes are recognised, reported, and learnt from (Tear and Reader, 2023). Conversely, fragmented negative attitudes and beliefs about patient safety, punitive responses to errors and failure to report them, and increased susceptibility to accidents show a weak safety culture (Clarke, 2000; Guldenmund, 2000; Singer *et al.*, 2009). The apparent differences between a positive and negative safety culture might seem straightforward but promoting a positive safety culture is challenging for healthcare organisations.

Several definitions of safety culture reflect this term's lack of a universal definition. The difficulties of defining and operationalising safety culture are related to the multifaceted dimensions. These include teamwork, leadership, communication, learning, and blame-free culture (Sammer *et al.*, 2010; Vincent, 2010), reflected in the norms, values, and practices that promote or inhibit a positive safety culture (Bisbey *et al.*, 2021). Equally, healthcare systems and delivery are overly complex because of the inconsistent interaction between diverse and dynamic factors. These include a variety of healthcare services, disparities in the health status of patients, specific competencies, and professional roles (both clinical and managerial), as well as the wide-ranging processes and goals to be achieved (Bagnasco *et al.*, 2011). Because of the complex social processes within healthcare, the beliefs, attitudes, and values that motivate safety culture behaviours can vary from hospital to hospital, ward to ward, unit to unit, and individual to individual. Consequently, different subcultures will emerge around various groups, roles, and organisational management structures, with few commonly shared values, beliefs, and attitudes the whole organisation shares. Finally, measuring the safety climate of individuals working within the healthcare organisation is essential to assessing the organisation's safety status and culture. However, this can be confusing due to the ongoing debate of what safety climate is and is not (Chapter 2 discusses the safety culture/climate measuring tools).

### 1.2.5 Safety Culture versus Safety Climate

Safety climate is often considered a more malleable unit or group attribute (Palmieri *et al.*, 2010), forming shared perceptions, attitudes, and beliefs about risk and safety (Mearns and Flin, 1999). Over time, this has been expanded to become a set of perceived or shared perceptions or attitudes among groups about the norms, policies, and procedures related to patient safety (Zohar and Luria, 2010). Within empirical studies, global reports and national policy documents, the term 'safety climate' is often used interchangeably with 'safety culture' when referring to organisational culture, which reflects a lack of agreement about these terms. The confusion between the terminology is not surprising as they share overlapping methodologies (e.g., safety attitude surveys).

At the start of the patient safety movement, Mearns and Flin (1999) argued that the concepts are distinct but related, which may be reflected in the shared ways of thinking and behaviours of staff that work to meet the primary aim of patient safety (Cooper, 2000; Guldenmund, 2000; Mustard, 2002). Other authors (e.g., Zohar *et al.* 2007; Zohar and Hoffman, 2012) agree that the two concepts are interlinked whereas as several authors debate the differences. For example, Flin *et al.* (2006) and Zohar (2010) described safety culture as a surface component of employees' perceptions of the underlying safety culture (e.g., management behaviours, safety systems). Subsequently, the safety climate is temporary and subject to change depending on situational and environmental factors. Therefore, some argue that it only signifies safety during a specific period (Clarke, 2010; Halligan and Zecevic, 2011). However, Wiegmann *et al.* (2004) argued that safety culture constitutes more enduring characteristics that reflect fundamental values, standards, assumptions, and expectations in a societal culture built and sustained over time. Similarly, Yule (2003) claimed that the definitions of safety and safety culture share similar aspects, with the main difference being that safety culture is characterised by '*shared underlying beliefs, values, and attitudes towards work and the organisation in general*' (Yule, 2003, p3). In contrast, safety climate is more related to the 'day-

*to-day perceptions towards the working environment, working practices, organisational policies, and management'* (Yule 2003, p.3).

There are many definitions of safety culture and safety climate within and outside of healthcare (Churruca *et al.*, 2021). Cooper (2016, p4) summarises the situation as a '*definitional swamp*', highlighting 51 definitions of safety culture and 30 definitions of safety climate. Despite 30 years of work, no universal agreement exists on defining these concepts (Cooper, 2016). While having limitations, both approaches to defining safety culture and climate have contributed to the discourse of understanding of these concepts and their applicability to safe healthcare practice. Nowadays, it is acknowledged that an appreciation for climate and culture is needed to '*see the whole elephant*' (Schneider *et al.*, 2017, p470) when examining organisations. It is therefore necessary to go beyond identifying the environment to construct the path of cultural change, establish a positive patient safety climate, and understand what factors contribute to a negative safety culture.

It is acknowledged that there are differences between the two concepts, and in this thesis, the operational definition of safety climate will be defined as the:

*'Surface features of the safety culture from attitudes and perceptions of individuals at a given point in time and thus a measurable component of safety culture'* (Halligan and Zecevic, 2011, p.340).

This was chosen as it is a simple definition that reflects the aim and objectives of this study. The RNs perceptions of safety climate will be measured at four timepoints which will provide their shared perceptions of safety culture within their workplace and organisation.

### **1.3 The Nurse's Role in Patient Safety**

Institutionalising safety is the shared responsibility of all healthcare providers in the healthcare system. Nevertheless, nurses have a significant role in improving patient safety culture. When facing the challenges of healthcare systems, nurses are well positioned to protect the safety of patients or harm them with unsafe practices (Farokhzadian *et al.*, 2018). A key factor is that nurses are the most significant workforce, with 584,365 employed in the UK (WHO, 2021b),

in comparison with other healthcare professionals such as medical doctors (213,357), physiotherapists (31,760), and midwives (32,384) (WHO, 2021b). For nursing, recent data reported by the NMC (2023a) indicated that the number of RNs (adult, children's, mental health and learning disability) on the permanent register grew from 704,507 in March 2022 to 731,058 in March 2023. However, according to the NHS England (2023), only 218,868 are employed as adult nurses in the NHS Acute setting. Another key factor is that nurses are fundamental to preventing errors as they are the most trusted profession in the UK (Ipsos, 2022), and they are portrayed as the best-informed healthcare profession (Fei and Vlasses, 2012). Earlier research by Callahan and Ruchlin (2003) and Thompson *et al.* (2005) also value the role of the nursing profession as they concluded that assessing, creating, and maintaining a safety culture should be an essential role of nurses. However, this is not new for nurses as they have a professional, legal, and moral duty when providing direct patient care and keeping patients safe (NMC, 2018).

### **1.3.1 Registered Nurses Duty of Care**

The nursing profession is centred on a commitment to upholding the ethical and legal principles of providing a duty of care, doing no harm, continually safeguarding patients, and acting professionally (NMC, 2018). As regulated healthcare professionals with the NMC, nurses should prioritise the interests of people needing nursing services, their care, and their safety (NMC 2018, p6) so that patient safety is not affected. Moreover, the fundamental underpinning principles of safe nursing care are for nurses to exercise their professional duty of candour to be open and transparent when mistakes occur, to raise concerns, and to learn from errors. In addition, nurses are contractually obliged to adhere to organisational policies and procedures for monitoring and preventing harm or risk through assessing, planning, and monitoring patient care.

Communication, teamwork, and leadership are the essential components of a safety culture and are instrumental to safe nursing care (Farohkzadian *et al.*, 2018). Hence, nurses are key players in patient safety, and quality and safety are core values of nursing care. Nurses work



affects measurable core patient safety outcomes (Kirwan *et al.*, 2013) by preventing multiple AEs from medication errors, pressure ulcers, lack of information, falls, and nosocomial infections. It would therefore be assumed that no patients should ever be harmed while receiving care in the hospital. Nevertheless, the clinical setting is naturally unpredictable, with the ultimate focus on where patient safety occurs, where nurse-patient interactions occur, where safety failures emerge, and where patients are harmed (Brasaitte *et al.*, 2015). There has been a growing interest in safe nursing care in the past two decades, particularly when fundamental and essential nurse care is missed, delayed, or rationed, otherwise known as missed nursing care (MNC). This is often described as any aspect of required patient care that is omitted (Kalisch, 2006) and defined as care that is either '*delayed, partially completed, or not completed*' (Kalisch *et al.*, 2009, p3), '*care left undone*', '*unmet nursing care*', or '*rationing care*' (Chaboyer, 2021, p82). The following section will explore MNC and its relationship to the RN's role in preventing harm.

### **1.3.2 Missed Nursing Care**

As nursing is centred around a holistic approach, nurses battle against their moral, ethical, and professional duty to care against the external pressures that negatively affect their responsibility to care. The current literature on MNC provides growing evidence of the pervasive nature of the problem and a plausible indicator of poor nursing care. More importantly, MNC poses a threat to patient safety (Griffiths *et al.*, 2018; Griffiths, Dall'Ora, *et al.*, 2014) as it has significant patient safety implications and correlates with a weak safety climate reported by nurses (Ball *et al.*, 2014; Labrague, 2022).

Missed nursing care and its association with a wide range of undesirable adverse patient outcomes are well documented in the empirical studies (e.g., Kalisch and Xie, 2014; Lucero *et al.*, 2010; Recio Saucedo *et al.*, 2018; Schubert *et al.*, 2008, 2013). Some of these include failure to rescue (Carlesi *et al.*, 2017), increase in falls, healthcare-related infections, readmission and hospitalisation, higher post-operative complications (Ball *et al.*, 2018;

Mynaříková *et al.*, 2020), and mortality (Ball *et al.*, 2018; Wieczorek-Wojcik *et al.*, 2020). A systematic review of 14 studies found that drug administration errors, nosocomial infections, patient falls, and decubitus ulcers were caused by MNC (Recio-Saucedo *et al.*, 2018). Enquiries into potentially avoidable hospital deaths prove how nursing staff omissions can lead to serious adverse outcomes. Sadly, these omissions are fundamental aspects of safe patient care, and preventable deaths are attributed to factors such as failing to measure and monitor patients' vital signs, recognising early signs of deterioration, and communicating abnormal observations (Dagmar *et al.*, 2007; Hogan *et al.*, 2012).

### **1.3.3 Prevalence of Missed Nursing Care**

Worldwide estimates of MNC ranged from 55% to 98%, with higher incidence seen in acute care facilities and resource-scarce healthcare institutions (Jones *et al.*, 2015, 2020). Ball *et al.* (2014) conducted a cross-sectional survey in an acute hospital. Using a list of 13 nursing care activities, they concluded that 86% (2,508) from a sample of 2,917 RNs reported that in their last shift, they had omitted at least one of the care activities (see Table 1.6) that was believed to have been done. Griffiths *et al.* (2014) reported similar findings in a pan-European study involving 488 hospitals across 12 European countries. For the UK, 46 hospitals were included, and from a sample of 2,918 RNs, they found a high prevalence of care left undone, reported by 75% (2,188) of nurses. Two systematic reviews (Griffiths *et al.*, 2018; Mandal *et al.*, 2020), a literature review (Jones *et al.*, 2015), and two narrative studies (Kalánková *et al.*, 2020; Vincelette *et al.*, 2019) have all found that more types of care are not being provided. These include essential nursing care, psychosocial care, care planning, and patient education. In addition to Ball *et al.*'s (2014) activities (Table 1.6), recent studies report additional care activities that include recording and monitoring fluid intake and output, mobilisation of patients, personal hygiene (bathing), and symptom management (Jones *et al.*, 2015; Kalánková *et al.*, 2019; Mandal *et al.*, 2020; Vincelette *et al.*, 2019). The administration of medications, response to pain, and procedures were examples of activities that were least missed by nurses (Mandal *et al.*, 2020).

**Table 1.6 Core Nursing Care Activities**

MISSED NURSING CARE ACTIVITIES	
Adequate patient surveillance	Oral hygiene
Adequate documentation of nursing care	Pain management
Administration of medicine on time	Planning care
Comfort talks with patients	Preparing patients for discharge
Develop or update nursing care plans	Skincare
Education patients and their family	Undertaking treatments/procedures
Frequent changing of the patient's position	

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Source: Ball *et al.*, (2014, p122)

Prioritisation and completion of care include factors such as time or lack of time needed to complete a care task and the immediate impact that delaying or missing care might have on patients (Kalisch, 2006). External factors, such as lack of resources, teamwork, and communication, were contributory factors. However, the two commonly reported factors nurses reported were inadequate staffing and the negative workplace environment. Nurses also cited inadequacy of material resources and communication tensions with healthcare team members as significant reasons for delaying nursing care (Kalisch *et al.*, 2009; Palese *et al.*, 2015).

### **1.3.4 Association of Missed Nursing Care and Staffing Resources**

The relationship between low staffing levels and MNC stood out as the single and most powerful indicator of MNC (Ausserhofer *et al.*, 2014; Ball *et al.*, 2014; Ball *et al.*, 2016; Griffiths *et al.*, 2018; Kalisch *et al.*, 2011; Lake *et al.*, 2020; Mandal *et al.*, 2020). International studies have strongly associated staffing status with higher incidents and frequency of omitted nursing care (Labrague, 2022; Lake *et al.*, 2020; Park *et al.*, 2018). In the UK, RNs working in NHS hospitals report that care is needed but is often not done because of insufficient time and increased workload related to low staffing levels (Ball *et al.*, 2014; VanFosson *et al.*, 2016). Conversely, it has been reported that nurses are less likely to miss essential care when they

have sufficient staff resources to meet patient care needs. Griffiths *et al.* (2014) found that UK nurses caring for six or fewer patients decreased the likelihood of missing nursing care compared to nurses caring for 11 or more patients. The findings from the literature provide compelling evidence that nurse staffing levels are an essential precursor of MNC and increased patient harm. Contemporary healthcare research has focused on both nursing workload and patient safety, where it has been shown that adequate staffing improves patient safety, while a high workload (due to low staffing) increases the risk to patient safety (Aiken *et al.*, 2014; Chiang *et al.*, 2017). Staffing inadequacy has been attributed to reduced rates of rescue failure (Carlesi *et al.*, 2017) and increased length of hospitalisation (Labelle *et al.*, 2019).

Missed nursing care also increases the probability of poor patient outcomes, such as a higher risk of dying in the hospital and has been shown to correlate with low staffing levels. Ball *et al.* (2018) conducted a large retrospective study to examine the association between nurse staffing level, missed care, and 30-day inpatient mortality. They collected data from 422,730 hospital records and surveyed 26,516 RNs across 300 general hospitals in nine countries. The findings discovered a correlation between low staffing levels, MNC, and increased mortality rates (following standard surgical procedures). It was reported that an increase in a nurse's workload by one patient resulted in a 10% increase in MNC, which increased the chances of a patient dying within 30 days of admission (Ball *et al.*, 2018a). The analysis supported a potential explanation for the frequently observed association between nurse staffing and mortality.

### **1.3.5 Association of Missed Nursing Care and the Working Environment**

Reis *et al.* (2018) suggested that a work environment with a positive patient safety culture fosters nurses' safety behaviours, leading to favourable patient care outcomes (as identified in Table 1.6). Consequently, the crucial role of nurses in the practice environment should be to provide optimally positive patient outcomes. Lake *et al.* (2020) and Zhao *et al.* (2020) found

that when nurses are encouraged and engaged with safety behaviours, they are more fully motivated and committed to their work, they proactively engage in patient care, and subsequently, they are less likely to miss nursing care. There was also a correlation between a positive working environment, sufficient staffing levels, effective leadership, and effective teamwork and a lesser occurrence in MNC (Zhao *et al.*, 2019; Kim *et al.*, 2018). A reduction in medication errors (Valentin, 2013), lower mortality rates, fewer patient falls, fewer complications, and healthcare-related infections (Al Sabei *et al.*, 2020; Falguera *et al.*, 2021; Lee and Scott, 2018) has been associated with a positive working environment. However, the unpredictability of the practice environment can create a hostile working environment due to higher stress levels, increased patient acuity, and inadequate resources to meet the demands, leading to failures in patient safety and subsequent harm (Brasaite *et al.*, 2015).

Several studies have regularly cited that nurses working in a less favourable working environment are a significant precursor of AEs and MNC (Lake *et al.*, 2020; Mandal *et al.*, 2020; Zhao *et al.*, 2020; Stalpers *et al.*, 2015). A sizeable descriptive correlation study by Park *et al.* (2018) examined the association between the practice environment and MNC, which included a sample of 31,650 RNs from 1,538 units in 371 hospitals. The findings revealed that 84% (25,586) of nurses reported missing at least one (out of 15) necessary care activities. For those working in a positive environment (based on scores >75th percentile of the mean distribution for the whole Practice Environment Scale of the Nursing Work Index (PES-NWI) scale, which was greater than 3.077 of the mean PES-NWI composite score), 63% (19,939) of nurses were less likely to MNC compared to 81% (26,636) of nurses who were more likely to MNC when working in a poor environment (<25th percentile, less than 2.744).

Nurse staffing levels and the working environment were key factors that positively or negatively affected patient care. Sufficient staff resources promote a positive working environment and safety culture, where nurses are less inclined to miss nursing care, leads to positive patient outcomes. Conversely, adverse patient outcomes are attributed to MNC

created by insufficient staff resources and a negative working environment, thus creating a negative safety culture. Nevertheless, the adverse effects for nurses include lower job satisfaction, emotional exhaustion, burnout, and high nurse turnover (Chiang *et al.*, 2017), with higher rates of anxiety and stress (Carlesi *et al.*, 2017; Delgado *et al.*, 2017). Nursing is proclaimed to be a holistic discipline where nurses want to care for patients and do no harm. However, given the ethos of nursing, it is not surprising that nurses report poor job satisfaction, absenteeism, and even an intention to leave their jobs when they feel that their workplace is removing their ability to care, forcing them to miss nursing care. These factors are amenable to organisational interventions, and therefore efforts to reduce MNC should address these them.

#### **1.4 Patient Involvement in Patient Safety**

Internationally, there has been increasing demand for greater patient and public involvement since the publication of '*To Err is Human*' (IOM, 2000). In the UK, steps were taken to ensure patients were more specifically involved in safety as the DH (2001) explicitly highlighted the need to examine a clear role for patients in helping to promote and reach safety goals. Historically, patients have been considered '*the victims of errors and safety failures*' (Vincent and Coulter, 2002, p76). In their seminal paper '*Patient Safety: What about the Patient?*' Vincent and Coulter's (2002) meaning were simple and compelling, stating that patient safety can be improved through the greater involvement of the patient and their families. As patients are the only ones to see their care journey, they are more attentive to finding adverse incidents as or before they happen (Vincent and Coulter, 2002). Furthermore, patients can provide new perspectives from those of healthcare professionals, and by developing an active patient role, patients can help to ensure that care is effective, appropriate, and safe (Vincent and Coulter, 2002).

Whilst it seems reasonable to speculate that involving patients may prevent AEs and harm (Longtin *et al.*, 2010), few studies have fully addressed the evidence for involving patients in

patient safety (McDonald *et al.*, 2013), and straightforward evidence for patient involvement is lacking. Watcher (2010) highlights the lack of research as a troubling gap when assessing patients' achievements in promoting patient safety. Even more concerning is the dearth of evidence on how best to involve patients and whether patient involvement improves patient safety (Berwick, 2013; Lawton *et al.*, 2017). However, the evidence supports that patients have a role in promoting patient safety, which are discussed in the following section.

#### **1.4.1 The Patient's Role and Engagement in Patient Safety**

The possibility that patients might contribute to their and others' safety was noted early in the patient safety movement (IOM, 2000; DH, 2001; Entwistle *et al.*, 2010; Vincent and Coulter, 2002). Since then, a growing body of evidence has discussed what patients might be involved in and how to engage them in patient safety. For the former, it has been shown that patients can play a significant role in various aspects of their care. These include helping to reach an accurate diagnosis; choosing the right treatment; choosing healthcare providers; the decision-making process on health issues; active participation in the planning, monitoring, and evaluation of care; detecting AEs; acting to prevent harm, speaking up, and error reporting (Sahlström *et al.*, 2019; Sarkhosh *et al.*, 2022; Vincent and Coulter, 2002). For the latter, earlier studies have focused on improving patient engagement around healthcare workers' hand-hygiene practices.

Various interventions encouraged patients to ask healthcare workers if they had washed their hands. These included posters (Davis *et al.*, 2013; Stone *et al.*, 2007), the Pink Patient Safety video (Davis *et al.*, 2012a; Stone *et al.*, 2007), education models and other patient-directed visual aids (McGuckin *et al.*, 2001). Two studies (Stone *et al.*, 2007; McGuckin *et al.*, 2001) reported increased handwashing practices. Later studies by Davis *et al.* (2012b, 2013) concluded that patients were comfortable about asking about handwashing and would notify healthcare providers about medication errors. Other studies have proven how patients can influence patient safety, such as preventing pressure ulcers (Chaboyer *et al.*, 2016), patient falls (Dykes *et al.*, 2017), and surgical-site infections (Tartari *et al.*, 2017).

The political and societal drivers and the wider body of literature accept that patients have a role in patient safety and error prevention. It has also been inferred that patients are highly motivated to reduce risk and improve outcomes (Holme, 2009; Lyons, 2007) and are willing to engage in safety behaviours (Davis *et al.*, 2012b, 2013; Wright *et al.*, 2016). Equally, the viewpoints from patients support the evidence as they shared positive attitudes about engaging in their safety and supporting general educational campaigns (Schwappach, 2010; Schwappach *et al.*, 2013a). Moreover, findings from an exploratory quantitative survey report positive attitudes of patients who have been involved in medication safety (Mohsin-Shaikh *et al.*, 2014). Further evidence supports the patient's role and their ability to report on safety events in the hospital (Ward and Armitage, 2012), and patient views positively correlate with improved patient safety outcomes (Lawton *et al.*, 2015). Despite the increasing popularity of involving patients and the contribution they could make, there are however, barriers that hinder patient involvement.

#### **1.4.2 Barriers to Patient Involvement in Patient Safety**

While patients express a willingness to play an active role in error prevention, paradoxically, there is a disparity between willingness and subsequent engagement and whether they are encouraged to participate (Davis *et al.*, 2011; Schwappach, 2010). Some patients, feeling that it is not their responsibility, choose to trust and cooperate with healthcare professionals, preferring to adopt a passive role (McMurray *et al.*, 2011; Rathert *et al.*, 2012). Other reasons included those patients who felt unfamiliar, uncomfortable, or shy with these situations (Longtin *et al.*, 2010; Pittet *et al.*, 2011), had low health literacy related to their medical condition, or had limited skills related to safety issues (Martin *et al.*, 2013; Sarkhosh *et al.*, 2022; Walters and Duthie, 2017).

Several studies have explored the extent to which patients and professionals feel comfortable involving them in safety. However, concerns have been raised about the negative impact on the healthcare professional–patient relationship (Martin *et al.*, 2013; Schwappach *et al.*, 2013b). Waterman *et al.* (2006) conducted a telephone survey involving 2,087 patients and



found that 91% (1,899) believed they could prevent medical errors, and 98% (2,045) considered hospitals should educate patients about error prevention (Waterman *et al.*, 2006). Of the 2,087 patients, 84% (1,753) felt comfortable asking a nurse to verify patient identity. However, contrary to the positive findings of the evaluative studies relating to handwashing (e.g., Davis *et al.*, 2012a, 2012b, 2013, McGuckin *et al.*, 2004; Stone *et al.*, 2007; Waterman *et al.*, 2006), Waterman *et al.*'s (2006) concluded that patients were uncomfortable asking healthcare workers about whether they had washed their hands. This may be attributed to the patient's concerns that it could offend healthcare professionals or a lack of awareness that handwashing can reduce hospital-acquired infections. On the other hand, patients dislike actions that check, challenge, or criticise professional integrity and subsequently avoid involvement in patient safety. Furthermore, patients do not want to be seen as problematic and fear that they may be portrayed as 'bad' patients, thus compromising the quality of their care (Entwistle *et al.*, 2010; Hrisos and Thomson, 2013). Interestingly, even healthcare professionals in the patient role demonstrated a similar reluctance to engage in safety behaviours, as doctors reported their reluctance to ask challenging questions of other doctors or let them know of problems in their care (Schwappach *et al.*, 2013b).

Healthcare professionals' attitudes and support can significantly enhance patients' confidence. The ability and willingness to be involved in safety are affected not only by aspects of the patient-professional relationship but also by how healthcare staff relate to patients and the predicted response from staff to patient involvement in patient safety. The evidence suggests that patients are more likely to be involved if healthcare professionals are responsive, interested, and approachable; if they take time to listen; offer clear, simple, open, and honest interactions; establish positive communication; and form human connections with patients (Bishop and Macdonald, 2017; Entwistle *et al.*, 2010; Hovey *et al.*, 2010). However, there is a degree of resistance from healthcare professionals (Ocloo and Matthews, 2016) as safety was not a topic of attention during communication between patients and HCPs (Martin *et al.*, 2013). Hindrance in patient participation has also been linked to HCP attitudes where

they feel they know what is right for patients. These attitudes are characterised by power and control, manifested in dominant or secretive behaviours where the HCP takes over or excludes the patient in the decision-making process about their care (Larsson *et al.*, 2011). One explanation could be attributed to the limited human resources, as nurses are under time pressures, which limits their ability to engage with and include patients in patient safety (Schwappach *et al.*, 2013b).

Negative attitudes generate fear in patients as they avoid asking questions when healthcare professionals are too busy, overburdened, or in case they might cause offence (Bishop and Macdonald, 2017). This continues to be problematic, as findings from a recent qualitative study revealed that 28 out of 31 nurses reported that they had less time for patients due to staff shortages, and subsequently this acted as a barrier to patient involvement in patient safety (Sarkhosh *et al.*, 2022). Another factor is the existence of professional defensiveness (Howe, 2006), caused by fear from HCPs about the potential negative impact of detailed, open discussion and inquiry into patient safety (Howe, 2006; Vincent, 2010). Therefore, involving patients requires strategies to ensure that professionals have positive attitudes, are supportive, and ask for feedback. It is also essential to have the infrastructure to act on patients' comments to encourage them to participate. The Berwick Report (2013, p4) clearly states that healthcare staff should *'engage, empower, and always hear patients and carers'* and that they should be *'present, powerful, and involved in all levels of healthcare organisations from wards to the board of trusts'*. In short, greater patient involvement may require changing the healthcare culture so that patients and professionals work as partners in a joint team, which is an essential priority for the NHS. Despite the supportive policy drivers (e.g., Berwick, 2013; DH, 2001; IOM, 2000; WHO, 2009), the progress of patient involvement continues to be patchy and slow (O'Hara *et al.*, 2016).

The NHS National Patient Safety Strategy (NPSS) (NHS England, 2019) sets out ambitious objectives to increase patient involvement through creating patient safety partners (PSPs) by

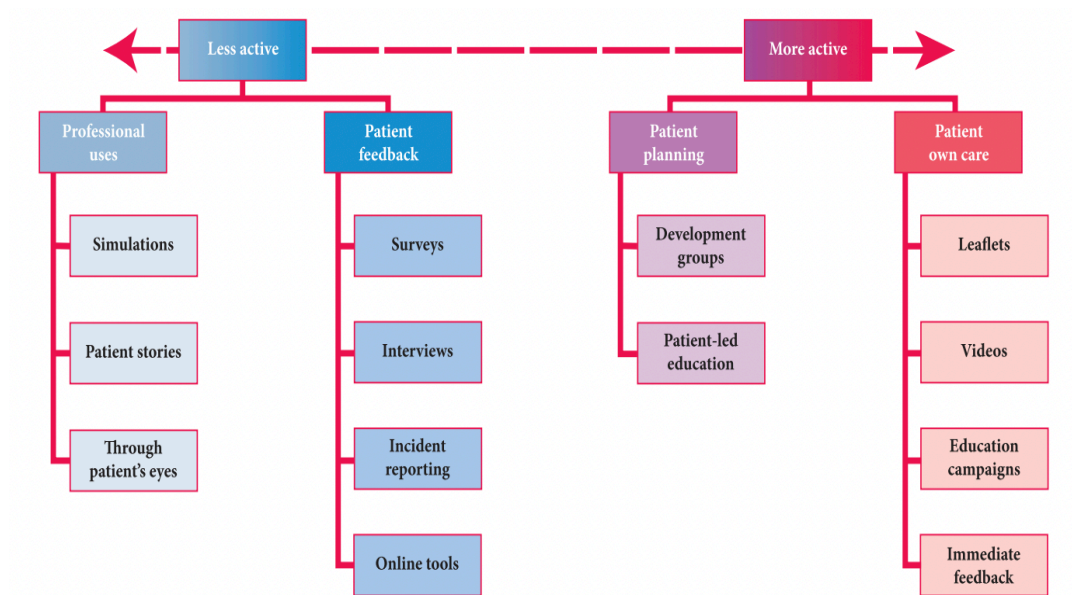
2022. A PSP refers to the role that patients, carers, families, and other laypeople can play in an NHS organisation's patient safety strategy (NHS England, 2019). However, the caveat is that these roles require support from senior leaders in the organisation. Furthermore, the NPSS aims to ensure that patients and NHS staff have the skills and opportunities to improve patient safety through the National Patient Safety Syllabus (NHS England, 2019). The NHS National Patient Safety Syllabus (NHS England, 2023a) is available electronically via the Electronic Learning for Health website for healthcare professionals. However, it is unclear if this is accessible for patients, carers, and laypeople, and there are no further reports or evaluation studies that measure the uptake of these roles and the training. Richards *et al.* (2023) stressed the importance of potential risks or challenges to patients as patient involvement and engagement evolve. From their experiences of implementing patient partners in Canada, they reported four primary areas of patient engagement where it went wrong. These included tokenism, unconscious bias, a lack of support for patients and not recognising the vulnerability of patient partners (Richards *et al.*, 2023). According to the evidence provided, NHS organisations will continue to fail to engage patients if they do not learn about these problems and find ways to fix or avoid them. This is necessary for patient involvement and engagement to move forward.

#### **1.4.3 How Patients are Involved in Patient Safety?**

Patients have been involved in patient safety as illustrated in Figure 1.3. These approaches exist along a continuum, ranging from having a less active role to a more active role (Health Foundation, 2013). At the active end of the spectrum, the focus is on engaging patients proactively to take responsibility for their well-being. It could be argued that this level of patient involvement is an inadequate representation of the roles previously discussed by Vincent and Coulter (2002). At the passive end, managers and health professionals have used patient feedback to help guide improvement initiatives. This may include using written or videoed patient stories in team or board meetings, activities to help professionals see through patients' eyes, or role-play or simulations with patients. The Health Foundation (2013) found little

comparative evidence to suggest whether some of these strategies are more effective than others for improving patient care. A less active way for patient involvement in patient safety improvements is the use of patient stories (Health Foundation, 2013). Using patient stories is an emerging strategy, however, it continues to be an under-researched area of interest relating to the impact and how they are used (e.g., face-to-face, written, or digital) in healthcare.

**Figure 1.3 Continuum of Strategies for Patient Involvement in Safety**



Source: The Health Foundation (2013)

#### 1.4.4 The Value of Using Patient Stories

The current incident reporting systems within healthcare organisations mean that patient safety incidents are reviewed from the healthcare professionals' narrative account instead of the patients. As such, the reporter's narrative is written in a factual, concise, and structured manner and rarely captures the feelings and emotions that convey potentially damaging events for patients (Madden *et al.*, 2022). As previously mentioned, patients are uniquely positioned to observe their care processes, thus enabling them to actively and consistently collect observations of their experience that health professionals may miss (e.g., breakdowns in the continuity of care, medication incidents, and poor communication) (Madden *et al.*, 2022). Subsequently, they can provide detailed descriptions that offer a powerful source of data relating to safety paucities they may experience, which can be captured by using patient stories.

The concept of patient stories emerged from patients and carers sharing their knowledge of their healthcare experience (Costello and Horne, 2001; Wood and Wilson-Barnett, 1999). Story and narrative are often used interchangeably as synonyms, but Haigh and Hardy (2011, p407) clearly define them separately, as they stated that:

*'A narrative is predominately factual, whereas stories are reflective, creative and value-laden, usually revealing something important about the human condition'.*

Regardless of the words used, the purpose of using patient stories within healthcare is consistent. Both are first-hand accounts of their journey that offer a uniquely individual perspective through which people make sense of experience, convey emotions, and build a human connection (Charon, 2007). Patient stories were initially used to promote an empathic understanding of their situation (Waugh and Donaldson, 2016), and they began to gain recognition as a powerful learning tool (Greenhalgh *et al.*, 2005). In nursing, the conceptual literature relating to patient stories dominates pre-registration nurse education. The pedagogical practices regarded as a patient story includes critical incident analysis, fictional patient scenarios, and case studies from real experiences, reflective journals, and patient simulation, and therefore provide a range of learning opportunities (Moon and Fowler, 2008).

They were designed to expose nursing students to the human experience of being a patient with the intention to encourage the development of sensitive, individualised, and compassionate practice (Costello and Horne, 2001; Repper and Breeze, 2007; Wood and Wilson-Barnett, 1999), effective interpersonal reflection, and critical thinking skills (Moon and Fowler, 2008).

The use of patient stories is seen as a more inactive way to involve patients and, as such, has much to offer for health service improvement (Greenhalgh *et al.*, 2005; Conway, 2008). Previously, they have been used to improve the quality of care (Gullick and Shimadry, 2008), yet there is a scarcity of evidence that evaluates the impact of patient stories and whether these result in improved processes and increased safety outcomes. Furthermore, Conway (2008) suggests that either written or oral patient stories can motivate healthcare managers to drive change. Indeed, the extent to which patient stories may reduce errors, improve safety climate, or improve safety has not been quantified. Rose *et al.* (2015) conducted a meta-narrative review to explore the capacity of stories across five disciplines: health, education, business, organisational development, and humanities. The analysis included 83 quantitative, qualitative, theoretical, and conceptual papers, and 21 of these had a healthcare focus. They concluded that patient stories are indisputably '*powerful shapers of our perceptions*' (Rose *et al.*, 2015, p58). Nevertheless, the healthcare literature reflects limited use of patient stories to promote behaviour and culture changes (Health Foundation, 2013; Moreau *et al.*, 2018; Rose *et al.*, 2015).

It is important to note that telling the stories can come at a personal cost to the patient, as it has been associated with increased anxiety caused by revisiting a distressful event and in the long-term professionalisation of the service user role (Costello and Horne, 2001; Flanagan, 1999). Digital stories may overcome these difficulties to some extent and can be considered a contemporary take on the traditional approach to using oral or written patient stories. A digital story has been most prevalent within healthcare education, effectively promoting professional

development and learning, professional attributes (e.g., empathy and compassion), and behaviour changes.

#### **1.4.5 The Value of Using Digital Stories**

The interpretation of what a digital story is varies within the literature. Nonetheless, it is commonly defined as a story in multimedia form, presented as a video, for selective or public viewing (De Vecchi *et al.*, 2016; Fenton, 2014; Price *et al.*, 2015; Rose *et al.*, 2015). They are also described as a narrative account using a combination of digital photographs, video footage, music, and sound effects (De Castro and Levesque, 2018), voice-over narration, and text to create a compelling account of experiences in a 3–5-minute video (Lambert, 2009). Patients who actively engage in digital storytelling are empowered to convey and capture their meaningful experience and produce a story that is engaging and powerful (De Vecchi *et al.*, 2016, 2017; Gubrium *et al.*, 2014b) in ways that oral or written stories cannot (Moreau *et al.*, 2018). Indeed, in healthcare, a digital story has been described as evocative, empowering, and impactful (De Vecchi *et al.*, 2016) that conveys implicit and sometimes unappreciated practice elements (Swap *et al.*, 2001). Healthcare professionals can walk in someone else's shoes for just a few minutes, and their deep insights provoke a strong emotional resonance and feelings of empathy and compassion (Costello and Horne, 2001; Hardy, 2007; Wood and Wilson-Barnett, 1999). Hardy (2007) also reported that those who had listened to a digital story were able to nurture their empathy with others. The power of sharing stories was shown to promote collaborative learning and positive changes in their attitude and practice, transforming and improving healthcare delivery.

From 2000 to the present, researchers have written commentaries and theoretical papers explaining the intricacies of digital storytelling and digital stories using health professionals in diverse healthcare fields. These included critical-care settings (Todres *et al.*, 2000), palliative care (Turner *et al.*, 2000), breast cancer (McQueen *et al.*, 2011), mental health (De Vecchi *et al.*, 2016), oncology (Akard *et al.*, 2015; Cueva *et al.*, 2016), sexual health promotion (Guse

*et al.*, 2013), and public health (De Castro and Levesque, 2018). There is, however, a dearth of literature and studies relating to nursing and health professional education. Moreau *et al.* (2018) conducted a systematic literature review to explore the use and impact of digital storytelling in both healthcare and health professional education. They found 1486 titles and abstracts published between 2004 and 2016, of which only 153 (10%) were eligible for review. From the 153 papers, only 48 were selected for appraisal and comprised 32 (66.7%) related to digital storytelling in healthcare and 16 (33.3%) were associated with digital storytelling in health professional education. Twelve (75%) of those studies pertaining to HPE were related to undergraduate programmes (e.g., nursing, social work, community health workers), and only three (18.8%) related to post-registration education, in particular continuous professional development (CPD).

The literature varied in its purpose of using digital stories as an educational learning tool. These included the teaching of clinical skills (Levett-Jones *et al.*, 2015), concepts related to general patient support or person-patient and family-centred care (Eggenberger and Sanders, 2016; Levett-Jones *et al.*, 2015), the transition from student to working professional (Stacey and Hardy, 2011), as well as the development of professional identity (Christianson, 2011). Others include specific palliative care concepts (Price *et al.*, 2015) and care provision for those with chronic health conditions (Cueva *et al.*, 2013, 2016; Fenton, 2014). Finally, they have been used to represent patient experiences, prepare students for clinical nursing practice (Christiansen, 2011; Fenton, 2014), and build confidence to engage in patient/client interactions (Cueva *et al.*, 2013; Price *et al.*, 2015). Beyond this, digital stories are perceived to be memorable and influential, thus allowing student nurses to learn, remember, and reflect on their role concerning their lived experience (Matthews, 2014). Furthermore, it has been suggested that it encourages information processing, critical thinking, and reasoning (Shellenbarger and Robb, 2015).



A phenomenographic study by Christianson (2011) explored how a digital story told by a patient influenced student nurses professional learning. The findings revealed the extent to which nursing students learnt from the digital story varied. The students found that the multimedia aspects captured their attention compared to the written ones. However, several students favoured patients talking about their experiences in the classroom, as it was considered to strengthen their learning experience. Several nursing students reported the emotional impact or connections with the digital story, which promoted deep and critical engagement, which, for others, acted as a powerful trigger for critical reflection. Christianson (2011) concluded that the essential combination of engagement and reflection improved their ability to gain new personal insight and self-appraisal of their perspective and values, leading to a change in thinking and beliefs about practice. Other evaluative studies (e.g., Gidman, 2013; Greenhalgh and Hurwitz, 1999; Haigh and Hardy, 2011; Schwartz and Abbott, 2007; Wilson *et al.*, 2015) support the concept of reflection when using a digital story, as it allowed people to reflect on themselves and the social world in a way that leads to lasting changes in behaviour.

The use of digital stories and digital storytelling as a general education strategy is well established (Haigh and Hardy, 2011) but restricted to pre-registration nurse education. It has also been acknowledged as a valuable and rich source of evidence that promotes a positive impact on learning and encourages critical reflection (Rose and Gidman, 2010). The studies report the positive effects of learning when participants create or listen to a digital story. Some of these include improved interpersonal skills and a change in some behaviours, which can be transferable to other healthcare professionals. Interestingly, despite the increased attention to patient involvement, none of the studies have connected the impact of creating or using a digital story and its association with patient safety and safety culture.

## **1.5 Summary of Chapter**

The chapter has discussed the context and history of patient safety and safety culture from a national and international perspective. The historical background in the UK included the development of national patient safety bodies to improve patient safety. It also discussed the importance of the nurse's role, barriers preventing them from providing safe care, and how this can escalate into missed nursing care. Patient involvement in improving patient safety has been a key political priority in the UK, but the implementation has been slow. The evidence has proven the many benefits of involving patients to improve patient safety, notwithstanding the perceived barriers articulated by healthcare professionals and patients. More recently, there has been a national priority to improve the uptake of patients and their families, and various strategies have been shown, including creating and sharing of digital stories.

## **1.6 Organisation of the Thesis**

The thesis is divided into seven individual chapters, and a summary of each chapter is described below.

### **Chapter 1 – Introduction**

The chapter introduces the study and contextualises the research by providing a comprehensive background of patient safety, safety culture, and climate in healthcare. It has also explored the role of RNs concerning patient safety and the factors contributing to unsafe practice. The significance of patient involvement in improving patient safety and the existing barriers and challenges have been evaluated with a particular interest in the value of using digital stories.

### **Chapter 2 – Literature Review**

This chapter comprises of a systematic literature review and a scoping review that is presented in two sections. Section 2.1 presents a systematic review of the literature of safety culture in nursing. The scoping review in section 2.2 presents a review of studies concerning the use

and impact of digital storytelling and digital stories in nursing. The chapter concludes with a rationale for this study, followed by the research aim and objectives that are directly informed by the literature review findings.

### **Chapter 3 – Research Methodology**

An overview of research methodologies is presented, which justifies the ontological, epistemological, and philosophical perspectives that underpinned this mixed methods study.

### **Chapter 4 – Research Methods**

This chapter comprises two sections to present and justify the quantitative and qualitative methods employed in this study. Section 4.1 presents the quantitative methods and includes the study setting, population, sample strategy, data collection methods and procedures, reliability and validity of the chosen data collection tool, and data analysis. Section 4.2 presents the qualitative methods, including the sample strategy, description of the interventions, selection of the digital story, data collection, and data analysis methods. The research quality, ethical considerations, and data management are also included in this chapter.

### **Chapter 5 – Findings**

The findings chapter is presented in two sections: In Section 5.1, the quantitative results are shown. To begin, the recruitment and response rates are explained, along with the RNs' personal and professional information. Descriptive statistics are presented in tables, frequency tables, and box and whisker plots to present the data findings. In Section 5.2, the qualitative results are shown which begins with the recruitment of the participants and response rate for each timepoint, along with a summary of the participants' personal and professional details. It also includes a summary of the development of the Group Experiential Themes from 51 semi-structured interviews conducted with RNs. Three group experiential themes and subthemes, which encompass the lived experiences and perceptions, present the qualitative findings and

provide verbatim quotes for support. A summary of the qualitative findings will be presented, followed by a summary of the chapter.

## **Chapter 6 – Discussion**

This chapter presents a comprehensive, synthesised discussion of the qualitative and quantitative findings using the three Group Experiential Themes: *Professional Duty of Care*, *Professional Duty of Candour*, and *Professional Duty to Continuous Professional Development*. The triangulation of the qualitative and quantitative findings for the following themes: *Professional Duty of Care* and *Professional Duty of Candour* (which is illustrated in Figure 6.1) will be presented. The final theme, *Professional Duty to Continuous Professional Development*, will discuss the qualitative findings only. The studies within Chapters 1 and 2, along with the relevant broader literature, supported the findings. The findings revealed several internal and external factors that contribute to a negative or a positive culture. The digital story that was used in this study was perceived as a powerful and effective learning tool that triggered emotions and critical reflection that changed RNs perceptions of safety culture and patient-safety related behaviours.

## **Chapter 7 – Conclusions and Recommendations**

This concluding chapter presents how this study's aim and objectives were achieved, how this study offers an original contribution to knowledge, the strengths and limitations of this study, and recommendations for research, policy, education, and practice. The chapter will conclude with reflections of the researcher.

## **CHAPTER 2: LITERATURE REVIEW**

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The chapter is comprised of two sections: A systematic literature review and a scoping review. Section 2.1 will focus on the systematic literature review, followed by the scoping review in section 2.2. Each section will present its strengths, limitations, and summary for discussion. The chapter will provide an overall summary and discuss the identified gaps in the literature. The evidence synthesis from both reviews provides a strong justification for undertaking this study, and the aim and objectives for this study will conclude this chapter.

### **2.1 Introduction**

Chapter 1 provides the context of patient safety, the safety culture movement, and the importance of nurses and patients in improving patient safety. This section investigates RNs' perceptions of safety culture and the impact of using digital stories concerning safety culture and patient safety-related behaviours. The literature review will identify what is known about the subject area and identify gaps in the current knowledge that have led to the development of the research question, aim and objectives for this study. A systematic literature review was chosen, where the evidence was searched, analysed, and critiqued using a robust approach to highlight and examine RNs' perceptions of safety culture in an acute NHS setting. This also included an examination of the use of digital stories and digital storytelling in relation to safety culture and patient safety-related behaviours. Nonetheless, the search revealed no studies of safety culture perceptions of nurses in the context of using digital stories. Subsequently, a scoping review of the literature was undertaken and is discussed in section 2.2. The strengths, limitations, and summary of this systematic review will conclude this section.

#### **2.1.1 Systematic Literature Review Methodology**

A literature review is a generic term referring to examining recent or current literature (Grant and Booth, 2009, p. 94) and is a fundamental and vital part of the research process. It provides a platform to gather, organise, critically appraise, and analyse information from various

sources. Fundamentally, an effective and well-conducted literature review creates a firm foundation for knowledge advancement and theory development (Webster and Watson, 2002) and identifies where more research is needed. Hence, reviewing relevant literature helps to understand the breadth and depth of the existing body of work (Xiao and Watson, 2019) and shows current gaps in knowledge (Hart, 2018). Conversely, weak literature reviews methodologically include irrelevant studies or are not rooted in theory, which can lead to a poor piece of research (Maggio *et al.*, 2016). A literature review may be argumentative, integrative, historical, methodological, or theoretical (Jahan *et al.*, 2016). The most common types are systematic reviews and traditional or narrative reviews, and selecting one depends on the reason for conducting the research (Hart, 2018).

A narrative review provides a descriptive study in a specific area. Nevertheless, it is the least rigorous, often viewed as subjective and prone to bias from the reviewer's experience and prior beliefs (Noordzij *et al.* 2011). A narrative review is appropriate for answering broad questions that include varied methodologies and sample groups. The quality of evidence is less concerning for this type of review, as the focus is on gathering relevant information to provide context and substance to the researcher's study (Kastner *et al.*, 2012). Systematic reviews, however, are less biased as they can typically focus on a well-defined question. It relies upon a systematic method with an explicit and reproducible criterion to identify, categorise, and critically evaluate relevant primary research.

A systematic review was selected over a narrative review as it was considered more suitable to address this study's specific and clearly defined area of focus (Pae, 2015). In addition, systematic reviews are more suited to reviewing an extensive and comprehensive body of literature and are less suitable for areas of research where the literature is scarce. The literature on digital stories in nursing is scanty (as discussed in Chapter 1), but this was not the case for patient safety and safety culture. Therefore, due to the diversity of the subject base (patient safety, safety culture), specific sample group, and intervention (digital story), a

systematic review was determined to be appropriate as the narrative review may not have fully addressed the gaps in the research related to this study.

While a systematic review has many strengths, it has several limitations that can affect the conclusion. Inadequate literature searches and the inappropriate analysis of heterogeneous studies can lead to false conclusions. Similarly, the quality of assessment is a crucial step in systematic reviews, and it can lead to adverse consequences if not done correctly (Jahan *et al.*, 2016). Following a rigorous, explicit, and systematic method of identifying relevant studies, appraising their quality, and synthesising the results can minimise these limitations (Bettany-Saltikov and McSherry, 2016). It can also reduce bias, thus providing reliable findings from which conclusions can be drawn (Moher *et al.*, 2009). Therefore, a four-stage process recommended by Greenhalgh *et al.* (1997) was used to provide a structured, systematic approach to justify the evidence used. The evaluation and synthesis of the selected evidence will strengthen and underpin the rationale for undertaking this study (Munn *et al.*, 2018). These stages were used to guide the presentation of the evidence within this review:

1. Searching the evidence.
2. Criteria for considering studies for inclusion in this review.
3. Evaluating the evidence.
4. Synthesising the evidence.

#### **2.1.1.2 Review Aims and Objectives**

The systematic review aimed to provide a thorough, comprehensive, and explicit evaluation of the current literature to address the following key objectives:

1. To assess the methodological quality of the obtained evidence.
2. To identify key findings of the included studies in terms of,
  - a. RNs perceptions of safety culture.
  - b. The impact of using a digital story on RNs safety culture perceptions and patient safety-related behaviours.

To address objective 2, a single overarching research question was developed before conducting the literature review:

*How do digital stories affect perceptions of safety culture and patient safety-related behaviours for RNs working in acute healthcare settings?*

The literature search question is consistent with the aim and objectives of this thesis. Likewise, it provided context for this study and a deeper understanding of the safety culture in nursing.

### **2.1.2 Searching the Evidence**

When selecting the correct keywords for searching the literature, it is essential to balance the degree of exhaustiveness and precision (Wanden-Berghe and Sanz-Valero 2012). Broader keywords can yield comprehensive results, but they may also include irrelevant articles. Conversely, more precise keywords can reduce the amount of irrelevant literature but may omit articles of relevance. Given the complexity of patient safety in healthcare, a trial search using broad search terms was adopted, as advocated by Wanden-Berghe and Sanz-Valero (2012). Using the Cumulative Index to Nursing and Allied Health Literature (CINAHL) Complete, Psych Info, and ProQuest databases, a trial search was undertaken with an open date range to search for empirical studies. The search terms included nurse or nursing, patient safety, safety culture or safety perceptions, behaviours, attitudes, and patient stories. This generated an exceptionally substantial number of articles; For example, a search of patient safety and safety culture yielded numerous studies that had either patient or safety culture separately or sometimes together, and most were irrelevant. Nevertheless, the simple and quick search enabled the development and refinement of the search terms.

The search terms were refined to obtain relevant peer-reviewed studies relating to the research question. Boolean operators (OR, AND but avoiding using NOT) were used to combine the concepts and refine the search's width and depth to capture the evidence. Truncation denoted by an asterisk (\*) was added to the root stem of the word to find different endings and double quotation marks (") to search for words together. A systematic approach to the search strategy was formed using the refined key search terms, and each group was



given a search number, as illustrated in Table 2.1. The same search terms were entered into the following chosen databases: CINAHL Complete, PsycINFO, Education Research Complete, Science Direct, ProQuest, MEDLINE, and PubMed to cover a range of perspectives. Furthermore, they were likely to provide a comprehensive set of peer-reviewed studies and systematic reviews relating to the research question within the timeframe of this review. Appendix 2.1 provides a sample search history using a single database. Table 2.1 also provides the total number of articles retrieved across all the databases and a detailed account of each database can be reviewed in Appendix 2.2.

**Table 2.1 Search Terms Used with a Total Number of Papers for all Databases**

<b>Search Number</b>	<b>Search Terms</b>	<b>Total No. of retrieved articles</b>
#1	Nurs* or nursing	96,439
#2	Patient or client or “service user”	957,348
#3	Story, or stories or storytelling or narrative	12,028
#4	“digital stor*” or “digital storytelling” or “patient voice*”	255
#5	#3 and #4	6,530
#6	#2 and # 5	2,228
#7	#1 and # 6	632
#8	“Patient safety” or “safety climate” or “safety culture” or “safety perceptions” or “safety attitudes”	19,617
#9	#1 AND #8	1,295
#11	#7 AND #8	29

To minimize the risk of publication bias, further searching for published and unpublished articles, research reports, and unpublished PhD or doctoral theses was undertaken using the same search terms, truncation, and Boolean operators. It also included a backward search to find relevant work cited in the articles and hand-searching key journals. These sources included:

- Google Scholar.
- British Library Integrated Catalogue.
- COPAC.
- ETHOS.
- UK Government Publications.
- Grey Net.
- Professional organisations (e.g., World Health Organisations, Health Education England).
- Journal of Patient Safety.
- Risk Management.
- Joint Commission Journal of Quality and Patient Safety.
- Journal of Mixed Methods Research.

This search yielded 674 additional papers, increasing the total number of papers considered suitable for this review to 1,969. The following sections discuss the processes used to justify the final selection of articles included in the appraisal and synthesis of the evidence relating to this study.

#### **2.1.2.1 Study Selection Criteria**

The inclusion criteria included primary empirical studies published in peer-reviewed journals between 1<sup>st</sup> January 2007 and December 2018. This time limit could potentially miss relevant seminal studies from previous years (Aveyard, 2019), however the evidence presented in Chapter 1 showed little attention to patient safety until 2007. As illustrated in Table 2.2, this systematic review included empirical studies published in peer-reviewed academic journals. RNs had to be working in an acute hospital setting and those working in other healthcare settings, such as voluntary, independent and community settings were excluded due to

smaller numbers in these settings. Those studies that included other health professionals and student nurses were also excluded. All searches were not restricted to the UK and Europe as the concept of patient safety and safety culture is a global phenomenon within the international literature. Only studies written in the English language were included, which would imply the risk of language bias by favouring studies published in the English language. However, due to the researcher's lack of fluency in other languages, software packages may misinterpret and misrepresent the translation of non-English studies.

**Table 2.2 Study Selection Criteria**

Inclusion Criteria	Exclusion criteria
Registered Nurses	Student Nurses, Registered Allied Health Professionals, and unqualified professionals
Acute hospital setting	GP, Independent, community and care home settings
English Language	Non-English Language
2007 to 2018	Before 2007
<b>*2019 to 2023</b>	<b>Before 2018</b>
Peer-reviewed empirical research and systematic reviews	Non-peer-reviewed empirical research
Age 18 or over	Age 17 or under

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\*Rerun of literature using the same search strategy (see section 2.4.2)

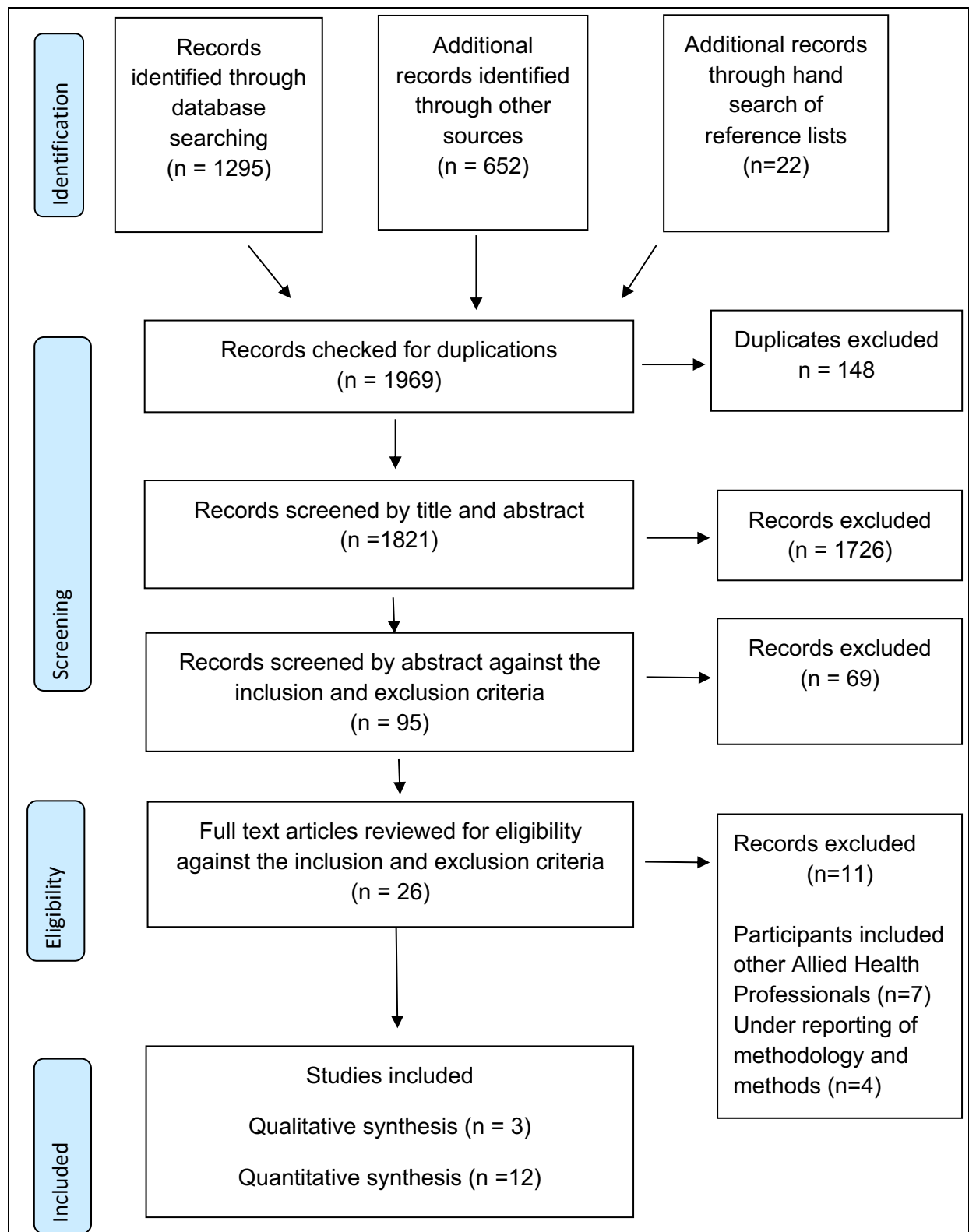
### **2.1.2.2 Selection of Studies**

Combining search numbers #7 and #8 (see Table 2.1) yielded 29 research studies with nurses, patients, stories/digital stories, and safety culture/patient. However, when using the study selection criteria, none of these studies were eligible to be included in the selection process. These were rejected because they related to pre-registration nursing education in the context of learning strategies, or they explored storytelling and the creation of a digital

story (as discussed in Chapter 1). The research title for this systematic review was not supported by any evidence. Yet, it highlighted that using digital stories and digital storytelling in nursing was an emerging subject. It was, therefore, essential to include a separate literature review (which is discussed in s2.2 of this chapter) to identify the available evidence and to address any gaps in the current literature. The studies believed to be suitable for this systematic review were selected from the combination of search terms #1 and #8 and the other papers found by reviewing the databases for other published, unpublished, and grey literature and hand-searching key journals as stated above.

Figure 2.1 represents the selection process using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart (Moher *et al.*, 2009). A total number of 1969 articles were considered suitable for this review. All duplicates were removed (n=148), and the titles and abstracts were checked for relevance (n=1821). Those articles that did not have the words 'RNs', 'patient safety', 'safety culture', 'safety climate', 'safety perceptions', 'safety attitudes' were excluded (n=1726). Ninety-five abstracts were reviewed, and 69 articles were rejected because they did not meet the inclusion/exclusion criteria (see Table 2.2), leaving 26 studies eligible for full-text reviewing. A total number of 11 were excluded from the full-text screening as they did not meet the inclusion criteria. The reasons for excluding these were that other healthcare professionals (n=7) were surveyed, which was not specified in the abstracts, and under-reporting of methodology and methods used.

**Figure 2.1 PRISMA Flowchart of the Selection Process**



Source: Moher *et al.* (2009)

### **2.1.2.3 Rerun of the Literature Search (2019 to 2023)**

The search from 2007 to 2018 yielded 15 studies that met the review's criteria. As the pace of research is rapid, Lohr *et al.* (2021) suggest there is value in updating literature reviews to ensure maximum currency of the literature. The same search strategy was used to capture relevant articles published between 2019 and 2023. The re-run of the literature search yielded 99 articles for review, and following the same selection process, only four quantitative studies met the inclusion and exclusion criteria. Interestingly, there were no further qualitative studies, and no studies that were undertaken in the UK. The quantitative studies that were conducted in the UK, which included other healthcare professionals, were excluded because they did not meet the inclusion criteria. A total number of nineteen studies, which comprised 15 from 2007 to 2018 and four studies from 2019 to 2023, were relevant to this research study.

### **2.1.2.4 Quality Appraisal**

A quality appraisal of the studies was conducted using Caldwell *et al.*'s (2011) framework to ensure the studies were free from methodological biases. The framework comprises 18 individual questions and can be used for any research design due to the combination of quantitative and qualitative appraisal questions. Each question was scored from 0 to 2 (0 = question not answered; 1 = partially answered; 2 = fully answered), resulting in a maximum score of 36. The overall score was used to draw conclusions about whether the quality of the study was excellent (29-36), high (22-28), medium (15-21), low (8-14), or very low (0-7) to provide a holistic assessment of each study (Bettany-Saltikov and McSherry, 2016), which is illustrated in Tables 2.3 and 2.4. Appendices 2.3 and 2.4 provide examples of the critical appraisal for a quantitative and a qualitative paper, respectively. Medium-quality studies had various weaknesses, indicating significant methodological bias (Bettany-Saltikov and McSherry, 2016). Although the higher-quality papers would be more rigorous and add more weight than the medium-quality studies, an inclusive approach was taken to appraise the strengths and weaknesses of all studies (Aveyard, 2019).

**Table 2.3 Methodological Quality of the Quantitative Studies**

Study	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total	Quality
AbulAIRub & Alhijaa (2014)	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	1	0	0	25/36	High
Almutairi <i>et al.</i> (2013)	2	2	1	2	2	1	2	1	1	2	1	2	2	2	1	1	1	1	27/36	High
Alquwez <i>et al.</i> (2018)	1	2	1	1	1	0	2	1	1	0	2	1	2	1	1	1	1	1	21/36	Medium
Ammouri <i>et al.</i> (2015)	1	2	2	2	2	2	2	2	2	1	1	1	2	2	1	2	1	1	29/36	High
Armellino <i>et al.</i> (2010)	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	0	0	1	25/36	High
Aydemir & Koç (2023)	2	0	1	1	0	1	2	0	0	0	2	1	1	1	1	0	0	0	13/36	Low
Ballangrud <i>et al.</i> (2012)	1	1	2	1	2	2	1	2	1	1	1	1	2	1	1	2	1	1	24/26	High
Cho & Choi (2018)	1	2	2	2	2	2	1	2	2	1	1	1	1	1	1	1	0	2	25/36	High
Hong & Li (2017)	1	2	2	2	2	2	1	2	1	2	1	1	1	2	1	2	1	2	28/36	High
Kakeman <i>et al.</i> (2021)	2	2	2	2	1	2	2	2	2	2	2	2	1	2	2	1	2	1	32/36	Excellent
Olsson <i>et al.</i> (2016)	2	1	2	2	1	2	1	2	2	2	2	1	1	1	2	2	1	1	28/36	High
Rawas & Hashish (2023)	2	2	2	2	2	2	2	1	2	1	2	1	1	2	2	1	1	1	29.36	High
Turunen <i>et al.</i> (2013)	1	2	1	1	1	2	1	1	1	2	2	0	1	0	1	2	0	1	20/36	Medium
Wang <i>et al.</i> (2014)	2	1	2	2	1	2	1	2	2	2	1	1	1	2	2	2	2	1	29/36	High
Wilson <i>et al.</i> (2012)	2	0	1	2	2	1	1	1	2	2	1	1	1	1	2	1	0	1	22/36	Medium
Zabin <i>et al.</i> (2022)	2	2	2	2	1	2	1	1	1	1	2	2	2	2	2	1	0	1	27/36	High

**Table 2.4 Methodological Quality of the Qualitative Studies**

Study	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total	Quality
Ballangrud <i>et al.</i> (2014)	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	2	0	1	20/36	Medium
Leger and Phillips (2017)	1	2	2	2	2	2	2	2	1	2	1	1	1	1	1	2	1	0	25/36	High
Ridelberg <i>et al.</i> (2014)	2	1	2	1	1	2	1	2	1	2	1	1	1	2	1	1	1	2	25/36	High

### 2.1.2.5 Data Extraction

Using Caldwell *et al.*'s (2011) framework, each study was read and re-read independently by the researcher to gain an overall understanding of the study designs and findings. To facilitate the analysis of the qualitative and quantitative data, the following details were extracted from the selected studies into a database:

- Core details: authors, year of publication, title, country of origin, and time of study.
- Definitions: safety culture, patient safety, and safety climate.
- Introduction and background: including the research aims, methodology, setting, sample strategy, measurement tools, and interventions.
- Results: safety culture perceptions, safety culture perceptions concerning pre-defined concepts, including factors that prevent or promote safety culture practice. (Patient digital stories were rejected as they did not meet the inclusion criteria).
- Other information includes its relevance to the aim of this review and current study.

The researcher's supervisors reviewed a sample of studies to ensure the quality of the critical appraisal process was robust. Table 2.5 presents a summary of all selected studies that is presented under the main themes extracted from the data. The concept of safety culture was a common theme within the selected studies, followed by the predefined concepts associated with safety culture. Safety attitude questionnaires, and standard methods to measure safety culture perceptions in quantitative studies typically report their findings relating to the pre-defined concepts (see Table 2.7) and are discussed in section 2.1.3.5. The following section will present the data analysis, which includes a critical appraisal of the selected studies, followed by the results and discussion.



**Table 2.5 Summary of the Data Extraction from Selected Studies**

Author	Aim	Research Design	Sample/Participants	Data Collection Methods	Data Analysis	Key Findings
AbulAIRub and Alhijaa (2014) Jordan	To examine the impact of patient safety educational interventions among senior nurses on their perceptions of safety culture and the rate of reported adverse events (AE) and selected nursing indicator incidents (hospital-acquired infection (HAI), pressure ulcers, and patient falls. <b>Definitions</b> Patient Safety: N Safety Culture: Y Safety Climate: N	Quantitative. Quasi-Experimental one group pre and post-test design  Intervention Structured educational programme	A convenience sample of 100 senior nurses from different clinical settings (medical, surgical and leukaemia wards) in one hospital  Power calculation – Cohen's medium effect size (estimated 64 needed)  Response rate 57% F: n= 18(30.9%) M: n=. 39 (69.1%)	HSOPSC and the number of AE events reported for nurse indicators (pressure ulcers and falls).  Internal consistency and reliability were estimated using Cronbach's alpha for the whole instrument – $\alpha = 0.82$  Data collection duration of four months	Pearson's chi-square to compare pre-intervention and post-intervention  The formula for nurse indicator. Adopted from IHI Global Trigger Tool for Measuring AEs	<b>PRR &gt;75% Strengths (post education)</b> Organisational Learning (84.8%) 1.3% increase Teamwork within units (83.8%) 3.9% increase Feedback and comm about the error (76.6%) 1.6 decrease Management support for safety (70.3%) 2.4% decrease <b>PRR &lt; 50% Weaknesses</b> Non-punitive response to errors (26.2%) 9.3% increase Handoffs and transitions (33.5%) 5.8% decrease <b>AE Reporting – Post Educ.</b> Frequency of error reporting (64.3%) 10% increase Statistically significance in reduction of Adverse Events (AE) following intervention No statistical difference in the reduction of falls and pressure ulcers

Almutairi <i>et al.</i> (2013) Saudi Arabia	To explore the safety climate perceptions of the multicultural nursing workforce and to investigate the association of the diversity of the multicultural nursing workforce and their perception of clinical safety climate  <b>Definitions</b> Patient Safety: Y Safety Culture: N Safety Climate: N	Quantitative. Descriptive cross-sectional design	A convenience sample of 415 RNs from various clinical settings (medical, surgical, and gynaecological wards) in one teaching hospital  Power calculation (estimated 323 needed)  Response rate 76.8% Did not state the gender	Safety Climate Survey (SCS)  Internal consistency and reliability were estimated using Cronbach's alpha for the whole instrument $\alpha = 0.88$	Descriptive statistics Inferential statistics to examine differences between the study characteristics and safety culture dimensions. Nonparametric tests Kolmogorov-Smirnov Kruskal-Wallis test	<b>Strengths</b> 54% reported a positive safety climate. Patient safety is constantly reinforced as the priority (90.7%). <b>Weaknesses</b> I would feel safe if treated here as a patient (56.8%). Clinical safety is compromised (48%) <b>Demographic Characteristics</b> No significant difference across the age categories, length of experience, and overall perception of safety climate, except for this age 45 yrs., who reported the highest level of safety perception, and 35-39 yrs., had a lower level of safety perception. Statistical differences were found with different nationalities ( $p < 0.05$ ) only.
Alquwez <i>et al.</i> (2018) Saudi Arabia	To assess the present patient safety culture and identify strengths, weaknesses, and predictors of patient safety culture	Quantitative. A descriptive, cross-sectional design	A convenience sample of 351 RNs working in various clinical settings (medical, surgery, obstetrics, emergency department, ICU) across three hospitals  Response rate 79.1% F: n=321 (91.5%) M: n=30 (8.5%)	HSOPSC questionnaire  Reliability tested using Cronbach's alpha used to test reliability for the whole instrument $\alpha = 0.71$  Data collection duration of one month	Descriptive statistical analysis  Multiple linear regression analysis conducted at $p < 0.05$ level of significance to identify the correlation between PSC and study	<b>PRR &gt; 75% Strengths</b> Teamwork within units (85.8%) Organisational learning (83.3%) <b>PRR &lt; 50% Weaknesses</b> The overall perception of patient safety (48.8%) Handoffs and transitions (46.1%), Communication openness (37.4%), Frequency of event reporting (20.3%) Non-punitive response to errors (16.6%). <b>AE reporting</b> 82.3% did not report AE

	<b>Definitions</b> Patient Safety: N Safety Culture: N Safety Climate: N				characteristics (predictor variables)	17.7% reported 1 AE in 12 months <b>Demographic Characteristics</b> Direct correlation of years of experience had positive overall perceptions of safety culture No significant relationship between overall perceptions of safety culture and age, gender, education, position, and work environment
Ammouri <i>et al.</i> (2015) Oman	To investigate nurses' perceptions about safety culture and to identify factors that need to be emphasised to develop and support the culture of safety among nurses in Oman  <b>Definitions</b> Patient Safety: Y Safety Culture: Y Safety Climate: N	Quantitative. Descriptive cross-sectional study.	Convenience sample RNs working in various clinical units (medical, surgical, orthopaedic, emergency department, ICU, coronary care unit). It did not state the total population  Power calculation – regression analysis with four independent variables. Cohen's medium size effect, power 0.80, 0.05 level of significance (Estimated 84 needed)  414 RNs responded F: n=371 (89.6%) M: n=43. (10.4%) No response rates No inclusion/exclusion criteria	HSOPSC questionnaire  Internal consistency and reliability were estimated using Cronbach's alpha for six out of 12 safety dimensions, which varied from a 0.64 to 0.84  Data collection duration of eight months	Descriptive statistical analysis Multiple regression analysis was conducted at $p < 0.05$ level of significance.	<b>PRR &gt; 75% Strengths</b> teamwork within units (83.4%), organisational learning and continuous improvement (81.1%) <b>PRR &lt; 50% Weaknesses</b> Non-punitive response to error (21.4%), hospital management support (25.2%)

Armellino <i>et al.</i> (2010) USA	<p>To describe the organisation's patient safety culture within a high-risk ACCU and assess the relationship between structural empowerment and patient safety culture</p> <p><b>Definitions</b> Patient Safety: N Safety Culture: Y Safety Climate: N</p>	Quantitative Descriptive correlation design	<p>A convenience sample of 257 RNs working in the Adult Critical Care Unit in one hospital Cohen's medium effect power calculation (82 needed)</p> <p>Response rate 40% F: n=92 (90.2%) M: n=10 (9.8%)</p>	<p>HSOPSC questionnaire Internal consistency and reliability of HOSPSC estimated using Cronbach's alpha for 12 out of 12 safety dimensions, which varied from a 0.63 to 0.84</p> <p>Condition of Workplace Effectiveness Questionnaire (CWEQ-II) Job Activities Scale-II (JAS-II) Organisational Relationship Scale-II (ORS-11) Data collection duration of one month</p>	Descriptive statistics, Pearson's chi-square to examine the relationship between the total score of CWEQ-II and HSOPSC	<p><b>PRR &gt; 75% Strengths</b> Supervisor/management expectations – (68.8%) Organisational learning (68.3%) Teamwork within units (74.4%)</p> <p><b>Demographic Characteristics</b> Higher-level education, years as RN and years employed, had higher positive scores of teamwork and supervisor/manager expectations (no statistics to support this).</p> <p><b>PRR &lt; 50% Weaknesses</b> Non-punitive response to error (21.09%) Low error reporting rate (62.5%) Teamwork across units (42.35%), Hospital handoffs and transitions (43.37%) Staffing (39.12%)</p>
Aydemir and Koç (2023) Turkey	To determine the factors affecting patient safety, focusing on the culture and attitudes of RNs working in EDs. To	Quantitative Descriptive cross-sectional and correlation design	A random sample of 282 RNs working in EDs across 19 hospitals. Estimation of 238 (out of 3016) RNs needed for 95% CI and 3% margin of error.	<p>SAQ A modified version translated into Turkish</p> <p>Internal consistency and reliability were estimated using</p>	Descriptive statistics for sample characteristics and study variables for both instruments	<p><b>Highest SAQ Scores–mean (SD)</b> Teamwork Climate – 46.32 (8.52) Job Satisfaction – 31.25 (8.91)</p> <p><b>Lowest SAQ Scores–mean (SD)</b> Safety Climate – 17.30 (3.90) Working conditions 18.36 (3.90)</p>

	<p>examine the effect of demographical characteristics on safety culture attitudes.</p> <p><b>Definitions</b>  Patient Safety: Y  Safety Culture: N  Safety Climate: N</p>		<p>Response rate 100%  F: n=182 (64.5%)  M: n=100 (35.5%)</p>	<p>Cronbach's alpha for the whole instrument <math>\alpha</math> 0.93</p> <p>Patient Safety Culture Scale (PSCS)</p> <p>Construct validity is measured using confirmatory factor analysis (CFA). Factor loadings ranged between 0.43–0.82  Internal validity was estimated using Cronbach's alpha for the whole instrument <math>\alpha</math> 0.97</p> <p>Data collection duration of seven months</p>	<p>Multiple regression analysis conducted at <math>p &lt; 0.05</math> level of significance to examine the effect of demographical data and the independent variables on scale scores</p>	<p>Stress recognition – 16.10 (4.35)  Total Score – 152.26 (2.54)</p> <p><b>PSCS Score—mean (SD)</b>  Management and Leadership - 2.48 (0.51)  Worker training - 2.60 (0.64)  Reporting unexpected cases and error - 2.49 (0.63)  Care and technology - 2.63 (0.61)  Employee behaviour - 2.61 (0.57)  Total Score - 2.56 (0.52)  Demographic characteristics of RNs (age, gender, role, shift patterns, educational status, and marital status) did not affect their perceptions of safety culture.</p> <p>The number of years working in the ED increased the SAQ and the PSCS scores decreased</p>
Ballangrud <i>et al.</i> (2012) Norway	To investigate RN perceptions of the patient safety climate in ICUs and explore potential predictors for other overall perceptions of safety and frequency of incident reporting	Quantitative. Descriptive cross-sectional design.	Convenience sample 302 RNs working in 10 ICUs, (4 Gen ICUs, 4 Cardiac ICUs, 2 Mixed ICUs), across six hospitals in one trust	<p>HSOPSC questionnaire</p> <p>Internal consistency and reliability were estimated using Cronbach's alpha varied from <math>\alpha</math> 0.49 to 0.83</p>	Descriptive statistics Pearson's chi-squares to compare the number of reported adverse events and patient safety grades	<p><b>PRR &gt; 50% Strengths</b>  Safety culture within the unit level (42% to 81%)  Overall perceptions of safety (69%)  Teamwork within units (80.6%)  Supervisor/managers expectations (73.1%)  Hospital Management support for patient safety (73.4%)</p>

	<b>Definitions</b> Patient Safety: N Safety Culture: Y Safety Climate: Y		Response rate 72% F: n=195 (91.1%) M: n=19 (8.9%)  No inclusion/exclusion criteria	Data collection duration of three months	The General Linear model compares responses in HSOPSC responses across GICU and CICU	Feedback and communication about errors (57.9%) Organisational learning (51.3%) Teamwork across units (62.5%) Handoffs and transitions (57.5%) <b>PRR &lt; 50% Weaknesses</b> Frequency of incident reporting (18%). Self-reported incidents: 50% no incidents, and 36% reported 1 to 2 incidents over the last 12 months. There were statistical differences between the ICUs and four hospitals
Ballangrud <i>et al.</i> (2014) Norway	Describe ICU nurse's perceptions of simulation-based team training for building patient safety in the ICU  <b>Definitions</b> Patient Safety: N Safety Culture: N Safety Climate: N	Qualitative descriptive design	Mixed variation sample 21 RNs in 7 ICUs in one hospital who had received simulation-based team training.  Response rate 86% F: n=15 (83.3%) M: n=3 (16.7%)	Semi-structured individual interviews 26-47 minutes (mean = 39minutes)  Data collection duration of three weeks post-intervention	Inductive content analysis	Three main themes were found: 1. Realistic training contributes to safe care 2. Reflection and openness motivate learning 3. Finding a collective understanding of team performance Concluded that ICU nurses felt that training created awareness about clinical practice and acknowledged the importance of structured work in teams as a contribution to building patient safety

Cho and Choi (2018) Korea	<p>To investigate the relationships between RNs perceptions of the culture of patient safety in their workplace and their PS competency attitudes, skills, and knowledge</p> <p><b>Definitions</b>  Patient Safety: N  Safety Culture: Y  Safety Climate: N</p>	Quantitative descriptive correlational, cross-sectional design.	<p>The random sampling method of 380 in RNs various clinical settings (ICU, medical, surgical, outpatients, emergency dept., perioperative, other - not specified) in one large hospital.</p> <p>Response rate 90.5%  F: n= 335 (97.6%)  M: n= 8 (2.4%)</p> <p>No exclusion criteria</p>	<p>HSOPSC questionnaire Modified and translated into Korean</p> <p>Internal consistency and reliability of HOSPSC were estimated using Cronbach's alpha for 10 out of 12 (purposely omitted two dimensions) safety dimensions, which varied from a 0.74 to 0.80.</p> <p>Patient Safety Competency Self-Evaluation Tool  Data collection duration of two weeks</p>	<p>Descriptive statistics for sample characteristics and study variables – patient safety competence (knowledge, skills, and attitudes) and safety culture  Multiple regression analysis for individual level of each patient safety dimension</p>	<p><b>PRR</b>–Composite scoring based on mean scoring of 1-5, with higher scores indicating more positive perceptions of safety culture  Patient safety culture - mean 3.3  Patient safety competency – mean of 3.9; attitudes mean of = 4.2; skills– mean of 3.9; knowledge -mean 3.5.  Hospital management support for safety - mean of 3.06  Supervisor/manager expectations– mean of 3.63  Teamwork within units–mean of 3.25  Teamwork across units–mean of 3.25  Communication–mean of 3.34  <b>PRR–weaknesses &lt; 3.0</b>  Non-punitive response to errors – mean of 2.88  Leadership and continuous learning were significant predictors influencing RNs' patient safety competency. The relationship of these factors to patient safety attitudes, skills and knowledge were varied.  <b>Demographic Characteristics</b>  Significant Predictors of patient safety competencies  Age and no. of years employed related to attitudes and skills  education related to knowledge</p>
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Hong and Li (2017) China	<p>To investigate the impact of nurses' perceptions of patient safety culture and AE reporting and correlate their perceptions with self-reported rates of AE.</p> <p><b>Definitions</b>  Patient Safety: Y  Safety Culture: Y  Safety Climate: N</p>	Quantitative. Descriptive correlation design.	<p>Randomised stratified sample for study setting and clinical areas.</p> <p>Convenience sampling of 1251 RNs from various clinical settings (general wards, and one ICU and emergency department - one from each hospital) across four tertiary hospitals.</p> <p>Response rate 79.1%  F: n= 898 (97.7%)  M: n= 21 (2.3%)</p>	<p>Patient Safety Culture Assessment Scale (PSCAS) questionnaire was modified and translated into Chinese</p> <p>Internal consistency and reliability of PSCAS estimated using Cronbach's alpha for the whole instrument  a 0.89  test-retest - 0.701-0.833 for 5 out of 5 dimensions.</p> <p>Adverse Event Reporting Perception Scale (AERPS)  Data collection duration of four months</p>	<p>Descriptive statistics  Pearson's chi-square to examine differences between demographics reporting AE  t-tests to compare the mean and overall scores on each questionnaire for reporting AE  Multiple linear regression analysis for response variables (no. of reported AE to explanatory variables, overall and scores for each domain)</p>	<p><b>PRR &gt; 75% Strengths</b>  Safety climate 80.6%</p> <p><b>PRR &lt;75% Weaknesses</b>  Perceptions of management 47.5%</p> <p><b>AE Reporting</b>  Importance of Reporting 80.6%  Determining AE 65.4%  Reporting routine 34.95%  Those who reported positive safety perceptions reported AE in the past 12 months. Work experience, overall patient safety culture score, safety climate, teamwork, AE reporting, and importance of reporting were associated with AE reporting.  58.03% did not report AE in the past 12 months and negatively perceived patient safety/culture.</p>
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Kakeman <i>et al.</i> (2021) Iran	To investigate RNs' perceptions of the patient safety culture and the association of perceived proportion with AEs <b>Definitions</b> Patient Safety: N Safety Culture: Y Safety Climate: N	Quantitative Descriptive cross-sectional design	Convenience sample of 32 out of 150 teaching hospitals from five randomly selected provincial centres. Convenience sample 4500 RNs working across 32 hospitals  Response rate 52% F: n=1827 (79.6%) M: n= 468 (20.4%)	HSOPSC questionnaire A modified version translated into Iranian  Internal consistency and reliability were estimated using Cronbach's alpha, which varied from a 0.76 and 0.82 Adverse events (Based on six AE that are required to be reported) A range of methods that included a review of nursing and medical records, reporting systems, direct observations, and patient interviews  Data collection duration of 11 months	Descriptive statistics for sample characteristics, study variables, and AEs.  Bivariate regression models for each AE (dependent variable) and 12 safety culture dimensions (independent variables).  Multiple logistic regression models to determine the association between the independent variables and one type of AE (dependant variables) alongside demographical variables	<b>PRR &gt;50% Strengths</b> None <b>PRR &lt; 50% Weaknesses</b> Teamwork within units (43.8%) Organisational learning (42.7%) Feedback and communication about errors (41.1%) Non-punitive response error (38.4%) Frequency of incident reporting (37.7%) Hospital Management support for patient safety (34.9%) Staffing (34.7%) Overall patient safety culture (34.1%) Overall perceptions of safety (31.5%) Teamwork across units (29.7%) Communication openness (27.2%) Supervisor/managers expectations (26.5%) Handoffs and transitions (20.9%) <b>AEs occurrences within 12 months</b> Patient complaints (63%) Adverse drug events (60.8%) Surgical wound infections (53.6%) Pressure ulcer (53.6%) Infusion and transfusion reaction (51.2%) Patient falls (51.2%)
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Leger and Phillips (2017) USA	<p>To explore the perceptions of bedside RNs regarding patient safety in adult acute care hospitals</p> <p><b>Definitions</b> Patient Safety: Y Safety Culture: N Safety Climate: N</p>	Qualitative. Grounded theory design	<p>Purposeful/Snowballing sample method 13 RNs from 4 clinical areas (Critical Care Unit, medical, surgical and telemetry) in one acute hospital</p> <p>Response rate 100%</p> <p>F: n= 12 (92.3%) M: n= 1 (7.7%)</p> <p>No exclusion criteria</p>	<p>Semi-structured interviews Face-to-face Did not state timings of interviews</p>	CGT methodology the constant comparative method, coding and memoing	<p>Two theories <b>Indemnifying Duty</b>—nurses' responsibility to keep patients from harm. Primarily, patient safety comes first <b>Exerting Capacity</b>—nurses are concerned with keeping patients safe through decision-making and the capacity and capability of others. Identified two mindsets: me-centric (nurses put themselves in the decision-making process) and patient-centric (patients as the decision-making process)</p>
Olsson <i>et al.</i> (2016) Sweden	<p>To explore RNs' perceptions of safety climate and readiness to implement patient-centred care in surgical care</p> <p><b>Definitions</b> Patient Safety: N Safety Culture: N Safety Climate: Y</p>	Quantitative. Exploratory cross-sectional survey	<p>A convenience sample of 1570 RNs working in surgical units (n=65) across seven university hospitals</p> <p>Response rate 46.3% F: n=665 (91.5%) M: n= 62 (8.4%)</p>	<p>SAQ (Short form) A modified version translated into Swedish Did not report validity and reliability testing.</p> <p>Context Assessment Index (CIA)</p> <p>Data collection duration of ten months</p>	<p>Descriptive statistical analysis Spearman's Rank correlation coefficient to explore the correlation of study characteristics with SAQ and CAI scores. Mann-Whitney <i>U</i> Test to investigate differences between education and SAQ and CAI actual scores</p>	<p>A strong and proactive organisational commitment to patient safety is strongly related to a culture guided by Evidence Based Practice (EBP) Job satisfaction and teamwork climate were positive factors of the safety climate. Perception of a strong and practised organisational commitment to safety, working conditions and quality of the work environment were areas that required improvement <b>Demographic Characteristics</b> No correlation between age, experience, and education of nurses suggests these factors do not influence perceptions relating to the safety culture dimensions. Those night shift nurses had a significantly</p>

					Kruskal-Wallis to compare working patterns and mean actual score SAQ and CAI	lower SAQ score than those on days and combined shifts.
Rawas and Hashish (2023) Saudi Arabia	<p>To investigate RNs' perceptions of safety culture and the association of demographical characteristics between patient safety culture predictors and outcomes.</p> <p><b>Definitions</b> Patient Safety: Y Safety Culture: Y Safety Climate: N</p>	Quantitative Descriptive cross-sectional design.	<p>Convenience sample of RNs from one hospital Raosoft sample size calculator criteria. Population size of 350, margin error of 5, CI of 95%, <i>P</i> value of &lt;0.05 level of significance. Minimal sample size of 184 RNs working in various clinical areas</p> <p>Response rate 100% F: n= 152 (82.6%) M: n= 32 (17.4%)</p>	<p>HSOPSC questionnaire</p> <p>Validity and reliability assessed using the Construct Validity Index (CVI) and estimated at 0.85</p> <p>Internal consistency and reliability of HOSPSC were estimated using Cronbach's alpha for the whole instrument <i>a</i> 0.93</p> <p>Data collection duration of three months</p>	<p>Descriptive statistics for sample characteristics and study variables</p> <p><i>t</i>-tests and Analysis of Variance (ANOVA) to test the differences in overall safety culture in relation to demographic and workplace characteristics</p> <p>Regression analysis to identify significant predictors and outcomes of safety culture</p>	<p><b>PRR–Did not differentiate between positive and negative scores.</b></p> <p><b>Predictors (based on 12 dimensions) of patient safety culture</b> Highest PRR Scores described as strong dimensions Teamwork within units (82.9%) Organisational learning (81.8%) Feedback and communication about errors (81.2%) Supervisor/manager expectations (72.8%)</p> <p>Lowest PRR Scores described as weak dimensions Staffing (40%) Non-punitive response error (43.9%) Handoffs and transitions (39%) Overall patient safety culture (34.1%)</p> <p><b>Outcomes of patient safety culture</b> Overall perceptions of safety (59%) Frequency of events reported (73.8%)</p> <p><b>Demographic Characteristics</b></p>

						<p>No significant differences in patient safety culture related to age, gender, ethnic background, education level or years of experience.</p> <p>Significant differences in perceived patient safety culture related to the number of hours worked. RNs working an average of 40 to 59 hrs/week had a higher patient safety culture compared to RNs working less or more than the average (<math>F = 25.865</math>, <math>p &lt; 0.001</math>) and the number of years employed related to attitudes and skills, education related to knowledge</p>
Ridelberg <i>et al.</i> (2014) Sweden	<p>To explore key factors influencing patient safety as perceived by RNs</p> <p><b>Definitions</b> Patient Safety: N Safety Culture: Y Safety Climate: N</p>	Qualitative.	<p>Purposeful sampling 12 RNs from eight general hospitals (clinical areas not specified)</p> <p>Response rate 100% F: n=11 (91.6%) M: n= 1 (8.4%) No inclusion/exclusion criteria</p>	<p>Semi-structured interviews with open-ended questions. Face-to-face interviews lasted 35-60 minutes Telephone interviews between 20-45 minutes</p> <p>Data collection duration of three months</p>	Qualitative content analysis. Coded using conventional content analysis.	<p>Factors influencing patient safety</p> <p>Patients Individual staff Teamwork Task and Technology Work environment Organisational and management Institutional context</p>

Turunen <i>et al.</i> (2013) Finland	<p>To explore and compare Nurse Manager's and RNs views on patient safety culture to discover any differences in their views</p> <p><b>Definitions</b> Patient Safety: N Safety Culture: N Safety Climate: N</p>	Quantitative. Web-based survey Descriptive design.	<p>Convenience sample 4624 RNs comprising 354 Nurse managers and from various clinical settings (general wards and ICU) across four acute hospitals.</p> <p>Response rate 17% NM n= 109 F: n=97 (89%) M: n= 12 (11%)</p> <p>RNs n=723 F: n=644 (89%) M: n= 79 (8.4%)</p>	<p>HSOPSC (modified version–translated into Finnish) questionnaire</p> <p>Internal consistency and reliability were estimated using Cronbach's alpha for six out of 12 safety dimensions, which varied from <math>\alpha</math> 0.74 to 0.84</p> <p>Data collection duration of one month</p>	<p>Pearson's chi-square (<math>p = &lt;0.05</math>) was used to compare differences between RNs and nurse managers</p>	<p>RNs (44%) and NM (45%) agreed there was a safety problem in their unit.</p> <p>74% of NMs to 52% RNs reported a lack of feedback, and communication was positive when discussing preventing errors.</p> <p>RNs were more critical and identified more areas for improvement than NMs. These areas included actions of hospital management show patient safety as a top priority (28% RNs, 52% NM)</p> <p>Non-punitive response to errors (25% RNs, 8% NM)</p>
Wang <i>et al.</i> (2014) China	<p>To describe nurse's perceptions of patient safety culture and their estimate of the frequencies of AEs and to examine the relationship between patient safety culture and AEs.</p> <p><b>Definitions</b> Patient Safety: N Safety Culture: Y Safety Climate: N</p>	Quantitative. Descriptive correlation design.	<p>Stratified sampling for the site of study and clinical settings</p> <p>Convenience sampling of 640 RNs working in 4 clinical areas (one medical, surgical, ICU and emergency dept. from each hospital) across seven hospitals</p> <p>Response rate 72.3% F: n= 440 (95.1%) M: n= 23 (4.9%) No inclusion or exclusion</p>	<p>HSOPSC questionnaire</p> <p>Internal consistency and reliability of HOSPSC estimated using Cronbach's alpha for the whole instrument <math>\alpha</math> 0.83</p> <p>Data from 7 AEs Medication error Pressure ulcer Patient Falls</p>	<p>Descriptive statistics</p> <p>Pearson's chi-square to confirm the statistical mass</p> <p>Bi-variate regression models to compare each AE to patient safety perceptions.</p> <p>Multiple regression models for one type of AE to</p>	<p><b>PRR &gt; 75% Strengths</b> Organisational learning/continuous improvement (89.7%) teamwork within units (86.5%)</p> <p><b>PRR &lt; 50% Weaknesses</b> Non-punitive response to error (32%) Communication and openness 38.5%) Frequency of events reported (32%) non-punitive response to AE (32%)</p> <p><b>7AEs</b> Organisational learning/continuous improvement could predict 3 out of 7 AEs. A good learning climate also reduced AE, in particular medication errors. While 47.8% to 75.6%</p>

				Physical restraints > 8 hours Surgical wound infection Infusion or transfusion reactions Patient or family complaints  Data collection duration of three months	patient safety perceptions. Significant level at $p < 0.05$	estimated AE happened, more than half did not report AE.
Wilson <i>et al.</i> (2012) USA	To explore the differences in perceptions of safety culture between charge and non-charge nurses.  <b>Definitions</b> Patient Safety: N Safety Culture: N Safety Climate: N	Quantitative. Descriptive cross-sectional correlation design.	Convenience sampling of 710 RNs across 12 adult medical and surgical units in one hospital.  Response rate 53% No gender stated	HSOPSC questionnaire  Internal consistency and reliability were estimated using Cronbach's alpha for 2 out of 12 safety dimensions Teamwork within units $\alpha 0.80$ Overall perceptions of safety $\alpha 0.70$  Data collection duration of one month	Descriptive statistics Pearson's chi-square measures the relationship between the patient safety of non-charge nurses and charge nurses. ANOVA to examine the differences in safety perceptions of charge and non-charge nurses.	The overall perception of safety was higher for non-charge nurses (3.46) compared to charge nurses (3.27), $t(374) = 2.86 p=0.005$ , Perceptions of teamwork, safety grade for the clinical area and fewer reported fewer AE (14% reported no AE) compared to charge nurses (21%). For AE reporting, charge nurses reported more (45%) than non-charge nurses (27%)

Zabin <i>et al.</i> (2022) Palestine	<p>To investigate RNs perceptions of safety culture and the association of demographical characteristics between patient safety culture perceptions</p> <p><b>Definitions</b> Patient Safety: N Safety Culture: Y Safety Climate: N</p>	Quantitative. Descriptive correlation design	<p>Convenience sample of 240 RNs from various clinical settings in one from each hospital</p> <p>Response rate 53% F: n= 41 (38.3%) M: n= 66 (61.7%)</p>	<p>HSOPSC questionnaire A modified version translated into Arabic</p> <p>Internal consistency and reliability estimated using Cronbach's alpha for the whole instrument <math>\alpha</math> 0.87</p> <p>Data collection duration of three weeks</p>	<p>Descriptive statistics</p> <p>Univariate and multiple regression analysis to examine the relationship between safety culture perceptions and demographic characteristics.</p>	<p><b>PRR &gt;75% Strengths</b> Teamwork within units (89.7%) Organisational learning (87%) Feedback and communication about errors (83%) Frequency of events reported (76%)</p> <p><b>PRR &lt;75% Weaknesses</b> Managers' support for patient safety (69%) Overall perceptions of patient safety (64%) Supervisor/managers expectations (59%) Teamwork across units (59%) Handoffs and Transitions (53%) Communication openness (52%) Staffing (52%) Non punitive response to errors (22%)</p> <p>No significant findings relating to demographical characteristics (age, gender, employment, place of work, role, number of hours/week and safety culture perceptions</p>
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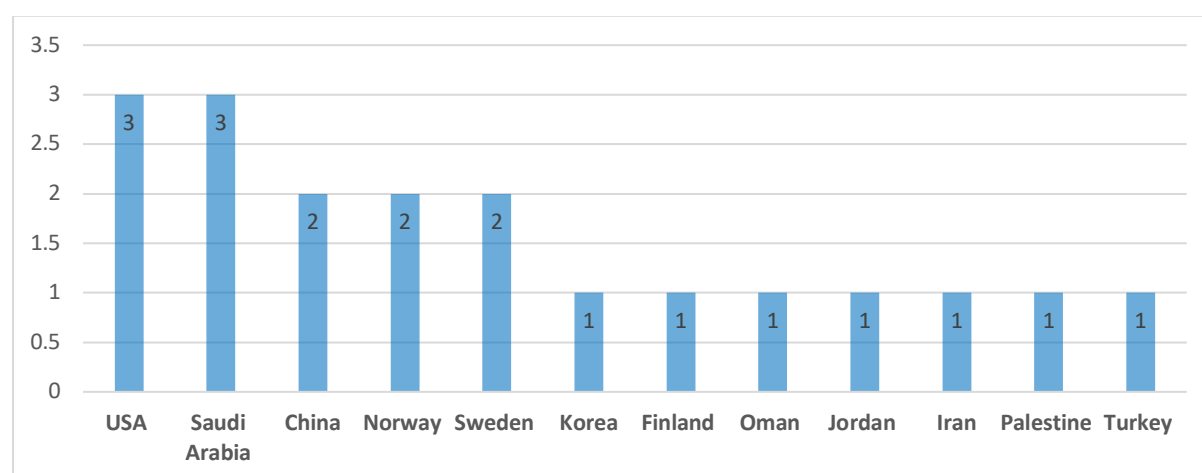
### 2.1.3 Evaluating the Evidence

Nineteen studies were selected for the review, of which sixteen used a quantitative approach and three adopted a qualitative approach. These addressed various aspects and issues related to patient safety, safety culture, and safety climate perceptions. The reviewed studies are summarised in Table 2.5, and this section critically appraises the selected studies.

#### 2.1.3.1 Participants and Settings

All studies included in this review were published between 2007 and 2023 and describe studies in nine countries (see Table 2.6), revealing no UK studies relating to RNs' perceptions of safety culture.

**Table 2.6 Country of Origin**



All studies were conducted in single or multi-site acute hospital settings. A total of 8,271 RNs were recruited in the 19 included studies that worked in various clinical settings (as illustrated in Table 2.5) in an acute or general hospital. Apart from AbulAIRub and Alhijaa (2014) and Zabin *et al.* (2022), most participants were female (83.3% to 97.7%) compared to males (2.3% to 16.7%). This is consistent with the nursing workforce globally as female nurses represent a higher proportion of the workforce, where 65% to 84% of RNs (from 2010 to 2019) are female compared to 14% to 35% who are male (Statista, 2019), which would account for the dominance of females in the reviewed studies. Two studies (Almutairi *et al.*, 2013; Wilson *et*



*et al.*, 2012) did not state the gender of the participants, which limits the validity and generalisability of the findings when the characteristics are unknown.

### **2.1.3.2 Study Designs**

Of the 19 studies that assessed RNs perceptions of safety culture in a hospital setting, three studies used a qualitative design that comprised one grounded theory (Leger and Phillips, 2017) and two qualitative descriptive designs (Ballangrud *et al.*, 2014; Ridelberg *et al.*, 2014) using semi-structured interviews. The remaining studies were quantitative and comprised one quasi-experimental without a control group (pre-test–post-test measurement) (AbulAIRub and Alhijaa, 2014), six descriptive cross-sectional designs (Almutairi *et al.*, 2013; Alquwez *et al.*, 2018; Ammouri *et al.*, 2015; Ballangrud *et al.*, 2012; Kakeman *et al.*, 2021; Rawas and Hashish, 2023), five descriptive correlation designs (Armellino *et al.*, 2010; Hong and Li, 2017; Turunen *et al.*, 2013; Wang *et al.*, 2014; Zabin *et al.*, 2022), three cross-sectional correlation designs (Aydemir and Koç, 2023; Cho and Choi, 2018; Wilson *et al.*, 2012), and one exploratory cross-sectional (Olsson *et al.*, 2016).

The relationship to perceptions of safety culture were diverse and included the rate and reporting of adverse events (AbulAIRub and Alhijaa, 2014; Hong and Li, 2017; Kakeman *et al.*, 2021; Ridelberg *et al.*, 2014; Wang *et al.*, 2014), demographic characteristics (Almutairi *et al.*, 2013; Aydemir and Koç, 2023; Zabin *et al.*, 2022), predictors of patient safety culture (Alquwez *et al.*, 2018; Ammouri *et al.*, 2015; Ballangrud *et al.*, 2012; Rawas and Hashish, 2023), structural empowerment (Armellino *et al.*, 2010, Cho and Choi, 2018), patient safety competencies (Cho and Choi, 2018), patient centred care (Olsson *et al.*, 2016), and differences between nurse managers or charge nurses to non- nurse managers and charge nurses (Turunen *et al.*, 2013; Wilson *et al.*, 2012). All the reviewed studies provided a rationale for the methodologies appropriate to the study aim (see Table 2.5), implying the designs' appropriateness.

For the quantitative studies, descriptive cross-sectional, correlation, or cross-sectional and correlation designs were the most common (n=15). These designs are economical, more accessible, and quicker to conduct than others, as they involve a one-time effort over a brief period using a sample from the population of interest (Polit and Beck, 2018). However, they pose problems for causal inferences relating to the exposure and outcomes. Furthermore, the complexity and unpredictability of healthcare delivery can change how nurses interact in social and organisational environments. As a result, response bias can occur depending on their behaviours and attitudes towards patient safety. It would, therefore, be questionable to assume that study outcomes truly reflect their perceptions of safety.

Equally, the reliability of the findings is debatable, as they cannot be generalised to a broader population or have the potential to be used by other healthcare organisations to improve patient safety now and in the future. To overcome the limitations of using these designs, the findings might have had different results if they had used more timepoints to measure how stable the participants' safety culture perceptions were over time. However, these designs are time-consuming and costly, and recruiting and retaining participants over time may be challenging (Horwood *et al.*, 2022). Correlation studies are the preferred design when it is not feasible to conduct an experiential study, and the threat to internal and external validity is more remarkable. The selection bias, confounders, and consistency of reporting are essential, which are discussed in the following section.

#### **2.1.3.3 Sampling Method**

Most studies used a non-probability sampling strategy with convenience sampling being the standard method for all quantitative studies. All three qualitative studies used purposive sampling, but they did not provide an explanation for their choice of this method. Ballangrud (2014) selected RNs who had completed the SBTB programme to recruit nurses. Likewise, in Ridelberg *et al.*'s (2014) study, the nurses were recruited by patient safety officers and healthcare practitioners. Leger and Phillips (2017) employed the snowballing method, wherein

their nursing colleagues recruited four out of the 13 nurses. Thus, selecting nurses who are interested in patient safety increases the probability of sampling bias.

Of the 16 quantitative studies, only four used probability sampling strategies for the study site and clinical settings (Aydemir and Koç, 2023; Cho and Choi, 2018; Hong and Li, 2017; Wang *et al.*, 2014). While this method enhances the sample representativeness (Polit and Beck, 2018), the studies used convenience sampling to select participants. Although everyone in the target population is equally likely to be chosen, it is the weakest form of sampling as researchers select readily available participants (Etikan, 2016). Response bias can also occur when the characteristics of the participants who agreed to be in the study differ from those who declined to participate (Lau and Kuziemy, 2016). The risk of under-representation or over-representation is greater, and sampling bias is also higher (Polit and Beck, 2018). Therefore, convenience sampling should be avoided when possible as the generalisability of the findings is limited. Nevertheless, one of the challenges of undertaking healthcare research is the accessibility of healthcare professionals. Subsequently, it is the most common method because it can be implemented more quickly.

The quantitative sample sizes varied, as they ranged from 4624 nurses in four hospitals to 100 nurses in one hospital. The response rate is also a key factor influencing the validity of survey results, as it is the total number who complete and return surveys out of the total invited to complete the survey. The response rates for the quantitative studies included in this review varied from 17% to 100%. For the qualitative studies, sample sizes varied from 21 nurses in seven ICUs to 12 nurses from eight general hospitals, and the response rate for the qualitative studies ranged from 86% to 100%.

#### **2.1.3.4 Sample Selection**

Controlling the independent variables, such as geographical location or demographic characteristics, can minimise sampling bias. Yet the geographical or demographic homogeneity was lacking when selecting participants for the studies. Geographical

homogeneity refers to a '*sample that is all drawn from the same location*' (Robinson, 2014, p28), which was only present in two studies (Armellino *et al.*, 2010; Ballangrud *et al.*, 2014) where they sampled RNs from one hospital and one clinical setting. In ten studies, the sample came from different clinical settings and one hospital (Alquwez *et al.*, 2018; Ammouri *et al.*, 2015; Ballangrud *et al.*, 2012; Hong and Li, 2017; Olsson *et al.*, 2016; Rawas and Hashish, 2023; Ridelberg *et al.*, 2014; Turunen *et al.*, 2013; Wang *et al.*, 2014; Zabin *et al.*, 2022). For the remaining seven studies, they used more than one hospital and different clinical settings (AbulAIRub and Alhijaa, 2014; Almutairi *et al.*, 2013; Aydemir and Koç, 2023; Cho and Choi, 2018; Kakeman *et al.*, 2021; Leger and Phillips, 2017; Wilson *et al.*, 2012). None of the studies compared the differences in safety culture to geographical locations, therefore increasing sampling bias and limiting the generalisability of the data.

Demographic homogeneity is imparted by a demographic commonality such as a specific age range, gender, and ethnic or socio-demographic group (Etikan, 2016), but this varied in all the studies. Clear and specific inclusion or exclusion criteria should have been included to increase homogeneity in the sample, but this was vague in all the studies. The only commonality shared was RNs working in a hospital setting. There were no exclusion criteria in six studies (Aydemir and Koç, 2023; Ballangrud *et al.*, 2014; Choi and Choi, 2018; Kakeman *et al.*, 2021; Leger and Phillips, 2017; Wang *et al.*, 2014), and there were no inclusion and exclusion criteria in five studies (Ammouri *et al.*, 2015; Ballangrud *et al.*, 2012; Olsson *et al.*, 2016; Ridelberg *et al.*, 2014; Turunen *et al.*, 2013). The inclusion and exclusion criteria could have been more specific, and other demographic data, such as role title, years of work, and post-qualifying experience, could have been included. Robinson's (2014) suggestion is that the more clearly and explicitly defined the sample, the more valid and transparent any generalisation can be.

Some study designs need a diverse sample to show that similarities seen in a diverse group are more likely to be true for the entire population than in a sample that is all the same. Ridelberg *et al.* (2014) qualitative study used a heterogeneous demographic sample with no

inclusion or exclusion criteria. Therefore, it was unclear why this method was chosen, as the findings did not examine the relationship between the demographical data and perceptions of safety culture. Similarities were found in the Ballangrud *et al.*'s (2014) study, which used strategic sampling to select participants based on their gender, age, area of intensive care, education level, and years as an ICU nurse. In contrast, eight quantitative studies (Almutairi *et al.*, 2013; Alquwez *et al.*, 2018; Armellino *et al.*, 2010; Aydemir and Koç, 2023; Cho and Choi, 2018; Olsson *et al.*, 2016; Rawas and Hashish, 2023; Zabin *et al.*, 2022) used a heterogeneous sample to determine if the demographical characteristics were predictors of a positive or negative safety climate. The findings from these studies varied, and some suggested that their relation to safety culture perceptions was consistent with the aims of their studies. However, the diversity of the outcomes threatens the internal validity of the findings due to the inferences between the differences in the participant demographics (e.g., age, gender, and years of clinical experience).

Epistemologically and practically, non-probability sampling was the most suitable method for these studies to capture data representing the RN's safety culture perceptions. They are suitable for their accessibility and affordability and are quicker to conduct than others (Polit and Beck, 2018). Yet a significant limitation of all the selected studies is that the risk of sample bias is greater, as not all participants in the population have an equal opportunity to be involved. This makes it difficult to draw inferences about a population (Etikan, 2016). Furthermore, the strategies to reduce sample bias are flawed due to some of the studies' geographical and demographic homogeneity and weaknesses in the inclusion and exclusion criteria. As a result, the credibility and coherence of a study are undermined if there is no defined sample or if the study makes claims beyond its own sample universe (Robinson, 2014). Subsequently, the confidence and the level of generality inferred from the reviewed study findings make it difficult to draw conclusions about the nurses' safety culture perceptions.

### 2.1.3.5 Measurement of Safety Culture

The safety culture measurement tools are based on a combination of dimensions to quantify safety culture within healthcare settings to provide a sense of how an organisation is at risk of patient harm occurring (Singer *et al.*, 2009; Sorra and Neiva, 2004). The 16 quantitative studies in this review sampled RNs across various clinical areas in an acute hospital setting. The HSOPSC was used in 12 studies with the SAQ, the PSCAS (the same as the SAQ), and the SCS was utilised in one each of the four quantitative studies (see Table 2.5). All tools used a 5-point Likert response scale (1=strongly agree, 5=strongly disagree). The length of the tools ranged from 19 to 60 questionnaire items that were grouped into six (e.g., SAQ and SCS) or 12 dimensions (e.g., HOSPSC). In addition to the SAQ survey, Aydemir and Koç (2023) used the Patient Safety Culture Scale (PSCS), which was an 83-item PSCS draft scale developed by Turkmen *et al.* (2011). Unlike the other tools used in the studies, the PSCS is one of the least frequently used tools internationally, as it was found to be restricted to studies undertaken in Turkey (e.g., Çiftcioglu *et al.*, 2022; Dirik and Interpeler, 2017; Karaca *et al.*, 2022; Turkman *et al.*, 2013; Zeynep *et al.*, 2020).

The safety culture dimensions that measure safety culture perceptions for the HOSPSC, SAQ, PSCAS, and PSCS are illustrated in Table 2.7. The SCS is the only survey that did not group the items under specific dimensions and consisted of 19 items to measure safety culture perceptions. The advantages of using safety culture assessment tools are that they are flexible, objective, and can be applied to many populations to obtain information about the prevalence, distribution, and interrelationships of variables within a population (Health Foundation, 2011b). However, Ross-Walker *et al.* (2012) argues that there are several immeasurable cultural factors, such as nursing workloads and the impact on staff and patient safety. These factors are key features of hospital environments, and measurement of this culture via a safety climate snapshot may not highlight this fact. Alqattan *et al.* (2019) concurs as they suggested that safety culture includes both objective (e.g., healthcare providers'

behaviours and practices) and subjective aspects (beliefs, values, and attitudes about safety culture) and quantitative survey-based organisational snapshots miss the latter.

**Table 2.7 Safety Culture Dimensions that Measure Safety Culture Perceptions**

HOSPSC	SAQ and PSCAS	PCSC
<b>12 Dimensions</b> Supervisor/manager expectations and actions Organisational learning Teamwork within units Communication openness Feedback and communication about error Non-punitive response to error Staffing Hospital management support Teamwork across units Hospital handoffs and transition  <b>Outcome measure measures</b> Perception of safety Frequency of incidents reported (last 12 months) Patient safety grade	<b>6 Dimensions</b> Safety climate Teamwork climate Stress recognition Perceptions of management Working conditions Job satisfaction	<b>5 Dimensions</b> Management and leadership Training of personnel Reported unexpected errors and events Care environment Personal behaviour

### 2.1.3.6 Data Collection

All studies included many participants across various clinical settings and data collection varied from 2 weeks to 11 months (see Table 2.5), and the risk of social desirability response bias cannot be excluded. Social desirability biases are the tendency to '*under-report socially undesirable attitudes and behaviours and to over-report more desirable attributes*' (Latkin *et al.*, 2017, p2), and are likely to occur in self-reported questionnaires. Therefore, the measure of safety culture may increase healthcare professionals' desire to act in a culturally and socially appropriate and acceptable manner. Due to flawed conclusions, concealing their genuine

opinions or experience of safety culture will affect the finding's reliability and generalisability. In addition, healthcare delivery is multifaceted, complex, and unpredictable and can change very rapidly. Subsequently, any rapid changes that affect clinical practice may negatively or positively influence their attitudes and behaviours hourly, daily, or weekly (Polit and Beck, 2018). Therefore, the risk of response bias can increase, leading to inaccurate self-reports and erroneous study conclusions. Furthermore, increased response bias can also be affected by transitory personal factors caused by fatigue, hunger, mood, and administration variations (Latkin *et al.*, 2017). No studies acknowledged this as a limitation except for Hong and Li (2017).

#### **2.1.3.7 Psychometric Properties of the Safety Culture Measurements**

Reliability and validity are the fundamental components in evaluating a measurement tool (Tavakol and Dennick, 2011). The reliability and validity using multilevel psychometric tests for the HOSPSC, SAQ, and SCS have been confirmed in several studies across a range of countries and different contexts, which are widely published (e.g., Kho *et al.*, 2005; Pronovost and Sexton, 2005; Sexton *et al.*, 2006; Sorra and Dyer, 2010; Sorra and Neiva, 2004). In contrast, the reliability and validity of the PSCS are limited as the 83 items in the tool are described as a draft scale (Turkman *et al.*, 2011). Indeed, the content validity was evaluated by a panel of ten professionals, and items with a low correlation coefficient of  $< 3.0$  were excluded, and other items were rewritten based on their opinion. The amended survey was reduced from an 83-item draft to a 46-item survey and divided into five dimensions: management and leadership (17 items), training of personnel (7 items), reported unexpected errors and events (5 items), care environment (8 items), and personal behaviour (14 items). Although the scale was test piloted for understandability, it was undertaken on a small sample of ten nurses. Therefore, the reliability and validity of this tool are debatable and suggest that not all the findings will be reliable, valid, and generalisable.



Cronbach's alpha is an extensively used objective measure of an instrument or scale's reliability and internal consistency (Taber, 2018). Indeed, earlier literature described Cronbach's alpha as '*one of the most important and pervasive statistics in research involving test construction and use*' (Cortina, 1993, p. 98). Confidence in the reliability and validity of the study findings is increased the closer the alpha is to 1, meaning a higher internal validity of the results. Typically, a Cronbach's alpha value of 0.70–0.90 indicates good reliability (Field, 2013; Tavakol and Dennick, 2011). Although, the pre-validated tools (HSOPSC, SAQ, and the SCS) in the reviewed quantitative studies make them suitable instruments for measuring safety culture. Nonetheless, according to Flin (2007), the reliability and validity should be confirmed. However, the psychometric properties reported were varied and limited for most of the reviewed studies (see Table 2.8).

**Table 2.8 Reported Psychometric Properties for the Reviewed Studies**

Authors	Instrument	Modified version	Coefficient for instrument	Coefficient for dimensions	Safety Culture dimensions	Reliability Category	Benchmarked against other studies
AbulAIRub and Alhijaa (2014)	HOSPSC	No	0.82	No	No	No	Yes
Almutairi <i>et al.</i> (2014)	SCS	No	0.88	No	No	Good	No
Alquwez <i>et al.</i> (2018)	HOSPSC	No	0.71	No	No	Good	Yes
Ammouri <i>et al.</i> (2015)	HOSPSC	No	No	0.69 – 0.87	6 out of 12	No	Yes
Armellino <i>et al.</i> (2010)	HOSPSC	No	No	0.63 – 0.87	No	No	One study
Ademyer and Koç (2023)	SAQ	Yes	0.93	No	No	No	No
Ballangrud <i>et al.</i> (2012)	HOSPSC	No	No	0.49 – 0.83	No	No	No
Cho and Choi (2018)	HOSPSC	Yes	No	0.74 - 0.80	10 out of 12	No	No
Hong and Li (2017)	PSCAS	Yes	0.89	test-retest 0.70-0.833	5 out of 12	No	No
Kakeman <i>et al.</i> (2021)	HOSPSC	Yes	No	0.76 - 0.82	No	No	No
Olsson <i>et al.</i> (2016)	SAQ	No	No	No	No	No	Yes
Rawas and Hashish (2023)	HOSPSC	No	0.93	No	No	No	One study
Turunen <i>et al.</i> (2013)	HOSPSC	Yes	No	0.74 – 0.84	6 out of 12	No	No
Wang <i>et al.</i> (2014)	HOSPSC	No	0.83	No	No	No	One study
Wilson <i>et al.</i> (2012)	HOSPSC	No	No	Teamwork *PSC 0.80	2 out of 12	No	One study
Zabin <i>et al.</i> (2022)	HOSPSC	Yes	0.87	No	No	Good	No

There was a degree of confidence in the reliability and validity of the findings in Hong and Li (2017) compared with the remaining studies. Hong and Li's (2017) study used multilevel measurements, which demonstrated good construct validity and internal consistency using Cronbach alpha (0.89), exploratory factor analysis ( $>0.50$ ), and test-retest analysis (0.701-0.833). For the remaining studies, the inflation of Cronbach's alpha was evident by the inappropriate use of the alpha in seven studies (AbulAIRub and Alhijaa, 2014; Almutairi *et al.*, 2014; Alquwez *et al.*, 2018; Aydemir and Koç, 2023; Rawas and Hashish, 2023; Wang *et al.*, 2014; Zabin *et al.*, 2022). For these studies, the alpha value was calculated across multiple dimensions instead of each of the 12 dimensions, which inflates the alpha values as it is greater than the values for each dimension (Taber, 2018). Four studies (Ammouri *et al.*, 2015; Cho and Choi, 2018; Turunen *et al.*, 2013; Wilson *et al.*, 2012) had only reported findings associated with some dimensions, which can also increase the Cronbach's alpha scores according to Taber (2018). Finally, superficial changes to words, usually caused by translation when modifying the surveys can cause low correlation scores, which were found in four studies. Ballangrud *et al.* (2012) was the only study with a low correlation score of 0.49, which they explained was due to the sample comprising RNs. However, they also omitted to report the alpha values for each dimension. In addition, Turunen *et al.* (2013), Choi and Cho (2018), and Zabin *et al.* (2022) reported good internal reliability, which indicated that the items measured the same construct and were not affected by their translation. Apart from Hong and Li's (2017) study, the lack of under-reporting and using Cronbach's alpha values suggested that not all the findings were reliable, valid, and generalisable.

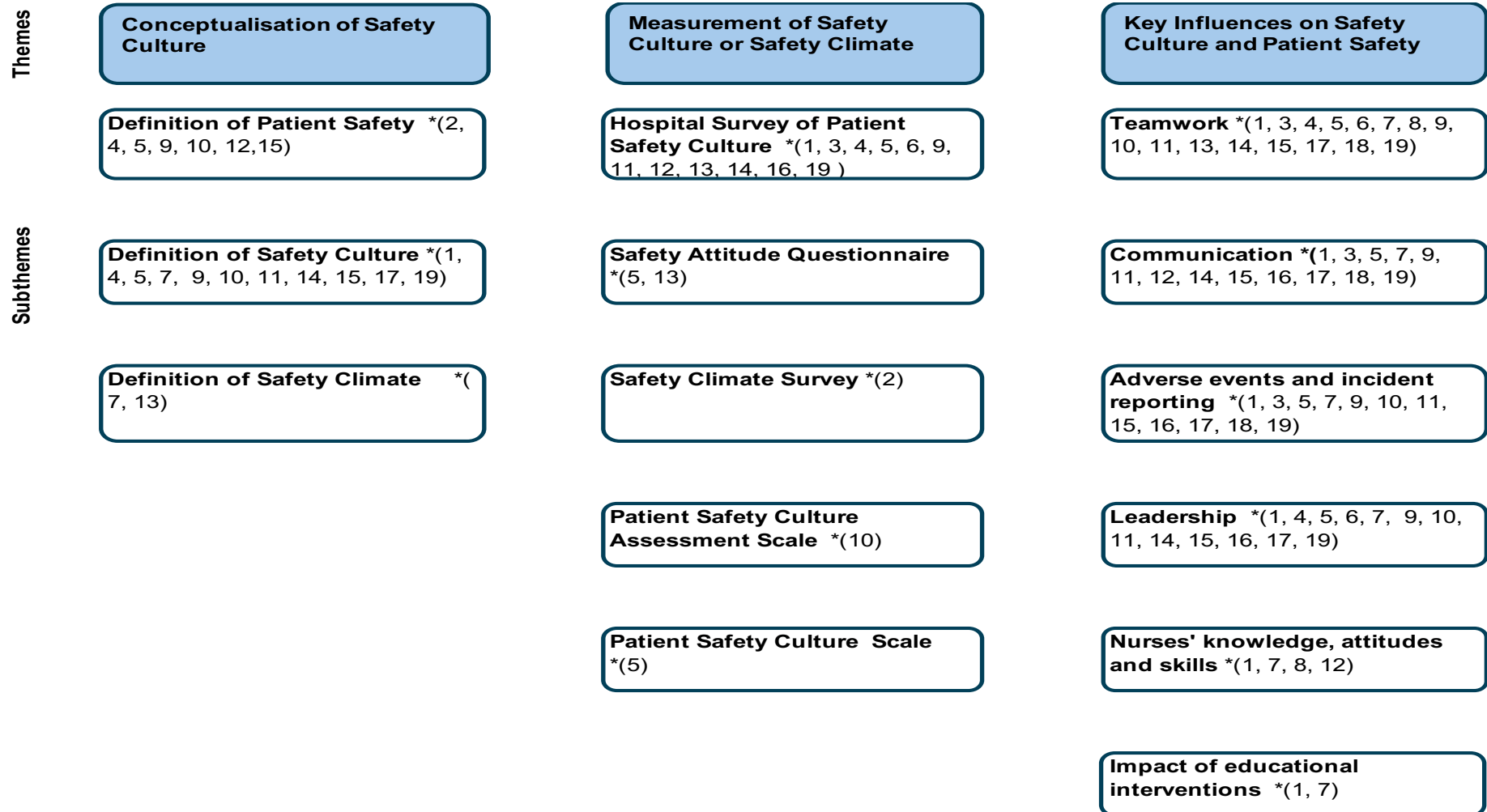
#### **2.1.4 Synthesising the Evidence**

Once the data was extracted and the papers critically appraised, the data extraction (see Table 2.5) was used to synthesise the evidence using thematic analysis. The process involved extracting the data and clustering themes and subthemes. Once these were identified, the data was further examined and synthesised into analytical themes (Thomas and Harden, 2008) that aligned with the study objectives. A table of themes itemised in Appendix 2.5

records the frequency and occurrence of themes in each paper. It also lists the authors alphabetically, and the 'X' denotes the theme that appeared in the findings. These included definitions used in the studies, measurements of perceptions of safety culture, safety climate, and the associated concepts (as illustrated in Table 2.7), and factors that were considered to influence nurses' perceptions positively or negatively (e.g., teamwork, communication, leadership, patient safety competencies). The subthemes were subject to further analysis to identify similarities of topic areas or subjects or by way of association and finally organised into three overarching themes as illustrated in Figure 2.2. The following overarching themes and related subthemes is discussed in the next section.

1. The conceptualisation of patient safety, safety culture and safety climate in nursing.
2. Measurement of safety culture and climate perceptions.
3. Key Influences on safety culture and patient safety.

Figure 2.2 Synthesis of the Evidence: Overarching Themes and Subthemes



\*( ) denotes the paper numbers. Appendix 2.5 illustrates the authors' alignment with the paper numbers

#### **2.1.4.1 Conceptualisation of Patient Safety, Safety Culture and Safety Climate**

Polit and Beck (2018) suggest that a study should provide a conceptual definition. For studies exploring patient safety, safety culture, or safety climate, Sammer *et al.* (2010) indicated that the first step is to define these terms. Table 2.10 illustrates the definitions applied to most of the reviewed studies, nonetheless, there were five studies (Ballangrud *et al.*, 2014; Leger and Phillips, 2017; Ridelberg *et al.*, 2014; Turunen *et al.*, 2013; Wilson *et al.*, 2012) that did not define these concepts. For those that did, ten of the studies, referred safety culture as shared values, attitudes, and behaviours related to preventing harm (Armellino *et al.*, 2010; Ammouri *et al.*, 2015; Aydemir and Koç, 2023; Ballangrud *et al.*, 2014; Rawas and Hashish, 2023) or promoting patient safety (Alquwez *et al.*, 2018; Cho and Choi, 2018; Hong and Li, 2017; Olsson *et al.*, 2016; Wilson *et al.*, 2012). Seven studies (Alquwez *et al.*, 2018; Ammouri *et al.*, 2015; Armellino *et al.*, 2010; Aydemir and Koç, 2023; Ballangrud *et al.*, 2012; Rawas and Hashish, 2023; Zabin *et al.*, 2022) used definitions reflecting their research aims. However, seven studies used patient safety, safety climate, and safety culture interchangeably, therefore the association with the study aims was unclear. For example, Almutairi *et al.* (2013) explored safety climate but defined patient safety. Similarly, AbulAIRub and Alhijaa (2014) and Wilson *et al.* (2012) examined perceptions of safety culture, but their definitions of safety culture referred to patient safety. Likewise, Olsson *et al.* (2016) studied perceptions of safety climate, but the description of safety climate reflected a definition for safety culture.

**Table 2.9 Definitions of Patient Safety/Safety Culture/Safety Climate**

Authors	Research Aim	Patient Safety	Safety Culture	Safety Climate
<b>AbulAIRub and Alhijaa (2014)</b>	To examine the impact of patient safety educational interventions among senior nurses on their perceptions of safety culture and the rate of reported adverse events, pressure ulcers, and patient falls.	NONE	<i>'The product of nurses shared values and beliefs about patient safety'.</i> Feng <i>et al.</i> (2008 p. 315).	NONE
<b>Almutairi <i>et al.</i> (2013)</b>	To explore the safety climate perceptions of the multicultural nursing workforce and to investigate the influence of the diversity of the multicultural nursing workforce on clinical safety in a large tertiary hospital in Saudi Arabia.	<i>'The prevention of harm to patients'</i> Kohn <i>et al.</i> (2000, p155).	NONE	NONE
<b>Alquwez <i>et al.</i> (2018)</b>	To assess the present patient safety culture of three general hospitals in Saudi Arabia, as perceived by nurses.	NONE	<i>'Values shared among members of the organization on what they think as important, their beliefs about how things operate in the organization, and the interaction of these with work unit and organizational structures and systems, which together produce behavioural norms in the organization that promote safety'</i> Singer <i>et al.</i> (2009, p. 400).	NONE

<b>Ammouri et al. (2015)</b>	To investigate nurses' perceptions about safety culture and to identify factors that need to be emphasised to develop and maintain the culture of safety among nurses in Oman.	NONE	<i>'Patient safety culture is the outcome of interactions between attitudes, values, skills, and behaviours to commit to workplace safety management. Therefore, patient safety culture is a multifactorial framework that promotes a systematic approach to preventing and reducing patient harm'</i> Nieva and Sorra (2003).	NONE
<b>Armellino et al. (2010)</b>	The study aimed to examine the relationship between structural empowerment and patient safety culture among staff-level (RNs) within adult critical care units (ACCU).	Used Laschinger et al. (2006) SE framework to guide the study.	<i>'The values and beliefs of an organization's PSC give direction to employees concerning how patient safety and employee errors are viewed and what attitudes and behaviours related to patient safety are expected'</i> Sorra and Nieva (2004).	NONE
<b>Aydemir and Koç (2023)</b>	To determine the factors affecting patient safety, focusing on the culture and attitudes of RNs working in EDs. To examine the effect of demographical characteristics on safety culture attitudes.	<i>'The prevention of errors and adverse effects to patients associated with health care'</i> WHO (2014).	NONE	NONE



<b>Ballangrud et al. (2012)</b>	To investigate RNs perceptions of the patient safety climate in intensive care units and explore potential predictors for the overall perception of safety and frequency of incident reporting.	NONE	<i>'An integrated pattern of individual and organizational behaviour based upon shared beliefs and values that continuously seeks to minimize patient harm which may result from the process of care delivery'</i> The European Society for Quality in Health Care (European Union Networks for Patient Safety (EUNetPaS) (2010, p. 4).	<i>'Safety climate is the measurable component of safety culture, regarded as surface features (Flin et al., 2000), and relates to the employees' shared perceptions regarding safety policies, procedures and practices in their unit and the organisation at large'.</i> Zohar and Erev (2007, p131).
<b>Ballangrud et al. (2014)</b>	Describe ICU nurses' perceptions of simulation-based team training for building patient safety in the ICU.	NONE	NONE	NONE
<b>Cho and Choi (2018)</b>	To investigate the relationships between RNs perceptions of the culture of patient safety in their workplace and their PS competency attitudes, skills, and knowledge.	NONE	<i>'The prevention of errors and adverse effects to patients associated with health care'</i> WHO, (2014).	NONE
<b>Hong and Li (2017)</b>	To investigate the impact of nurses' perceptions of patient safety culture and AE reporting and correlate their perceptions with self-reported rates of AEs.	NONE	<i>'A reflection of professional shared conventions, values, beliefs, and safety behaviours'</i> Schneider et al. (2013).	NONE

<b>Kakeman et al. (2021)</b>	To investigate RNs perceptions of the patient safety culture and the association of perceived proportion on AEs.	NONE	<i>'Management and staff values, beliefs, and norms about what is important in a health care organisation, how organization members are expected to behave, what attitudes and actions are appropriate and inappropriate, and what processes and procedures are rewarded and punished, concerning patient safety'</i> Sorra and Dyer (2010, p1).	NONE
<b>Leger and Phillips (2017)</b>	To explore the perceptions of bedside RNs regarding patient safety in adult acute care hospitals.	NONE	NONE	NONE
<b>Olsson et al. (2016)</b>	To explore RNs' perceptions of safety climate and readiness to implement patient-centred care in surgical care.	NONE	NONE	<i>'Shared perceptions about the importance of safety to the organization, which are communicated through the attitudes and behaviours that are expected, supported, and rewarded in the work environment'</i> . Schneider (1990).
<b>Ridelberg et al. (2014)</b>	To explore key factors influencing patient safety as perceived by RNs.	NONE	NONE	NONE

<b>Rawas and Hashish (2023)</b>	To investigate RNs' perceptions of safety culture and the association of demographical characteristics between patient safety culture predictors and outcomes.	<i>'The prevention of damage to patients'</i> WHO, (2017, p.1).	<i>'Perceived values, attitudes, skills, and behaviours'</i> Sendlhofer <i>et al.</i> (2015, p.1).	
<b>Turunen <i>et al.</i> (2013)</b>	To explore and compare nurse manager's and RNs views on patient safety culture to discover differences in their opinions.	NONE	NONE	NONE
<b>Wang <i>et al.</i> (2014)</b>	To describe nurses' perceptions of patient safety culture and their estimate of the frequencies of AEs and to examine the relationship between patient safety culture and AEs.	NONE	NONE	NONE
<b>Wilson <i>et al.</i> (2012)</b>	To explore the differences in perceptions of safety culture between charge and non-charge nurses.	NONE	NONE	NONE
<b>Zabin <i>et al.</i> (2022)</b>	To investigate RNs' perceptions of safety culture and the association of demographical characteristics between patient safety culture perceptions.	NONE	<i>'A component of an organisational environment directly related to safety values and beliefs within healthcare systems'</i> De Bienassis <i>et al.</i> (2020, p10).	

#### **2.1.4.2 Measurement of Safety Culture Perceptions**

Safety culture measurement involves the organisation's commitment to fostering a positive safety culture to reduce harm (IOM, 2000; Shostek, 2007). As a result, hospital safety culture is typically measured through quantitative safety culture assessment tools. In several comprehensive reviews of safety climate tools in healthcare (Alsalem *et al.*, 2018; Flin *et al.*, 2006; Halligan *et al.*, 2011; Singla *et al.*, 2006), the HSOPSC (developed by Sorra and Neiva, 2004) and SAQ (developed by Sexton *et al.*, 2006) emerged as recommended tools.

There were eight quantitative studies (Almutairi *et al.*, 2013; Alquwez *et al.*, 2018; Aydemir and Koç, 2023; Ballangrud *et al.*, 2012; Kakeman *et al.*, 2021; Olsson *et al.*, 2016; Turunen *et al.*, 2013; Wilson *et al.*, 2012) that offered insight into the overall perceptions of safety culture. Six studies measured the general safety culture against demographic characteristics. For example, Alquwez *et al.* (2013) aimed to identify predictors (demographic characteristics) of safety culture and found a direct correlation between poor safety culture perceptions associated with ethnic backgrounds, age, education, and more than one year of experience. Almutairi *et al.* (2013) used the SCS to investigate the differences in safety culture perceptions across a multicultural nursing workforce. Although nurses reported a positive safety climate and that patient safety was reinforced as a priority, of the 319 RNs who responded, 48% (146) of nurses said that their work environment was clinically unsafe. Despite this contraindication, they found no direct correlation between ethnic background and length of experience, except for those over 45 years of age. Similarly, Ammouri *et al.* (2015), Olsson *et al.* (2016), Rawas and Hashish (2023), and Zabin *et al.* (2022) found no correlation between gender, age, experience, and education, suggesting that demographic characteristics do not influence their perceptions of safety culture.

#### **2.1.4.3 Concepts Measured in Safety Attitude Surveys**

All the quantitative studies used safety attitude surveys of pre-defined dimensions (see Table 2.7) identified as sub-cultures of safety culture (Sammer *et al.*, 2010) to measure the perceptions of safety culture. All the quantitative studies reported the participants' perceptions

against the safety culture dimensions, however, only six of those studies (AbulAIRub and Alhijaa, 2014; Alquwez *et al.*, 2018; Armellino *et al.*, 2010; Ballangrud *et al.*, 2012; Cho and Choi, 2018; Hong and Li, 2017) reported their findings against all the dimensions (based on the selected safety attitude scale). The remaining studies reported their data against selected dimensions or individual questions (also referred to as items). Two of the studies reported data against each question, also referred to as an 'item' (Ammouri *et al.*, 2015; Almutairi *et al.*, 2013), and two studies used self-selected dimensions (Turunen *et al.*, 2013; Wilson *et al.*, 2012).

The items were scored as 1-5 or 0-100 using Likert Scales (1/0=disagree strongly, 2/25=disagree slightly, 3/50=neutral, 4/75=agree slightly, 5/100=agree strongly). The average mean or median score for each dimension was computed by adding individual scores for each item and dividing by the number of survey items within the dimension. The strengths and weaknesses of each dimension were described as a Positive Response Rate (PRR). The distinction between positive and negative response rates was calculated by combining the scores of the lowest response categories (disagree strongly and disagree slightly) and the highest responses (agree strongly and agree slightly). Most of the quantitative studies (AbulAIRub and Alhijaa, 2014; Alquwez *et al.*, 2018; Ammouri *et al.*, 2015; Armellino *et al.*, 2010; Cho and Choi, 2018; Hong and Li, 2017; Wang *et al.*, 2014) found strengths when the PRR was  $\geq 4$  or 75%, and weaknesses when it was  $\leq 3$  or 50%. In contrast, Aydemir and Koç's (2023) study did not clearly distinguish between positive and negative scores as they calculated the score for each item in each dimension and presented them as a total mean score (see Table 2.5). They reported that teamwork climate scored the highest with a mean (SD) of 46.32 (8.52), and the lower mean score was stress recognition at 16.10 (4.35). Nevertheless, it was unclear if these were positive or negative responses, therefore, comparing the findings to the studies using the SAQ (Olsson *et al.*, 2016) or the PSCAS (Hong and Li, 2017) was impossible.

These dimensions also varied as safety culture perceptions were measured against adverse event reporting (Alquwez *et al.*, 2018; Ammouri *et al.*, 2015; Ballangrud *et al.*, 2012; Hong and Li, 2017; Kakeman *et al.*, 2021; Wang *et al.*, 2014), following patient safety interventions (AbulAIRub and Alhijaa, 2014; Ballangrud *et al.*, 2014) and readiness for the implementation of evidence-based practice (Olsson, 2016). In addition, they were also measured with patient safety competencies (Cho and Choi, 2018), structural empowerment (Armellino *et al.*, 2010), and patient safety indicators (AbulAIRub and Alhijaa, 2014; Rawas and Hashish, 2023). The findings from the studies offer an insight into the key factors that contribute most strongly to a positive or negative safety culture and are discussed in the following section.

#### **2.1.4.4 Key Influences on Safety Culture and Patient Safety**

External and internal effects of organisational and workplace safety culture were perceived as strong indicators of a positive or negative safety culture. The most common factors included teamwork, communication, adverse events, incident reporting, and leadership.

##### **2.1.5.4.1 Teamwork**

The process of providing healthcare is intrinsic, interdisciplinary, and multidisciplinary, relying upon collaboration and cooperation across all healthcare professions to provide safe, effective care. Teamwork was the most essential and highest-scoring dimension reported (AbulAIRub and Alijah, 2014; Almutairi *et al.*, 2013; Alquwez *et al.*, 2018; Ammouri *et al.*, 2015; Armellino *et al.*, 2010; Aydemir and Koç, 2023; Hong and Li, 2017; Olsson *et al.*, 2016; Rawas and Hashish, 2023; Wang *et al.*, 2014; Zabin *et al.*, 2022). Apart from Aydemir and Koç (2023), the studies claimed that teamwork was a positive indicator of safety culture, which was reflected in the PRR scores (>75%) for teamwork. Alquwez *et al.* (2018) and Rawash and Hashish (2023), who aimed to identify predictors of patient safety culture, reported teamwork as a positive strength. Yet, there was no direct correlation to the overall perception of safety culture, which was reported as a weakness. Ammouri *et al.* (2015) study was the only one that used multiple regression analysis to identify factors of safety culture that required further

development to maintain the culture of safety. Their findings concluded that there was a positive relationship between teamwork and the overall perceptions of safety culture, which was supplementary to employee support for their colleague's work, respect, and teamwork under pressure.

#### **2.1.5.4.2 Communication**

Communication is fundamental in creating a positive safety culture (Ammouri *et al.*, 2015), but the findings varied. Some of the studies using the HOSPSC survey (AbulAIRub and Alijah, 2014; Ammouri *et al.*, 2015; Armellino *et al.*, 2010; Choi and Cho, 2018; Rawas and Hashish, 2023; Zabin *et al.*, 2022) revealed that communication was also the most important and highest scoring dimension, yet other studies reported it to be the weakest (Alquwez *et al.*, 2018; Kakeman *et al.*, 2021; Wang *et al.*, 2014). Interestingly, those studies using the SAQ (Aydemir and Koç, 2023; Hong and Li, 2017; Olsson *et al.*, 2016) did not report any findings relating to communication despite this being included in the SAQ survey as a separate dimension (Communication and Collaboration). Although researchers can report these items in their findings, the scoring criteria omits this dimension from the overall scores. The items aligned to communication and collaboration (for the SAQ) are different from the HOSPSC survey items. For the HOSPSC, this relates to hospital handoffs and transitions (transfer of patient care information across wards and during shift changes and handing over patient information) and communication openness (staff freely speak up if they see something that may negatively affect a patient and feel free to question those with more authority) (Sorra *et al.*, p3). The SAQ focuses on communication and collaboration, as well as the breakdown of communication within interprofessional teams (Sexton *et al.*, 2006). Consequently, when different tools are used, comparing the findings is difficult.

#### **2.1.4.4.3 Adverse Events and Incident Reporting**

As discussed in Chapter 1 (s1.2.3), the number of reported adverse incidents continues to rise (see Tables 1.4 and 1.5) since the evolution of patient safety. More open communication about errors where staff can speak up in a non-punitive organisational culture encourages reporting

and provides opportunities to learn from such errors (Elmonstri *et al.*, 2017; Sammer *et al.*, 2010). As a result, these factors are influential in promoting a positive organisational and workplace safety culture and reducing patient harm. Hong and Li (2017) measured this relationship between the organisational culture of learning and reported an overall positive safety climate by those nurses who reported an AE within 12 months. In comparison, those who did not report AE within 12 months reported a negative safety climate. They concluded that a positive learning culture reduced the number of adverse incidents, particularly medication errors (Hong and Li, 2017). Interestingly, Kakeman *et al.* (2021) reported negative (PRR < 50%) to all the safety culture dimensions with scores ranging from 42.7% to 20.9% which indicated a poor safety culture. This was reflected by the high number of estimated AEs reported within the past 12 months that ranged from 51.2% to 63%. The number of AEs was measured against six frequent incidents that nurses are required to report (Wang *et al.*, 2014; Abadi *et al.*, 2017). These included pressure ulcers, patient falls, adverse drug events, surgical wound infections, patients or family complaints and infusion or transfusion reactions. The number of AEs was estimated by RNs using a seven-scale frequency system and comprised the number of frequencies every day = 6, several times a week = 5, once a week = 4, several times a month = 3, once a month or less = 2, several times a year = 1, and never happen = 0. However, the choice of answers and the fear of punishment from reporting errors increases the risk of response bias and recall bias (Stantcheva, 2023). Consequently, nurses may underestimate the number of AEs and therefore this limits the reliability, validity, and generalisability of the data. Collecting the actual AEs data would have reduced the response and recall bias to provide more meaningful and reliable results from which to take action.

A learning culture and reporting culture appear in the HOSPSC, SAQ, and the SCS. However, the findings in the quantitative studies using the HOSPSC were misleading in six out of nine studies for the following reasons. AbulAIRub and Alhijaa (2014), Ammouri *et al.* (2015), Rawas and Hashish (2023), and Zabin *et al.* (2022) reported that nurses positively perceived organisational learning, feedback, and communication about errors but had negative



perceptions for non-punitive responses to errors, which ranged from 21.4% (Ammouri *et al.*, 2015) to 38.4% (Kakeman *et al.*, 2021). This meant that 62% to 88.6% of RNs reported a punitive response to errors. A punitive response to errors contributes to a negative safety culture and poor patient outcomes (Feng *et al.*, 2008), as nurses are not at ease when reporting incidents and alternatively do not report, and they do not learn, which perpetuates unresolved patient safety concerns (Leger and Phillips, 2017). Similarly, Alquwez *et al.* (2018), Armellino *et al.* (2010), and Wang *et al.* (2014) reported positive perceptions of organisational learning but negative perceptions of communication openness, frequency of errors reported, and non-punitive response to errors. Ridelberg *et al.* (2014) conducted a descriptive qualitative study that explored the facilitators and barriers that influenced patient safety and found that feelings of shame led to a reluctance to admit to faults and report incidents. Indeed, Alquwez *et al.* (2018) reported that out of 351 nurses, 301 (82%) nurses did not report AE, and only 60 (17%) reported an AE in 12 months. Equally, Armellino *et al.* (2010) concurred with these findings as they reported that 64 (63%) out of 103 nurses did not report an AE in the last 12 months. Interestingly, Leger and Phillip's (2017) grounded theory study found that nurses were professionally duty-bound to report AEs regardless of a non-punitive response, which was a key motivator to keep their patients safe. Consequently, nurses were unafraid and were willing to report errors and patient safety concerns.

Differences in nurses' perceptions were found in Ballangrud *et al.*'s (2012) study, as they reported positive perceptions of organisational learning, communication openness, and a non-punitive response, but the frequency of error reporting was negative. Their PRR was calculated based on scores  $\geq 50\%$ ; if they had measured PRR  $\geq 75\%$ , only organisational learning and a non-punitive response to errors would have remained positive. The inconsistency in reporting positive and negative perceptions may contribute to using three dimensions to measure the same factors: communication and openness about errors, organisational learning, non-punitive response to errors, and the frequency of reported events. Aydemir and Koç (2023) and Olsson *et al.* (2016) used the SAQ survey, providing direct

evidence of a negative reporting and learning culture. The SAQ survey captures all these items under the 'safety climate' domain, which captures the organisation's commitment to learning and reporting culture and is defined as '*perceptions of a strong and proactive organisational commitment to safety*' (Sexton *et al.*, 2006, p3).

#### **2.1.4.4 Leadership**

Organisational and ward leaders recognise that patient safety is essential to their leadership role, however, this is not a view that RNs share (Richardson and Storr 2010). Ridelberg *et al.*'s (2014) qualitative study supported this viewpoint; however, they reported that nurses who perceived that their managers who had a positive attitude towards patient safety engaged with the workforce, compared to their managers who had a negative attitude. A verbatim quote from one participant supports the view of Richardson and Storr (2010):

*'Well, as long as the managers at the highest level don't think it's important, nothing happens. It's politically correct to say [that patient safety is important], but if they don't demonstrate [with action] that its important, well then, we are getting nowhere' (Ridelberg et al., 2014, p7).*

There were mixed perceptions of leadership in 14 quantitative studies (AbulAIRub and Alhijaa, 2014; Alquwez *et al.*, 2018; Ammouri *et al.*, 2015; Armellino *et al.*, 2010; Aydemir and Koç, 2023; Cho and Choi, 2018; Hong and Li, 2017; Kakeman *et al.*, 2021; Olsson *et al.*, 2016; Rawas and Hashish, 2023; Turunen *et al.*, 2013; Wang *et al.*, 2014; Wilson *et al.*, 2013; Zabin *et al.*, 2022). The studies that used the HOSPSC survey reported different findings, where some reported positive attitudes towards ward leadership but negative attitudes towards organisational leadership (Cho and Choi, 2018; Rawas and Hashish, 2023; Wang *et al.*, 2014) or vice versa (AbulAIRub and Alhijaa, 2014). Some studies reported negative attitudes towards organisational and workplace leadership (Alquwez *et al.*, 2018; Armellino *et al.*, 2010; Ammouri *et al.*, 2015; Cho and Choi, 2018; Kakeman *et al.*, 2021; Turunen *et al.*, 2013; Zabin *et al.*, 2022). In the latter studies reporting negative perceptions of both, ward leadership was more favourable than organisational leadership. Three studies that used the SAQ survey (Aydemir and Koç, 2023; Olsson *et al.*, 2016; Hong and Li, 2017) reported negative

perceptions of leadership. However, their findings did not differentiate between ward leadership and organisational leadership.

Turunen *et al.* (2013) and Wilson *et al.* (2012) quantitative studies investigated the differences between the views of safety culture held by nurse managers/charge nurses and RNs. Both studies reported statistical differences in the overall perceptions of patient safety between the two groups. Turunen *et al.* (2013) said that nurse managers/charge nurses had more positive perceptions of safety culture than RNs. In contrast, Wilson *et al.* (2012) reported higher overall mean scores for RNs compared to nurse leaders, concluding that RNs had more positive perceptions of patient safety.

#### **2.1.4.4.5 Nurses Knowledge, Attitudes, and Skills**

Chapter 1 (s1.3) discussed the role of nurses and the significant contribution they provide to ensure the safe delivery of patient care. As the largest group of healthcare professionals, they are vital in providing safe and high-quality care to patients. Learning is critical to creating a positive safety culture (Vincent, 2010) and minimising the risk of harm to patients. Hence, it is essential that nurses integrate their attitudes, knowledge, and skills into nursing practice (Lee *et al.*, 2016). Only four of the reviewed studies provided insight into the knowledge, attitudes, and skills of the RNs and the relationship to safety culture (Cho and Choi, 2018) or patient safety (AbulAIRub and Alhijaa, 2014; Ballangrud *et al.*, 2014; Ridberg *et al.*, 2014).

Cho and Choi's (2016) quantitative study used the Patient Safety Competency Self-Evaluation (PSCSE) tool which was developed by Lee *et al.* (2016) and the HOSPSC (Sorra and Nieva, 2004) to explore the relationship between the RNs perceptions of safety culture and their knowledge, skills, and attitudes related to patient safety. The PSCSE (Lee *et al.*, 2016) comprised 41 items divided into seven subscales and rated using a 5-point Likert Scale (see Table 2.10). The RNs attitudes toward patient safety competencies were positive (mean score 4.2) compared to their knowledge (mean score 3.5) and skills (mean score 3.9), which significantly correlated with teamwork, organisational learning, and supervisor and

management expectations. Overall, the RNs scores were moderate, indicating that improvements in practical skills and patient safety knowledge were required.

**Table 2.10 Patient Safety Competency Self-Evaluation Scales**

Knowledge	Skills	Attitudes
Concept of safety culture (6 items)	Communication related to error and response to error (7 items)	Perception of patient safety (8 items)
	Evidence-based practice (11 items)	Patient safety promotion/prevention strategy (4 items)
	Resource utilisation (3 items)	Error reporting and disclosure (2 items)
5-point Likert Scale	5-point Likert Scale	5-point Likert Scale
1 – little knowledge 5 – extensive knowledge	1 – very uncomfortable 5 – very comfortable	1 – strongly disagree 5 – strongly agree

#### 2.1.4.4.6 The Impact of Educational Interventions

Two of the reviewed studies (AbulAIRub and Alhijaa, 2014; Ballangrud *et al.*, 2014) explored the impact of using educational interventions to enhance nurses' knowledge, skills, and attitudes, which have been shown to improve perceptions of patient safety culture and related behaviours. AbulAIRub and Alhijaa's (2014) quantitative study investigated the impact of a six-hour patient safety education with 57 senior nurses. The course comprised an introduction and fundamentals of patient safety, human factors, teamwork and communication, root cause and system analysis, and communicating with patients after adverse events. They used a quasi-experimental (pre-test and post-test) design where the pre-test data was collected four months before the course and the post-test data was collected four months after the course. Using the HSOPSC, the post-test findings showed that the educational program succeeded in significantly improving overall perceptions of safety culture (an increase of 10%), the frequency of error reporting (an increase of 10%), and the non-punitive response to errors (an

increase of 9%). The findings correlated with a significant decrease in the rate of reported AEs per 100 admissions (9%) and 1000 days (12%), which they concluded was due to the effectiveness of the educational programme in decreasing the number of harmful events. However, there were no statistically significant differences that existed between pressure sores and fall rates. Although there were some improvements to other dimensions, this was minimal as the differences ranged from 1.3% to 4.7%. In addition, the RNs' perceptions of leadership, communication about error and communication decreased, but there were no statistical differences reported.

Ballangrud *et al.* (2014) qualitative descriptive study described intensive care nurses' perceptions of simulation-based team training (SBTT), which was designed to improve individual and team competencies in non-technical skills (NTS). The training included situational awareness, decision-making, communication, teamwork, leadership, and managing stress and fatigue (Flin *et al.*, 2010). The SBTT positively increased awareness of clinical practice and the importance of teamwork, leadership, and clear communication. The pedagogical delivery method is a contributing factor to this improvement as nurses reported that the simulation exercises represented real-life situations, prompting nurses to reflect upon their and others' competencies. This enabled the RNs to become aware of what could be improved to prevent mistakes, which positively contributed to safe care as perceived by the RNs in the study.

Ridelberg *et al.* (2014) qualitative study explored the barriers and facilitators of patient safety and found that nurses with a personal interest in patient safety could learn from mistakes. Thus, increasing their knowledge, skills, and attitudes positively impacted patient safety. They concluded that this minimised risk and increased the nurse's capacity to learn from mistakes and to act proactively every day in the clinical setting. The nurses in this study expressed that patient safety was facilitated by having the right skill mix of competencies and experience, but this was compromised due to poor staffing levels. Insufficient staffing levels are a common issue that affects nurses negatively. Only five of the quantitative studies that used the

HOSPSC studies reported perceptions of staffing and were consistently found to be weak, as 59% to 79% of nurses described that there was not enough staff to handle the workload (AbulAIRub and Alhijaa, 2014; Alquwez *et al.*, 2018; Ammouri *et al.*, 2015; Armellino *et al.*, 2010; Cho and Choi, 2018). Poor staffing levels also contributed to the lack of uptake in educational programmes, as nurses do not have time to participate in activities relating to patient safety (Ridelberg *et al.*, 2014).

### **2.1.5 Discussion**

This section aims to provide a comprehensive and synthesised discussion of the findings. The discussion will focus on the three identified themes from the synthesis of the evidence (as discussed in s.2.4), which are:

1. The conceptualisation of patient safety, safety culture, and safety climate in nursing.
2. Measurement of safety culture and climate perceptions.
3. Key influences on safety culture and patient safety.

In addition, the literature discussed in Chapter 1 and the relevant broader literature will be drawn upon to identify and highlight the differences and commonalities of the findings with the current evidence.

#### **2.1.5.1 Conceptualisation of Patient Safety, Safety Culture and Safety Climate**

The synthesis of findings from this systematic review identified a commonality that researchers often discuss patient safety, safety culture, or safety climate without attempting to define it. The varied definitions and how safety culture was used interchangeably with safety climate is not surprising, as the blurring of these terms has been apparent since the growth of patient safety in earlier studies addressing safety climate (Zohar, 1980) and investigations of safety culture (Ostrom *et al.*, 1993). Equally, the growth of safety culture from organisational culture came from a more empirical tradition associated with such researchers as Hofstede (1991), Schultz (1995), and Zohar (1980). These factors have led to a lack of universal nomenclature and taxonomy for safety culture, which Sammer *et al.* (2010) concur and argues that safety culture is difficult to define and operationalise due to its multifaceted nature. Similarly, the

interaction between many diverse and dynamic factors (such as the vast range of healthcare services, specific competencies, and professional roles, both clinical and managerial) makes healthcare systems and delivery overly complex, indicating that safety culture is heterogeneous (Bagnasco *et al.*, 2011). As a result, beliefs, attitudes, and values about safety culture can be different from one hospital to another, from one ward to another, from one unit to another, and from one person to another. This is a result of different subcultures that have formed around different healthcare roles and diverse groups. Moreover, the hierarchical management structures (organisational and workplace) and their differences can result in a few common values, beliefs, and attitudes the whole organisation shares. Another reason could be the different ways people define patient safety, safety culture and safety climate. As discussed in Chapter 1, it was concluded from the literature that there was no universal definition for this because all the definitions are so general. A systematic literature review by Brasaite *et al.* (2015) found that 14 out of 16 studies lacked any specific definition of patient safety. Those studies presented the definition of patient safety in diverse ways, either as a safety climate or a culture of safety. The lack of consensus in defining these terms continues, nonetheless, the conceptual breadth of the safety culture and safety climate manifests itself in the attitudes and behaviours of individuals towards patient safety.

#### **2.1.5.2 Measurement of Safety Culture**

It has been shown in this systematic review that safety culture and safety climate are quantitatively assessed by safety climate questionnaires, with the HOSPSC being most frequently used, followed by the SAQ. Churruca *et al.* (2021) systematic literature review of quantitative, qualitative, and mixed method studies that measured safety culture/climate in hospitals shared similar findings. According to Churruca *et al.* (2021), the HOSPSC was used in 312 (45.7%) of the 682 papers that were looked at, and the SAQ was used in 209 (30.9%) studies. Alsalem *et al.* (2018) argued that these tools share similarities and common dimensions but differ in length and psychometric properties. Moreover, Flin *et al.* (2006) highlighted that only the HSOPSC and the SAQ survey tools were considered robust, as their

psychometric properties have been extensively researched and widely published. A strength of the reviewed studies indicated good psychometric properties, however, the assessment of psychometric properties varied, and there was no standardised approach used when reporting them. Similarly, the findings from three systematic reviews (Alsalem *et al.*, 2018; Colla *et al.*, 2005; Flin *et al.*, 2006) reported this limitation for most of the safety climate scales.

The staffing dimension in the HOSPSC survey was particularly interesting in the reviewed studies, as it consistently reported scores below the typical level using multilevel testing. Similarly, previous studies that have examined the psychometric properties have consistently reported low reliability relating to the staffing dimension, which calls into question the generalisability of the tool. In a quantitative study by Blegen *et al.* (2010), most items in the HOSPSC were valid, but the staffing subscale had low reliability. Similarly, Sorra and Dyer (2010) examined the multilevel psychometric properties of the HOSPSC. All the dimensions were reliable and valid except for staffing levels, which contributed to one item within the dimension '*we use more agency/temporary staff than is best for patient care*'. When this item was removed, there was no difference in the coefficient values and thus remained in the survey as they concluded that the staffing dimension was psychometrically sound and acceptable (Sorra and Dyer, 2010).

The components measured within these tools relate to factors that influence safety culture. The first step towards developing a strong and solid safety culture requires an assessment of the status of the organisational culture (Hellings *et al.*, 2010). The underpinning premise is that measuring the safety climate allows changes in organisational safety behaviours to be identified (Glendon and Litherland, 2001). Although they are quick, cost-effective, and flexible, the findings from the reviewed quantitative studies provide a snapshot of the organisational safety culture and safety climate at a single timepoint (Hedsköld *et al.*, 2021), which offers a superficial evaluation of the organisational culture (Kirk *et al.*, 2007). Such approaches to research are prone to short-term changes (Cheyne *et al.*, 2002) and miss the chance to include subjective and immeasurable factors. To overcome these limitations, measuring safety



culture perceptions over time will address the short-term fluctuations and provide a more accurate evaluation of safety culture.

### **2.1.5.3 Key Factors Associated with Safety Culture**

The reviewed studies identified teamwork, communication concerning incident reporting, and leadership as the key factors that were perceived to create a positive or negative safety culture.

#### **2.1.5.3.1 Teamwork**

In this systematic review, teamwork was the most crucial factor for safety culture, as nurses perceived this positively. A positive teamwork approach was reflected by the presence of support, respect for each other, and working together as a well-coordinated team. This concurs with other international studies (e.g., El-Jardali *et al.*, 2014; Günes *et al.*, 2016; Lira *et al.*, 2020; Oweidat *et al.*, 2023; Wagner *et al.*, 2013) who concluded that these traits are necessary for working well with others. According to Sammer *et al.* (2010), teamwork is the second critical subculture of patient safety, with Schwendiman (2013) implying that it reflects the quality of how teams collaborate in a clinical area. Therefore, teamwork contributes to a positive working environment where nurses are more likely to engage in patient safety-related behaviours and have been shown to reduce errors in patient outcomes (Al Sabei *et al.*, 2020; Falguera *et al.*, 2021; Lee and Scott, 2018).

Effective teamwork relies upon adequate staffing resources, and recent studies by Lake *et al.*, (2020), Mandal *et al.* (2020), Stalpers *et al.* (2015) and Zhao *et al.* (2020) have shown that inadequate staffing levels create a negative working environment and contribute to an increase in adverse events. Interestingly, those studies using the HOSPSC reported weaknesses in staffing levels because there was insufficient staff to provide the best possible care for patients. This increases the nurse's workload which negatively impacts the nurse's mental and physical well-being. In a mixed methods study by Granel (2021), data from the semi-structured interviews found that nurses reported increased stress and fatigue from

workload pressures when staffing levels were reduced. Unfortunately, the disadvantage of using the HOSPSC survey is that it fails to measure this within the dimensions. The advantage of using the SAQ is that individual factors are measured in the job satisfaction and stress recognition dimensions. However, when it comes to staffing levels, the measurement of this is limited to one question and measured in the perceptions of the management dimension. Therefore, it is difficult to establish any correlation between staffing levels, job satisfaction, and stress recognition. The studies using the SAQ reported similar findings and found that the PRR for teamwork was one of the highest, while working conditions, stress recognition, and perceptions of management received the lowest (Armenillo *et al.*, 2010; Aydemir and Koç, 2023; Olsson *et al.*, 2016). Consequently, these factors were shown to decrease the quality of the work and thus increase the rate of adverse events and avoidable deaths (as discussed in Chapter 1, s1.3).

#### **2.1.5.3.2 Communication and the Relationship to Incident Reporting**

Communication, openness, and flexibility are also perceived qualities of teamwork, yet in the reviewed studies, nurses held negative perceptions about communication aligned with reporting behaviours. Under-reporting errors and remaining silent is a well-recognized phenomenon in healthcare (Schwappach and Richard, 2018; Soydemir *et al.*, 2017), which corroborates with the findings in this review. Despite the positive perceptions of organisational learning, under-reporting of AEs was a significant issue due to the high prevalence of nurses who did not report them. It suggests that a blame culture existed due to the non-punitive responses to errors which received one of the lowest scores. Fear, punitive responses to errors and shame were the most significant barriers to reporting, concurring with findings in similar studies (e.g., Alahmadi, 2010; El-Jardali *et al.*, 2014; Rashed and Hamdan, 2015; Taylor, 2012). Mwachofi *et al.* (2011) argued that a blame culture that uses punishment, blames individuals for errors, and has weak reporting systems, prevents learning from errors, and does not improve patient safety outcomes.

The differences in safety culture in each unit may explain the high number of incidents that go un-reported (Günes *et al.*, 2016). Therefore, this may imply that nurses consider errors routine problems linked to the organisational culture whereby the culture is seen as *'the way we do things around here'* (Oandasan, 2009, p1174). In addition, the disparities in the context and the content of the frequency of reporting AEs make it difficult to judge whether this truly reflects a positive safety culture. Either an improved reporting culture or a negative safety culture resulting from a decrease in patient safety could account for these disparities. Conversely, it cannot interpret a lower frequency of AE reports as an increase in patient safety-related behaviours. Conversely, Elmonstri *et al.* (2017), Manapragada and Bruk-Lee (2021), and Sammer *et al.* (2010) have shown that nurses are more likely to speak up in non-punitive environments as they are less likely to fear the consequences of speaking up. Being open and transparent when reporting AEs is crucial for improving patient safety. The assumptions are that humans are fallible, errors are expected, and AEs are often the culmination of many different contributory factors and systems failures (Sammer and James, 2011). Consequently, a just culture, reporting culture, and learning culture are essential components of a positive safety culture (Barrato *et al.*, 2016; DH., 2019; NHS England, 2022a; WHO, 2008).

#### **2.1.5.3.4 Leadership**

Incident reporting is fundamental to reducing patient errors and improving patient safety, but equally important is the willingness of staff to speak up proactively to improve patient safety (Lee and Dahinten, 2021). Indeed, the Francis Inquiry (Francis, 2013) reported that leadership at every level contributed to *'creating a culture of fear, a culture of secrecy, and a culture of bullying'* (Francis, 2013, p10), which led to the catastrophic failings in providing safe, quality care to patients. Research studies by Okuyama *et al.* (2014), Noort *et al.* (2021), Morrow *et al.* (2016), Schwappach and Richard (2018), and Seo and Lee (2022) report that nurses who speak up or do not speak up about patient errors are influenced by the perceptions they hold about their organisational and workplace leadership. These findings concur with the findings in this review as similarities revealed that the management culture had a greater influence on

safety culture more than the nursing culture. The findings from this review indicated that organisational and workplace leadership intrinsically influenced teamwork, communication, and reporting behaviours. In addition, the RNs were more critical of leaders who imitated a weak organisational and workplace culture towards patient safety. Feng *et al.* (2008) and Willmott and Mould (2018) agree that safety culture is a subset of organisational culture and a product of nurses' belief systems. Willmott and Mould (2018) consider safety culture to be influenced by managers' expectations and safety priorities. Feng *et al.* (2008) suggest that management commitment, effective leadership, and an open-door policy are key factors supporting patient safety development. Other key factors included the training of individuals, positive staff attitudes and behaviours, clear and practical rules and procedures, and a non-punitive response to incident reporting so that AEs could be reported and learnt from (Feng *et al.*, 2008).

The nurse's negativity about their workplace leadership was reflected in their responses in that ward managers did not listen, do not support staff, did not communicate timely information that affected their work, and ignored safety problems. The organisational leadership may have reflected their negative working environment due to inadequate staffing levels and punitive response to incident reporting, thus reflecting the organisational lack of commitment to patient safety. Similarly, recent studies (e.g., Alingh *et al.*, 2019; Echegaray *et al.*, 2020; Svendsen *et al.*, 2018) have shown that management failures were barriers to patient safety behaviours. Indeed, Echegaray (2020) indicated that employees may refrain from speaking up when leaders disregard their opinions. Schwendimann *et al.* (2013) shared similar findings and suggested that healthcare workers do not think management is particularly concerned about their or the patients' well-being. This assumption may contribute to the differences between nurses and leaders regarding patient safety, as found in studies by Turunen *et al.* (2013) and Wilson *et al.* (2012). The differences may be explained by leaders having a broader overview of procedures and systems implemented to prevent errors. They may be more familiar with macro-system levels contributing to patient safety and improved outcomes. In other words,

nurses are not always aware of everything leaders do regarding patient safety management. On the other hand, Tregunno *et al.* (2009) found that nurses believed that nurse managers were too distant from the bedside and did not see the patient safety problems and actual safety errors at the bedside.

The commitment to patient safety by the organisation is fostered by a leader who creates a positive work environment where patient safety is a priority (Farohkzadian *et al.*, 2018). Empirical studies have shown that a positive workplace and organisational culture is significantly associated with a reduction of system-related patient outcomes such as mortality rates (Aiken *et al.*, 2014; Ball *et al.*, 2018; Cho and Choi, 2018; Wieczorek-Wojcik *et al.*, 2020), failure to rescue (Aitken *et al.*, 2008; Carlesi *et al.*, 2017), and medication errors (Dubois *et al.*, 2013; Chang *et al.*, 2011; Mardon *et al.*, 2010) (see further discussion in Chapter 1 s1.3).

#### **2.1.5.3.5 Knowledge, Skills and Attitude of Safety Culture and Patient Safety**

Nursing care is vital for safe care, and nurses must have the knowledge, skills, and attitudes to improve patient safety (Schnall *et al.*, 2008). However, there is a growing need to equip nurses with knowledge, skills, and attitudes relating to safety culture and patient safety-related behaviour. A systematic review by Brasaite *et al.* (2015) found that healthcare professionals' attitudes towards patient safety were connected to either safety culture concepts in general or AE reporting. Nevertheless, the reviewed studies did not relate this to the nurse's patient safety behaviours and skills. Only three of the reviewed studies primarily explored the relationship to patient safety through improved knowledge, skills, and attitudes. The evidence, surprisingly, may suggest that there is less focus on evaluating the level of patient safety competencies. Indeed, the systematic review by Brasaite *et al.* (2015) concluded that there has been progress in patient safety. However, the research relating to nurses' knowledge and skills has been of limited interest to researchers, which may be due to a lack of competency assessment tools to address this issue (Cho and Choi 2018). The study concluded that nurses must improve their knowledge and practice skills concerning teamwork, leadership, and continuous learning

to facilitate safety (Cho and Choi, 2018). These broad concepts make it challenging to identify specific competencies relating to those requiring improvements. In a previous study by McMullan *et al.* (2010), mathematical skills were investigated in numerical skills and drug calculation, in which 50% of the nurses failed. The lack of mathematical skills will impact nurses' ability to accurately prepare and administer medication to patients (McMullan *et al.*, 2010). Although this study does not relate to safety culture, the findings are significant, as most AEs are due to medication errors.

Two of the reviewed studies (AbulAIRub and Alhijaa, 2014; Ballangrud *et al.*, 2014) measured the impact of educational programmes to improve patient safety. The findings demonstrated significant improvements in the frequency of error reporting and the non-punitive response to errors and improvements (AbulAIRub and Alhijaa, 2014). Similarly, Ballangrud *et al.* (2014) reported that SBTT improved nurses' awareness of their clinical practice, the importance of working in teams to build patient safety, clear communication, and the identification of clinical knowledge development. A systematic review by Weaver *et al.* (2013) found that interventions to improve safety culture were rooted in the principles of leadership, teamwork, and behaviour change. However, of the 33 studies reviewed, 20 explicitly explored the impact of team training to support team communication and improve safety culture. Team training refers to a set of structured methods for optimising teamwork processes, such as communication, cooperation, and collaboration (Salas *et al.*, 2008; Weaver *et al.*, 2013). Of the 20 papers, 16 studies reported significant improvements in staff perceptions of safety culture. Furthermore, it was reported to decrease care delays and improve communication and patient safety outcomes (e.g., reduction of errors and adverse outcomes) (Weaver *et al.*, 2013).

The studies in this review that explored nurses' knowledge and skills are limited compared to those that explore nurse attitudes and therefore concurred with Brasaite *et al.*'s (2015) systematic review. Further research would be beneficial for enhancing patient safety knowledge and skills in the nursing profession. Furthermore, it would address the gaps in the

literature, gain a more nuanced understanding of what helps nurses to keep patients safe, and identify specific deficits in knowledge and skills relating to nurse-sensitive indicators (e.g., falls, sepsis, infection control) to prevent harm.

### **2.1.6 Strengths and Limitations of the Review**

One of the strengths of this review is that it provides an opportunity to examine merged evidence concerning what is already known. It also provided a clear indication of the existing gaps in the knowledge base relating to RN's safety culture perceptions, patient safety-related behaviours, and the impact of using a digital story. A limitation is that selection bias can occur when selecting and reviewing the literature, nevertheless, a structured approach to the systematic review was adopted, followed by justification for the employed methods. The review quality was also enhanced using Caldwell *et al.*'s (2011) framework and carried out independently but reviewed and discussed with the researcher's supervisors.

The systematic review in this study focussed on nurses in an acute hospital setting, but as safety culture is a phenomenon in all healthcare settings, some literature might have been missing. Excluding studies on nurses working in primary care, community care, or for independent providers could be both a strength and a limitation because other factors may have been identified. Finally, most of the included studies were quantitative and used different self-reporting measuring tools, which may create bias. The surveys measured similar concepts, but the individual items related to the safety culture dimensions differed, making comparing the studies challenging. It was further attributed to the differences in the sample sizes, research designs, and the variety of questionnaires, scales, tests, and interviews.

The absence of UK studies in this review is a significant limitation, given the scarcity of studies conducted in the UK. In addition, there were no available research studies that connected patient safety and safety culture with the use of digital stories, and therefore, the relevance of this study may be limited. However, this could be viewed as a strength, as it provides a strong rationale and originality for this research study and contributes to new knowledge in this

subject area. Notwithstanding, it was necessary to undertake an additional literature review to explore the body of evidence to identify what is known about digital stories and how they have been applied to nursing. To overcome this limitation, a scoping review was undertaken, which is discussed in section 2.2.

### **2.1.7 Summary of the Systematic Review**

The overarching aim of this chapter was to provide a detailed and comprehensive synthesis of the available literature relating to the use of digital stories and how it would impact on RNs perceptions of safety culture patient safety-related behaviours. This systematic review identified and included a total of 19 studies from 2007 to 2023. As previously noted, the review does not include any studies that relate digital stories and patient safety or safety culture in nursing (this is presented in the subsequent section 2.2). Thus, the available data focused on nurses' safety culture perceptions and the impact of educational interventions (e.g., team training) used to improve safety culture and patient safety-related behaviours. This review identified safety culture as a subset of organisational culture. Organisations all differ in their patient safety culture, and within organisations, culture can vary between areas, for example, wards, departments, and between different professional groups. The review confirms the already-known factors, which fall into three overarching categories: organisation, unit/ward, and individual, and that leadership, teamwork, communication, and AE reporting are highly relevant. Interventions have been shown to improve safety culture perceptions, but the evidence is sparse.



## **2.2 Introduction**

The systematic literature in the previous section focused on a well-defined question and followed a robust and transparent systematic process to search and select the literature. As a result, the findings revealed no evidence of safety culture perceptions in the context of digital stories in nursing. Nonetheless, searching the literature revealed that digital storytelling and digital stories were emerging concepts. Since little is known about this subject area, a scoping review was considered a suitable approach according to Roberts *et al.* (2021). The first section will provide a rationale for adopting a scoping review methodology, followed by how the evidence was searched and selected using Arksey and O'Malley's (2005) framework. A thematic analysis identified three key themes that related to the research questions, which will be discussed and synthesised within the broader literature. The strengths and limitations of this study, followed by a summary of the scoping review, will also be discussed.

### **2.2.1 Scoping Review Methodology**

Scoping reviews have emerged as a valid approach to evidence synthesis (Munn *et al.*, 2018; Peters *et al.*, 2021). While scoping reviews may be conducted to determine the value and scope of a full systematic review, they can be taken as a stand-alone literature review to summarise and disseminate research findings (Peters *et al.*, 2020). Other reasons include clarifying concepts and definitions, providing background or contextual information on a phenomenon or concept(s), identifying knowledge gaps, and making recommendations for future research (Armstrong, 2011; Peters *et al.*, 2020; Pollock, 2021; Tricco *et al.*, 2018). Digital storytelling was included in the overall aim of this review, as it is often used interchangeably with digital stories in the literature. Accordingly, the general objective of this scoping review was to explore the body of literature to identify the use and impact of digital storytelling and digital stories in nursing. Scoping the body of literature will also identify the knowledge gaps concerning digital stories in nursing and how this could apply to improving safety culture perceptions and patient safety-related behaviours, thus providing a strong rationale for undertaking this study for this thesis.

Scoping reviews are similar to systematic reviews in that they synthesise evidence to address a particular research question (Peters *et al.*, 2020). To ensure that the results are trustworthy, both reviews should follow a rigorous, transparent, and structured methodological framework (Mays *et al.*, 2001; Peters *et al.*, 2021). For scoping reviews there are three common methodological frameworks for searching and analysing literature. The original six-step framework proposed by Arksey and O'Malley (2005) has been the most influential in scoping reviews. This was later enhanced by Levac *et al.* (2010) and more recently, the JBI (formerly Joanna Briggs Institute), which was developed by Peters *et al.* (2020). Compared to Arksey and O'Malley (2005) and Levac *et al.* (2010), who both use a six-step framework, the JBI contains nine steps (Peters *et al.*, 2024).

### **2.2.2 Selection of Studies**

All frameworks share similar explicit details to search, select, and present the findings to enhance the clarity and rigour of the review process, albeit they differ in their perspectives relating to consultation. Arksey and O'Malley (2005) suggest that consultation with key stakeholders is optional compared to Levac *et al.* (2010), who state that consultation is required. To support their viewpoint, they suggest using an iterative team approach when selecting the studies and extracting the data (Levac *et al.*, 2010). The JBI framework extends the consultation requirements to include key stakeholders, such as patients and their informal carers, policymakers, government agencies, information scientists, research librarians, and experts throughout the process (Peters *et al.*, 2020).

Pollock *et al.* (2021) suggest using the JBI approach, as it is to date the most rigorous and defined methodology. However, Peters *et al.* (2022) argues that the PRISMA-ScR is a complementary checklist rather than a methodological framework that can be used with other methodological guidance. This scoping review was therefore guided by Arksey and O'Malley's (2005) six-step framework and used in combination with the recent refinements of Levac *et al.* (2010) and the JBI (Peters *et al.*, 2020) framework where appropriate.

The following six steps were used:

1. Identifying the research question.
2. Identifying relevant studies.
3. Study selection.
4. Charting the data.
5. Collating, summarising, and reporting the results.
6. Consultation (optional).

### **2.2.2.1 Identifying the Research Question**

As outlined by Arksey and O'Malley (2005), the first stage of this review was to develop a research question(s) to determine the parameters of the search. Scoping reviews can address broader research questions compared to traditional systematic reviews that are more specific and targeted (Armstrong, 2011; Pollock *et al.*, 2023). Arksey and O'Malley (2005) recommend using a broad scope to research questions to generate a breadth of literature. However, Levac *et al.* (2010) and Peters *et al.* (2020) argue that a scoping review will lack direction and clarity without a clear question. To construct a straightforward and meaningful research question aligned with the aim of this review, the Population, Concept, Context (PCC) format was used as recommended by Peters *et al.* (2020). The population included nurses and patients, digital storytelling, digital stories (concept), hospitals, communities, and educational settings (context). Two research questions were posed to achieve the overall aim of this scoping review.

1. In what contexts and for what purposes has digital storytelling or digital stories been used in nursing?
2. What is the impact of digital storytelling or digital stories when used in nursing?

The research questions will inform how digital storytelling and digital stories are applied in clinical practice and address the literature gaps to provide a strong rationale for undertaking this study.

### 2.2.2.2 Identifying Relevant Studies

This scoping review aimed to identify published and unpublished primary sources of evidence to establish a comprehensive search. Systematic reviews, qualitative, quantitative, and mixed methods study designs were included, while commentaries, editorials, conference abstracts, and reports were excluded. Identifying relevant studies for this review followed the same process undertaken for the systematic review, as it provided a robust and transparent process when searching the literature.

The initial search of the literature undertaken for Chapter 1 and the systematic review (s2.1) enabled key search terms to be identified due to the familiarity with the literature. The refinement of these search terms was determined using the key search terms relevant to the research questions (as indicated in Table 2.11). The refined search terms included nurs\*, nursing (population), patient stor\*, digital patient stor\* (concept), hospitals, healthcare, and healthcare services (context). These search terms were deemed suitable to capture pre-registration and post-registration nurses, patients, carers, and different settings, including education. For example, stories were used interchangeably with digital storytelling and digital stories. Similarly, digital storytelling was used interchangeably with digital stories. Boolean operators (AND, OR) were applied to capture the evidence, and the same principles for the systematic review in relation to the use of truncation were applied.

**Table 2.11 Search Terms used with a Total Number of Articles for all Databases**

Search Number	Search Terms	Total No. of retrieved articles
#1	Patient stor* and nurs* or nursing	530
#2	Digital stor* and nurs* or nursing	129
#3	Patient stor* and healthcare or hospital or health services	680
#4	Digital stor* and healthcare or hospital or health services	325

Five online databases were used to find published articles, including CINAHL Complete, Scopus, Academic Search Complete, Web of Science, and Medline. A total of 1664 articles were found (illustrated in Table 2.11). Appendix 2.6 provides a detailed account of the number of articles found for each database.

Other online sources and hand searching of key journals were used to find published and unpublished primary research. The online sources included:

- Google Scholar
- British Library Integrated Catalogue
- Grey NET
- OpenGrey
- JSTOR
- WorldCat
- ETHOS
- Journal of Mixed Methods Research
- Journal of Patient Safety

Hand searching the reference lists from the selected studies was also undertaken to identify further studies that may have been missed.

### **2.2.2.3 Study Selection**

Due to the broad scope of this review, if the volume of literature is too comprehensive, it can be too overwhelming, whereas if it is too narrow, there is a risk that no suitable papers will be located (Pollock *et al.*, 2021). Consequently, the PCC format was also used to define the eligibility criteria to ensure that a comprehensive breadth of literature was searched that was relevant to the objective of this review (illustrated in Table 2.12).

**Table 2.12 Eligibility Criteria using the PCC Framework**

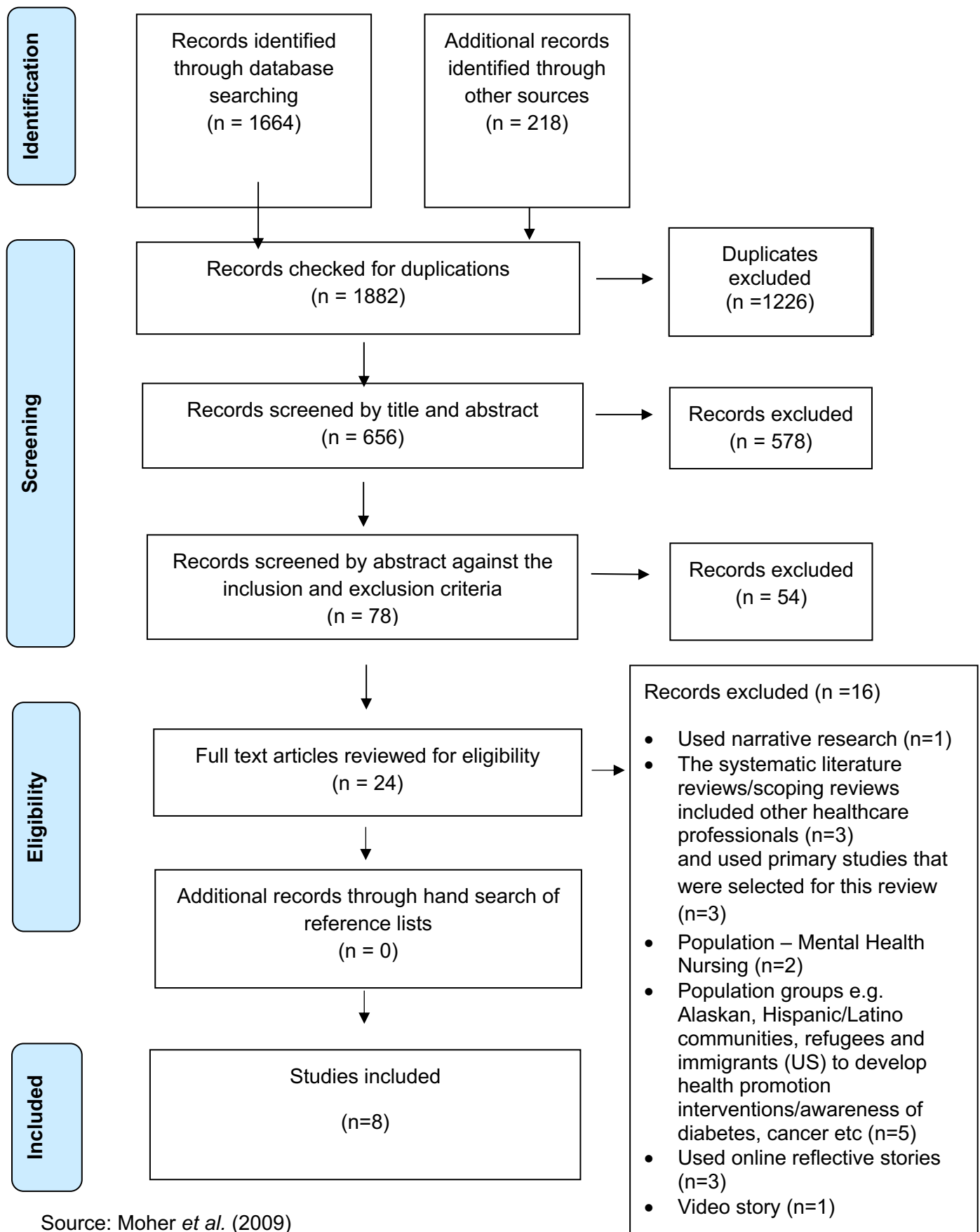
	Inclusion Criteria		Exclusion Criteria
<b>Population</b>	Registered Nurses	Registered Nurses working in adult care across the age range of 18-65+ years	Any allied health professionals
	Student Nurses	Student nurses undertaking pre-registration nursing programme	Any nurses working with children and adolescents across the age range of 0-17 years
	Patients, carers, and patient families	Patients who have been involved in digital storytelling or digital stories	
<b>Concept</b>	Digital stories	Digital storytelling, digital stories	Narrative research, scenarios, case studies, role play
<b>Context</b>	Clinical setting or educational setting in any geographical location	Any clinical settings for adult care in NHS providers (e.g., acute, emergency) and other NHS healthcare services (e.g., community care)	Any non-adult care services, e.g., children's, obstetrics, neonatal and mental health
		Any healthcare educational settings for pre-registration nursing programmes	Any independent care providers, e.g., nursing homes, private hospitals
<b>Evidence</b>		Any published or unpublished primary studies between 2007 and 2023	Any published and unpublished primary studies before 2007.
		Written in English	Not written in English

The review of evidence for Chapters 1 and 2 provided the eligibility criteria. As previously mentioned, oral or written stories told by patients or health professionals and digital stories have been used interchangeably with digital storytelling in the literature. To address the research questions, studies that used written or oral stories told by patients or nurses were excluded. In the systematic literature review, all nurses had to work in an acute hospital setting, which may have missed relevant studies in other healthcare settings. Therefore, the population and context criteria were extended to include nurses working in any clinical setting

that provided adult care services in an acute, non-acute, or community setting. Likewise, previous studies that evaluated digital storytelling and digital stories were undertaken with pre-registration nurses in an educational setting. Any published and unpublished papers were included between 1st January 2007 and 31st December 2023, which corresponded with the period for the systematic literature review. Furthermore, digital storytelling and digital stories have been identified as tools in healthcare for the past 15 years (Gubrium *et al.*, 2014a; Lambert and Hessler, 2018), which would sufficiently capture the most relevant information.

The PRISMA flowchart (Moher *et al.*, 2009) was used to illustrate the selection process (see Figure 2.3). A total number of 1882 articles were suitable for this review, and all duplicates were removed (n=1226). The titles and abstracts were checked for relevance (n=656), and 578 papers were excluded. Seventy-eight abstracts were reviewed, and 54 articles were rejected because they did not meet the eligibility criteria (see Table 2.12), leaving 24 studies eligible for full-text review. A hand search for references from these studies was undertaken, but no further articles were selected for two main reasons. Firstly, the primary studies did not meet the eligibility criteria, as they were outdated or included a range of healthcare or non-healthcare professionals. Secondly, the final papers selected for this scoping review had used these studies in their reference list. Sixteen articles were excluded from the full-text screening for several reasons associated with the eligibility criteria (as illustrated in Table 2.12 and Figure 2.3), leaving eight studies to be included in the scoping review.

**Figure 2.3 PRISMA Flowchart of the Selection Process**





#### **2.2.2.4 Charting the Data**

This stage of Arksey and O'Malley's (2005) framework allows data extraction from the included studies and is referred to as a 'descriptive analytical' method. This method within the narrative tradition involves applying a common analytical framework to all the primary research reports and collecting standard information on each study (Arksey and O'Malley, 2005). Each study was read and re-read independently to understand the aims, designs, and findings and to decide what to record from the primary studies. Using the PCC framework and other relevant information, an iterative process was used to continually change the data-charting spreadsheet as recommended by Levac *et al.* (2010). The final data-charting spreadsheet aligned with categories that responded to the aim of this scoping review and associated research questions. These included the following:

- Core details: author(s), year of publication, country of origin.
- Population and sample size: pre-registration nursing and post-registration nursing.
- Concept/phenomena of interest: digital storytelling and digital stories.
- Context and study details: study setting, study context, methodology, methods.
- Summary of findings.
- Key themes.

Following this process, the studies and the data extraction were discussed with the researcher's supervisor to ensure the process was robust. Table 2.13 presents a summary of the data extracted from all the studies.

**Table 2.13 Summary of the Data Extraction from Selected Studies**

Publication Details	Population	Concept/ intervention	Context Study Details	Summary of Key Findings	Themes
1 Christianson, A. (2011)  UK	Pre-Registration Nursing  3rd-year students N = 20	Digital story (created by a patient) accessed from Patient Voices	Nurse education  To understand variations in students' perceptions of the patient's created digital story  Qualitative, phenomenographic  Semi-structured interviews	Students perceived that the digital story was more powerful and a better learning resource than written stories and situated interactions with patients in the clinical setting; some perceived that the digital story was not as powerful as having patients directly in the classroom  The digital story triggered emotional responses among students, making them sad and angry when patient experiences were negative  Students perceived that they understood the complexity of the situation by recognising the perspective of the storyteller	Research Question 1 Conceptual definition Nursing Pedagogy <ul style="list-style-type: none"> <li>Digital Stories in nurse education</li> </ul> Research Question 2 The power of digital storytelling and digital stories <ul style="list-style-type: none"> <li>Gaining empathetic understanding</li> <li>Understanding the meaning</li> </ul>

2	<p>           Eggenberger  <i>et al.</i> (2016).             USA         </p>	<p>           Post-Registration            RNs'            Patient and family            members             Pre-intervention            RNs' N=35            Patients' family            N=35             Intervention            RNs' N=14             Post-intervention            RNs N=14         </p>	<p>           Digital story            (created by patients            and nurses)            embedded into a 4-            hour workshop.         </p>	<p>           Hospital setting             Explored how the digital            story impacted on nurses'            perceptions and confidence            in providing family-centred            care             Mixed methods   <b>Pre-Intervention</b>            35 family members            completed the Iceland            Family Perceived Support            Questionnaire (ICE-FQSQ)             30 RNs completed Family            Nurse Practice Scale            (FNPS) Descriptive            statistics             5 RNs participated in semi-            structured focus groups  <b>Intervention</b>            4-hour workshop that            incorporates patient-            created and nurse created            digital story   <b>Post-Intervention</b>            FNPS Survey            Workshop evaluation            comprised open-ended            questions.         </p>	<p>           The educational intervention was            perceived to increase the RNs'            confidence and understanding of a            family illness experience and related            knowledge and skills necessary to            provide family care             The RNs perceived the educational            activities to increase their confidence            and competencies in family nursing            practice             Findings indicated that the            educational workshop could influence            family nursing practice         </p>	<p>           Research Question 1            Conceptual definition            Nursing pedagogy           <ul style="list-style-type: none"> <li>• Digital storytelling in nurse education</li> <li>• Digital stories in nurse education</li> </ul>           Research Question 2            The power of digital            storytelling and digital stories           <ul style="list-style-type: none"> <li>• Gaining empathetic understanding</li> <li>• Understanding the meaning</li> <li>• Sharing experiential realities</li> </ul> </p>
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3	Jun <i>et al.</i> (2020) USA	Post Registration RNs' - Public Health Nursing N=13	Digital Storytelling (StoryCentre)	Public Health Nursing Organisation  Evaluated the RNs' experiences of participating in the digital storytelling workshop.  Qualitative, descriptive  Telephone semi-structured interviews  Thematic analysis	Perceived as an effective way of learning to develop meaningful relationships and empathising with patients  RNs perceived the workshop as therapeutic and cathartic by having time and space to reflect and focus on themselves  RNs' perceived sharing stories increased a sense of human connection and commonalities by gaining an insight into the realities of everyday practice from others	Research Question 1 Conceptual definition Nursing pedagogy <ul style="list-style-type: none"> <li>Digital storytelling in nurse education</li> </ul> Research Question 2 The power of digital storytelling and digital stories <ul style="list-style-type: none"> <li>Gaining empathetic understanding</li> <li>Sharing experiential realities</li> </ul>
4	LeBlanc <i>et al.</i> (2017) USA	Post Registration RNs - Advanced Public Health Nursing N=108	Digital story (Healthcare professionals) accessed from Nurstory.org/stories  Four digital stories were incorporated into a public health nursing course.	Nurse education  Evaluated nurse created digital stories to teach social justice concepts.  Qualitative Phenomenography  Post-intervention - written reflection.  Thematic analysis	The digital story triggered a sense of vulnerability by reflecting on their position and their interaction with the digital story  RNs could challenge the systems in relation to social determinants of health and distributive justice  Listening to the digital story challenged their moral courage, which was perceived to emphasise the affective responses of compassion, devotion, and righteousness	Research Question 1 Conceptual definition Nursing pedagogy <ul style="list-style-type: none"> <li>Digital stories in nurse education</li> </ul> Research Question 2 The power of digital storytelling and digital stories <ul style="list-style-type: none"> <li>Gaining empathetic understanding</li> <li>Understanding the meaning</li> </ul>

5	Price <i>et al.</i> (2015) USA	Pre-Registration Nursing  4th-year students N= 68	Digital storytelling  Sharing the nurse created digital story with peers'  Both were incorporated into a nursing patients with complex needs course	Nurse education  Investigated the impact of using a nurse created digital story to promote a deeper understanding of palliative care concepts.  Quantitative and Qualitative  Pre and post survey to evaluate the student's experience of creating a digital story  Focus group interviews post course Thematic analysis	Students' learning experience about palliative and end-of-life care was enhanced through the digital storytelling process  Students indicated they were more engaged with the digital stories compared to case studies, which were described as hypothetical and linear  Students identified the proximity of the shared stories, which created a closer bond with their peers	Research Question 1 Conceptual definition Nursing pedagogy <ul style="list-style-type: none"> <li>Digital storytelling in nurse education</li> </ul> Research Question 2 The power of digital storytelling and digital stories <ul style="list-style-type: none"> <li>Gaining empathetic understanding</li> <li>Sharing experiential realities</li> </ul>
6	Urstad <i>et al.</i> (2018) Norway	Pre-Registration Nursing  1 <sup>st</sup> year students N=17  3 <sup>rd</sup> year students N = 20	Digital storytelling  Explored student's experience of creating digital stories in the context of reflection during clinical placements  Qualitative, exploratory  Focus group interviews  Content analysis	Nurse education  Explored student's experience of creating digital stories in the context of reflection during clinical placements  Qualitative, exploratory  Focus group interviews  Content analysis	Students perceived that the digital story promoted a deeper understanding of the story's message, which they could apply to similar situations  Students indicated that the digital multimedia effects combined with their peers' voices created an extra dimension of reality  Written reflections or reflective presentations generated less enthusiasm than digital stories, which were perceived to increase engagement  Students perceived that having the time and space enhanced their ability to reflect on the digital story	Research Question 1 Conceptual definition Nursing pedagogy <ul style="list-style-type: none"> <li>Digital storytelling in nurse education</li> </ul> Research Question 2 The power of digital storytelling and digital stories <ul style="list-style-type: none"> <li>Gaining empathetic understanding</li> <li>Sharing experiential realities</li> </ul>

7	<p>Waugh and Donaldson (2016) UK</p>	<p>Pre-Registration Nursing</p> <p>2nd-year students N=13</p>	Digital story	<p>Nurse education</p> <p>Evaluated the use of a digital story in the context of learning about compassionate care</p> <p>Qualitative, descriptive</p> <p>The evaluation comprised 7 item open-ended questions</p> <p>Thematic analysis</p>	<p>It was perceived that students could recognise and critically discuss elements of compassion quickly, which included person-centred care, communicating with relatives, and witnessing good nursing practice</p> <p>The digital story evoked emotions and a human connection, prompting the students to reflect on their practice</p> <p>Most students preferred the digital story to the narrative with an added musical soundtrack</p> <p>Students identified three strategies for enhancing learning with digital stories</p>	<p>Research Question 1 Conceptual definition Nursing pedagogy</p> <ul style="list-style-type: none"> <li>Digital stories in nurse education</li> </ul> <p>Research Question 2 The power of digital storytelling and digital stories</p> <ul style="list-style-type: none"> <li>Gaining empathetic understanding</li> <li>Understanding the meaning</li> </ul>
8	<p>Yocum (2018) USA</p>	<p>Pre-Registration Nursing</p> <p>Nursing students- did not state year N=16</p>	Digital story	<p>Nurse education</p> <p>Examined the perceptions of pre-registration nursing students of using a digital story as an educational strategy in the context of caring for chronically ill older adults</p> <p>Qualitative</p> <p>Post evaluation survey</p> <p>Focus group interviews</p> <p>Thematic analysis</p>	<p>Students were more optimistic about the use of the digital story when compared to traditional methods</p> <p>Students perceived the digital story as a memorable experience provoked by the emotions and realities of living with a chronic illness from the patient's perspective</p> <p>Students indicated that the digital story encouraged conversations with patients and their families, positively impacting their communication with patients</p> <p>Students developed more knowledge and awareness of how chronic illness impacts patients and their families</p>	<p>Research Question 1 Conceptual definition Nursing pedagogy</p> <ul style="list-style-type: none"> <li>Digital stories in nurse education</li> </ul> <p>Research Question 2 The power of digital storytelling and digital stories</p> <ul style="list-style-type: none"> <li>Gaining empathetic understanding</li> <li>Understanding the meaning</li> </ul>

#### **2.2.2.5 Collating, Summarising and Reporting the Results**

Assessing the methodological quality or risk of bias of the evidence is not required in scoping reviews (Peters *et al.*, 2022), and it is unnecessary to synthesise the evidence or aggregate findings from different studies (Arksey and O'Malley (2005). Consequently, scoping studies tend to be descriptive (Pollock, 2023), as the purpose of collating and summarising the studies is to analyse the breadth of the literature (Arksey and O'Malley, 2005). Arksey and O'Malley (2005) recommend using an analytical framework or thematic construction to present a narrative account of the literature when examining the evidence. The analytical framework (illustrated in Table 2.13) was used alongside thematic analysis to cluster into themes and subthemes that aligned with the overall aim and questions. These included definitions of digital storytelling and digital stories, the concept and context of digital storytelling and digital stories used, and the impact of creating or listening to digital stories. The subthemes were subject to further analysis to identify similarities and differences within the studies and finally organised into three overarching themes.

1. Conceptual definition of digital storytelling and digital stories.
2. Nursing pedagogy.
3. The power of digital storytelling and digital stories.

The findings are presented in two stages recommended by Arksey and O'Malley (2005) and Levac *et al.* (2010), who describe the need for a numerical summary of the studies and a narrative account from the qualitative thematic analysis.

#### **2.2.3 Study Characteristics**

The scoping review revealed eight peer-reviewed empirical research studies, one of which was a published thesis (Yocum, 2018), indicating that there are very few published empirical studies concerning digital storytelling and digital stories in nursing. With the exception of Christianson's (2011) study, which was published over ten years ago, six studies were published in the last ten years (Eggenberger *et al.*, 2016; LeBlanc *et al.*, 2017; Price *et al.*, 2015; Urstad *et al.*, 2018; Waugh and Donaldson, 2016; Yocum, 2018), and one within five

years (Jun *et al.*, 2020). Five studies were based in the US (Eggenberger *et al.*, 2016; Jun *et al.*, 2020; LeBlanc *et al.*, 2017; Price *et al.*, 2015; Yocum, 2018), two in the UK (Christianson, 2011; Waugh and Donaldson, 2016), and one in Norway (Urstad *et al.*, 2018). All the studies included a qualitative methodology, of which six were qualitative only (Christianson, 2011; LeBlanc *et al.*, 2017; Jun *et al.*, 2020; Urstad, 2018; Waugh and Donaldson, 2016; Yocum, 2018). Eggenberger *et al.* (2016) used a mixed methods methodology incorporating a pre-intervention and post-intervention design. Similarly, Price *et al.* (2015) included a pre-intervention and post-intervention design using qualitative and quantitative methods. Both studies did not integrate the findings of the two data sets.

The participants were pre-registration nurses in five studies (Christianson, 2011; Price *et al.*, 2015; Urstad *et al.*, 2018; Waugh and Donaldson, 2016; Yocum, 2018) and post-registration nurses in three studies (Eggenberger *et al.*, 2016; Jun *et al.*, 2020; LeBlanc *et al.*, 2017). Three different facilities were used for the study settings, which included six studies in academic or educational settings (Christianson, 2011; LeBlanc *et al.*, 2017; Price *et al.*, 2015; Urstad *et al.*, 2018; Waugh and Donaldson, 2016; Yocum, 2018), one in a hospital setting (Eggenberger *et al.*, 2016), and one in a specialist digital storytelling organisation (StoryCentre) (Jun *et al.*, 2020).

Four studies used digital storytelling or digital stories as the only intervention (Christianson, 2011; Jun *et al.*, 2020; Urstad *et al.*, 2018; Yocum, 2018). In contrast, four studies embedded digital storytelling or digital stories within an educational programme that included other teaching resources (Eggenberger *et al.*, 2016; LeBlanc *et al.*, 2017; Price *et al.*, 2015; Waugh and Donaldson, 2018). However, the studies' perspectives on their application varied. Therefore, in response to the first research question, '*In what contexts and for what purposes has digital storytelling or digital stories been used in nursing?*' one overarching theme and two related subthemes were identified from the thematic analysis of the finding and are discussed in section 2.2.5.



#### **2.2.4 Conceptual Definition of Digital Storytelling and Digital Stories**

All studies applied a conceptual definition of digital storytelling or digital stories, as illustrated in Table 2.14. Three studies define the concept of storytelling as an introduction to digital storytelling and digital stories, but these varied. Christianson's (2011) definition captured the human activity of telling and sharing a story in a way that conveyed emotions. In contrast, Jun *et al.* (2022) adopted a definition that associated storytelling with motivating people to act in a certain way. Price *et al.* (2015) described storytelling as an effective method to enhance reflective learning. Despite their differences, their definitions captured how humans make sense of their lived experiences.

The interpretation of what is digital storytelling and digital stories also varied. However, all the studies similarly defined them as a story in a multimedia format. For those using digital storytelling, applied the definitions that captured the variety of digital multimedia, such as images, audio, music, video, and the narrative voice (Price *et al.*, 2015; Urstad *et al.*, 2018). The studies using digital stories shared comparable digital multimedia tools in the definitions, yet there were subtle differences as they were described as short in length (Christianson, 2011), lasting three to five minutes (LeBlanc *et al.*, 2017; Yocum, 2018), or two to five minutes (Waugh and Donaldson, 2018).

**Table 2.14 Conceptual Definitions of Digital Storytelling and Digital Stories**

<b>Publication Details</b>	<b>Study Aim</b>	<b>Storytelling</b>	<b>Digital Storytelling</b>	<b>Digital Stories</b>
<b>Christianson, A. (2011)</b>	To identify and understand different ways in which student nurses experience and make sense of a patient's digital story.	<i>'Storytelling is a uniquely human experience through which people make sense of past experiences, convey emotions, and ultimately connect with other people'</i> (McDrury and Alterio, 2003).		<i>'Digital stories are short, personal narratives that use still images and music captured through the use of digital media'</i> (Christianson, 2011).
<b>Eggenberger et al. (2016)</b>	To examine the influence of an educational intervention on nurses' attitudes towards confidence in providing family care and family's perceptions of support from nurses.			<i>Digital stories include a video with sound, text, and a narrative voice</i> (Eggenberger et al., 2016).
<b>Jun et al. (2020)</b>	To evaluate the RNs' experiences of participating in digital storytelling workshops and identify barriers and facilitators in attending such workshops.	<i>'Storytelling can describe a situation and motivate people to act in a certain way, expressing human agency and self-identifying'</i> (Murphy and Higgins, 2018).	<i>'Digital storytelling is a generic term to describe storytelling using media technologies to create narrative forms'</i> (Hardy and Sumner, 2018).	
<b>LeBlanc et al. (2017)</b>	To explore and evaluate how digital stories integrated into public health nursing education can teach social justice concepts essential for nurse leadership.			<i>'They are audio-videos that are short in length, 3–5 min, often combine the voice of the narrators' own story with personally selected images, text, and music and emphasize a perspective of the storyteller'</i> (Lambert, 2013).

<b>Price et al. (2017)</b>	To investigate how digital storytelling affects learning processes in student nurses in relation to promoting a deeper understanding of palliative care and end-of-life concepts.	<i>'Digital storytelling marries the strength of narrative and technology' (Price et al., 2017).</i>	<i>'Digital stories are multimedia movies that include photographs, video, animation, sound, music, text, and often a narrative voice' Center for Digital Storytelling. Available at <a href="http://storycenter.org/">http://storycenter.org/</a>.</i>
<b>Urstad et al. (2018)</b>	To explore student nurses' experiences with student-created digital storytelling as a tool for reflection during nursing educational clinical placement.	<i>'Digital storytelling is the idea of telling a story, often with strong emotional content, by using a variety of digital multimedia, such as images, audio, music, video, and the voice of the narrator' (Kearney, 2011).</i>	
<b>Waugh and Donaldson (2016)</b>	To evaluate the use of digital narratives of compassionate care as a learning resource.		<i>'A digital narrative is a short (2 to 5 min) narrated piece of personal reflective writing, which may be combined with a musical soundtrack and photographs and, or other still images' (Waugh and Donaldson, 2016).</i>
<b>Yocum (2018)</b>	Examine the perceptions of pre-licensure nursing students of digital storytelling as an educational strategy when embedded in a chronic disease class.	<i>'Digital storytelling is defined as the art and craft of using media and software programs to communicate stories in innovative and powerful ways' (Levett-Jones et al., 2015).</i>	<i>'Digital stories are usually three to five minutes long and include images, music, and narrations' (Yocum, 2018).</i>

### **2.2.5 Nursing Pedagogy**

The purpose of using digital storytelling and digital stories varied in all studies, yet the primary reason was for educational purposes. Two studies used digital storytelling in pre-registration education to develop student nurses' knowledge and understanding of palliative care and end-of-life concepts (Price *et al.*, 2015) and reflecting on clinical placements (Urstad *et al.*, 2018). Jun *et al.* (2020) used digital storytelling with post-registration nurses to evaluate their perceptions of participating in creating a digital story. Five studies explored the use of digital stories in pre-registration and post-registration nurse education. For pre-registration, digital stories were used to understand how student nurses learn from digital stories (Christianson, 2011), how they learn about compassionate care (Waugh and Donaldson, 2016), and how to care for older people with chronic illnesses (Yocum, 2018). Two studies used digital stories in post-registration education to develop RNs' knowledge and skills in family-centred care in an ICU setting (Eggenberger *et al.*, 2016) and social justice concepts related to public health (LeBlanc *et al.*, 2017). Two subthemes emerged in further analysis of nursing pedagogy: digital storytelling in nurse education and digital stories in nurse education.

#### **2.2.5.1 Digital Storytelling in Nurse Education**

The digital storytelling process involved the creation of digital stories that were told by student nurses (Price *et al.*, 2015; Urstad *et al.*, 2018) and RNs who attended a Public Health programme (Jun *et al.*, 2020). Nonetheless, the process and context of digital storytelling stories varied. Urstad *et al.* (2018) adopted Lambert's (2010, p9) '*Story Circle*', which is a continuous process led by trained facilitators throughout the digital storytelling journey. This allows the storytellers to share their stories and receive feedback (Lambert, 2010, 2013), which supports and provides new perspectives for framing the experience of the story (Lambert, 2010). In Jun *et al.*'s (2018) study, trained facilitators led the RNs during a three-day digital storytelling project. Like all StoryCentre workshops, the RNs digitally created and assembled their stories using software. In contrast, nursing educators led Urstad *et al.*'s (2018) study in a nursing education setting.

Compared to Jun *et al.* (2020) and Urstad *et al.* (2017), Price *et al.* (2015) embedded digital storytelling into a course for caring for patients with complex needs. The study aimed to develop fourth year nursing students' understanding of palliative care and end-of-life concepts through digital storytelling. To support the digital storytelling process, pre-learning materials were used. These included face-to-face stories told by patients or their family members of their experiences of palliative or end-of-life care, PowerPoint presentations, and access and guidance to the digital platforms to create their digital story. The students were instructed to synthesise their learning from the resources by creating a five-minute digital story from their personal or professional experience. Unlike Urstad *et al.* (2017), Price *et al.* (2015) offered no description of how the digital storytelling process was undertaken.

#### **2.2.5.2 Digital Stories in Nurse Education**

Digital stories were used in an educational setting with pre-registration student nurses (Christianson, 2010; Yocum, 2018; Waugh and Donaldson, 2016) or with post-registration nurses (LeBlanc *et al.*, 2017), and the context in how they were used varied. Christianson (2011) and Yocum (2018) used a digital story told by a patient from the Patient Voices website. Christianson (2011) aimed to identify how the digital story influenced third-year student nurses' professional learning. Yocum (2018) did not state which year of study for the student nurses and used a digital story as an educational strategy in caring for chronically ill older adults. From a pedagogical perspective, Christianson (2011) found that the student nurses compared their learning experience to other methods of engaging patients (face-to-face, clinical practice). In contrast, Yocum (2018) found that students were more optimistic about using digital stories than traditional teaching methods.

Waugh and Donaldson's (2016) study evaluated the use of the digital story told by student nurses in the context of learning about compassionate care. In this study, all second-year student nurses were invited to submit a personal reflective account in 500 words using Atkins and Murphy's (1994) reflective model about their experiences of compassionate care. Thirteen

student nurses whose stories were ranked highly by a team of academics and clinicians were invited to record them using a digital format. Four spoken narrative digital stories were recorded and created using an audio file (MP3), spoken narrative only, an audio file (MP3) with a musical soundtrack, a digital story with music, and a digital story with music and still images. The quantitative findings from the evaluation survey indicated that 92% preferred the formats with music, with 64% choosing the digital story format.

Eggenberger *et al.*'s (2016) study was undertaken with post-registration nurses in a clinical setting, and they used digital stories told by RNs and patients, which were incorporated into a four-hour workshop. Eggenberger *et al.* (2016) aimed to increase the confidence, knowledge, and skills of RNs working in Intensive Care Units to deliver family-centred care using a mixed methods pre-intervention and post-intervention design. In the pre-intervention phase, RNs participated in a focus group so the researcher could understand their knowledge of current research related to family-centred care and to identify their perceived barriers to providing family-centred care. The RNs and patient families also completed pre-intervention surveys to identify areas where the educational intervention could target nursing care relating to the support perceived by the patients. The findings identified a need to focus on understanding family-centred care and reflecting on the experiences of families and RNs through telling and hearing stories. Consequently, the educational intervention was developed, and digital stories were the vital component to capture the nurse's interest at the beginning of the workshop. Role play was also incorporated, and a manual containing printed materials of current evidence was given to students at the end of the course. When comparing the pre-intervention and post-intervention results, the findings revealed that RNs' understanding of family illness experience and family nursing and related knowledge and skills had increased following the intervention. However, it is difficult to determine if the other learning strategies were more effective.

### **2.2.6 The Power of Digital Storytelling and Digital Stories**

It is clear from the studies that the impact of creating and listening to digital stories makes them effective learning tools. Indeed, the student nurses in Christianson's (2011) study perceived that the digital story was a powerful and effective learning resource. Christianson (2011) and Waugh and Donaldson (2016) reported that when student nurses listened to digital stories, the combination of music, the personal voice (of the storyteller), and the context of the story captured the immediate attention of the students. Pedagogically, the impact of creating and listening to digital stories stimulated an affective and cognitive element of learning. This was triggered by emotions, reflection, and sharing the experiential realities of others, which were captured in the following three subthemes.

#### **2.2.6.1 Gaining an Empathetic Understanding**

At its most effective, creating or listening to digital stories stimulated empathic feelings and understanding of the storyteller's (patient and participants) perspective and experience. The participants' emotions that were expressed in many ways evoked this perception. Waugh and Donaldson (2016, p25) stated that student nurses expressed emotions such as feeling *'humbled, proud, heartwarming, honest, and inspiring'* when listening to digital stories told by students. Christianson's study (2011) acknowledged that students developed an awareness of their emotional reaction to a patient's digital story, commonly described by the student nurses *'as an emotional experience'* (Christianson, 2010, p291). The students' nurses expressed their emotions as sad and angry, which activated an empathic relationship between the storyteller and the listener (Christianson, 2011).

Similarly, Yocum (2018) found that student nurses put themselves into the patient's shoes and reported feeling heartbroken. Jun *et al.* (2022) discovered that RNs could connect with their emotions through digital storytelling and sharing their digital stories with their peers. As a result, RNs reported that they had the potential to empathise with their patients and build better therapeutic relationships (Jun *et al.*, 2022).

### 2.2.6.2 Understanding the Meaning

The active intention of bringing meaning to the storyteller's experience suggested a deep level of engagement when creating, sharing, and listening to digital stories. Indeed, three studies (Price *et al.*, 2015; Urstad *et al.*, 2018; Yocum, 2018) reported that participants were more engaged with creating digital stories than with other traditional learning methods such as writing reflections, reflective presentations, and hypothetical case studies. Four studies using digital stories found that the ability to engage while listening to them promoted a deeper level of learning. This was evident by the participants' ability to understand the story's meaning from the storyteller's perspective, which created an opportunity to engage in reflective practice (Christianson, 2011; LeBlanc, 2017; Waugh and Donaldson, 2016; Yocum, 2018).

Christianson's (2011) study described digital stories '*as a reflective experience*' (p291) as one of four themes. The patient's digital story, with its beginning and end, provided the student nurses with a holistic perspective. Through reflection, they were able to contextualise the meaning and complexities of the storyteller's everyday life. In comparison, in LeBlanc's (2017) study, the RNs were instructed to reflect on the digital stories told by healthcare professionals. They found that the RNs were perceived to have developed their awareness and knowledge related to three key themes: '*positions of vulnerability; social determinants of health and distributive justice*' (LeBlanc, 2017, p397) and '*choosing moral justice*' (LeBlanc, 2017, p398) in the context of public health nursing.

Despite the differences between these studies, it has been shown that the power of digital stories can promote a deeper understanding of the meanings of digital stories. Thereby, they can offer new personal and professional insights into new and unfamiliar perspectives that can be used in similar situations. Indeed, Waugh and Donaldson (2016) concluded that the value of reflecting upon the digital stories and applying this to their practice was an effective way of learning, which was echoed in Yocum's (2018) study. The student nurses in this study specified that the patients' digital stories encouraged conversations with patients and their families, which suggests that the digital stories influenced their communication skills.



Consequently, leading to a change in attitudes and behaviours when communicating with patients and their families.

### **2.2.6.3 Sharing Experiential Realities**

Understanding the story's meaning from the storyteller's perspective triggered reflection, but this was not as evident in the participants' digital storytelling experience. The authors of these studies reported that reflection was initiated by the participants sharing their stories during the digital storytelling process and sharing their created digital stories (Jun *et al.*, 2022; Price *et al.*, 2015; Urstad *et al.*, 2018). From a pedagogical standpoint, digital storytelling was perceived to add an extra dimension of authenticity, humanity, and reality to a real-life situation and proximity to others' everyday experiences. This is not surprising as Jun *et al.* (2022) and Urstad *et al.* (2018) digital storytelling process was facilitated through 'story circles' (Lambert, 2010, p22), which allowed the time to share individual stories, which may justify their findings as found in Urstad *et al.*'s (2018) study.

The student nurses in Urstad *et al.*'s (2018) study found that story circles afforded them the freedom and time to reflect in a supportive environment, which was viewed positively. The student nurses expressed that they could take ownership of their reflections and experiences of the situation in their stories rather than having to focus on their academic writing skills. These included referencing and applying underpinning theories and grammar, which detracted from and overshadowed their personal reflections. Likewise, time and freedom to reflect offered a personal approach to learning, which had a lasting impact on developing their reflective skills. The student nurses reported that they continued to reflect outside the story circles because all the stories were memorable (Urstad *et al.*, 2018). Furthermore, the students reported how they could link the theoretical perspectives during the reflection process and were seen as an inductive way of combining theory with practice (Urstad *et al.*, 2018).

In Jun *et al.*'s (2022) study, the RNs shared their stories from a humanistic rather than a professional perspective and described the process as cathartic, therapeutic, and humanising.

Their experiences were influential in enabling them to explore their expectations and values, which positively impacted patient care, as illustrated in the following quote:

*'Our whole job is all about secondary trauma; hearing stories that are so challenging that you must be able to put that somewhere...storytelling is a way to do it. I felt significantly more energy afterwards and the ability to be kind to my client'. (Jun et al., 2022, p1320).*

This was echoed by Price *et al.* (2015), who found that student nurses reflected and created their digital stories from their subjective experiences of caring for a friend or family member with cancer. When participating in the digital storytelling process, the human connection and the proximity of their experiences promoted the student nurses to engage with personal reflection through discussion. This led them to form stronger peer connections (Price *et al.*, 2015).

### **2.2.7 Discussion**

In response to the first research question, it is clear from this scoping review that digital storytelling and digital stories in nursing are emerging concepts in nursing education, notwithstanding an under-researched phenomenon. The initial search yielded 1882 papers, but only eight that met the eligibility criteria. Seven studies were conducted in the context of pre-registration nursing education, and qualitative research was the preferred method for investigating this phenomenon, which is consistent with the literature. Moreau *et al.*'s (2018) systematic review of digital storytelling in health professions education selected sixteen qualitative studies from 1468 articles. Eight (49.2%) studies were in the context of nurse education involving undergraduate nursing students. The remaining studies occurred in social work (n=2, 12.5%), medicine (n=2, 12.5%), community health workers (n=1, 6.3%), community health aids (n=1, 6.3%), midwives (n=1, 6.3%), and undergraduate students with general interests in health careers (n=1, 6.3%) (Moreau *et al.*, 2018). Similarly, Mojtahedzadeh *et al.*'s (2021) systematic review identified 35 digital storytelling and digital story studies across six fields of health professionals and 23% (n=8) occurred in pre-registration nurse education. Interestingly, 50% (n=4) of the studies used in this scoping review (Christianson, 2011;

Eggenberger *et al.*, 2016; Price *et al.*, 2015; Urstad, 2018) were chosen in Mojtahedzadeh *et al.* (2021) and Moreau *et al.* (2018) systematic reviews. This finding may reflect the emphasis that nursing often places on lived experiences, constructive frameworks, and collaborative learning in educational practices (Peters, 2000).

Conceptually, this study has demonstrated that digital storytelling is often used and applied interchangeably with digital stories and vice versa (as illustrated in Table 2.13). The development of digital technology, the availability of digital devices, and the ancient art of storytelling may explain this. Theoretically, the ancient art of storytelling is steeped in history; thus, numerous definitions exist. However, they are expressed as integral to the individual's consciousness (Harrison-Denning, 2023) and help people make meaning of their lived experiences (Frank, 2013; Harrison-Dening, 2023; Squire, 2009).

As a fundamental human activity (Bruner, 2002), storytelling and stories are important in nursing as they *'represent nursing as a characteristically of human—and humane activity'* (Edwards, 2014, p3) and have been used to share knowledge and wisdom (Gazarian, 2010). Digital storytelling can also take the form of spoken, written, filmed, mimed, or acted stories (Moon and Fowler, 2008). From this standpoint, digital storytelling is commonly described as a story in a multimedia form and presented as a video (De Vecchi *et al.*, 2016; Price *et al.*, 2015; Rodriguez *et al.*, 2021; Rose *et al.*, 2015). Digital storytelling is also defined as a creative arts process that combines personal stories with multimedia elements such as images, music, narration, and animation to produce 3–5-minute videos (Lambert, 2010, 2013; Lohr *et al.*, 2023; Stenhouse *et al.*, 2013). Indeed, Moreau *et al.* (2018), in their systematic review of digital storytelling in healthcare, offered a similar definition, but their review comprised ten digital story studies. The remaining five studies included a combination of digital storytelling and digital stories.

In the context of storytelling described by Squire (2009), Frank (2013) and Harrison-Dening (2023), Gubrium (2009) and Gubrium *et al.* (2019) they portray digital storytelling as a process

for eliciting rich, affective, and nuanced data to chronicle healthcare experiences. Accordingly, this may imply that there is a difference between them, as digital storytelling is a facilitated process of sharing individual experiences. Digital stories are therefore the product of the digital storytelling process, and researchers should consider the correct use of this term in their studies and use the appropriate one that relates to the research aims and objectives. Conversely, this is challenging due to the similarities between the process (digital storytelling) and the product (digital story) as they are comparably described as using creative art forms such as photography, visual art, writing, music, drama, and film. All of these are considered helpful in capturing the lived experience of people who tell their stories (Cobb and Negash, 2010; Ricks *et al.*, 2014) to create digital stories.

All the studies in this review used digital storytelling or digital stories as a learning strategy to develop the participant's knowledge, skills, and understanding of the concepts applied to their studies. However, there were inconsistencies in the digital storytelling and digital story studies processes. Two digital story studies (Eggenberger *et al.*, 2016; Waugh and Donaldson, 2016) created the digital stories told by the participants, which were shared with their peers as part of the educational programme. Of the three digital storytelling studies (Jun *et al.*, 2020; Price *et al.*, 2015; Urstad *et al.*, 2018), only two studies (Jun *et al.*, 2020; Urstad, 2018) claimed to have applied the story circle. This was pioneered by Lambert and is well described in the literature (Lambert, 2009, 2010, 2013; Lambert and Hessler, 2018). Lambert (2010, p9) states that *'storytelling is a journey'*, and as such, the story circle was inspired by the following quote.

*'Stories move in circles. They don't move in straight lines. So, it helps if you listen in circles. There are stories inside and between stories and finding your way through them is as easy and as hard as finding your way home. And part of the finding is getting lost. And when you're lost, you start to look around and listen'. (Deena Metzger cited in Lambert, 2010, p.v)*

The story circle is fundamental to creating a meaningful and powerful digital story. The storytellers work with each other, tell, and read their stories, react, get reactions from others, and edit the story structure (Lambert, 2010; Lambert and Hessler, 2018). It is argued that digital stories, produced within a workshop of several days through group creative processes,

support the production and sharing of '*compelling accounts of experience*' (Gubrium 2009, p. 186). In agreement, Robin (2008) argued that the digital storytelling process is as important as the product (digital story) because every storyteller can produce a simple digital story irrespective of the digital storytelling process or its elements. This is reflected in some studies relating to nursing and other healthcare professionals, as they place a strong emphasis on the process being integral to learning (Briant *et al.*, 2016; DeLenardo *et al.*, 2019; Gubrium, 2009; Rimando *et al.*, 2015; Stacey and Hardy, 2011; Tatlo *et al.*, 2017). Therefore, it is expected that when digital storytelling is applied in a study, the process is considered. However, other studies (e.g., Cueva *et al.*, 2013; Cueva *et al.* 2016; Goldingay *et al.*, 2018; Marin *et al.*, 2018; Petty *et al.*, 2017), have not included the precise details of how the researchers enacted this process. Consequently, the quality of the digital storytelling process and the digital story may be questionable, thus impacting the credibility of the findings.

Consistent with other studies (e.g., Adamson and Dewar, 2015; Conlon *et al.*, 2020; Crookes *et al.*, 2013; Herron *et al.*, 2019; Rodriguez *et al.*, 2021), the digital storytelling and digital stories studies in this review were highly valued by the participants compared to other teaching methods. In addition, this review suggested that they were valuable and powerful educational resources because they increased knowledge, skills, and understanding of the concepts they were applied to. Previous research with other healthcare professionals has shown that they improve clinical skills (D'Alessandro *et al.*, 2004), make professionals more aware of their professional identity (Marín *et al.*, 2018; Stacey and Hardy, 2011), and make professionals better at critical thinking (McDrury and Alterio, 2016; Gazarian *et al.*, 2010; Kearney, 2011; Stacey and Hardy, 2011). They have also been shown to increase the capability of the participants to foster deeper understandings (McDrury and Alterio 2016; Conlon *et al.*, 2020; Gubrium *et al.*, 2014a; Park *et al.*, 2021) and increase empowerment, self-esteem, and attitude change (Gubrium *et al.*, 2016).

In response to the second research question, undeniably, the literature provides compelling evidence that digital storytelling and digital stories are powerful learning tools for nursing and

other allied health professionals. From a pedagogical perspective, Chan and Sage (2019) proposed that stories help to maintain student interest and motivation to learn. In comparison, a systematic review by Mojtahedzadeh *et al.* (2021) concluded that the multimodality characteristics give them flexibility in their usage, which makes them suitable for different learning styles. Nevertheless, conceptually, they have been described as innovative (De Jager *et al.*, 2017; De Vecchi *et al.*, 2017; Rodriguez *et al.*, 2021), evocative, empowering, and impactful (Rodriguez *et al.*, 2021), which is supported by well-known authors (e.g., Frank, 2010, 2013; Gidman, 2013; Lambert, 2010; Lambert and Hessler, 2018; Levett-Jones *et al.*, 2015; Moon and Fowler, 2008; Haigh and Hardy, 2011; Hardy, 2007; Hardy and Sumner, 2018; Stacey and Hardy, 2011).

The power of stories '*captures the holistic and lived experience of the subject being taught*' (Moon and Fowler 2008, p232), an assertion that owes much to the art of storytelling and listening to stories. Gidman (2013) and Haigh and Hardy (2011) purport that producing stories engages storytellers and listeners in the firsthand experiences of others. This viewpoint reflects Frank's (2010, p3) opinion that '*stories animate life*' because that is '*their work*', and then they go on '*to instigate*'. Therefore, stories can provide insight into the unfamiliar, with McDrury and Alterio (2016) claiming they can turn it into learning and reflection.

Moon and Fowler (2013, p232) assert that reflective learning is facilitated by the ability to '*tap into imagination, emotions, and form new and meaningful connections between existing areas of knowledge*'. The scoping review's overall findings reflected this despite the differences in which digital storytelling and digital stories were applied. The power of these initiated reflective learning, which was triggered by the participants' emotions in all the studies. Furthermore, the participants in the digital story studies fostered deeper meanings to the stories (Christianson, 2011; Eggenberger *et al.*, 2016; LeBlanc *et al.*, 2017; Waugh and Donaldson, 2016; Yocum, 2018). Whereas the digital storytelling studies (Eggenberger *et al.*, 2016; Jun *et al.*, 2020; Urstad *et al.*, 2017) showed that reflective learning was initiated by understanding the story from the storyteller's perspective.

An alternative perspective may be explained by the realism and authenticity of the experience conveyed when creating and listening to digital stories (Conlon, 2020; Herrington, 2006; Kearney, 2011; Ohler, 2006; Rodriguez *et al.*, 2021). When students are involved and engaged in an authentic learning experience, they can understand the relevance of their learning which can liberate themselves from previously held assumptions (Serrano *et al.*, 2018). Conlon *et al.* (2020) conducted a comparative analysis study that explored the value of digital storytelling through the lens of authenticity with mental health nursing students. The positive findings concluded that authentic learning was exercised through realistic digital stories. This enabled the participants to challenge the boundaries of societal attitudes toward mental ill health through the critical development of ethical values (e.g. compassion and empathy) (Conlon *et al.*, 2020). The implications of this study inferred the transferability of these attitudes and moral values to relational encounters experienced in clinical practice for nurses and other healthcare professionals.

#### **2.2.8 Strengths and Limitations of the Scoping Review**

One of the strengths of this review is that it provided an opportunity to examine the body of literature to identify the use and impact of digital storytelling and digital stories in nursing. Subsequently, it provided a clear indication of the existing gaps in the knowledge base relating to post-registration nursing within the clinical practice setting. Furthermore, as noted in the previous section, it also provided existing and present gaps in the knowledge base relating to the use of and impact of using patient-led digital stories in the context of RNs' safety culture perceptions and patient safety-related behaviours.

Choosing a scoping review methodology was considered a strength, as little is known about this subject area, thus enabling a more comprehensive literature search. However, this was considered a limitation as the application of broader search terms made it challenging to identify the relevant literature. This was made more complex by the terminology used to describe stories (e.g., narratives, case studies, critical incidents, life histories, among others). To overcome this, the same search terms from the systematic review were used, although it

was acknowledged that this may have limited the search. However, it was viewed as a strength because it allowed a more focused search, which in turn yielded relevant studies.

Selection bias can occur when selecting and reviewing the literature. A structured approach to the scoping review was adopted to overcome this, followed by a justification for the methods employed. A quality appraisal of the selected studies was not undertaken, as this was not required for a scoping review, posing a significant weakness that could impact the analysis and findings. However, according to Arksey and O'Malley's (2005) framework, the final step involved consultation with librarians and the researcher's supervisors to ensure that the search and selection of the studies were robust.

To widen the scope of this review, the inclusion criteria focused on pre-registration and post-registration nurses in the context of education, as well as acute and community settings. Excluding studies that used other healthcare professionals could be a strength and a limitation, as the use and impact of digital storytelling and digital stories may have been similar or dissimilar. However, as a strength, it provided a clear indication of gaps in the existing literature about the use and impact of patient digital stories in nursing and its connectivity to safety culture perceptions and patient safety-related behaviours. This provides a strong rationale and originality for this research study and contributes to new knowledge in this subject area.

### **2.2.9 Summary of the Scoping Review**

This scoping review confirms what is known about the use and impact of digital storytelling and digital stories. Two research questions were posed to provide a comprehensive and detailed synthesis of the available literature. In response to the first question, the conceptual understanding of digital storytelling and digital stories was created from the definitions of storytelling and stories combined with the development of digital technology. As a result, digital storytelling is used interchangeably with digital stories and vice versa despite their different but subtle characteristics. In relation to how they are used in nursing, the studies and the



broader body of literature revealed that most occur in pre-registration nurse education, where digital storytelling and digital stories were embedded into a programme of study.

In response to the second research question, the studies reported positive findings when using these methods in the educational context. Undoubtedly, nursing education highly valued these practical and valuable learning tools. A key factor that makes these effective and valued is the power that digital storytelling and digital stories convey. Combining storytelling and listening to stories with music, photographs, and the storyteller's voice generated further discussions. This promoted reflective learning that was often triggered by emotions, gaining a deeper understanding of the story's context, and seeing it from a different and realistic perspective.

Overall, the evidence has exposed that the concept of digital storytelling and digital stories in nursing is still emerging, with limited empirical literature. This was evident by the small number of selected studies in this review. The lack of studies signifies gaps in the literature, particularly in post-registration nursing in the clinical practice setting. Interestingly, there were also clear gaps in patient-led digital storytelling and digital stories, as the central focus was student-led.

## **2.3 Summary of Chapter and Identified Gaps in Literature**

It was determined that the systematic review and scoping review aims were met as a clear strategy for identifying, selecting, appraising, and synthesising the research evidence was achieved, thus, enabling the researcher to remain objective and minimise bias. The evidence was gathered and positioned to identify what is known about these concepts and highlight the existing gaps in the literature, which are discussed in the following sections:

### **2.3.1 Safety Culture**

Concerning safety culture, the evidence presented in Chapter 1 suggests that despite global policies and initiatives to improve patient safety and establish a positive safety culture, there are few improvements in today's modern healthcare systems. The number of high-profile enquiries connecting failings in the quality and safety of care, the increasing number of AEs

(NHS England, 2020, 2022a), and the studies concerning missed nursing care in nursing suggest that patient safety remains a significant problem in the UK. The evidence presented in Chapters 1 and 2 (s2.1) revealed a considerable gap of studies in the UK that measure and explore post-registration nursing perceptions of safety culture.

Regarding research methodologies, the empirical literature discussed in Chapters 1 and 2 revealed many research studies that have used quantitative methods and safety attitudinal scales to measure safety culture and climate. These methods only provide a snapshot of healthcare professionals' perceptions about the surface-level aspects of safety culture simultaneously (Singer and Vogus, 2012). Denison (1996) suggested that safety culture and climate may reflect the same reality from different angles. Therefore, the studies fail to consider any nuances or significant changes that may influence perceptions over time (e.g., the intensity of patient acuity, staff shortages due to the high volume of sickness, change in leadership, and new policies). More importantly, there is a lack of evidence that addresses the level of change in safety culture over time, how these levels may decline, improve, or stagnate, and what triggers these changes (Waterson *et al.*, 2019). Measuring safety culture at different timepoints would address the study's limitations and minimise the risk of bias. Furthermore, there was a significant gap in the evidence pertaining to qualitative methods. Several researchers (Flin *et al.*, 2006; Neiva and Sorra, 2003; Singer *et al.*, 2009; Waterson *et al.*, 2019) have recommended supplementing quantitative data with richer qualitative data to understand the underlying culture better.

### **2.3.1 Interventions to Improve Patient Safety and Safety Culture**

Interventions used to improve patient safety and safety culture are limited and quantitatively measured, suggesting that there are clear gaps in the literature. The evidence in section 2.1 concluded that further research would be beneficial for enhancing patient safety knowledge and skills in the nursing profession. Furthermore, it would address the gaps in the literature, gain a more nuanced understanding of what nurses can do to keep patients safe, and identify

what specific knowledge and skills are lacking when it comes to nurse-sensitive indicators (e.g., falls, sepsis, infection control) to prevent harm.

### **2.3.2 Digital Stories**

Coinciding with the patient safety movement in 2000, the political agenda strongly advocated for patient involvement to improve patient safety. The evidence discussed in Chapter 1 shows positive benefits that patients can bring to patient safety improvements. However, this is offset by barriers that have prevented patients from participating in patient safety initiatives. Subsequently, patient engagement and involvement have proven to be challenging and slow. As patient involvement is a primary key strategy, using digital stories told by patients is one approach to engage patients indirectly.

The findings presented in Chapters 1 and 2 (s2.2) demonstrated the positive impact of digital stories and digital storytelling on enhancing knowledge, skills, and understanding of various concepts relevant to nursing care within an educational framework. As this is an emerging area of study, the existing evidence is limited and primarily focused on pre-registration nurse education. This highlights significant gaps in the literature regarding the application and effects of digital stories, particularly in the context of post-registration nursing in clinical settings.

The evidence presented in Chapters 1 and 2 indicated a gap in the literature pertaining to research methodologies. Most empirical studies in this scoping review used qualitative methods, and only two studies (Eggenberger *et al.*, 2016; Price *et al.*, 2015) used qualitative and quantitative methods. In addition, no studies used a control group to evaluate the effectiveness of the intervention. These findings were consistent with other systematic and scoping reviews. De Vecchi *et al.* (2016) reported two quasi-experimental studies out of 24 selected studies, and West *et al.* (2022) used one mixed method from 46 studies. In contrast, Mojtahedzadeh *et al.*'s (2021) systematic review comprised 12 quantitative studies, with only four related to nurse education (two studies were used in this scoping review). The remaining

studies pertain to social work education (n=1), medical education (n=1), health promotion (n=4), and patient education (n=2).

These reviews, amongst others (e.g., Lohr *et al.*, 2022; Moreau *et al.*, 2018), recommended using qualitative and quantitative research to strengthen the effectiveness and impact when creating or listening to digital stories. De Vecchi *et al.* (2016) suggest that future research should use randomised and longitudinal designs to expand this work. Indeed, according to Lohr *et al.* (2023), they were the first to conduct a randomised control trial examining the efficacy of a digital storytelling intervention for Hispanic and Latino individuals with type 1 diabetes. Furthermore, Moreau *et al.* (2018) recommended that future research should use something to compare the interventions with or provide an understanding of what outcomes would have occurred without the digital story.

## **2.4 Rationale for the Study**

With reference to the background and the findings from the systematic and scoping review, there are no studies that use a patient digital story in the context of safety culture and patient safety related behaviours in post registration nursing. It is therefore proposed that using a patient digital story as an intervention can impact RNs' perceptions of safety culture and patient safety-related behaviours. This presented an opportunity to investigate this further and address the gaps in the existing literature to explore this proposal in the context of clinical practice settings. Using a mixed methodology to combine qualitative and quantitative methods at four different timepoints will also address the deficiencies in the methodological approaches discussed in the literature review. Therefore, this thesis presents an in-depth research study to examine the impact of using a patient digital story (will be referred to as a digital story throughout the thesis) in relation to RNs' safety culture perceptions and patient safety-related behaviours across four different timepoints.

To the best of my knowledge, this is the first time a mixed method explanatory sequential design that incorporates a pre- and post-test design (four different timepoints) has been

undertaken in this subject area. It is therefore expected to provide a unique contribution to the research literature and generate an original contribution to new knowledge in the literature. This may inform the implementation of patient digital stories to improve RNs' knowledge and understanding of safety culture and change patient safety-related behaviours.

#### **2.4.1 Study Aims and Objectives**

**Aim:**

To investigate the use and impact of a digital story to assess RNs' perceptions of safety culture and patient safety-related behaviours.

**Objectives:**

1. To obtain a baseline of what RNs understand of the term safety culture.
2. Measure and explore RNs perceptions of safety culture.
3. Establish how the digital story may have impacted upon RNs' perceptions of safety culture and patient safety-related behaviours.

## CHAPTER 3: RESEARCH METHODOLOGY

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### 3.1 Introduction

This study used mixed methods research (MMR) (Cresswell, 2015), combining qualitative and quantitative paradigms and methodologies. The first section of this chapter begins with the philosophical underpinning of this study, including the researcher's philosophical assumptions (written in the first person). It explains the relationship between the chosen interpretivist and postpositivist paradigms. The chapter will also discuss and justify the chosen qualitative and quantitative methods and how they were applied to the mixed methods methodology design and the value they add when they are combined.

### 3.2 The Philosophical Paradigms of Research

All research has philosophical foundations (paradigms) relating to the nature and attainment of knowledge, which influences how research is conducted (Cresswell, 2008; Cresswell and Plano-Clark, 2011). Kuhn (1996, p76) used the term '*paradigm*' when analysing the structure of scientific revolutions in his study and referred to it as a basic set of beliefs that guide members of a given scientific field. However, Kuhn's view of the term paradigm is entirely related to the scientific enterprise, which fails to substantiate the links with the broader social and cultural context (Harvey, 1982). The broad connections to social research have changed from the narrow, mechanistic Kuhnian view of social sciences to a more interpretive and explanatory view (Harvey, 1982). As a result, the term paradigm has changed from Kuhn's original perspective to many descriptions and conceptualisations of what constitutes a paradigm (Shannon-Baker, 2016), which has fuelled ongoing debates. Three interconnected beliefs that define a research paradigm include ontology, epistemology, and methodology. These should include the researcher's worldview of how they view the reality of the world (ontology), how knowledge is generated (epistemology), and how the researcher can find out what is known (methodology) (Denzin and Lincoln, 2011; Guba and Lincoln, 1994).

In contemporary philosophy, a wide range of worldviews may account for the lack of consensus on classification, and the application of terminology is often inconsistent. Given the variations in classification and nomenclature, four research paradigms commonly cited in the mixed methodology research include post-positivism, positivism, interpretivism, and pragmatism (Cresswell, 2008; Cresswell and Cresswell, 2018; Teddlie and Tashakkori, 2009). The differences between the paradigms are not merely philosophical because they have implications for the practical conduct of the research.

### **3.2.1 Positivism**

The ontological position of positivists is that of realism, where a measurable reality is assumed to exist (Guba and Lincoln, 1994). The nature of reality in the social world is orderly and regular, existing independently of human observation. Epistemologically, positivists believe that knowledge is empirical and objective. Laws that govern social phenomena apply quantitative approaches that seek to test cause-effect relationships independently using experimental designs. The deductive process of data analysis results in numerical, factual statements.

### **3.2.2 Interpretivism**

Conversely, the interpretivist paradigm rejects the position that a single, verifiable reality exists and refuses to adopt any permanent, unvarying standards by which truth can be universally known (Guba and Lincoln, 2005, p204). Ontologically, the interpretivist's position is relativism, which takes the viewpoint that the world is socially constructed, possessing multiple realities mediated by cognitive structures (meanings, beliefs, perceptions) that result from the interaction of the mind and the environment (Schwandt, 1997, p9). Interpretivist epistemology is subjective, meaning that external reality cannot be directly accessible to researchers without being contaminated by their own worldviews, concepts, and backgrounds. Interpretivists use qualitative approaches to understand social phenomena in their context *'through the eyes of the participants rather than the researcher'* (Cohen *et al.*, 2007, p21). Inductive processes

discover patterns in the data under broad themes to understand the phenomena or generate theory.

### **3.2.3 Post-positivism**

Criticism of the positivist paradigm led to the emergence of post-positivism, which '*straddles both the positivist and interpretivist paradigms*' (Grix, 2004, p86). Many definitions of post-positivism exist that generically refer to any paradigm that posits as a replacement for positivism (Schwandt, 1997). Post-positivism's ontological position is critical realism, which assumes an objective reality but can only be apprehended imperfectly. From an epistemological standpoint, post-positivism seeks objectivity but recognises that knowing truth can be uncertain, and the possibility of the researcher's own beliefs and values may affect what is observed and seeks probabilistic evidence (Rehman and Alharthi, 2016).

### **3.2.4 Pragmatism**

As a single paradigm, pragmatism avoids the contentious issues of truth and reality, and the view of the measurable world relates more closely to an '*existential reality*' (Dewey, 1925, p40). It accepts that there are '*singular and multiple realities that are open to objective, subjective inquiry and a mixture of the two*' (Dewey, 1925, p40). The truth is not based on traditional dualism (e.g., realism versus relativism) but on what works at the time to determine the meaning of things (Onwuegbuzie and Johnson, 2006) or find solutions to problems (Patton, 2002). Instead of focusing on methods, pragmatism emphasises the research question (Teddle and Tashakkori, 2003) and uses pluralistic approaches to derive knowledge corresponding to, or representing, reality (Rorty, 1990).

### **3.2.5 Philosophical Assumptions of the Researcher**

When conducting research, one must reflect upon one's worldview and what this may bring to a study (Cresswell, 2008) and is often shaped by an individual's discipline and their own past research experience (Cresswell, 2012). Firstly, my career in nursing began in 1982 as an auxiliary nurse before qualifying as a registered nurse in 1993. Nursing practice is based on



extensive theoretical and practical knowledge and clinical experience. Consequently, Patricia Benner's '*novice to expert*' theory (Benner, 1984) influenced my personal and professional development throughout my nursing career. The conceptualisation of how nurses progress from novice to expert explains how knowledge is generated through theory (knowing that) to knowledge and skills generated through experience (knowing how) (Benner, 1984). Through the varied clinical experiences of working in different environments, I learnt about tacit, implicit, and explicit knowledge and how it shaped and influenced my professional values and behaviours. From a positive perspective, I view nursing as an art encompassing a high quality of care, compassion, communication, altruism, values, and ethics. The theory of knowing that and the experience of knowing how have instilled these principles throughout my nursing career to ensure that patients were treated without prejudice, with dignity, humanity, and respect, and with listening, understanding, and valuing their (patients) perspectives. From a negative perspective, I have been influenced by and accepted the social and cultural norms of the working environment, where I have witnessed and participated in ritualist, habitual, and cultural practices towards patient care, where I have resigned to, '*it's the way we do things around here*' (Oandasan, 2009, p1174).

As a health educator with 17 years of experience, I have instilled my professional values and behaviours in my teaching, where theoretical knowledge has been supported through sharing my experiences from my perspective and those of patients (using patient stories). Conversely, students have shared their knowledge and experiences through their unique stories, views, beliefs, and perceptions. Nurses working in clinical practice will have diverse backgrounds and view them differently, meaning multiple perspectives may exist based on those individual experiences. Together with my experiences, I accept that there are various realities and subjective experiences of nursing care from those who deliver care (healthcare professionals) to recipients of care (patients). Thus, my professional career has strongly influenced my worldview that reflects a relativist ontology and subjective epistemology that is compatible with the interpretivist paradigm.

It is also essential to acknowledge that nursing is an evidence-based discipline that is grounded in an extensive repertoire of theoretical knowledge, evidence-based research, and rigorous scientific evidence, which is vital for clinical decision-making and patient safety. The positivist paradigm is used to evaluate and use evidence-based practice, which is supported by statistics and quantitative methods used in nursing practice and nurse education. Therefore, there is an acknowledgement of the realist ontology of a single truth (e.g., the right way to manage patient care) and an objective, scientifically measurable epistemology (Guba and Lincoln, 2005, p195), therefore, I am also marginally influenced by the positivist paradigm.

My perspective on nursing and nurse education is that it is both an art and a science, which adds to my ability to value and recognise two different and contrasting paradigms that have implications for this research. Traditionally, researchers have conducted nursing research within a single paradigm, often divided between positivism and interpretivism (Guba and Lincoln, 1994; Polit and Beck, 2018). This has led to much debate about the relative merits of different paradigms and their application in healthcare research since the 1970s, a debate often referred to as the '*paradigm war*' (Denzin, 2010, p419). Traditionalists use the term '*incompatibility theses*', claiming that the '*integration of qualitative and quantitative methods is impossible*' (Teddle and Tashakkori, 2009, p.98). However, mixed methodologists disagree and reject the '*incompatibility theses*' in favour of the '*compatibility theses*'. Pluralists purport that quantitative and qualitative methods can be integrated and posit pragmatism as an alternative paradigm (Howe, 1998, p10).

Pragmatism in paradigmatic thinking has extended into the philosophical process or meta-paradigm of dialectical pluralism (Johnson, 2017), where multiple paradigms are used in mixed methods research (Greene and Caracelli, 1997, 2003). The '*incompatibility theses*' versus the '*compatibility theses*', or the paradigm war debate, and my worldview presented dilemmas in mixing the two opposing paradigms. However, the starting point was to consider the aim and objectives of the study while incorporating my philosophical position. Therefore,

this study is positioned within a postpositivist and interpretivist paradigm within a mixed methods research design, which is justified in the following section.

### **3.2.6 Philosophical Assumptions Underpinning this Study**

This study required an objective measurement of safety culture perceptions to determine its stability from an individual, workplace, and organisational perspective. The remaining objectives involved an exploration of safety culture perceptions (pre-intervention and post-intervention) in the context of the objective measures to gain a deeper understanding of the RNs' perceptions of safety culture. Safety culture and patient safety-related behaviours are multifaceted, complex phenomena that only exist from the perspective of their lived experience in a clinical setting. When mixing paradigms, Creswell (2015, p1) suggested that either philosophical approach can be used and states that:

*'Mixed methods can be viewed from a philosophical stance using other philosophical assumptions (e.g., positivism, interpretivism) or as a methodology (research process) originating from a broad philosophy (e.g., pragmatism) which extends into the interpretation and dissemination'.*

From an ontological and epistemological stance, drawing from Creswell's (2015) viewpoint, a postpositivist and an interpretivist paradigm were combined for this study as the theoretical underpinnings of these paradigms aligned more closely with this study's aim and objectives. Combined with my position and worldview, it provided a clear rationale for mixing two paradigms to quantitatively measure the RNs' perceptions of safety culture. From an interpretivist standpoint, it explored safety culture through the participants lived experiences as they perceived it from their individual, workplace, and organisation perspectives. This will determine whether the intervention's influenced a change in their safety culture perceptions and patient safety-related behaviours. Therefore, adopting an interpretative approach should allow the researcher to understand the situation's reality by analysing meaningful interactions with participants (Townsend *et al.* 2010). Applying post-positivism and interpretivism paradigms underpinned this study's quantitative and qualitative enquiries, with an emphasis on interpretivism.

### **3.3 Research Methodology**

Considering the philosophical underpinning of adopting a post-positivism and interpretivist paradigm, a mixed methods research design was chosen. However, before introducing this research design, it is essential to understand and apply the appropriate methods that align with the chosen paradigms. This section debates the qualitative and quantitative methodologies and their respective theoretical underpinnings to defend the chosen research methodologies.

#### **3.3.1 Quantitative Research**

From a philosophical point of view, quantitative research is described as positivism, which emphasises empirical and scientific principles that are dependent on quantifiable observations. It follows a formal, systematic, objective, and deductive process to define, test, and examine cause and effect in numerical data (Gray *et al.*, 2017). Post-positivists also seek objectivity but recognise that total objectivity is impossible, and therefore, they strive to discover probabilistic evidence to determine the actual state of a phenomenon (Mungai, 2019). This present study focused on measuring and exploring RNs' safety culture perceptions to establish whether the digital story influenced a change in their perceptions of safety culture and patient safety-related behaviours. As noted in the systematic literature review (Chapter 2, s2.1), safety culture is multidimensional, and individual perceptions of safety culture are the *'product of shared values and beliefs about patient safety'* (Feng *et al.*, 2008, p315). Combined with the complexities of healthcare and healthcare delivery, this can result in internal and external factors influencing individual perceptions. The complexities of the phenomenon can lead to changes, making it impossible to fully adhere to a positivist ontological and epistemological position that seeks cause and effect or manipulates variables used in true experimental or quasi-experimental designs (Polit and Beck, 2018). As a complex phenomenon, a post-positivist paradigm was chosen for this study that was underpinned by Lincoln and Guba's (1994, p110) ontological position:

*'Assumes that reality exists but to be only imperfectly apprehendable because of flawed human intellectual mechanisms and the fundamentally intractable nature of the phenomena'.*

Therefore, the RNs' prior experiences and the social and cultural contexts of their personal, professional, and clinical experience may influence their perceptions of safety culture, meaning that RNs will have different viewpoints. Furthermore, as an observer, it was also recognised that the researcher can introduce bias, which could influence what is observed and the conclusion of this study.

#### **3.3.1.1 Application of Quantitative Research to this Study**

A descriptive cross-sectional design was used, which is a type of non-experimental design that explores the phenomena at one point in time and how they change over time (Polit and Beck, 2018). This design is economical, easier to use, and commonly used when measuring safety culture behaviours and attitudes in healthcare settings. The design of this present study included four set timepoints to overcome the limitations when reporting causal inferences of RNs' perceptions at one point. Therefore, the RNs perceptions were measured over time to consider potential changes such as increased workload due to staff shortages or sickness, increased patient admissions, or changes in leadership, all of which could potentially influence the RNs' perceptions of the safety climate in the qualitative study.

The quantitative study aimed to observe, describe, and document. Therefore, a non-experimental, descriptive quantitative design was deemed appropriate for addressing the research objective of this study. A significant disadvantage of this design is that it does not yield persuasive evidence for causal inferences. However, this was not a problem for this quantitative study, as the research objective was to provide an independent and objective view to describe and understand the facts. The study aimed to highlight positive or negative perceptions of the safety climate in the clinical environment and collect a substantial amount of quantifiable data. However, quantitative research is criticised for equating the social world with the natural world and overlooking the fact that people ascribe meaning to their lived

experiences (Bryman, 2016). Subsequently, quantitative research was combined with qualitative research to address this criticism.

### 3.3.2 Qualitative Research

Qualitative methodologies portray a world in which reality is socially constructed, complex, and ever-changing (Glesne, 2018). Individuals construct reality based on factors such as gender, culture, education, attitudes, and social behaviours. The aim is to facilitate the exploration of the subjective experiential world in a naturalistic setting, using language, perceptions, and experiences to understand and explain behaviour (Moule *et al.*, 2016). Thus, qualitative researchers are in the world and use a series of interpretative practices that make the world visible to elicit an '*insider rather than an outsider view*' (Smith and Nizza 2022, p22) based on quantification.

Qualitative research draws upon anthropological, sociological, and psychological traditions and uses approaches such as ethnography, grounded theory, phenomenology, and narratology (Moule *et al.*, 2016). These traditions vary in conceptualisation based on the overall aim, data collection methods, and analysis, as illustrated in Table 3.1.

**Table 3.7 Qualitative Research Traditions**

Discipline	Research Tradition	Domain	Area of Inquiry
Anthropology	Ethnography	Culture	The holistic view of culture
Philosophy Psychology	Phenomenology	Lived Experience	Experiences of individuals within their life world
	Descriptive Phenomenology		Interpretation of an individual's experience
	Interpretative Phenomenology		Interpretation and meanings of an individual's experience
Sociology	Grounded Theory	Social settings	A social psychological and structural process within a social setting

Adapted from Polit and Beck (2018)

Subjective data is gathered through observation, for example, field notes, interviews, case notes, photographs, and recordings. This will enable the researcher to make sense of or interpret the phenomena to understand the meanings individuals attach to it (Denzin and Lincoln, 2011).

From interpretivism to social constructivism, phenomenology, feminist theory, and critical realism, qualitative research shows a wide range of philosophical paradigms. As a result, it is hard to define because it has no distinctive theory or paradigm and no distinct set of entirely specific methods (Denzin and Lincoln, 2011). Consequently, there is no single accepted way of carrying out qualitative research, as this depends upon the ontological and epistemological position of the researcher, purposes, and goals of the study. To the inexperienced researcher, refining the choice can be a daunting task. Still, after several discussions and deliberations with research supervisors and academic discourse with peers, it became apparent that interpretative phenomenological analysis (IPA) was as it was congruent with the researcher's ontological and epistemological position. Furthermore, as this qualitative study aimed to explore, interpret, and present RNs' meanings from their lived experiences, it was appropriate to achieve the study aim and objectives of the qualitative inquiry.

### **3.3.2.1 Application of Qualitative Research to this Study**

Interpretive Phenomenological Analysis is concerned with the detailed examination of human lived experience, which has a declared phenomenological (the study of expertise), hermeneutical (the study of meaning), and ideographic (the study of the individual) emphasis (Larkin *et al.*, 2006). In the context of this qualitative study, safety culture perceptions will be explored at four set timepoints (pre-intervention and post-intervention) to fully understand this phenomenon. It was believed that perceptions would arise from their workplace and organisational interactions; therefore, this present study sought to determine whether any changes to their safety culture perceptions and patient safety-related behaviours were influenced by the digital story and not by their environments. Other qualitative methodologies (as illustrated in Table 3.1) were considered but rejected. Grounded theory is more about

developing theories and uses a bigger sample size than phenomenology and was considered to be irrelevant to the RNs' real-life experiences. Likewise, ethnography seeks to learn the worldview of a cultural group (Polit and Beck, 2018), and observing RNs in their clinical environment would offer an exploration and holistic view of safety culture and their patient safety-related behaviours. However, this methodology was rejected because of the ethical considerations involving patients and the time available to complete this study.

### **3.3.2.2 Interpretative Phenomenological Analysis**

Interpretative Phenomenological Analysis is an approach to qualitative, experiential research that has gained momentum and popularity over the last 20 years. As a significant qualitative approach in psychology, it is increasing in cognate disciplines such as human, social, and more recently, health sciences (Smith *et al.*, 2022). One crucial theoretical touchstone for IPA is phenomenology, which views human beings as sense-making creatures. Thus, the RNs' accounts will reflect their attempts to make sense of their personal and professional experiences and how they perceive safety culture and the digital story. Therefore, the critical role of the researcher was to make sense of those experiences (Smith, 2004) to establish the impact of the digital story to achieve the aim and objectives of this study. A phenomenological inquiry's founding principle is to examine experience as it unfolds and in its own terms. Van Manen (1990) comprehensively explains phenomenology, concluding that it is primarily the study of the lived experience of the lifeworld.

### **3.3.2.3 Philosophical Underpinnings of Phenomenology**

The philosophy of phenomenology originated from the works of philosophers Kant (1724-1804), Hegel (1770-1831), and Brentano (1838-1917) (Polit and Beck, 2018). Their philosophy developed phenomenology through various phenomenological perspectives and individual interpretations, as evidenced by the works of philosophers Husserl (1962), Heidegger (1962), Giorgi (1970), Gadamer (1990), and van Manen (1990). The phenomenological movement has transitioned over the years from emphasising only '*pure description*', as prescribed by Husserl, to focusing on interpreting experience, as Heidegger advocates (Lopez and Willis



2004). Heidegger's interpretive (hermeneutic) phenomenology and Husserl's descriptive (transcendental) phenomenology have a shared history (Flood, 2010; Reiner, 2012), as each of these phenomenologists sought to uncover human experiences as they are lived. However, there are significant differences between them (as illustrated in Table 3.2) regarding the researcher's focus, outcome, goal, and role previous knowledge plays.

**Table 3.2 Philosophical Assumptions of Phenomenological Forms of Enquiry**

	<b>Descriptive phenomenology (eidetic)</b>	<b>Interpretative phenomenology (hermeneutic)</b>
<b>Ontology</b>	<p>Multiple constructs of reality</p> <p>Objectivity relates to the extent to which description is true to a phenomenon</p> <p>Although experiences are subjective, there are features to any lived experience that are common to all persons who have the experience</p> <p>Data based on a subject reality</p>	<p>Multiple constructs of reality</p> <p>Reality is constructed in unique ways depending on context and personal frames of reference as individuals engage with the world</p> <p>Data based on subject reality</p>
<b>Epistemology</b>	<p>The goal of the researcher is to achieve transcendental subjectivity through bracketing</p> <p>Pre suppositional–No theoretical framework can be used</p>	<p>The goal of the research is to achieve intersubjectivity through ‘Dasein’–being in the world and being with others - People cannot abstract themselves from the world</p> <p>Data are produced through the interaction between the participant and the researcher, and the researcher’s interpretations</p> <p>Suppositional - Can include an orienting framework</p>
<b>Axiology</b>	<p>The researcher acknowledges values and biases</p> <p>The impact of the researcher on the inquiry is constantly assessed so that they do not influence the object of the study</p>	<p>The research values affect the object of the study</p> <p>Expert knowledge on the part of the researcher is valuable</p>
<b>Methodology</b>	<p>Methods that focus on obtaining participants' descriptions of experience</p> <p>Variations include Giorgi’s (1985) Descriptive Phenomenology</p>	<p>Interpretative methods that move beyond the description of core concepts and essences to look for meanings</p> <p>Variations include Interpretative Phenomenological Analysis (Smith <i>et al.</i>, 2022)</p>

From an epistemological perspective, Husserl saw phenomenology as a way of reaching true meaning by penetrating deeper into reality by discovering how objects are experienced and presenting themselves to human consciousness in their lifeworld (Spinelli 2005). He termed this process intentionality, the act of thinking that connects us to what we think. In phenomenological terms, Smith *et al.* (2009, p13) summarise this effectively to mean:

*'Experience or consciousness is always conscious of something - seeing is seeing of something - remembering is remembering something, judging is judging of something. That something - the object of which we are conscious - may have been stipulated by a perception of a real object in the work or through an act of memory or imagination'.*

Descriptive (transcendental) phenomenology aims to discover the spontaneous surge of the lifeworld as it is lived rather than conceptualised (Merleau-Ponty, 1962; van Manen, 1990). Husserl believed that phenomenology was presuppositional and that nothing should be assumed or taken for granted when trying to understand a phenomenon. Husserl's ontological assumptions involve understanding how individuals experience phenomena and how they appear through consciousness.

Epistemologically, Husserl (1962) proposed that researchers must position themselves differently in their work and how they think about things to seek the content of consciousness in a '*pure form*' free from bias. Therefore, the researcher must view the individual's account objectively and avoid passing judgement. To devoid any preconceptions and presuppositions, Husserl (1962) used bracketing, which he termed '*epoch*', as a method to seek the '*essence*' of the phenomena and describe it in terms of its characteristic features (Husserl, 1962).

In contrast, Heidegger (1962-1976), the founder of interpretative (hermeneutic) phenomenology, resisted Husserl's emphasis on consciousness and subjectivity. His ontological position believed that every form of human description is interpretative in an individual's lifeworld. Epistemologically, Heidegger believed that preconceptions (which he refers to as fore-conceptions) could not be bracketed, as the observer is part of that world and not bias-free. Heidegger (1962) argued that interpretation is inevitable whenever an object is

interpreted as something that is grounded in the interpreter's pre-understanding of the object. Therefore, researchers should position themselves as '*being in the world*' – called Dasein (Heidegger, 1962, p156). Therefore, Heideggerian philosophy is based on the intersubjective relationship between participants and researchers to make sense of meaning-making and how they give meaning to things that happen (Smith *et al.* 2009).

#### **3.3.2.4 Application of Interpretive Phenomenology to this Study**

For the qualitative part of this study, the research aim and objectives were to explore how the RNs perceive safety culture based on their own lived experiences. Interpretative phenomenology based on Heideggerian philosophy works well for this. From an interpretivist perspective, the study aimed to grasp the texture and qualities of participants lived experiences in their social-cultural contexts and realities. This will help to understand the experience better and unveil the hidden meanings in the stories of the experience (Streubert and Carpenter 2011), which fits with Heidegger's idea of interpretative phenomenology. Therefore, as a researcher conducting this study, it was important to reflect upon prior personal and professional knowledge and experience to justify the researcher's position in this study.

As previously stated, the researcher's personal and professional values, knowledge, and experience as a health educationalist and registered nurse will have influenced this research topic, methodology, aim, and objectives. Moreover, other influences included my presuppositions and preconceptions of nursing, patient safety, poor standards of care, and serious failings in care have been publicly available and portrayed through the media. It was therefore impossible to bracket (as described by Husserl) prior knowledge and experience. Rather than bracket the lived experiences, it seemed appropriate to connect with the Heideggerian philosophy of interpretative phenomenology and accept a Dasein position of '*being in the world*' (Heidegger, 1962, p156). Firstly, it was anticipated that perceptions of safety culture and patient safety-related behaviours could not be assessed by separating the

participants from their workplaces or evaluating the researcher's position, knowledge, and experience. Secondly, it resonates with interpretative phenomenology, that is; to understand people and the worlds they inhabit that are socially and historically contingent and contextually bounded (Eatough and Smith, 2017).

The final product of inquiry is a broader and more in-depth understanding of what the phenomenon means to those who experience it in their social-cultural contexts and realities. It includes how the experience alters their entire being (McConnell-Henry *et al.* 2010), which Flood (2010) describes as co-constitutionality. Gadamer (1990) describes it as the fusion of horizons and Heidegger as the hermeneutic circle of understanding of experience (Streubert and Carpenter 2011). Critics assert that presuppositions taint research data (Paley, 2005; Giorgio and Giorgio, 2008). However, adopting an insider-outsider perspective helps to overcome this by acknowledging any presuppositions and preconceptions by engaging with the hermeneutic circle to understand the double hermeneutic (Smith and Osbourne, 2003) approach through reflexivity and incorporating this into the data collection process and the interpretation of the data.

### **3.3.2.5 The Role of the Researcher - Inside-Outsider Perspective**

When collecting and interpreting the data, a fundamental step is to recognise the researcher's positionality from an insider-outsider perspective (Coombs and Osbourne, 2018) to obtain the RNs' trust and establish a rapport. It is also important to know your positionality to lower the risk of researcher bias. This can be achieved by managing subjectivity (Ergun and Erdemir 2010; Mikecz 2012) and the complexity of power struggles between the researcher and the participants (Belur 2014). From an insider perspective, Smith and Nizza (2022, p12) state that IPA researchers are '*insiders, meaning they share some aspects of the experience they are investigating*'. Neumann (2011) and Perera (2021) provide a multifaceted definition related to the researcher's positionality, subjectivity, and power negotiation, which are informed and shaped by gender, culture, race, religious affiliations, language, and professional status. Smith and Nizza (2022, p12) suggest that limiting preconceptions can be achieved by being '*naïve*'

about the phenomena under investigation. However, this was not possible as an insider, as it was accepted that similarities existed relating to the professional identity, language, and experiences of those being studied.

As a nurse and health educator, significant knowledge, and experiences of working in the NHS and understanding the key issues relating to nurse education have been gained over the years. There was also extensive experience gained in managing complaints and fitness-to-practice issues related to unsafe practice, lack of competencies, and not meeting the NMC (2018) standards for pre-registration education. These experiences provide some insider knowledge and prior literature shaped preconceptions. Furthermore, having worked in the NHS Trust under investigation, it was possible to encounter experiences of interviewing RNs known to the researcher, which also increases preconceptions. Nonetheless, this was overcome due to not having worked for this organisation for 17 years and the fact that healthcare is complex and continuously changing. From this standpoint, the researcher's positionality as an outsider may take the role of a stranger, visitor, insider, and initiator (Flick, 2018). The first two represent an outsider role, and the last two attempt to reach into the institution from an insider's perspective. These roles can change over time, depending on when the researcher is involved within the setting. As the research design required the researcher to spend considerable time in the NHS Trust, these four roles will likely change from a stranger and visitor to an insider and initiator. Further discussion and reflexivity of the researcher's positionality concerning this research is needed, as suggested by Hellawell (2006) and Hockey (1993), which is further discussed in Chapter 7.

### **3.3.3 Mixed Methods Research**

Mixed methods research (MMR) interrelates and incorporates qualitative and quantitative approaches in a single study (Cresswell and Plano-Clarke, 2011). The importance and application of mixed methods have been increasing over the decades since the early writings of Greene *et al.* (1989, p256), who defined mixed methods as a research design that:

*'Include at least one quantitative method (designed to collect numbers) and one qualitative method (designed to collect words), where neither method is inherently linked to any particular inquiry paradigm'.*

Research methods and philosophy were the focus of this definition. Still, as mixed methods began to emerge, Tashakkori and Teddlie's (1998) definition shifted from the mixing of methods to mixing all phases of the research process, including mixing philosophical positions. Since then, there have been several definitions of mixed methods research from diverse perspectives that reflect several aspects of the research philosophy, process, design, and methodology. Johnson *et al.* (2007) constructed a consensus definition drawn from 19 different definitions from 21 established mixed methodologists. The shift of focus moved from the methods and philosophy to qualitative and quantitative research and its purpose, as they stated that:

*'Mixed methods is the type of research in which a researcher combines elements of qualitative and quantitative research approaches (e.g., the use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration'.* (Johnson *et al.*, 2007, p123).

Mixed methods research is being promoted in healthcare research because of the complexities of healthcare and healthcare delivery (Curry and Nunez-Smith, 2015). Factors associated with these intricacies are the complicated causes of health, the multifaceted experiences of healthcare and healthcare delivery, and inequalities in health status (Curry and Nunez-Smith, 2015; Forthofer, 2003). Furthermore, the social processes, such as beliefs, values, and motivations underlying individual behaviours, are complex and dynamic (Curry and Nunez-Smith, 2015). As previously outlined, patient safety and safety culture in healthcare are no exception, as they are multifaceted and encompass several dimensions (Sammer *et al.*, 2010; Vincent, 2010). Consequently, this is a complex phenomenon to study using a quantitative or qualitative method alone. Using MMR was the appropriate design choice for this study to achieve the aim and objectives by combining the underpinning philosophical assumptions of interpretivism and post-positivism. Cresswell (2015, p1) states that a mixed methodology design can be viewed from:

*'A philosophical stance where philosophical assumptions take centre stage [e.g., interpretivism] ...or as a methodology, that is, a research process originating from a broad philosophy [e.g., pragmatism] that*

While this supports the justification for using a mixed-method approach, Greene *et al.* (1989) argue that the reasons for combining multiple methods within a single study are far more diverse (Greene *et al.*, 1989). Therefore, the justification for the study should be rationalised to *'enhance our beliefs that the results are valid and not a methodological artefact'* (Bourchard, 1976, p268). Therefore, other reasons for using a mixed methods approach lie in the strength and distinctiveness of this study, as it has substantial potential to measure and explore the impact of an intervention (digital story) against the multifaceted and multidimensional safety culture concepts. Furthermore, it will address the gaps in the literature and the methodological weaknesses of using a single research method (as discussed in Chapter 2, s2.3).

### **3.3.3.1 Mixed Methods Design**

Methodologically, when using mixed methods research, the sequence design, the priority of the quantitative and qualitative strands, and the approach to mixing the two data sets should be stated to convey a sense of rigour of the research (Cresswell, 2008). Firstly, the sequence design must be determined, as this symbolises the temporal relation between the qualitative and quantitative strands (Greene *et al.*, 1989). Cresswell and Plano-Clarke (2011) identified 12 typologies, advancing sequential designs in the literature. However, convergent (also called concurrent), explanatory sequential, and exploratory sequential are the three main types of mixed methods studies (Creswell, 2008).

Secondly, priority offers three weighting options for mixed methods studies: *equal status*, *quantitative dominance*, and *qualitative dominance* (Johnson *et al.*, 2007). A notation system developed by Morse (1991) uses a plus (+) sign to denote a convergent design and the right arrow ( $\longrightarrow$ ) to indicate a sequence design. The weighting priority is characterised by upper letters that indicate higher priority, with lower case indicating lesser importance. Table 3.3 illustrates the notations used against different typologies in mixed methods designs.



**Table 3.3 Typologies of Mixed Methods Designs**

TIME ORDER	
CONVERGENT DESIGN	SEQUENTIAL DESIGN
<b>Equal Status</b>	<b>Equal Status</b>
QUAL+ QUAN	QUAL → QUAN
	QUAN → QUAL
<b>Dominant (priority) status</b>	<b>Dominant (priority) status</b>
QUAL+ Quan	QUAL → Quan
QUAN + qual	Qual → QUAN
	QUAN → qual
	<b>Quan → QUAL</b>
Plus, the (+) sign denotes a convergent collection of data.	The arrow (→) sign denotes a sequential collection of data.

Source: Johnson *et al.* (2007)

Finally, triangulation seeks to converge and corroborate results from the different methods of studying the same phenomenon (Greene *et al.*, 1989) by combining and comparing multiple data sources, data collection, and analysis procedures. Creswell and Plano-Clark (2011, p18) stated that:

*‘Triangulation is important today because of the complexity of problems that need to be addressed, the rise of interest in qualitative research, and the practical need to gather multiple forms of data for diverse audiences.*

Methodological triangulation involves integrating the two data sets to address the same research problem. Denzin (1978), who first discussed methodological triangulation, extended the categorisations beyond their conventional association with research methods to include:

1. Triangulation of theory - using various theories and perspectives to interpret study results.
2. Triangulation of data - the use of several sources within a study.

3. Triangulation of methods - the study of a research problem using various methods.
4. Triangulation of investigators - undertaking the research using several researchers.

In addition, it is necessary to distinguish between within-methods triangulation, which refers to the use of multiple quantitative or qualitative approaches, and between-methods triangulation, which involves quantitative and qualitative methods (Denzin, 1978).

### **3.3.3.2 Application of Mixed Methods in this Study**

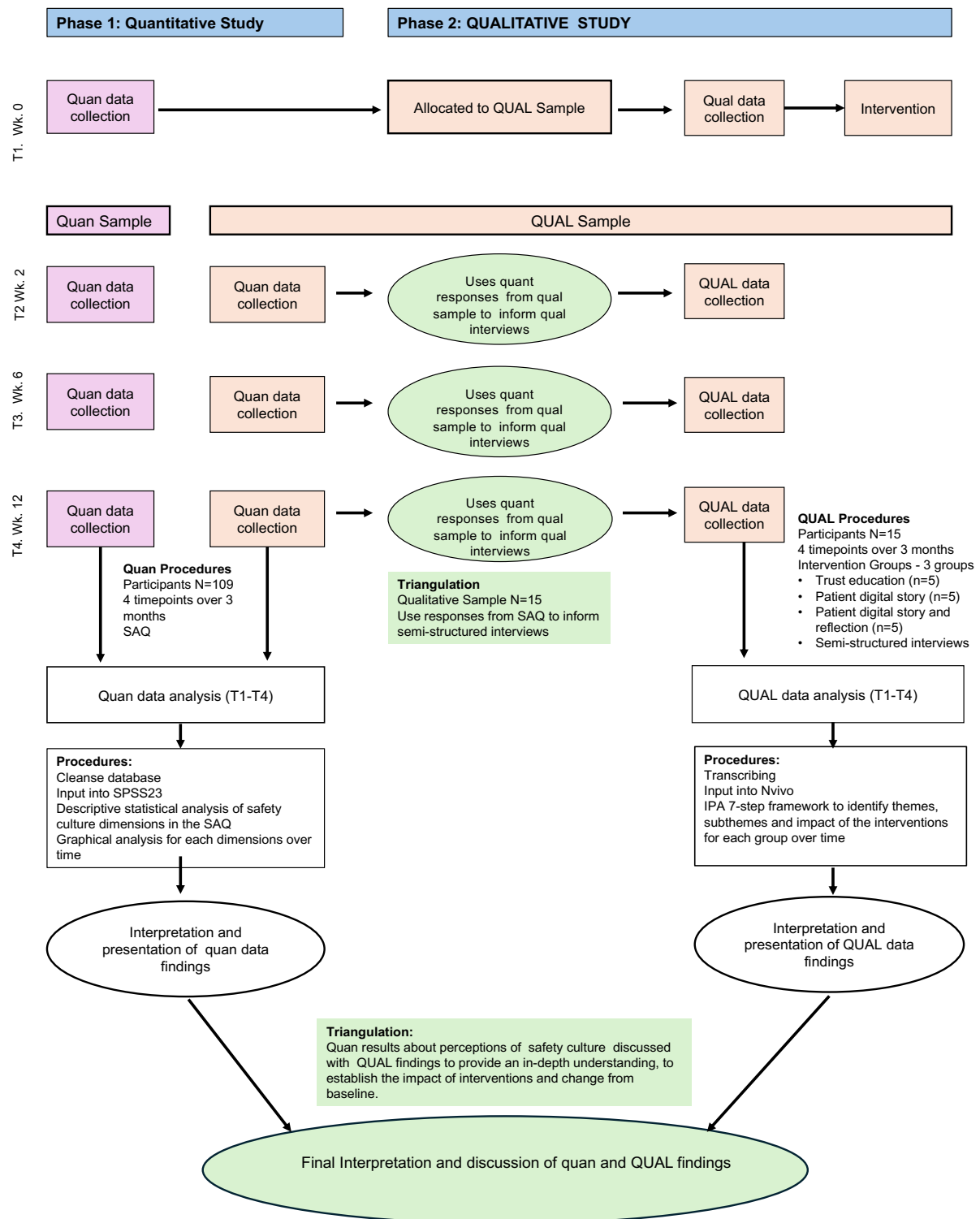
Due to the complexity and unpredictability of healthcare delivery, as well as how nurses interact in social and organisational environments, it was necessary to use repeated measures to collect quantitative data over different timepoints. This would determine if the RN's safety culture perceptions remained stable or changed. At the same time, the qualitative study would explore the everyday lived experiences across time to provide deeper meanings of how and why changes occurred. It was expected that other nuances that positively or negatively impacted their safety culture's perceptions and patient safety-related behaviours may occur. Therefore, exploring safety culture perceptions using repeated measures will provide a perspective on how they change and can be particularly useful for assessing interventions (Calman *et al.* 2013). This was appropriate to achieve the aim of this study, as it was one way to understand the complex and dynamic nature of healthcare delivery and its relationship to safety culture. Furthermore, it assessed the impact of the digital story in establishing an increase or decrease in safety culture perceptions and patient safety-related behaviours. Plano-Clarke *et al.* (2014) suggest that repeated measures are well-suited for investigating phenomena that change over time and responses to an intervention. Furthermore, response bias will be reduced, as it has the potential to provide a true reflection of safety culture perceptions.

When using an intervention, Creswell (2015) suggests that an intervention design can be built into one of the three basic typologies (see Table 3.3) and add qualitative data. However, the distinguished feature of this design is that it needs to be a rigorous experiment that employs random assignment, provides a high-quality treatment dosage, and employs various controls

for threats to validity (Cresswell, 2012). The intent of this study did not align with this description; instead, however, consideration was given to the procedures outlined by Cresswell (2015) when implementing this design. Following that, this study considered how to use qualitative data (e.g., before, during, or after) and how the qualitative results will determine the intervention's impact (Cresswell, 2015). Consequently, this study used an explanatory sequential design with a qualitative dominance (Quan/QUAL) (illustrated in red in Table 3.3), whereby the qualitative data was collected before and after the intervention and given priority status to determine the impact of the digital story. This design and priority status were deemed appropriate for generating data at four set timepoints (pre-intervention and post-intervention) over three months. The quantitative and qualitative components were applied sequentially. First, the quantitative study measured and described the RNs' safety culture perceptions. The qualitative study explored their perceptions in-depth using an interpretative phenomenological method.

Triangulation of data between methods was adopted, as within-methods triangulation has limited value because it only uses one paradigm and may give an inherent weakness to a study approach and its findings (Johnson *et al.*, 2007). Figure 3.1 summarises the sequence of procedures, the priority methods (Quan → QUAL), and the triangulations between methods. In the first timepoint, quantitative data was gathered (quantitative study), and RNs' (a subset of the quantitative sample) perceptions of safety culture were gathered through pre-intervention interviews before they were randomly assigned to the intervention groups (see Chapter 4). For the RNs in the qualitative study, from T2 onwards, how they responded (positively or negatively) in their SAQ questionnaire was used to inform the phenomenological inquiry in the qualitative interviews (see interview schedule Appendix 4.8). For example, if the RNs had a negative or positive response to the teamwork climate, they were asked an open question about why they perceived teamwork to be positive or negative. This provided context and understanding of the safety culture concepts (in the SAQ) and explored their perceptions

**Figure 3.1 Flow of Procedures for this Mixed Methods Design**



of the digital story, which was fundamental in addressing the aim and objectives of this study (see section 2.4.1).

The mixed method design used in this study will help explain the variables impacting safety culture perceptions and patient safety-related behaviours. It also took into consideration the social, cultural, and subcultural contexts within healthcare settings (Waterson *et al.*, 2019), that would identify or rule out any other influences explaining changes to RNs' perceptions of safety culture and patient safety-related behaviours. According to Cresswell (2015), this will address the methodological threat to validity when using an explanatory sequential design by strengthening the data through enhancement and further clarification (complementary) of the responses in the survey.

### **3.3.3.3 The Value of Combining Methods**

The strength of the mixed methods design lies in the researcher integrating the two methods (Cresswell, 2015; Cresswell and Cresswell, 2018; Cresswell and Plano-Clarke, 2011), alternatively referred to as triangulation, and is one of several reasons for multi-method research. This helps to overcome bias, increase the depth of understanding, and confirm the completeness of evidence, which increases the credibility of the findings (Kinn and Curzio, 2005; Murphy and Dingwall, 2003). The mixed method design in this study was used for complementary purposes to achieve the aim and objectives comprehensively from different perspectives (Fetters *et al.*, 2013; Guetterman *et al.*, 2015). It therefore explained and described the differences and similarities that confirm the data through triangulation to gain a deeper understanding of the studied phenomena.

The present study employed methodological triangulation between methods for data collection, as illustrated in Figure 3.1. Using IPA to understand the qualitative accounts in the context of the quantitative results gave a comprehensive understanding of the RN's perceptions of safety culture, which showed how the digital story affected them. The qualitative and quantitative methodologies complemented one another, as the data from each method

was analysed separately and the findings were merged to inform the discussion. This approach ensures a more comprehensive understanding of the situation, enabling the identification and exclusion of influences, the establishment and explanation of the phenomena, and ultimately, the creation of a more authentic picture (Denscombe, 2007; Denzin, 1978). Triangulation would also reduce bias and maximise the reliability, validity, and credibility of the quantitative data and findings (Robson, 2009) by providing context and explanation that a single study might not provide.

Using both quantitative and qualitative methods draws on the advantages of each technique (discussed in 3.3) to obtain an in-depth understanding of the impact of the digital story for those who experienced it. This will determine its relationship to changes in the RN's safety culture perceptions and patient safety-related behaviours. This will enhance its strengths and minimise the limitations of using quantitative and qualitative methods in a single study. Subsequently, this will provide reliable, valid, and trustworthy findings, which are fundamental in achieving the aim of this study. More importantly, the strengths of this design will address the limitations and gaps in the literature discussed in section 2.3 and offer a unique contribution of new knowledge in the literature.

### **3.4 Summary of Chapter**

This chapter has explained and justified the theoretical framework used for this study. A philosophical stance was chosen, combining interpretivism and post-positivism, and the chosen methodologies aligned with those paradigms. These methodologies were incorporated within an MMR explanatory sequential design in which the dominant status was qualitatively driven. The procedural diagram delineates the application of the methodologies in each study and demonstrates the application of triangulation between methods. The strengths of using a mixed methods design in the context of this study conclude this chapter. The next chapter will discuss and evaluate the methods used for the qualitative and quantitative studies to justify the choice of methods used in this mixed method study.

## CHAPTER 4: RESEARCH METHODS

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This chapter is divided into two sections to discuss and justify the quantitative and qualitative methods applied to this study. Section 4.1 will present the quantitative methods, section 4.2 will present the qualitative methods and will include the ethical considerations applied to this study, followed by a summary to conclude this chapter.

### 4.1 Quantitative Study

#### 4.1.1 Introduction

A descriptive cross-sectional design was used to measure the safety climate of the RNs at four different timepoints over three months. The study was undertaken in a large teaching NHS Acute Trust in the West Midlands. The sampling strategy used a paired control to define the target population, and a heterogeneous sample of 109 RNs was recruited using a purposive sampling method. The data were collected at four timepoints using the Safety Attitude Questionnaire (Sexton *et al.*, 2006) and analysed using descriptive statistics.

#### 4.1.2 Population and Sample Strategy

This study's target population, the entire group of interest (Polit and Beck, 2018), included RNs working in the medical division. This area was chosen as advised by the Chief Nurse at the NHS Trust. It is the largest division with similar (e.g., acute respiratory medicine) services across the two sites compared to the surgical or specialised services divisions. Women and Children were excluded as the workforce would comprise children's nurses and midwives. Six comparable specialised medical wards were chosen and paired into three groups, which was influenced by Kemper *et al.* (2016). Kemper *et al.* (2016) used a paired group trial to measure the effectiveness of Crew Resource Management (CRM) training on safety attitudes and behaviours of healthcare professionals. Kemper *et al.* (2016) used three pairs of comparable intensive care units using a predefined cluster of eligible medium-sized units (10-16 beds and 55 to 58 employees) to measure the effectiveness and cost-effectiveness of CRM on safety attitudes and behaviour one year after training.

Similar studies by Grogan *et al.* (2004), Haller *et al.* (2008), and McCulloch *et al.* (2009) measured the outcomes of classroom-based interventions but used uncontrolled trials for pre-test and post-test measurements. Uncontrolled trials are considered weak designs due to many factors, such as unwanted time-related effects on the outcome of interest, for example, staffing problems, patient issues, and changes in the unit's or hospital's economic situation (Rabol *et al.*, 2010). Controlled designs are preferred, and mixed methods can strengthen the before and after design (Brown *et al.*, 2008). However, as a large acute NHS Trust, standardisation due to organisational variations can be challenging in complex settings even when using paired controlled trials. Therefore, general, acute, and emergency medicine were excluded from the study due to the limited range of services provided at one hospital site. In collaboration with the Deputy Chief Nurse (Medical Division), comparability in terms of bed occupancy, medical conditions, and minimum staffing level was considered to minimise sample bias caused by the geographical heterogeneousness of the sample. Minimum staffing levels are based upon safer staffing guidelines (National Institute for Health and Care Excellence (NICE) 2014). Table 4.1 shows the accessible population for each medical ward (specialised ward) and the total number and percentage of RNs who volunteered to participate in the study.

**Table 4.1 Accessible Population and Sample Size**

	Medical Wards	Bed Occupancy	Accessible Population N=152	Study Sample n=109 N (%)
<b>Pair 1</b>	Purple	24	20	18 (90%)
	White	24	20	16 (80%)
<b>Pair 2</b>	Orange	28	24	11 (46%)
	Green	28	24	17 (71%)
<b>Pair 3</b>	Yellow	38	36	25 (69%)
	Blue	38	36	22 (61%)



#### 4.1.2.1 Sample Selection

This study used a non-probability purposive sample in line with the paired groups. The main advantage of using this sampling method is to study the population of interest whose characteristics are defined for the study (Andrade, 2021). Therefore, RNs were selected to meet the aim and objectives of this study with the expectation that they would be knowledgeable and experienced about patient safety and safety culture within the clinical environment. This method is less rigorous than probability sampling methods, where the population of interest has an equal chance of being selected. Furthermore, the external validity is more significant as the risk of sampling bias is reduced. The purposive sampling methodology was based on the inclusion and exclusion criteria (see Table 4.2). However, this can be a disadvantage as the sample can become more purposive, which can increase sample bias and threaten the findings' external validity (Andrade, 2021). To reduce the risk of sampling bias, there were no restrictions on age, gender, ethnic background, educational qualifications, or role titles. The range of participant demographic characteristics ensured diversity within the sample to present more representative findings.

**Table 4.2 Inclusion/Exclusion Criteria**

Inclusion Criteria
<ul style="list-style-type: none"><li>• RNs in permanent posts</li><li>• Have a minimum of six months of post-registration experience.</li><li>• English speaking</li></ul>
Exclusion Criteria
<ul style="list-style-type: none"><li>• RNs employed by a nursing agency</li><li>• RNs with less than six months of post-registration experience</li><li>• Unqualified staff</li><li>• Non-English speaking</li><li>• Qualified Allied Health Professionals</li></ul>

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All RNs (from the six medical wards) from the accessible population (n=152) had to be English-speaking and employed in permanent posts with a minimum of six months post-registration experience. Any RNs employed by a nursing agency were excluded, as they are allocated to

different clinical areas, which poses challenges in recruitment and retention. RNs with less than six months of experience were excluded because of the six-month preceptorship period used to aid the transition from student to qualified nurses. The recruitment process took 13 weeks, from 8th June 2017 to 31st August 2017, due to the geographical areas of the specialised medical wards (split across two hospitals). A total number of 109 (90%) were recruited from the accessible population of 152 RNs across three paired wards. The participant flow and response rates are presented in Chapter 5 (s5.1), together with the participant's demographical characteristics and professional profiles. A participant flow chart was used to provide information about the study design and to illustrate the flow and response rates of participants through the stages of this study.

#### **4.1.3 Data Collection Procedure**

When using surveys to collect data, researchers should try to select measures that have previously demonstrated high levels of reliability and validity when using multi-scale items. The internal validity and reliability of the data collection tools provide a degree of confidence that the research is trustworthy and consider whether it avoided the influence of extraneous variables in the research outcome (Roberts *et al.*, 2006). According to previous research (e.g., Deilkas and Hofass, 2008; Gambashidze, 2020; Sexton *et al.*, 2006; Zhao *et al.*, 2019), the SAQ (36-Short Form) was chosen because it is a proven way to get first-hand information about people's safety attitudes. It was developed by Sexton *et al.* (2006) and derived from the Intensive Care Unit Management Attitudes Questionnaire (ICUFAQ) and Flight Management Attitudes Questionnaire (FMAQ), which is widely used in commercial aviation. The SAQ is used in healthcare settings and is the best-documented instrument for measuring six safety-related climate concepts and demonstrating good psychometric properties.

Sexton *et al.* (2006) undertook six cross-sectional surveys of 10,843 healthcare providers. They adapted and used the SAQ across 203 clinical areas (critical care units, operating departments, inpatient settings, and ambulatory care) to measure the psychometric

properties. A total number of 64 hospitals in the United States of America (US), 106 hospitals in the United Kingdom (UK), and 22 hospitals in New Zealand (Sexton *et al.*, 2006) were included. Using multilevel psychometric tests, they concluded that the SAQ was psychometrically sound and specific, could be linked to patient outcomes, and was a good indicator of carer impressions and attitudes towards safety (Sexton *et al.*, 2006). Singla *et al.* (2006) undertook a systematic review of 13 different patient safety culture surveys to assess frontline healthcare workers' perceptions of safety culture in a hospital acute-care setting. They argued that the SAQ is reliable while recognising that no perfect instruments are available. Strong psychometric properties of the SAQ have also been demonstrated in non-experimental descriptive studies and correlation studies that compare safety climate within and between wards and hospitals (e.g., Deilkas and Hofass, 2008; Gambashidze, 2020; Zhao *et al.*, 2019), non-experimental longitudinal studies that measure and track changes over time (e.g., Zhao *et al.*, 2019), and cross-cultural studies (e.g., Soh *et al.*, 2016).

The empirical data (presented in Chapter 2) provided good supporting evidence that this instrument had good psychometric properties at all levels of analysis. Therefore, it was appropriate to use in this study as a straightforward means of studying safety perceptions. Another advantage of using this survey is that it can be completed in 15-20 minutes and offers anonymity. The form was freely available, and permission was granted to use the SAQ 36-Short-Form-2006 before the commencement of the data collection period (see Appendix 4.1). The SAQ (36-Short Form 2006) is a single-page (double-sided) self-administered 36-item questionnaire that is divided into six safety-related dimensions and includes demographic data (see Appendix 4.2). For items 24 to 29, the words unit management and hospital management were substituted for ward management and trust management to reflect the terminology used in the UK (as illustrated in Appendix 4.3). Figure 4.1 provides the characteristics of SAQ (36-Short Form) items in their related dimensions. Each item is scored using a 5-point Likert scale (1 = disagree strongly, 2 = disagree slightly, 3 = neutral, 4 = agree slightly, 5 = agree strongly) with an additional response of 6 = 'not applicable'.

**Figure 4.1 Characteristics of the SAQ (36-Short Form 2006)**

Domain	Definition	Items Number and Item	
Teamwork Climate	Perceived quality of collaboration between personnel	1. Nurse input is well received in this clinical area 2. In this clinical area, it is difficult to speak up if I perceive a problem with patient care 3. Disagreements in this clinical area are resolved appropriately 4. I have the support I need from other staff to care for patients 5. It is easy for staff here to ask questions when there is something they do not understand 6. The doctors and nurses here work together as a well-coordinated team	
Safety Climate	Perceptions of a strong and proactive organisational commitment to safety	7. I would feel safe being treated here as a patient 8. Clinical errors are handled appropriately in this clinical area 9. I know the proper channels to direct questions regarding patient safety in this clinical area 10. I receive appropriate feedback about my performance 11. In this clinical area it is difficult to discuss errors 12. I am encourage by my colleagues to report any patient safety concerns I may have 13. The culture in this clinical area makes it easy to learn from the errors of others	
Job Satisfaction	Positivity about the work experience	15. I like my job 16. Working here is like being part of a large family 17. This is a good place to work 18. I am proud to work in this clinical area 19. Morale in this clinical area is high	
Stress Recognition	Acknowledgement of how performance is influenced by stressors	20. When my workload becomes excessive, my performance is impaired 21. I am less effective at work when I am fatigued 22. I am more likely to make errors in tense or hostile situations 23. Fatigue impairs my performance during emergency situations	
Perception of Management	Approval of managerial actions	<b>Ward Level</b> 24a. Ward managers support my daily efforts 25a. Ward managers doesn't unknowingly compromise patient safety 26a. Ward managers are doing a good job 27a. Problems are dealt with constructively by our ward managers 28a. I get adequate, timely information about event that might affect my work from ward managers 29. The levels of staffing in this clinical area sufficient to handle the number of patients	<b>Unit level</b> 24b. Trust managers support my daily efforts 25b. Trust managers doesn't unknowingly compromise patient safety 26b. Trust managers are doing a good job 27b. Problems are dealt with constructively by our trust managers 28b. I get adequate, timely information about event that might affect my work from ward managers
Working Conditions	Perceived quality of the working environment and logistical support (staffing, equipment etc.)	30. The trust does a good job of training new staff 31. All the necessary information for diagnostic and therapeutic decisions is routinely available to me 32. Trainees in my discipline are adequately supervised 33. I experience good collaboration with nurses in this clinical area 34. I experience good collaboration with doctors in this clinical area 35. I experience good collaboration with pharmacists in this clinical area 36. Communication breakdowns that lead to delays in delivery of care are common	

Source: Sexton *et al.* (2006); Items 2, 11, and 36 are negatively worded.

#### 4.1.3.1 Data Collection

Following ethics approval (discussed in section 4.2.7), formal meetings took place with the Deputy Director of Nursing for Quality and Safety and Deputy Associate Chief Nurse for Medicine to confirm recruitment and data collection plans (see Appendix 4.4). Subsequent meetings with all ward managers were held to provide further detailed information about the study. The researcher met with all RNs in their workplace between 1 pm and 2 pm on various days from July to August 2017. This was the most convenient time due to decreased workload demands and maximum staffing levels resulting from the overlap of shift patterns. Individual or group meetings were held to explain the study in more detail using the Participant Information Sheet (PIS) (Appendix 4.20). All the RNs who attended the meetings were given a copy of the PIS (see further discussion in section 4.2.7.1) before obtaining written consent. The data collection points were administered four times which started on the 1st of September 2017 and ended on the 31st of December 2017 (see Appendix 4.4).

When using surveys, the data quality can be compromised by a lack of responses, incomplete questionnaires, or ambiguities and misinterpretation of the questions. These factors can affect the reliability of responses or whether participants take the survey seriously (Moule *et al.*, 2016). Furthermore, high demands due to patient flow, patient acuity, increased workload, and staff shortages could impact the RNs' ability or unwillingness to dedicate the time to complete the survey, resulting in a low response rate. Therefore, maintaining a high response rate is crucial to improving the quality of the data and reducing potential biases. Nevertheless, there continues to be a lack of consensus on a good or acceptable survey response rate (Meyer *et al.*, 2022). Findings from a systematic review of 811 studies involving surveys concluded that an average response rate was 70% (Meyer *et al.*, 2022). When collecting the data it was necessary to take greater control of the data procedure to reduce the risk of biased findings from poor-quality data and a low response rate (<70%). Therefore, face-to-face administration using a printed format questionnaire was chosen. While email offers a cheaper and faster delivery and return of the self-administered surveys than the standard postal

service, these methods were rejected. Response rates are found to be lower in online administration (46%) and postal (65%) compared to a 76% response rate when using face-to-face administration (Meyer *et al.*, 2022).

The RNs were asked to complete the SAQ survey (T1) after giving their consent to participate in the study. To reduce response bias caused by collusion (Polit and Beck, 2018), they completed the SAQ individually in a private room in their workplace. The data distribution and collection plan (Appendix 4.4) provided all the RNs with the expected dates for the follow-up data collection points (T2-T4). The RNs had the flexibility to complete the questionnaires at home or in the workplace, and they were given one week to complete and return the survey. All completed questionnaires were returned in a sealed envelope, marked confidential, and returned to the exact predefined location and later collected by the researcher. Frequent visits to the ward enabled the collection of completed questionnaires, allowing more control over the data collection and ensuring a reasonable response rate. The study's overall response rate and attrition for each timepoint are described in Chapter 5 (s5.1.2).

#### **4.1.4 Data Analysis**

The Statistical Package for the Social Sciences® (SPSS) software (version 28.0) was used for data entry and analysis of the quantitative data. Codes were used for the demographic variables to represent the categories (e.g., male 0, female 2), and nominal measurements were applied. Ordinal measures were used for the SAQ items, as they were ordered on a five-point Likert scale (McCormick *et al.*, 2015) ranging from 1 to 6 and categorised following Sexton *et al.* (2006) criteria, which were: 1 – disagree strongly, 2 – disagree slightly, 3 – neutral, 4 – agree slightly, 5 – agree strongly, and 6 – not applicable. Items 2, 11, and 36 were reverse scored, for example, substituting 1 for 5 and 2 for 4. The Perceptions of Management domain contained items for their ward management (item numbers 24a, 25a, 26a, 27a, 28a, and 29) and trust management (item numbers 24b, 25b, 26b, 27b, 28b, and 29), which were calculated separately. Sexton *et al.*'s (2006) guidance typically excludes item numbers 14 and 33-36 from the overall scores. However, items 33-36 are within the communication and

collaboration domain, which was a significant finding in the qualitative data, and it was therefore used in the data analysis. The findings will be triangulated with the qualitative findings in the discussion chapter.

All questionnaires were included, and missing data and items scoring 6 (not applicable) were recorded as 999 so as not to affect the overall analysis when summing the median scores. All the data were checked for patterns in the missing data, and no significant patterns were noted as missed data was related to random missed questions. The accuracy of the data input was checked against the raw data, and frequencies were run on both the dependent and independent variables to check for any obscure numbers, unusual or unexpected values, and outliers. Any errors found were corrected by referring to the raw data and repeating a frequency run.

The guidance introduced by Sexton *et al.* (2006) was adopted for the analysis and interpretation of positive percentage scores in each domain. The distinction between positive and negative scores was coded by combining the lowest response categories (1 - disagree strongly and 2 - disagree slightly) and the highest responses (4 - agree strongly and 5 - agree slightly). Subsequently, scores  $\geq 4.0$  were classified as positive,  $\leq 3.9 - \geq 3.0$  neutral, and  $\leq 2.9$  negative.

The median score which works better with ordinal data (McCormick *et al.*, 2015), was used to find the central tendency values for the RNs' views on safety culture. The median score for each domain was computed by adding individual scores for each item and then dividing by the number of survey items for that domain (see Figure 4.1). For example, teamwork climate (domain) included six items which was computed as the following:

$$\text{Median} = (\text{SAQ1} + \text{SAQ2} + \text{SAQ3} + \text{SAQ4} + \text{SAQ5} + \text{SAQ6}) / 6.$$

The variability was measured using the Interquartile Range (IQR) and calculated using the  $\text{IQR} = (\text{Q3} - \text{Q1})$  formula, as the statistical data showed a skewed distribution for most of the

dimensions. Reporting the relationship between variables using the mean, the standard deviation (SD) is only appropriate when the data distribution is normal (Habidzadeh, 2017) and could be misleading if used for a skewed distribution. For data measured at an ordinal level, the IQR is the only appropriate measures of variability. Furthermore, the IQR is more effective for skewed distributions, as it is unlikely to be influenced by extreme values because it focuses on the spread in the middle of the data set (Schindler, 2015). Descriptive statistics were obtained using frequencies and percentages to summarise the participants' demographic and professional profiles. The median and mean scores, and IQR summarised the RNs' perceptions of safety culture for each dimension, and the quantitative findings are presented in Chapter 5, s5.1.

#### **4.1.4.1 Validity and Reliability Testing**

Internal and external validity is essential to establish that the measuring instruments accurately measure what they should. Reliability (also referred to as consistency) reflects the degree to which the scores are stable, replicable, and free from measurement error (Polit and Beck, 2018). Test-retest correlation coefficients using the intraclass correlation coefficient (ICC) or Pearson's *r* correlation coefficient have been used to measure the reliability and stability of the SAQ to ensure the exact measurement given to the same person on two occasions is consistent (Polit and Beck, 2018). As a widely reported aspect of reliability, internal consistency refers to the correlation between items within an instrument that measures various parts of the same characteristic or construct (Valentine *et al.*, 2015). Cronbach's alpha was used in this quantitative study to measure the internal validity (presented in Chapter 5, s5.1.6) as it is the most cited metric for evaluating internal validity and is considered the gold standard (Soh *et al.*, 2018). Reliability values range from 0.1 to 1.0, and the minimum criterion for an acceptable reliability alpha is at least 0.70, but scores >0.80 indicate robust evidence of good scale reliability (Sexton, 2006).



## **4.2 Qualitative Study**

This section presents justification for the qualitative methods applied to this study.

### **4.2.1 Introduction**

An Interpretative Phenomenological Analysis was adopted to explore the lived experiences of the RNs using face-to-face in-depth interviews to capture the meaningful, first-person account of their experiences (Smith *et al.* 2009) of safety culture. A subsample of RNs was selected from the quantitative sample and randomly allocated into one of three intervention groups with five individuals in each group. Semi-structured interviews were conducted at four different timepoints over three months. The pre-intervention interview (T1) established prior knowledge and understanding of safety culture. Three follow-up interviews (T2-T4) were conducted to establish any changes to perceptions of safety culture and patient safety-related behaviours resulting from the intervention. This section will discuss and justify the methods used to address the research aim and objectives framing this qualitative study.

### **4.2.2 Qualitative Sample Strategy**

From the quantitative sample (n=109), 68 RNs volunteered to participate in the qualitative study, and a subsample of 15 RNs were selected. In IPA research, the quality of the data is of primary importance, and since lived experiences of human phenomena are complex, smaller sample sizes are preferred to larger samples. Smith *et al.* (2022) suggest three to six participants for individual projects, but as PhD studies have some flexibility, they recommend 12 participants. As the RNs would be interviewed four times, a sample of 15 RNs was deemed appropriate to represent the in-depth perspectives of safety culture from their lived experiences in their workplace rather than the population (Smith *et al.* 2022). Furthermore, it will provide a more detailed and multifaceted account of safety culture, congruent with this study's qualitative paradigm and methodology.

A purposive sample of 15 RNs (five from each paired ward) were deliberately chosen to represent a diverse cross-section of post-registration experience, job titles and ethnic

backgrounds to collect in-depth and information-rich data (Etikan, 2016). Out of the 68 RNs who volunteered, it would have been easier to select the first 15; however, this may have limited the diversity of the characteristics. Subsequently, the quality of the data may not provide the richest source of data. Therefore, maximum variation sampling (MVS) was used, which is a common strategy of purposive sampling. The central idea is to gain different perspectives on safety culture and safety practices to provide a good qualitative study (Cresswell and Plano-Clarke, 2011). Smith *et al.* (2009) claim that IPA researchers should usually try to choose a homogenous sample for whom the research will be meaningful. Nevertheless, the quantitative sample was heterogeneous in representing a diversity of RNs perceptions of safety culture and reducing sampling bias; therefore, selecting a homogenous qualitative sample was challenging. Indeed, Patton (2002) claims that MVS inadvertently achieves better representativeness of the data, especially with small sample sizes.

#### 4.2.2.1 Sample Selection

Five RNs, who were representative of each paired ward, were selected. Table 4.3 shows the number of RNs recruited to the qualitative study, the number who volunteered and the total number selected for individual wards that align with the paired number.

**Table 4.3 Sample Selection for the Qualitative Study**

	Paired Ward 1		Paired Ward 2		Paired Ward 3	
	Purple	White	Orange	Green	Yellow	Blue
Quantitative Sample Total RNs recruited	19	14	17	11	26	22
Qualitative sample Total RNs volunteered	14	5	11	6	16	15
Qualitative Sample Total RNs selected	3	2	3	2	2	3

The following criteria was used to ensure the MVS represented different perspectives, and the sample comprised at least one RN who was:

- Non-white British.
- A non-staff nurse role (e.g., senior staff nurse, ward sister).
- Less than five years of post-registration experience.
- More than five years of experience.

This ensured that the sample was diverse, and that RNs would hold different perspectives of the same construct while being balanced and similar for each paired ward. Other demographical characteristics were excluded, such as the participant's age group, as the demographical data demonstrated that the age group correlated with post-registration experience and employment history. Once selected, SPSS (version 23.0) was used to randomly assign the RNs into one of three intervention groups (see Table 4.4). The interventions used in this study are described in the following section, and the selection of the digital story used in this study is included.

**Table 4.4 Intervention Groups**

Groups	Intervention Groups	Qualitative Sample (subgroup)
1	NHS Trust education (control group)	n=5
2	Digital story	n=5
3	Digital story and reflection	n=5

The participant flow and response rates are presented in Chapter 5 (s5.2) together with the participant's demographic characteristics and professional profile for each group.

### 4.2.3 Study Interventions

To meet the aim and objectives of this study, three intervention groups were chosen (as illustrated in Table 4.4), and the RNs were notified which group they were allocated to immediately after the baseline interviews in T1. Due to the flexibility and availability of trust

education, RNs in group 1 were asked to access the trust education once the baseline interview had been completed.

#### **4.2.3.1 NHS Trust Education**

The NHS Trust education includes training to reduce organisational risk and to comply with local and national policies, legislative requirements, and government and national guidelines. It is available to all healthcare professionals and non-healthcare professionals working there. It provides mandatory training that is predominately provided electronically, and regular updates/workshops delivered by essential trainers or specialist nurses. All healthcare professionals are contractually obligated to attend all mandatory training to ensure safety and efficiency in the delivery of patient care. It encompasses statutory requirements (such as Health and Safety, Manual Handling, Prevent, and General Data Protection Regulations) and training deemed essential for the NHS Trust (e.g., sepsis, acute kidney injury, falls prevention, pressure ulcers, blood transfusion, basic life support, manual handling, conflict resolution, and infection control).

#### **4.2.3.2 Digital Story**

The digital story was selected from the '*Patient Voices*' website which is funded by Pilgrim Projects Limited. Patient Voices is an established organisation that uses reflective digital storytelling to uncover first-person stories that '*deliver compelling and motivating insight and drive organisational change, growth, and success*' (Patient Voices, 2020). Pip Hardy and Tony Sumner, the cofounders of the Patient Voices programme, are the leading digital storytelling practitioners worldwide. Since its launch in 2003, the Patient Voices Programme has been respected globally, receiving over two million hits per annum on the website (Patient Voices, 2020). They have produced and disseminated over 1000 digital stories on health and illness. Additionally, they provide workshops that enable healthcare professionals, carers, and patients to develop their own stories and support healthcare providers in integrating digital stories within healthcare development programmes.

When selecting a digital story, Hinchman and Hinchman (1997: p xvi) proposed that patient stories in the human sciences should be:

*'Provisionally as discourses with clear sequential order that connect events in a meaningful way for a definite audience and thus offer insights about the work and/or people's experiences of it'.*

This earlier definition stressed four key features that provided a framework underpinning the selection of the digital story. The framework stipulates that it should:

1. Represent a sequence of events.
2. Be significant to patient safety.
3. Be inherently specific to the RNs speciality.
4. Include geographical, demographic, and service types, as these are essential – The digital story may be chosen by the NHS Trust or chosen via the National Patient Story Organisation in negotiation with the NHS Trust.

Jimmy's story was a 2.44-minute digital story selected by the Deputy Chief Nurse (Medical Division) from Patient Voices <https://www.patientvoices.org.uk/flv/0047pv384.htm>. The digital story was not specific to medical nursing, but the Deputy Chief Nurse stated in an email (see Appendix 4.5) that falls were prevalent in current practice. As a key performance indicator, and with the rising number of reported falls in the medical directorate, the sequence of events could be applied to any clinical setting and, therefore, considered relevant as an intervention.

### **Jimmy's Story**

Jimmy was an inpatient in a Mental Health hospital who had fallen in the corridor and sustained a neck and head injury, which progressed to a severe spinal injury. The fall was unwitnessed and not recorded. The story is told by Jimmy's sister, who recalled a sequence of events in his care and treatment. These included poor verbal and written communication between nurses and doctors, doctors and other healthcare professionals, failure to listen to the concerns raised by Jimmy's sister, and failure to recognise that Jimmy's symptoms were deteriorating. Three weeks after the fall, Jimmy had a Magnetic Resonance Imaging scan,

which revealed a complete, irreversible lesion at C4 (cervical), and he was paralysed from the neck down. Jimmy died three weeks after the fall (Appendix 4.6 provides a verbatim account of Jimmy's story).

#### **4.2.3.3 Digital Story and 30 minutes Reflection**

RNs were given 30 minutes of reflection time using the same digital story to reflect on how they felt about the digital story, the key themes related to patient safety, and how this related to their current practice. The rationale for including reflection is based on evaluative studies (e.g., Swartz and Abbott, 2007; Christianson, 2011; Gidman, 2013; Wilson *et al.*, 2015) that support the concept of reflection to promote change. These studies suggest that reflection allows people to reflect on themselves and the social world in a way that leads to lasting behavioural changes. It was envisaged that including a reflective process would encourage the RNs to identify key issues (in the digital story) systematically and rigorously and how these may relate to current patient safety practices.

#### **4.2.4 Data Collection Method**

In IPA studies, a qualitative interview is often described as a '*conversation with a purpose*' (Smith *et al.* 2022, p54) and an '*interactional accomplishment*' (Holstein and Gubrium, 2011, p105). To achieve the aim and objectives of this study, it was essential to understand RNs' perceptions, meanings, and interpretations of safety culture and patient safety-related behaviours (conversation with a purpose) so knowledge is transmitted (interactional accomplishment). Structured interviews would not have achieved this, as they are less interactive and could have facilitated restricted descriptive responses identical to the survey data. As the study is underpinned by Heideggerian philosophy, the researcher had preconceived ideas from the literature, knowledge, and experience working in clinical practice. As this cannot be bracketed, unstructured interviews were not an option, as they are used when there are no preconceived ideas (Polit and Beck, 2018). Semi-structured, individual, face-to-face interviews were used to facilitate an in-depth discussion to '*elicit rich, detailed,*

*and first-person accounts of their experiences'* (Smith *et al.*, 2022, p54) of safety culture and patient safety-related behaviours. As well as becoming the gold standard, semi-structured interviews are the most used qualitative data collection method (Barbour, 2014) and are well suited to IPA studies (Smith *et al.*, 2022). Furthermore, they are the most powerful way to try and understand people's complex behaviours, such as their perceptions, meanings, interpretations, symbolic and cultural significance, and the constructs of reality (Punch, 2014).

#### **4.2.4.1 Data Collection Questions**

Before the semi-structured interviews, two interview schedules were developed (see Appendices 4.7 for pre-intervention, and 4.8 for post-intervention interviews). The questions were aligned with the objectives for this study and followed the explanatory sequential design, as it was essential to triangulate the data from the quantitative study. The interview schedules included a combination of descriptive, narrative, analytical, and reflective questions, as recommended by Smith and Nizza (2022, p21). To understand the meanings of the RNs responses in the SAQ survey, the questions were carefully worded, open, and expansive, using '*how*' and '*what*' to allow responses that go beyond a yes or no. Answers were then probed, explained, and explored to uncover their perceptions of safety culture and patient safety-related behaviours based on their lived experiences. They also enabled the researcher to steer the participant responses relevant to the interview questions while allowing the RNs to develop their responses fully. King and Horrocks (2014) argue that interview guides enable participants to lead the interaction in unexpected directions. With this viewpoint, the interview guides acknowledged the less experienced nurses who may require more structured questions or prompts to clarify what is being asked (Cohen *et al.*, 2007).

#### **4.2.4.2 Data Collection**

The qualitative data collection process started from the 1st of September 2017 and ended on 31st December 2017. The semi-structured interviews were recorded on a digital recorder and conducted at four timepoints with pre-intervention at week 0 (T1) and follow-up interviews at week 2 (T2), week 6 (T3), and week 12 (T4). The interview timings for T1 ranged from 30 to

60 minutes to allow for the introduction of the intervention for Group 2 and the 30-minute reflection for Group 3. The interview times were enough to complete the welcome and introduction, settle the participant, and set up the necessary recording equipment. The post-intervention (T2–T4) interviews allowed at least one hour of interview time (T2–T4), which included time to complete the SAQ before starting the interviews. The individual responses from the SAQ were used to inform the interview questions (see Appendix 4.8), and subsequent interviews were arranged after each interview. Appendix 4.9 details the dates and duration of the qualitative interviews for each timepoint and Chapter 5, s5.2.2), discusses the response rates.

#### **4.2.4.3 Conducting the Semi-Structured Interviews**

Establishing a rapport with the RNs is fundamental to facilitating a comfortable interview to achieve a '*conversation with a purpose*' (Smith *et al.* 2022, p54), and an '*interactional accomplishment*' (Holstein and Gubrium, 2011, p105) (as described in s4.2.4). The researcher began to build a rapport with the RNs during the recruitment stage and continued before starting the interviews. For T1, the interview date and time were confirmed in writing to the RNs alongside their designated intervention group via email. On some occasions, the RNs were contacted by telephone, and where there was no response, they were contacted via email. The introductory email included details of the purpose of the study and a copy of the PIS (Appendix 4.20) to ensure that the RNs were adequately prepared for the interviews. Subsequent interviews at a convenient time were arranged with the RN at the end of each interview. A professional approach was maintained throughout the study by using official communication channels and facilitating privacy and confidentiality.

All interviews took place on the NHS premises at the request of the RNs and rooms were selected by them and deemed appropriate for the interview. For example, a quiet location and door signage were used, alleviating disruptions, and guaranteeing a safe, peaceful environment to facilitate a private, confidential discussion. The use of a natural setting such as this, according to Richards (2014) is one way to relax participants. Notes were taken, but



this was kept to a minimum while the interviews were underway, as it was feared that some key points might be missed and that it might be distracting or uncomfortable to the participant (Knox and Burkard, 2009; Jamshed, 2014).

Flexibility is another fundamental requirement for semi-structured interviews (King and Horrocks, 2014). There were two key factors that guided the post-intervention interviews: firstly, to gather in-depth data from their responses in their SAQ; secondly, to explore the impact of the interventions. RNs were asked to complete the SAQ survey before the interview in order to explore their responses during their interview (see interview schedule, Appendix 4.8). A less guided approach was used to understand their perceptions of safety culture and patient safety-related behaviours based on their lived experiences. Burns (2000) suggests that this approach allows more flexibility and a greater focus on specific issues and permits a more valid response from their perceptions of reality.

#### **4.2.5 Data Analysis**

In line with the philosophical underpinnings of interpretative phenomenology, the data was subjected to IPA to capture the subjective meanings the individuals ascribed to their lived experiences. It embraced the phenomenological, hermeneutical, and ideographical emphasis throughout to interpret and identify the underlying meaning embedded in the individual accounts (Smith *et al.*, 2022). While there is no right or wrong way to analyse the data, Smith *et al.* (2022) provides a flexible, seven-step unilateral guide (see Table 4.5). Initially, the data analysis process started using the analytic framework from Smith *et al.* (2009) 1st edition textbook. Halfway through the data analysis process, Smith *et al.* published a 2<sup>nd</sup> edition in 2022, which used different terminology and subsequent frameworks for data analysis. Therefore, Smith *et al.*'s (2022) updated analytical framework was used because the terminology was clearer and was much easier to follow.

**Table 4.5 Data Analysis Framework for IPA**

Seven Steps	Analytic focus
Reading and rereading	Within each case - Descriptive
Exploratory noting	Within each case - Descriptive and Interpretative
Constructing experiential statements (ES*)	Within each case - Interpretative
Searching for connections across the ES's*	Within each case - Interpretative
Naming Personal Experiential Themes (PETs*)	Within each case - Interpretative
Continuing the individual analysis of other cases	Within each case - Interpretative
Develop Group Experiential Themes (GETs*)	Across case - Interpretative Across groups- Interpretative

Source: Smith *et al.*, (2022) \*full meaning is described in the following sections

#### 4.2.5.1 Data Analysis Seven-step Framework

Keeping true to the IPA's ideographic commitment, starting with timepoint 1, the data were analysed inductively, choosing the RNs perspectives rather than a preconceived analysis framework. Using Smith *et al.*'s (2022) seven-step framework, the researcher moved through the different steps throughout the data analysis process, but not necessarily in a linear order. This was due to the analysis consisting of multiple perspectives: from the individual, from a group-level perspective, and from the different timepoints. As there is no general rule on which transcript to start with, therefore a shorter interview that was less complex was chosen to avoid feeling overwhelmed by the analytical process. Detailed analytical and reflective notes were documented after each interview had been analytically transcribed. It was also essential to record and track personal reactions, thoughts, feelings, and initial impressions to reduce researcher bias and these records were referred to when organising and referring to the data. Appendix 4.15 provides an example of detailed analytical and reflective notes for Louise's (Group 3) transcript for each timepoint. The first two steps of the framework commenced with the researcher becoming fully immersed and familiar with the data.

#### 4.2.5.2 Immersion and Familiarization of the Data (Steps 1 and 2)

The early stage of analysis involves the transcription of the data (Brinkmann and Kvale, 2014). Which allows researchers to fully immerse themselves and develop a more thorough understanding of the data (Braun and Clarke, 2022). There are no universal guidelines for transcribing, however, Brinkmann and Kvale (2015) advise that audio recordings should be transcribed entirely and that a verbatim interview record should be provided. It should include a methodical semantic description of all words spoken by the interviewer and interviewee, including filler words (such as *hmmm*, *erm*, *you know*, and *like*), non-verbal and background sounds, slang, mispronunciation, and inaudible text typed in parentheses (McLellan *et al.*, 2003). Other specifications included punctuation to aid the readability of the transcripts (Braun and Clarke, 2006), and a consistent format with transcription headers that included the participant's unique code, interview date, and transcription notations (as illustrated in Table 4.6). The transcription process is time-consuming, as researchers must allow between three to ten hours per hour of interview (ten Have, 2007). The data collected from 52 interviews totalled 18 hours and 34 minutes, equating to approximately 180 hours (based on a maximum of 10 hours/hour of discussion). Work commitments of working full time meant that this would be unworkable due to the time constraints. Therefore, the decision to use a professional transcriber was deemed practical for ease of speed.

It was acknowledged that using a professional transcriber may prevent the researcher from genuinely engaging with the data. To overcome this, more time was spent immersing and familiarising (step 1) with the data by reading each transcript several times against the original audio recording as recommended by Smith *et al.* (2022). It also allowed the data to be cleansed to ensure that the verbatim records were consistent and accurate to their original nature. To ensure verbatim was readable, additional transcription notations were used, and punctuation was added or deleted in some places, as suggested by Bailey (2008). In addition, consideration was given to repeated phrases and the excessive use of filler words such as '*um*', '*hmm*', '*erm*', and '*you know*'. Repeated phrases and filler words such as these are used

in ways that do not change the meaning of the surrounding speech (Kosmala and Crible, 2021). In contrast, they can also be associated with hesitation, uncertainty, or when they have choices to make (Finlayson and Corley, 2012). When reading the transcripts, the excessive use of these words that reflected the former was removed. Where these words were not omitted, they reflected the latter as they maximised the impact of their thoughts. Finally, confidentiality was maintained by removing sensitive data or replacing names with pseudonyms. On completion, all cleansed transcripts were uploaded to files in NVivo 12. Tables 4.6 and Table 4.7 illustrate the same transcript before and after data cleansing. The red annotations in Table 4.6 were used to illustrate the words that were omitted in the post-cleansing transcript (Table 4.7).

**Table 4.6 Excerpt from Vicky's transcript (pre-data cleansing)**

T2 Post-Intervention Interview 9: File: Candidate No P13: Date: 3 <sup>rd</sup> October 2017	
I	Interviewer
P	Participant
...	Sentence stops mid-way
***	Tape inaudible/not clear
	Transcript
I	OK, so the first seven questions relate to teamwork
P	Hmm
I	And you have responded sort of quite positive there in that you know it's easy to speak up if there's patient problem number 5, it's easy for staff to ask questions. Do you want to just explain a bit more about teamwork and what's teamwork's like on here?
P	Yeah, I mean, erm.... I figure my answer one makes a bit of a few other things, but as in morale. So, we had a very low morale amongst staff for the last months (number of wards removed) because that's where we were before, and <b>we went</b> through a really bad phase, to be honest, <b>like everybody upset</b> , everybody upset with the management, <b>erm...</b> people upset with each other, healthcare nurses, constantly arguing and, yeah, <b>erm yeah</b> so that happened. We even had, but a good thing is as soon as we, the team, understood something was wrong, we had <b>like</b> staff engagement sessions, and obviously, that was good. There wasn't any result from it, which was a bit bad again because <b>I mean we</b> , we put our faith on it and we thought, oh this is something, this means something. Something will change, and then nothing happened, not even an outcome of it, so, that was a bit... a shame really, <b>but yeah</b> and obviously we started having more ward meetings and, in those people, started speaking and talking about what they thought was an issue, <b>we had issues wise</b> . Erm, it ... we work well, yes, as in I've seen other wards, and I think it's more or less the same everywhere in terms of there is always the arguments amongst nurses and healthcare's, <b>who does this and who does that and who does more and who does less</b> . And that always happens, so I don't think it's just our team; it's just how it is.
<b>NB: red text indicates the original verbatim before data cleansing</b>	

**Table 4.7 Excerpt from Vicky's transcript (post-data cleansing)**

T2 Post-Intervention Interview 9: File: Candidate No P13 Date: 3 <sup>rd</sup> October 2017	
I.	Interviewer
P.	Participant
...	Sentence stops mid-way
***	Tape inaudible/not clear
	*[sensitive data removed]
	** [name changed} to maintain anonymity
I	OK, so the first seven questions are related to teamwork.
I	And you have responded sort of quite positive there in that you know it's easy to speak up if there's patient problem number 5, it's easy for staff to ask questions. Do you want to just explain a bit more about teamwork and what's teamwork's like on here?
P	Yeah, I mean, I figure my answer one makes a bit of a few other things...as in morale. So, we had a very low morale amongst staff for the last months, in ward *[sensitive data removed] too because that's where we were before, and we went through a really bad phase, to be honest. Everybody upset with the management, people upset with each other, healthcare nurses, constantly arguing and, yeah, so that happened. We even had, but a good thing is as soon as we, the team, understood something was wrong, we had staff engagement sessions, and obviously, that was good. There wasn't any result from it, which was a bit bad again because we put our faith on it and we thought, oh! This is something; this means something. Something will change, and then nothing happened, not even an outcome of it, so that was a bit... a shame really, and obviously we started having more ward meetings, and in those, people started speaking and talking about what they thought was an issue, It, ... we work well yes as in I've seen other wards and I think it's more or less the same everywhere in terms of there is always the arguments amongst nurses and healthcare's, who does this, who does that, who does more and who does less. And that always happens, so I don't think it's just our team; it's just how it is.

#### 4.2.5.3 Using Qualitative Data Analysis Software.

For IPA analysis, it is recommended that researchers use a hard or electronic copy of the transcripts to make exploratory notes in widely formatted columns (Peoples, 2021; Smith and Nizza, 2022). While it may offer a practical method for managing a small body of data, Zhao *et al.* (2016) asserts that this is not practical with larger data sets. For this reason, a qualitative data analysis software (QDAS) package was used to assist in the qualitative data analysis process. Today, similar programs such as QDA Miner, Ethnography, NVivo, and Atlas/tic can

assist researchers with their analysis. These programmes share similarities that facilitate qualitative data analysis but have unique functionalities (Fielding and Lee, 1998). As a novice user of QDAS, NVivo 12 was chosen simply because of its accessibility, as it was a standard tool licensed to the researcher's place of work and study. The main advantages of using NVivo was the speed at which it organises data (Jackson and Bazeley, 2019), managing, indexing, and locating the data, especially when returning to the verbatim quotes when they had been removed from the original context. In addition, it offered a greater transparency about the researcher's thoughts, ideas, and interpretation of the data as it provided an audit trail of the analytical process. This promises greater validity and rigour (Evers, 2011), thus reducing researcher bias (Baugh *et al.*, 2010). Jackson and Bazeley (2019) also assert that NVivo can mimic manual strategies for handling qualitative data, and the annotation function was used to mirror the exploratory noting (see example in Appendix 4.10).

There are no rules when using exploratory noting and therefore a combination of descriptive, linguistic, and conceptual noting, was used as suggested by Smith *et al.* (2019) and were colour coded. Applying these methods identified areas of concern, what was significant or exciting about what the participant said (descriptive, coded red), and similarities and differences (descriptive and conceptual, coded red). The linguistic noting included language spoken, metaphors (coded green) and emotions (coded pink) (see example in Appendix 4.10). The annotations, along with the transcript and analytical memos, captured the researcher's thoughts, impressions, and concepts. Subsequently, by being fully immersed and familiar with the data, a comprehensive list of exploratory notes for the same transcript (as illustrated in Appendix 4.11) was used to inform the next stage of the analysis.

#### **4.2.5.4 Developing Experiential Themes (Steps 3 and 4) and Personal Experiential Themes (Step 5)**

The transcripts and exploratory notes were reviewed to summarise the RNs meanings and create experiential statements (ES). This is the initial preliminary marker of the analytic process that aims to reduce the volume of detail and capture the most important, engaging,

and relevant features from the exploratory notes. It represents the hermeneutic circle as described by Smith *et al.* (2022) as the ES related to the RNs experiences or the experience of making sense of their experience. Therefore, in compliance with IPA, the construction of ES embodied the hermeneutic circle and an interpretative method of '*what*' and '*how*' to reflect the RN's words and phrases and the researcher's interpretation. This approach is advocated by Watts (2014) and used two questions that guided the analyse from the descriptive to the interpretative:

1. What is the participant talking about at this point in the transcript? (Descriptive).
2. How is the participant understanding or constructing what they are talking about? (Interpretative).

After analysing each transcript, an extensive list of ESs were generated that related to the RNs perceptions and experiences of safety culture within their clinical and organisational environments, as well as its application to their practice. In keeping with the iterative nature of IPA, further reduction was undertaken to revise and refine the ESs. New statements were added, some statements were renamed, repeated statements were deleted, and similar statements illustrating the same thing were merged. Further reduction was undertaken by exploring connections and differences within those statements in preparation for the development and naming of the PETs.

A PET is a title given to describe the overall characteristics of a cluster of ESs (Smith and Nizza, 2022). They should relate to the level of the person (personal), capture the hermeneutic circle (experiential), and reflect the analytical entities within the transcript as a whole (themes) (Smith *et al.*, 2022, p94). The ESs were clustered into a provisional PET using a coding structure to manage the data. Appendix 4.12 illustrates the coding system using an extract from group 1, timepoint 2.



#### 4.2.5.5 Coding the Data

As a standard method rooted in grounded theory methodology (Glaser and Strauss, 1967), coding the data has now migrated into a popular general qualitative data analysis technique that does not explicitly subscribe to a grounded theory approach (Gläser and Laudel, 2013). It is an act of interpretation that uses codes of important phrases or words that '*translate the data*' (Vogt *et al.* 2014, p.13) and give each transcript an understood meaning. In staying true to the theoretical underpinning of IPA, the codes reflected patterns in the data from the participant's perspective and the researcher's interpretation of their meanings (as described in s.4.2.5.4) to achieve the research objectives (as illustrated in Appendices 4.11 to 4.13).

When using NVivo to code data, the phenomenological focus can be reduced if the transcripts are viewed as data rather than capturing the essence of the phenomena from what is said in the interview texts. This does raise concerns over the quality of the analysis among some phenomenologists, as it can obstruct abductive reasoning (van Mahen, 2014), separate the researcher from the data (Goble *et al.*, 2012), and instrumentalize a process that should be intuitive (Cross, 2011). The quality of the interpretation and fear of clustering the ESs into pre-defined PETs was a concern. Therefore, the interview transcripts were reviewed alongside listening to the audio recording many times to make sense of them, stay close to the data, and remain immersed in their experience. The coded themes and associated ESs were then reviewed and revised. This ensured that all the data was thoroughly examined and considered, which confirmed that all the clusters were meaningful before developing PETs.

Codes were then organised and indexed in a hierarchical branching system, ensuring thoroughness in the coding process and transparency in the analytical process (Jackson and Bazeley, 2019). It also provided a straightforward method to establish patterns and connections across the data to generate PETs and conveyed the conceptual nature of the constituent ESs. For example, reviewing the ESs and related data extracts associated with incident reporting revealed factors that prevented or promoted the RNs from speaking up and

reporting incidents. As illustrated in Appendix 4.12, this was later clustered under PET titles of '*Professional Duty of Candour*' and '*Organisational Duty of Candour*' with related subthemes (as illustrated in Appendix 4.13) for the same group.

#### **4.2.5.6 Repeat with Another Transcript (Step 6)**

Step 6 involved repeating steps 1–5 for the subsequent transcript. Smith *et al.* (2022) stresses the importance of treating transcripts on their merit to do justice to the participants individuality. However, this proved quite challenging initially, as the researcher used the same coding framework from the first transcript. Smith *et al.* (2022) reference that researchers may be drawn to what has been found, as some features may occur in the subsequent transcripts. Pre-defined themes may be acceptable for other qualitative data analysis methods, such as thematic analysis (Langdridge, 2007); nonetheless, they do not align with the ideographic commitment of IPA. Smith and Nizza (2022) assert that repeating steps 1-5 should not confirm or dis-confirm findings from the previous transcript. To ensure rigour of the process, the researcher had to put away any preconceptions, ideas, and conclusions of the prior transcript and review each transcript on its merit. However, when using a large sample size, the intention was to present the data findings at the group level, as advised by Smith *et al.* (2022). Subsequently, the exploratory notes and new ESs (as illustrated in Appendix 4.11) from individual transcripts were added to the same list for each group for step 3. Step 4 was undertaken concurrently with step 5, and a provisional PET emerged. To illustrate this process, Table 4.8 provides an example of '*safety in numbers*' (one of the PETs) and the associated ESs from each group that aligned with this theme.

**Table 4.8 Example of a Personal Experiential Theme and Experiential Statements**

Personal Experiential Theme: Safety in Numbers		
Experiential Statements across the groups		
Group 1	Group 2	Group 3
Low staffing levels put patients at risk	Problems with reduced staffing levels	Impact of poor staffing levels
Affects job satisfaction	Problems using agency nurses	The negative impact of agency nurses
Under pressure not to make mistakes	Staff retention	Impact of inadequate skill mix
Reduced staffing—a threat to staff well-being	Impact of good staffing level	Staff fear making a mistake
Reduced staffing levels cause low morale	Increase of inexperienced staff	Retention of staff
Reduced staffing leads to delays in care	Patient acuity increases the workload	
Reduced staffing levels impact teamwork	Safe staffing systems	
Use of agency nurses	Staffing levels get reported by organisational management	
Inappropriate use of staffing		
Staff shortages compromise patient safety		

This analytic immersion produced a list of significant PETs for each group. By this stage, the researcher was familiar with the data extracts and felt more confident that the group PETs were truly grounded in the RNs' perspectives on their lived experiences relating with the research objectives. At each timepoint, the changes in their perceptions and patient safety-related practices were aligned to each PET. For example, changes in communication skills were aligned with the PET of professional duty of care. The last step (step 7) used a cross-case analytical strategy to compare the similarities and differences across the groups to generate the GETs.

#### 4.2.5.7 Development of Group Experiential Themes (Step 7)

A GET is a broad-level theme resulting from a cross-case analysis to identify patterns of similarities and differences across the group of PETs (Smith and Nizza, 2022). This last step is a dynamic and iterative process that seeks to understand the convergence and divergence of the data, which is made more accessible by starting with the PETs. (Smith *et al.*, 2022). Identifying the GETs was not a linear process as the researcher consistently moved backwards and forwards with each participant, both within and across the groups, while reconnecting with the ESs, initial exploratory noting, and analytical memos for each RN. This process proved to be more challenging and complex when using NVivo software for two main reasons. Firstly, the researcher had to continuously read the transcripts to understand the meanings and experiences of the RNs within and across the groups at different timepoints. Due to the linear presentation of the data, this became very time-consuming and unmanageable. Secondly, when looking for similarities and differences, the search text and counting frequency functions should help interrogate data faster and more precisely, thus adding consistency to the analysis process (Evers, 2011). However, this proved unhelpful as it became apparent with the repeated use of filler words for example, '*think*', '*erm*', and '*you know*'. Other commonly used words in the transcripts were '*patients*', '*patient*', '*safety*', and '*culture*'. Undoubtedly, these words were recognised in terms of the frequency with which they were used, but they bore little significance in the meaning of the examined data.

Weitzmann (cited in Ritchie *et al.*, 2014, p 289) points out that the ease and speed of QDAS have the potential to encourage researchers to take shortcuts. Given this, the researcher was mindful of the potential threats to the quality of the data analysis process and felt it was appropriate to carry out this stage using a spreadsheet in Microsoft Excel. Subsequently, all the data from the transcripts that was aligned with the PETs and the analytical memos was put into a matrix table. Further renaming and reorganisation of PETs and the three emerging GETs and subthemes were identified (see Table 4.9). The matrix table was vital in identifying and developing GET and subthemes across the data set of 52 individual semi-structured

interviews. However, the analysis did not stop at the last step of the process. When presenting the findings, the themes were revised and reorganised, and quotes moved around to where they best fitted and made sense. This process is discussed in the qualitative data findings (Chapter 5, section 5.2).

**Table 4.9 Initial Group Experiential Themes and Subthemes**

<b>Group Experiential Themes</b>	<b>Subthemes</b>
<b>Safety Culture as a Professional</b>	Professional Duty of Candour Professional Duty of Care
<b>Safety Culture in the Workplace</b>	Communication in the Workplace Leadership in the Workplace Team Culture in the Workplace Safety in Numbers
<b>Safety in Numbers</b>	Leadership within the Organisation Organisational Duty of Candour Systems thinking

#### **4.2.6 Research Quality**

Qualitative research is often criticised for a perceived lack of rigour, inadequate justification of the adopted data collection and analysis methods, and an absence of transparency in the analytical process and findings (Noble and Smith, 2015; Rolfe, 2006). As there is no universal and standardised approach to assessing the level of quality in qualitative studies, it can be challenging to defend these criticisms (Rolfe, 2006). Lincoln and Guba (1985) developed a criterion to assess the trustworthiness of qualitative research, which is still considered the ‘*gold standard*’ (Liamputtong, 2013, p25) and this was used to validate the quality of this study. It comprises credibility, transferability, dependability, and confirmability. Cresswell and Miller (2000) also identify triangulation (as discussed in Chapter 3, s3.3.3.) and engaging in reflexivity as quality markers in qualitative research.

#### **4.2.6.1 Credibility**

Credibility is fundamental in any qualitative research and is concerned with the aspect of truth value (Lincoln and Guba, 1985) to ensure the integrity and trustworthiness of the findings (Polit and Beck, 2018). Several factors can influence the credibility of the research, including the sample selection, researcher bias and the data collection methods. Therefore, it is necessary that these factors are accounted for and later addressed in the design of this study to improve the credibility of the findings (Cohen *et al.*, 2011). To enhance the credibility of this study, two fundamental qualities of persistent observation and prolonged engagement that supported the co-construction of meanings (Barusch *et al.*, 2011) were the main focus.

The persistent observation was enriched by identifying RNs working in a healthcare setting who could use their lived experiences to understand their perceptions of safety culture and patient safety-related behaviours. The use of a purposeful, mixed variation sampling method made sure that the sample was diverse by including RNs of different ethnic backgrounds, levels of experience after registration, and job titles. Guba and Lincoln (1994) deem this appropriate for the phenomenon under study. The length and amount of semi-structured interviews facilitated prolonged engagement in the research setting, which also enhanced this study's credibility (see Appendices 4.4 and 4.9). A friendly and professional relationship with all the RNs was maintained throughout the data collection process, as evidenced by their open and honest responses. The RNs also provided practice exemplars from their lived experience to support their perceptions of safety culture and patient safety-related behaviours (as evidenced in verbatim quotations in the qualitative findings Chapter 5, s5.2).

#### **4.2.6.2 Confirmability**

Credibility was further enhanced through persistent observation and prolonged engagement with the qualitative data. The data analysis used Smith *et al.*'s (2022) seven-step framework, which persisted until all the GETs, and related subthemes were identified. As the data was analysed independently, there was a danger of researcher bias because it was interpreted

from the researcher's perspective. To reduce this, confirmability, which concerns the aspect of neutrality of the research (Polit and Beck, 2018), was maintained. Regular meetings were held with the researcher's supervisors to ensure the viewpoints were grounded in the data and not based on the researcher's assumptions. Using codebooks, memo concept maps, reflective notes, and interview transcripts to guide the discussions challenged the researcher's reflective thoughts and ensured objectivity when analysing the data.

Furthermore, Smith *et al.*'s (2022) framework ensured that the data analysis reflected the double hermeneutics (as discussed in reflectivity, s4.2.6.5, and Chapter 7, s7.6), and the data findings reflected the ideographic focus of IPA. The findings reflected the incorporation of the RNs voices using the verbatim quotations and the different interpretations of the same construct within a GET, offering analytical depth to the participants' experiences. The clear identification and categorisation of the themes and the research findings are presented and confirmed using verbatim quotations from the transcribed interviews (Chapter 5, s5.2).

#### **4.2.6.3 Dependability**

Dependability refers to the reliability of qualitative research methods that consistently produce rich and meaningful descriptions of phenomena. A margin of inconsistency for qualitative findings is tolerated, provided that a transparent and justified approach to the decisions is made to provide the reader with a decision trail (Noble and Smith, 2015) that is both clear and comprehensive. To support dependability, this study's methodology and methods have been comprehensively described to a degree that facilitates replication, albeit with non-identical findings. In addition, extensive justification of the research processes was documented to provide the reader with the rationale behind each choice, thus ensuring that they understand the steps that led to the study's final shape (Noble and Smith, 2015; Shenton, 2004). Furthermore, as described above, the data analysis followed Smith *et al.*'s (2022) seven-step framework for IPA, and extensive documentation was made to provide an audit trail of the decision-making process.

#### 4.2.6.4 Transferability

Transferability within qualitative research concerns the aspect of applicability (Lincoln and Guba, 1985) to which the findings of an original study can be applied to another group, context, or setting. Nevertheless, it is the reader of the research who makes the judgement about the transference of the findings to their setting. To achieve a high degree of transferability, it is essential to provide an in-depth account of the phenomenon being researched to ensure the reader has a comprehensive understanding (Kuper *et al.*, 2008; Shenton, 2004). As suggested by Shenton (2004), the number of organisations in the research and their location, the number of RNs, the data collection methods, the date, the amount and the length of interviews, the time of the data collection period, and any restrictions in the sample were clearly documented. This thesis provides a thorough description of all these components to aid the reader in any effort at transference, thus increasing the transferability of this study. In accordance with Edge and Richards (1998) and Slevin and Sines (2000) adequate justification has also been outlined through providing an audit trail that highlights the decision-making process regarding the methodological and analytical choices made.

#### 4.2.6.5 Reflexivity

In qualitative studies that are predisposed to potential subjectivity, reflexivity is recognised as a crucial tool (Horsburgh, 2003). According to Newton *et al.* (2011), the application of reflexivity in research varies, with some researchers using it to reduce their biases and prejudices about the data while others use it to examine their subjectivity. However, as a continual, iterative self-examination process, Parahoo (2014, p253) states that reflexivity is about:

*'Examining one's assumptions, prejudices and decisions to find out how these may have affected data collection, analysis and interpretation'.*

It, therefore, implies that reflexivity is both a reduction of bias and subjectivity, which is supported by Berger (2015, p220), who offers a broader definition as she states that:

*'Reflectivity is a means turning of the researcher lens back onto oneself to recognise and take responsibility for one's situatedness within the research and the effect that it may have on the setting and people being studied, questions being asked, data being collected and its interpretation'.*



From a methodological standpoint of hermeneutic phenomenology, reflexivity is critical as the researcher should not be seen as a passive observer but instead as an active participant (Smith *et al.*, 2022). It was therefore considered essential to explore, reflect, and record the qualitative research processes to establish methodological rigour and quality in this study, as suggested by Shaw (2010). Reflexivity was maintained by keeping a reflective diary to record any thoughts, opinions, reasoning, and judgement during the research journey, as suggested by Baillie (2015). As an essential element, it was used to reduce researcher bias by taking steps to minimise the impact of thoughts and opinions during the data collection process, as well as data analysis processes (which is detailed in Appendix 4.14).

The hermeneutic circle described by Smith *et al.* (2022) was applied to reduce researcher bias and avoid assumptions and preconceptions when analysing the data. Using reflexivity enabled the observation of how entrenched feelings, cultures, views, and experiences could impact the interpretation of the findings. The annotation and reflective memoing functions in the NVivo 12 software were used to record all thoughts, experiences, and initial impressions of the RNs and their responses. This was vital when using the IPA framework for analysis, as it served as a forum to record any additional thoughts, critiques, and suggestions around the research process, thereby aiding in identifying emerging themes by providing context to the data. These reflective accounts of the research processes were regularly discussed with the supervisory team, where guidance was provided to help critique and establish the researcher's positionality within the research (see Chapter 7, s7.6). Appendices 4.15 and 4.16 provide detailed examples of the analytical and reflective notes during the data analysis.

#### **4.2.7 Ethical Considerations**

The participants' dignity, rights, safety, and well-being must be the primary consideration in any research study. In the context of this study involving RNs as participants, the ethical standards set out in the UK policy framework for health and social care research (Health Research Authority, 2017) were applied to this study at the time of seeking ethical approval.

An Independent Peer Review (IPR) approval was obtained from Staffordshire University, the Health Sciences Research Ethics Committee (Appendix 4.17), and the Health Research Authority Ethics Committee (17/HRA/0954 - Appendix 4.18) prior to the commencement of the study. The local Research Governance Department approved permission to undertake the study at the NHS Trust, and a research passport was issued for three months from 12<sup>th</sup> May 2017. The recruitment process took longer than initially anticipated due to nurses not having time to attend meetings (prior to obtaining consent), taking annual leave, staff absence and sickness and nurses who chose not to participate. Further application to the NHS Trust to lengthen the time of the study was authorised and extended to 31<sup>st</sup> December 2017 (see Appendix 4.19).

#### **4.2.7.1 Informed Consent**

Written consent was achieved by first inviting potential participants to attend an individual or group meeting in a private room within their workplace. It was acknowledged that not all RNs may have accessed their emails and may not have read the PIS prior to the arranged meeting with them. Subsequently, all RNs received a verbal explanation and were given a hard copy. As a registrant with the Nursing and Midwifery Council (NMC), a health educator, and a researcher, all RNs were informed that the primary role was that of a researcher and not an NMC registrant and health educator. This was important to avoid making the RNs feel coerced into participating in the study. To ensure that the RNs fully understood all aspects of the study, additional time was given to allow them to read the Participant Information Sheet (Appendix 4.20) as advised by Moule *et al.* (2016). They were also given opportunities to ask further questions or clarify any areas that were not clear. To protect the data and the validity of study conclusions, RNs were told they could withdraw at any time up to two weeks before data collection. Written consent was gained for the quantitative study (Appendix 4.21) and the qualitative study (Appendix 4.22), and all consented RNs were given a Participation Debriefing Form that provided further information and thanked them for taking part in the study (see Appendix 4.23).

#### **4.2.7.2 Data Protection, Anonymity, and Confidentiality**

Due to the sensitive nature of patient safety, it was acknowledged that the RNs might disclose practice exemplars from their experiences, and incidents where errors have occurred. Furthermore, the findings reported in the Mid-Staffordshire NHS Public Inquiry (Francis, 2013) continue to dominate the UK's media and healthcare organisations. It was, therefore, essential to take all steps to protect their identity and reassure participants about the confidential nature of their responses throughout the study. Anonymity complied with the Data Protection Act (DPA) (2018) by assigning a colour code for each ward (purple, white, orange, yellow, green, and blue) and combining it with an individual study number. Each individual study number was assigned to each ward (e.g., the purple ward was allocated numbers 1-20, the white ward 20-40, and the orange ward 40 to 60). The individual numbers were allocated in the order of receiving signed consent (e.g., P3, W21, O45). The RNs unique code was used on all the completed SAQs, the audio recordings, and the interview transcripts. A pseudonym was used when presenting the qualitative data findings (see Table 5.5, Chapter 5, s5.2.3). The researcher delivered the surveys face-to-face or enclosed in a sealed envelope (with their unique study number) marked private and confidential and deposited them at the pre-determined collection point. Completed questionnaires were returned in a sealed envelope marked confidential.

Qualitative interviews were tape-recorded and conducted in a quiet room to ensure privacy. The RNs were offered the opportunity to meet in a neutral setting away from their workplace, but they declined. The recordings and transcripts were both assigned their unique study code. Due to the ward environment and the number of RNs recruited into the study, the ward managers could easily identify those participating. All RNs were assured that no identifiable data about them and their SAQ and interview responses would appear in this study or published materials in accordance with the DPA (2018). All RNs were informed that the researchers' supervisors would have access to anonymised data for PhD supervision meetings only.

All signed consent forms, data from the questionnaires, and recordings of interviews were uploaded onto the researcher's personal computer and encrypted, and all paper copies were shredded. This was considered acceptable as it aligned with the university's policy during the study's data collection and analysis. It was also disclosed in the Integrated Research Application System (IRAS) application, which was approved by the Health Research Authority Ethics Committee (17/HRA/0954 - Appendix 4.18).

#### **4.2.8 Summary of Chapter**

This chapter has discussed and justified the quantitative and qualitative research methods that were applied in the mixed methods methodology to describe and explore RNs perceptions of safety culture and to discover if using a digital story influenced a change in their perceptions of safety culture and patient safety-related behaviours. This chapter has presented an open and transparent explanation of the research methods, including a justification for each step to ensure high quality and rigour. The findings from the quantitative and qualitative data are presented in the following chapter and are divided into two sections: quantitative data findings (s5.1) and qualitative data findings (s5.2).

## CHAPTER 5: DATA FINDINGS

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The data findings for the quantitative and qualitative studies in this mixed methods study will be presented in two sections. Section 5.1 presents the quantitative data findings, and section 5.2 presents the qualitative data findings. A summary of the quantitative and qualitative findings will conclude this chapter.

### 5.1 Quantitative Data Findings

#### 5.1.1 Introduction

This section presents the quantitative findings from the SAQ questionnaire used in this study. The quantitative study aimed to measure and describe the RNs perceptions of safety culture using the SAQ survey. The data was collected over three months at four different timepoints (see Appendix 4.4). The presentation of findings will include the participant flow and response rate, followed by an overview of sample demographics and professional profiles to understand the composition and representativeness of the sample. The concluding section will present the RNs perceptions of safety culture. A narrative discussion will be supported using a combination of bar charts, distribution tables, and box and whisker plots. The descriptive data will be triangulated with the in-depth qualitative study findings in the discussion (Chapter 6) to build a complete picture of RNs' perceptions of safety culture. This will help to determine if any changes to the RNs' perceptions of safety culture and patient safety-related behaviours were directly influenced by the digital story or by workplace and organisational factors.

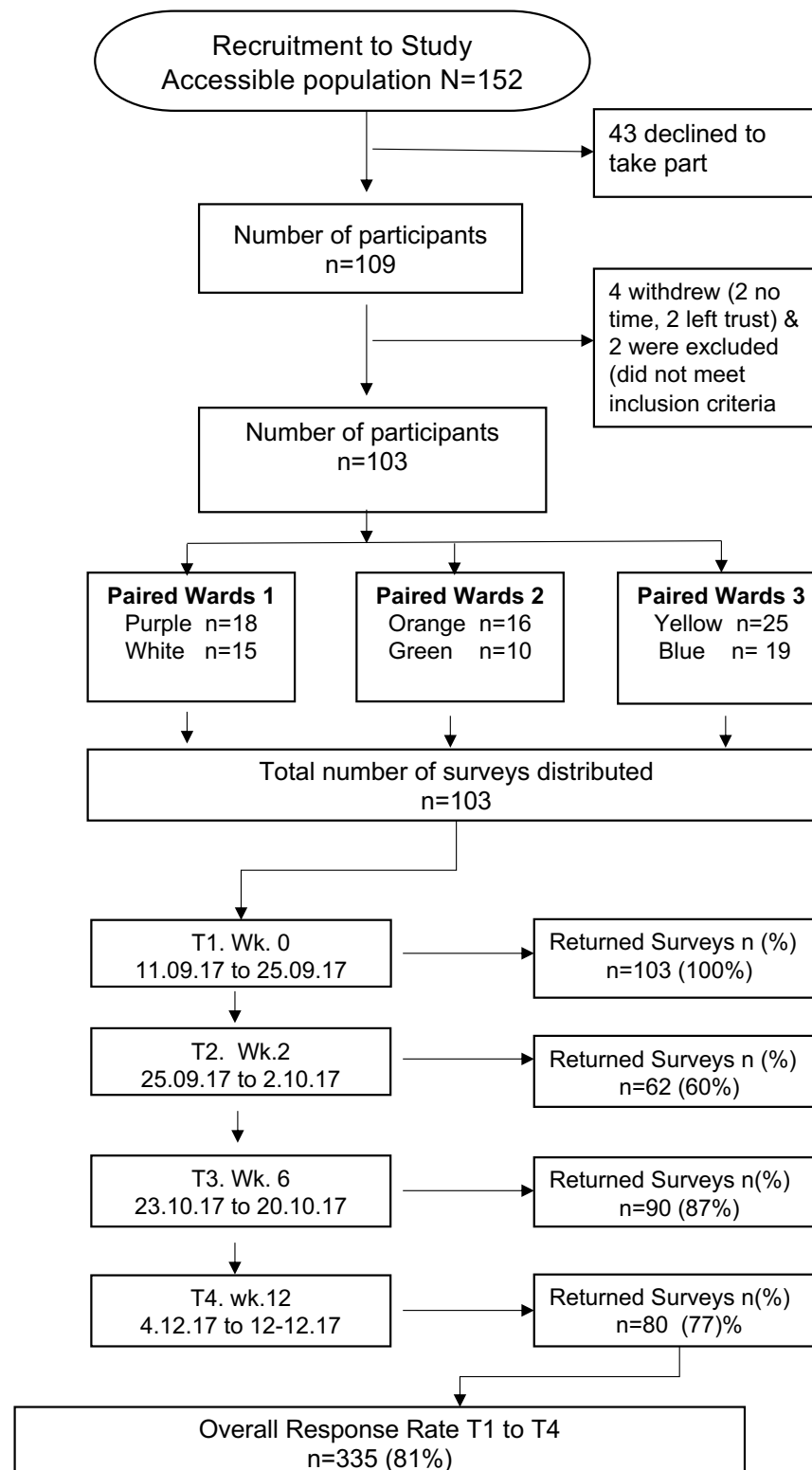
#### 5.1.2 Participant Flow and Response Rates

Figure 5.1 illustrates the participant flow through the quantitative study and includes recruitment and response rate for each timepoint. There was an accessible population of 152 RNs from three paired wards who were eligible to participate in the study (see Chapter 4, Table 4.1). Of the 152 RNs available, 43 declined for no apparent reason, leaving N=109 RNs who consented to participate in the study. At the start of the data collection, four RNs withdrew due to lack of time (n=2) and leaving the NHS Trust (n=2). Two RNs who did not meet the

criteria were excluded from the study, leaving 103 RNs from the three paired wards taking part and comprised 33 (32%) from paired ward 1, 26 (25%) in pair 2, and 44 (43%) in pair 3. The larger proportion of RNs from paired ward 3 was expected as they had the largest accessible population of 76 RNs' (38 in each ward). It was expected that the number of RNs for paired ward 2 (accessible population of 28 RNs for each ward) would be slightly higher than paired ward 1 (accessible population of 24 RNs for each ward). However, the largest number of RNs declined or withdrew from paired Ward 2, which explains the differences between paired ward 1.

The SAQ survey was distributed to n=103 RNs at four different timepoints (T1, T2, T3, and T4) from September to December 2017 (see Appendix 4.4). Attrition can be problematic when collecting data at different timepoints over an extended period, leading to potential bias and problems with generalisability (Polit and Beck, 2018). Nevertheless, of the 443 surveys distributed across the timepoints, 335 were returned, yielding a total response of 81%. The response rate varied across the timepoints between 100% (T1) to 60% (T2) which have been due to the timing of data collection in T2 (2 weeks from T1), as the response rate increased to 90% (T3) and 77% (T4).

**Figure 5.1 Flowchart of Participant Flow and Response Rate**



### 5.1.3 Participant Demographic Characteristics and Professional Profile

The demographic data illustrated in Table 5.1 is consistent with a female nursing workforce with 95 (92%) RNs were female compared to 8 (8%) who were male. Only 29 (28%) were from Black and Ethnic Minority backgrounds. The demographic data is consistent with the national profile of RNs and midwives. As of March 2023, the NMC (2023a) reported that out of 788,638 nursing and midwives on the permanent register, 89% (701,974) identify as females and 11% (86,637) as male. Twenty-six percent are from Black and Ethnic Minority groups compared to 69% who are white. In this study, the RNs ages ranged from 18 to 64 years old, and the largest proportion were from the 25-34 (n=28) and 35-44 years (n=39) age groups. The highest educational attainment was a nursing-related degree, with 45 (43%) holding a BSc (Hons) and 5 (5%) with a BSc, followed by 42 (41%) with a diploma. Pre-registration nursing typically requires a degree-level entry (from 2013) and a diploma-level entry (from 1989 to 2013). Only 4 (4%) were educated at a master's level, typically a contractual requirement for an Advanced Practitioner role.

**Table 5.1 Demographic Characteristics of the Registered Nurses**

Demographic Characteristics		N (%)	
<b>Gender</b>	Male	8	(8)
	Female	95	(92)
<b>Age (years)</b>	18-24	8	(8)
	25-34	28	(27)
	35-44	39	(38)
	45-54	21	(20)
	55-64	7	(7)
<b>Ethnic Group</b>	White	74	(71)
	Asian or Asian British	9	(9)
	Black, Black British, Caribbean, or African	20	(19)
<b>Education</b>	Masters	4	(4)
	Bachelors/Honours Degree	45	(43)
	Ordinary Degree	5	(5)
	Diploma	42	(41)
	A-level	1	(1)
	GCSE	2	(2)
	Other	3	(3)
	Missing Data	1	(1)
<b>Total</b>		<b>103</b>	<b>(100)</b>



The RNs professional profile, as shown in Table 5.2, demonstrates a range of post-qualifying experience and employment with the trust from six months to over 21 years. The RNs' professional experience in the clinical environment was typically 2-5 years (n=47). Seventy-six (74%) of the RNs worked full time, with 83 (81%) working 12-hour shift patterns and 73 (71%) rotating between day and night shifts. Nine separate roles were held, but the two typical roles were Staff Nurse, with 61 (59%) having a Staff Nurse title (Band 5<sup>4</sup>), and 25 (25%) holding a Junior Sister/Senior Staff Nurse<sup>5</sup> title (Band 6).

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<sup>4</sup> Agenda for Change pay scale (<https://www.bmj.com/healthcareers/article/guide-to-nhs-pay-agenda-for-change-2023-2024>)

<sup>5</sup> Senior Staff Nurse is an older title and changed to Junior Sister following Management of Change.

**Table 5.2 Professional Profile of Registered Nurses**

Professional Profiles		N (%)				N (%)	
<b>Post Qualified Experience</b>	6-12 months	8	(8)	<b>Employed in Trust</b>	6-12 months	11	(11)
	13-23 months	5	(5)		13-23 months	9	(9)
	2-5 years	16	(16)		2-5 years	33	(32)
	6-10 years	19	(18)		6-10 years	14	(14)
	11-15 years	17	(17)		11-15 years	20	(19)
	16-20 years	13	(13)		16-20 years	6	(6)
	21+ years	24	(23)		21+ years	9	(9)
	Total	102	(99)		Total	102	(99)
	Missing Data	1	(1)		Missing Data	1	(1)
Total		103	(100)	Total		103	(100)
<b>Role Title</b>	Staff Nurse	61	(59)	<b>Worked in Clinical Area</b>	6-12 months	20	(19)
	Senior Staff Nurse	17	(17)		13-23 months	5	(5)
	Junior Sister	8	(8)		2-5 years	47	(46)
	Ward manager	6	(6)		6-10 years	14	(14)
	Advanced Nurse Practitioner	3	(3)		11 - 15 years	13	(13)
	Senior Quality Nurse	2	(2)		16-20 years	1	(1)
	Sister/Charge Nurse	2	(2)		21+ years	2	(2)
	Matron	3	(3)		Missing Data	1	(1)
	Deputy Ward Manager	1	(1)				
	Total	103	(100)		Total	103	(100)
<b>Weekly Hours Worked</b>	Full time (37.5hrs)	76	(74)	<b>Daily Hours Worked</b>	7.5 hours	16	(16)
	Part-time (<37.5. hrs)	26	(25)		12 hours	83	(81)
	Other	1	(1)		Other	4	(4)
	Total	103	100)		Total	103	(100)
<b>Shift Pattern</b>	Fixed day shift	26	(25)				
	Fixed night shift	4	(4)				
	Rotate day and night	73	(71)				
	Total	103	(100)				

### 5.1.4 Questionnaire Findings

The findings of the SAQ questionnaire provide descriptive information using frequencies, medians, and IQRs to represent the RNs' perceptions of safety culture for each domain (teamwork climate, safety climate, job satisfaction, stress recognition, perceptions of management, and working conditions) and timepoints (T1-T4). Communication and collaboration will also be presented, which is normally not required when reporting the findings

against the SAQ guidance. Bar charts, frequency tables, and box and whisker plots will represent the data findings visually.

### 5.1.5 Registered Nurses' Perceptions of Safety Culture

The results summarised in Figure 5.2 show that RNs held positive perceptions (>4.0) for teamwork climate (71% to 88%), followed by safety climate (73% to 84%), job satisfaction (61% to 79%), and working conditions (53% to 65%). Stress recognition was least positive (41% to 53%), followed by perceptions of management, where the RNs were more optimistic about ward managers (45% to 55%) compared to trust managers (24% to 34%).

**Figure 5.2 Percent Positive Responses for each Domain and Time Point**

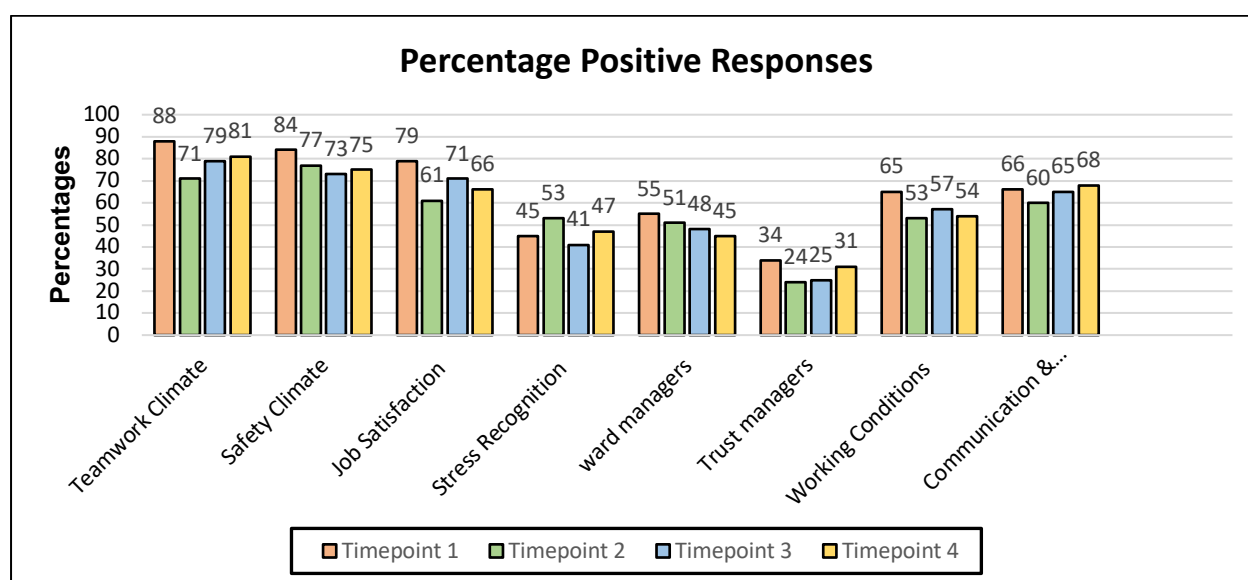
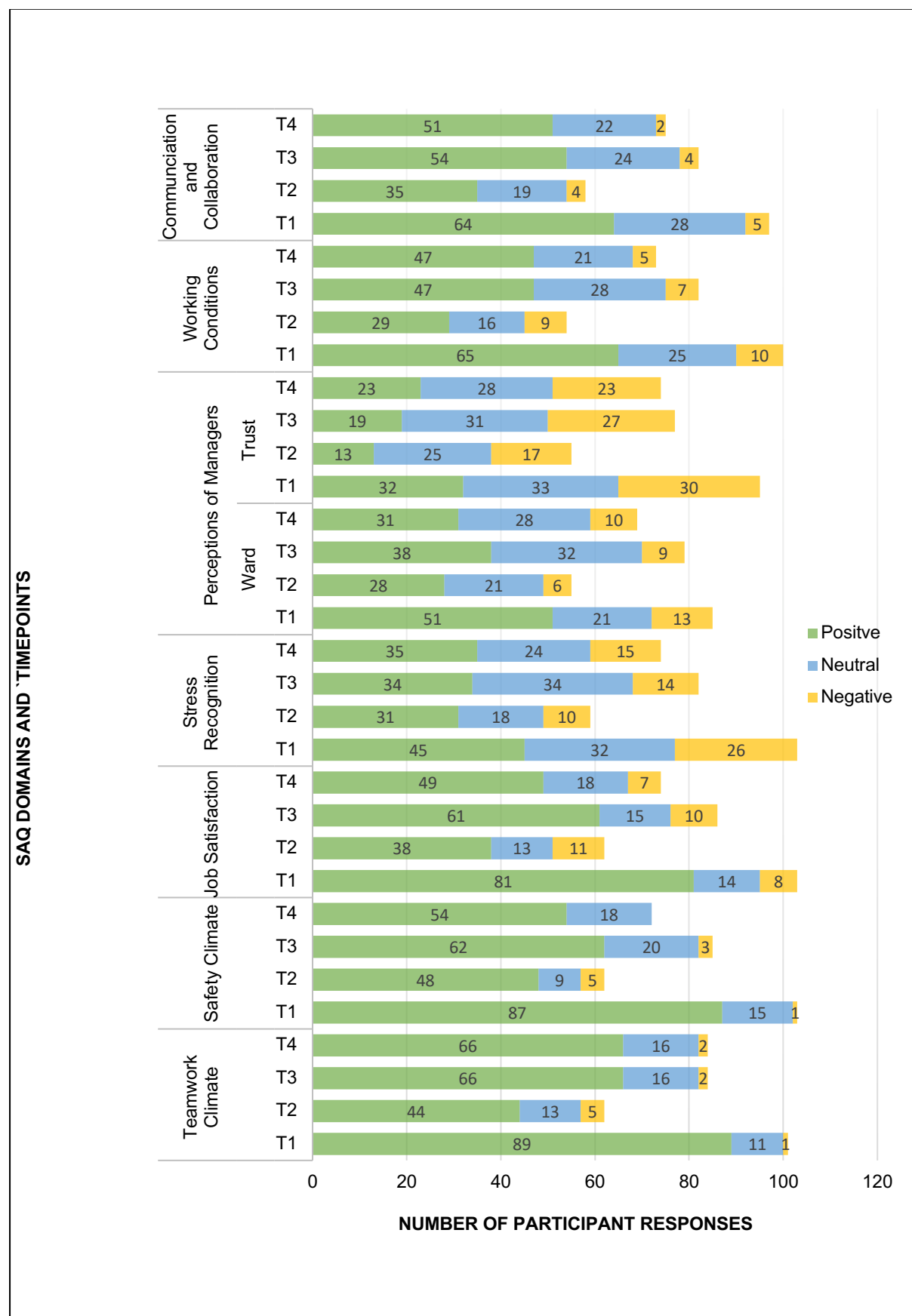


Figure 5.3 demonstrates the frequency (n) of the RNs responses to illustrate the distribution of positive, neutral, and negative perceptions for each timepoint. The green bars indicate the total number of RNs who were positive, the yellow bars represent those who held negative perceptions, and the blue represents the total number of those who remained neutral.

**Figure 5.3 Frequency (n) of Responses for each SAQ Domain**



All the questionnaires were included and missing data and items scoring 6 (not applicable) were recorded as 999 so as not to affect the overall analysis when summarising the median scores. All the data were checked for patterns in the missing data, and no significant patterns were noted as missed data related to random missed questions. Table 5.3 presents the total number and percentage of response rates, valid questionnaires, and missing data. All questionnaires were included in the data analysis, but the domains with incomplete information, which are referred to as item non-response, were excluded from the analysis. The missing data ranged from 2% to 9% across the domains except for safety climate (T4) and perceptions of trust management (T2 and T3), which ranged from 9% to 11%. The median, mean, and IQR values were therefore calculated on valid responses, which typically ranged from 92% to 100% for most of the domains across the timepoints. Overall, the median values ranged between 1.0 to 5.0 and variability from low to high (0.8 - 1.8) across the different dimensions and time points. This indicated a wider spread of responses from the median values, suggesting their differences in perceptions.

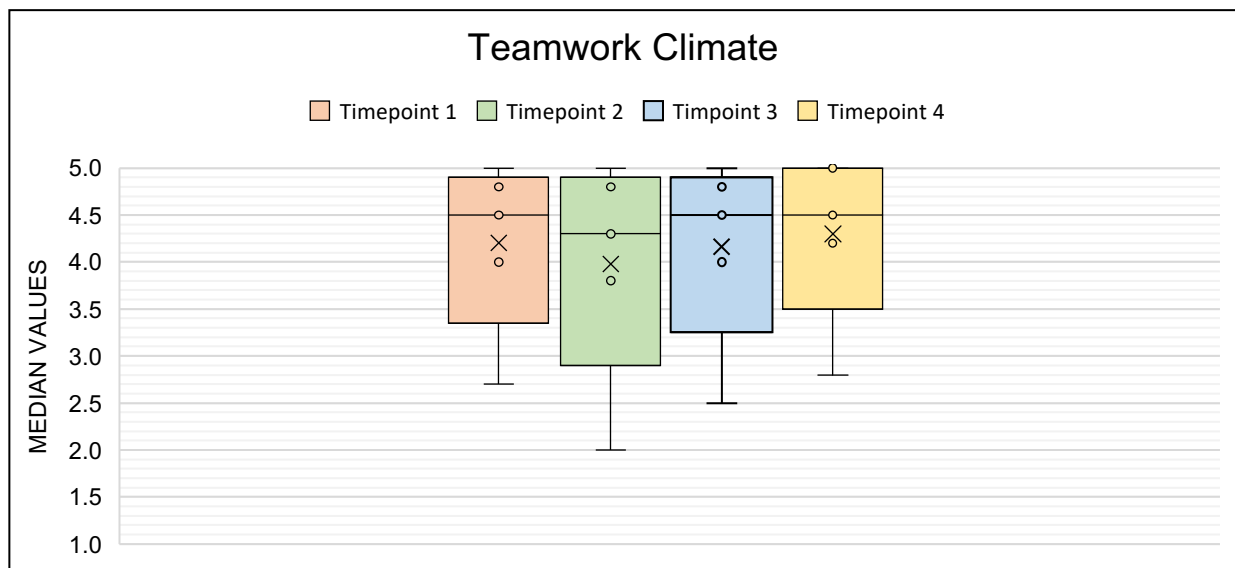
**Table 5.3 Frequency of Data Distribution for the Individual Domain**

SAQ Domains		T1 N (%)	T2 N (%)	T3 N (%)	T4 N (%)
<b>Teamwork Climate</b>	Response Rate	103 (100)	62 (60)	90 (87)	80 (77)
	Valid	103 (100)	62 (100)	84 (93)	74 (93)
	Missing	0 (0)	0 (0)	6 (7)	6 (7)
	Median	4.5	4.3	4.5	4.5
	Mean	4.4	4.2	4.3	4.4
	IQ1 25	4.0	3.8	4.0	4.2
	IQ3 75	4.8	4.8	4.8	5.0
	IQR	0.8	1.0	0.8	0.8
<b>Safety Climate</b>	Response Rate	103 (100)	62 (60)	90 (87)	80 (77)
	Valid	103 (100)	62 (100)	84 (93)	71 (89)
	Missing	0 (0)	0 (0)	6 (7)	9 (11)
	Median	4.4	4.3	4.3	4.4
	Mean	4.4	4.3	4.3	4.4
	IQ1 25	4.1	4.0	3.9	3.9
	IQ3 75	4.9	4.9	5.0	4.9
	IQR	0.9	0.9	1.1	1.0
<b>Job Satisfaction</b>	Response Rate	103 (100)	62 (60)	90 (87)	80 (77)
	Valid	103 (100)	62 (100)	86 (95)	74 (93)
	Missing	0 (0)	0 (0)	4 (5)	6 (7)
	Median	4.4	4.4	4.6	4.4
	Mean	4.3	4.1	4.2	4.2
	IQ1 25	4.0	3.6	3.8	3.6
	IQ3 75	4.8	4.8	4.8	4.8
	IQR	0.8	1.2	1.0	1.3
<b>Stress Recognition</b>	Response Rate	103 (100)	62 (60)	90 (87)	80 (77)
	Valid	103 (100)	59 (95)	82 (91)	75 (94)
	Missing	0 (0)	3 (5)	8 (9)	5 (6)
	Median	3.8	4.0	3.8	3.8
	Mean	3.5	3.8	3.7	3.5
	IQ1 25	2.8	3.3	3.3	3.0
	IQ3 75	4.3	4.5	4.3	4.3
	IQR	1.5	1.8	1.0	1.3

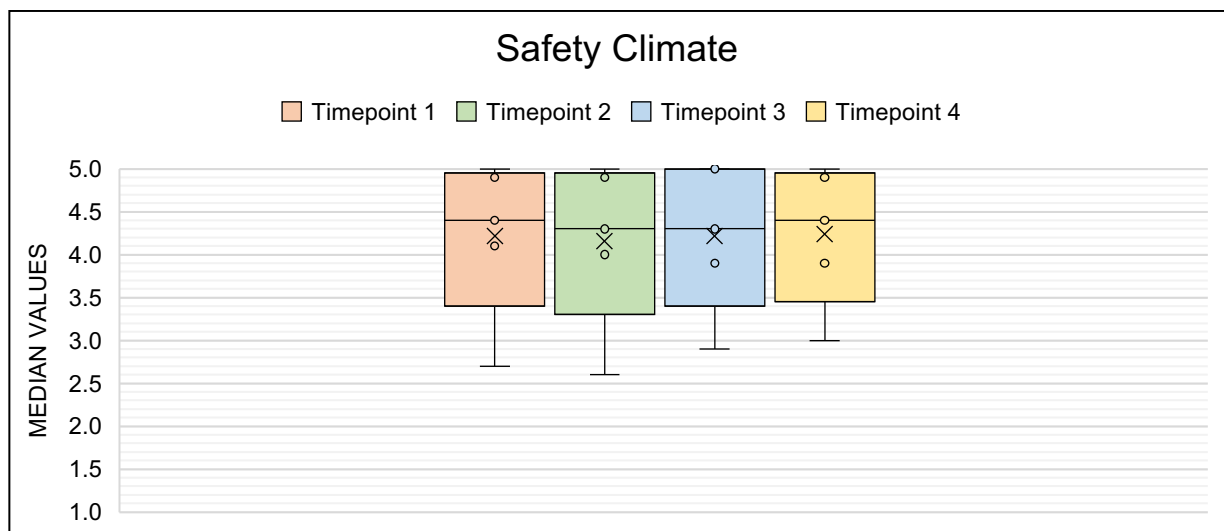
SAQ Dimensions		T1	T2	T3	T4
<b>Perceptions of mgt. (<i>Ward</i>)</b>	Response Rate	103 (100)	62 (60)	90 (87)	80 (70)
	Valid	103 (100)	62 (100)	84 (93)	74 (93)
	Missing	0 (0)	0 (0)	6 (7)	6 (7)
	Median	4.0	4.0	3.8	3.8
	Mean	3.8	3.8	3.8	3.8
	IQ1 25	3.1	3.3	3.3	3.5
	IQ3 75	4.3	4.3	4.3	4.3
	IQR	1.2	1.0	1.0	0.8
<b>Perceptions of Mgt. (<i>Trust</i>)</b>	Response Rate	103 (100)	60 (62)	90 (87)	80 (70)
	Valid	95 (92)	55 (89)	77 (86)	74 (93)
	Missing	8 (8)	7 (11)	13 (14)	6 (7)
	Median	3.5	3.2	3.2	3.3
	Mean	3.4	3.2	3.2	3.4
	IQ1 25	2.7	2.8	2.7	2.8
	IQ3 75	4.0	3.8	3.8	4.2
	IQR	1.3	1.0	1.1	1.4
<b>Working Conditions</b>	Response Rate	103 (100)	60 (62)	90 (87)	80 (70)
	Valid	101 (98)	57 (92)	85 (94)	74 (93)
	Missing	2 (2)	5 (8)	5 (6)	6 (7)
	Median	4.0	4.0	4.0	4.3
	Mean	4.0	3.9	3.9	4.1
	IQ1 25	3.3	3.3	3.3	3.7
	IQ3 75	4.7	4.7	4.5	4.7
	IQR	1.4	1.4	1.2	1.0
<b>Communication and Collaboration</b>	Response Rate	103 (100)	60 (62)	90 (87)	80 (70)
	Valid	97 (94)	58 (94)	83 (92)	74 (93)
	Missing	6 (6)	4 (6)	7 (8)	6 (8)
	Median	4.0	4.0	4.0	4.1
	Mean	4.1	4.0	4.2	4.1
	IQ1 25	3.6	3.8	3.8	3.8
	IQ3 75	4.5	4.5	4.5	4.6
	IQR	0.9	0.7	0.7	0.8

The results shown in Table 5.3 and Figures 5.2 and 5.3 show that teamwork had the highest score ( $4.5 \pm 0.8$ ) in T1, T3, and T4 (Figure 5.4). This was followed by safety climate, which had scores of  $4.4 \pm 0.9$  in T1 and  $4.3 \pm 0.9$  in T2 (Figure 5.5). Overall, the RNs' perceptions were steady across the timepoints. Nonetheless, teamwork climate in T2 ( $4.3 \pm 1.0$ ) and safety climate in T3 ( $4.3 \pm 1.1$ ) and T4 ( $4.1 \pm 1.0$ ) were not always positive ( $\geq 4.0$ ) or neutral ( $\leq 3.9$  to  $\geq 3.0$ ).

**Figure 5.4 Box and Whisker Plot for Teamwork Climate**



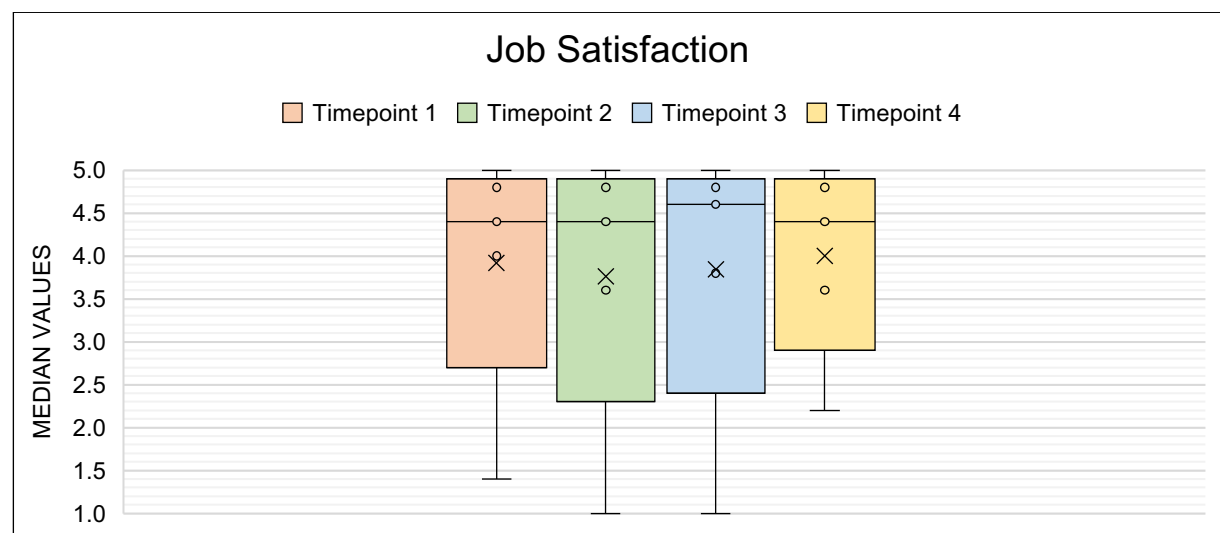
**Figure 5.5 Box and Whisker Plot for Safety Climate**



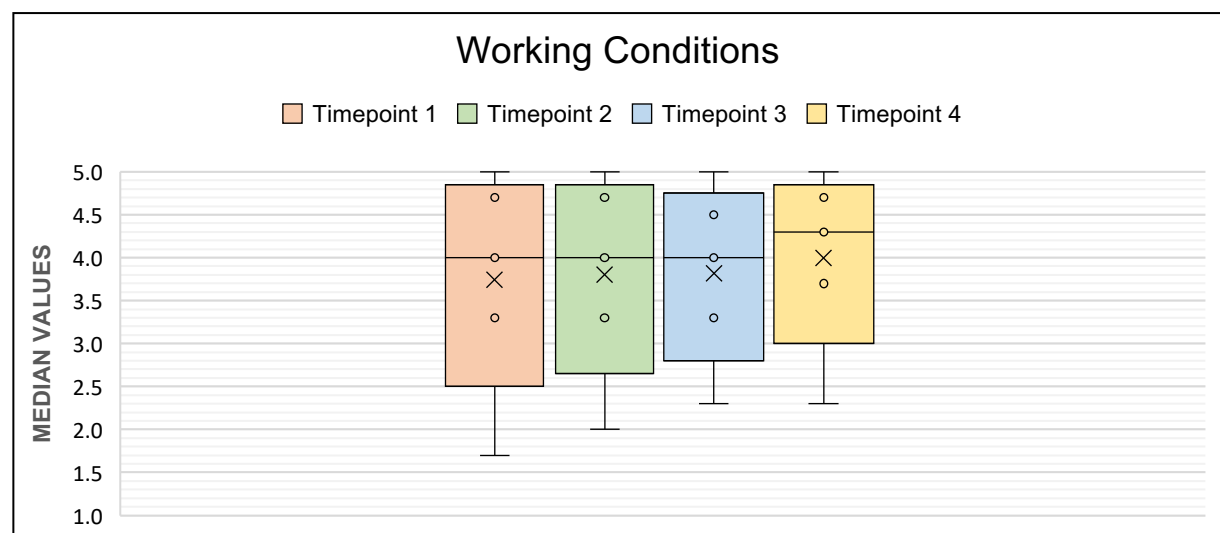


As indicated in Figure 5.6, 81 (79%) of RNs' were positive about job satisfaction for T1 ( $4.4 \pm 0.8$ ), but increasingly, there was a wider variability as 25 (29%) to 34 (39%) of RNs reported fewer positive attitudes ( $\leq 4.0$ ) from T2 ( $4.4 \pm 1.3$ ), T3 ( $4.2 \pm 1.0$ ) and T4 ( $4.4 \pm 1.3$ ). Equally, the findings illustrated in Figure 5.7 indicated that working conditions (4.0 to 4.3) were positively perceived by 65 (65%) of RNs, yet increasingly, 24 (47%) to 35 (43%) were less optimistic (Figure 5.7). Compared to job satisfaction, the differences in their perceptions were stable for T1 and T2 ( $4.0 \pm 1.4$ ), T3 ( $4.0 \pm 1.2$ ), and T4 ( $4.3 \pm 1.0$ ), showing no change across the timepoints.

**Figure 5.6 Box and Whisker Plot for Job Satisfaction**

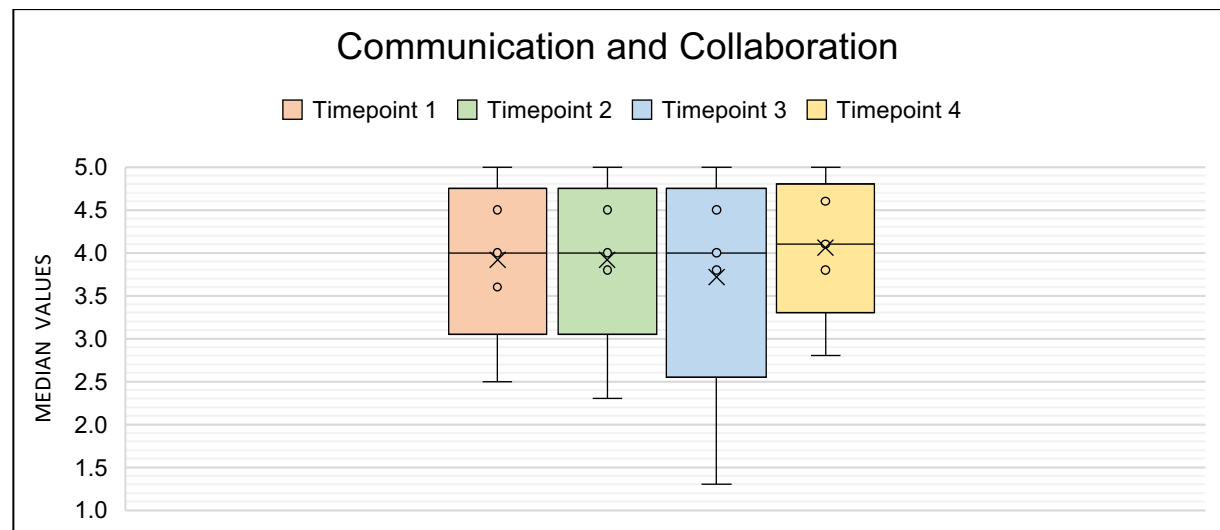


**Figure 5.7 Box and Whisker Plot for Working Conditions**



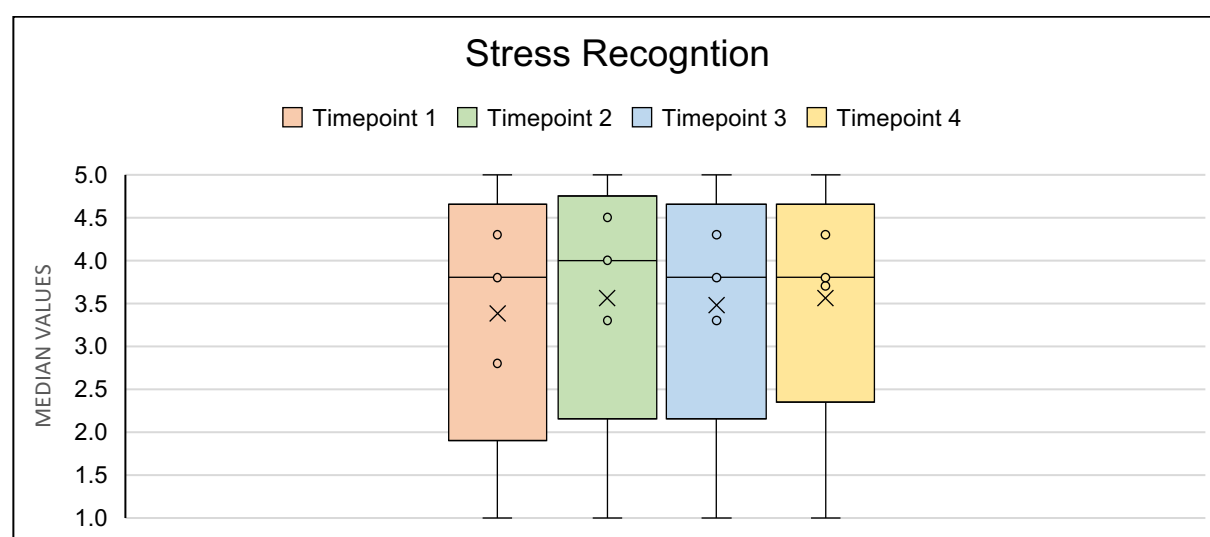
Equally, for communication and collaboration 35 (60%) to 64 (66%) of RNs (Figure 5.3), reported positively with median values ranging from 4.0 to 4.1 (0.7-0.9) (Table 5.3). However, 24 (32%) and 23 (40%) of RNs reported fewer positive attitudes consistently across the timepoints (Figure 5.3).

**Figure 5.8 Box and Whisker Plot for Communication and Collaboration**



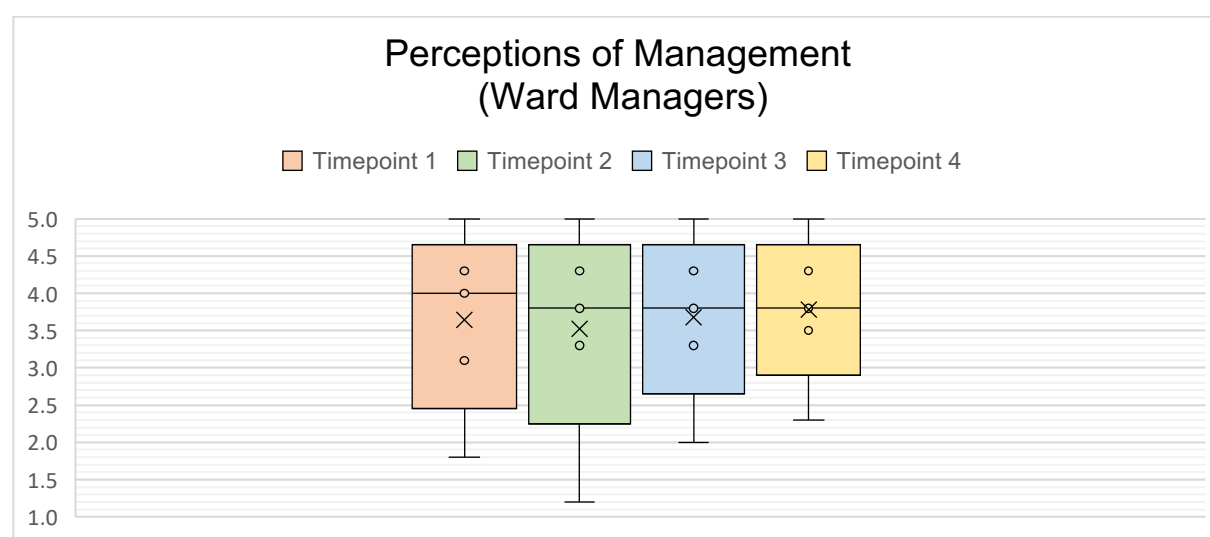
Perceptions of stress recognition (Figure 5.9) and perceptions of management at ward level (Figure 5.10) and trust level (Figure 5.11) were consistently the least positive and negatively skewed. There were mixed perceptions of stress recognition, which was only positive in T2 but widely variable ( $4.0 \pm 1.8$ ). For the remaining timepoints, the median values were stable at 3.8, but similar to T1, the RNs responses fluctuated between neutral and negative in T1 (1.5), T3 (1.0), and T4 (1.3). Of those responses, the findings shown in figure 5.3 indicated that 10 (16%) to 26 (25%) of RNs reported being least likely to practice unsafely in stressful situations. In comparison, 31 (53%) to 45 (45%) of RNs said that stressful situations would more likely affect their ability to practice safely, and 32 (31%) to 34 (41%) of RNs remained uncertain.

**Figure 5.9 Box and Whisker Plot for Stress Recognition**

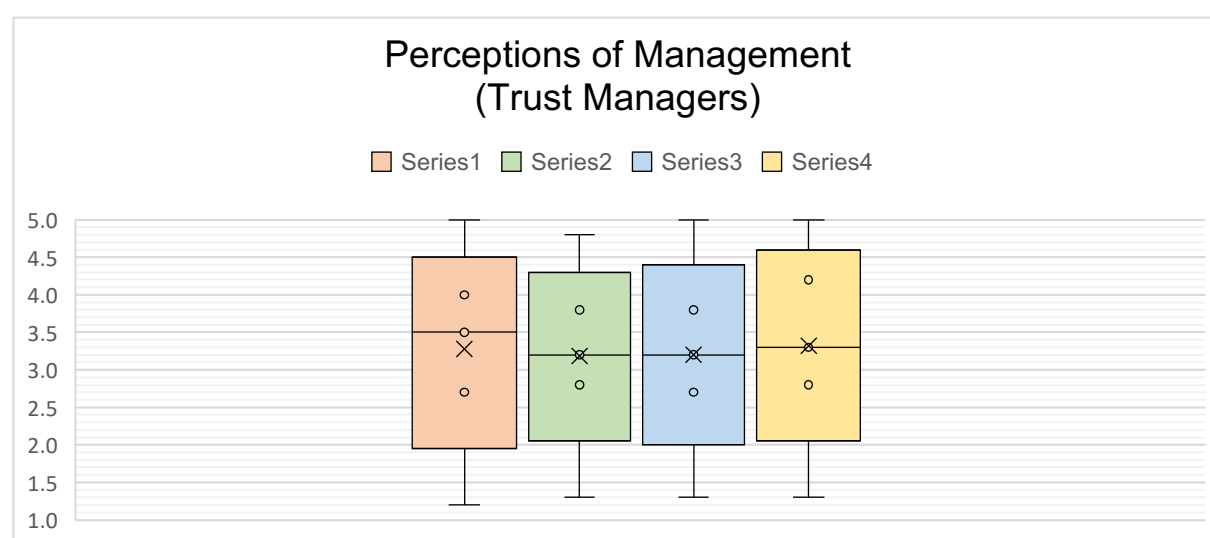


There was a discernible disparity between trust and ward managers' perceptions. RNs reported positive perceptions relating to ward managers in T1 ( $4.0 \pm 1.2$ ) and T2 ( $4.0 \pm 1.0$ ). The RNs perceptions declined in T3 ( $3.8 \pm 1.0$ ) and T4 ( $3.8 \pm 0.8$ ), as 41 (52%) in T3 and 38 (55%) in T4 reported fewer positive perceptions compared to 32 (35%) in T1. In contrast, 42 (76%) to 66 (66%) of RNs were the least positive, with median values ranging from 3.3 to 3.5 for trust managers. The IQR for perceptions for organisational management showed a wider variation for each timepoint, T1 (1.3), T2 (1.0), T3 (1.1), and T4 (1.4), in comparison to their perceptions of their ward managers. The higher number of negative responses represented this, which ranged from 17 (27%) to 30 (29%) compared to 6 (9%) and 13 (13%) for their perceptions of ward managers.

**Figure 5.10 Box and Whisker Plot for Perceptions of Management (ward)**



**Figure 5.11 Box and Whisker Plot for Perceptions of Management (trust)**



### 5.1.6 Reliability and Validity of the SAQ

The internal consistency of responses was measured by Cronbach's alpha coefficient adopting George and Mallery's (2021, p260) classification of  $\geq 0.9$  excellent,  $\geq 0.8$  good,  $\geq 0.7$  acceptable,  $\geq 0.6$  questionable,  $\geq 0.5$  poor, and  $\leq 0.5$  unacceptable. As illustrated in Table 5.4, the SAQ showed strong internal consistency and reliability with coefficient alphas ranging from good (0.7) to excellent (0.9) for five dimensions and communication and collaboration. The teamwork climate indicated a questionable level of reliability ( $\geq 0.6$ ) for T2 and T4.

**Table 5.4 Internal Consistency of the Safety Attitudes Questionnaire**

SAQ Dimensions	No of Items	Cronbach Alpha Scores			
		T1	T2	T3	T4
<b>Teamwork Climate</b>	6	0.5	0.7	0.7	0.6
<b>Safety Climate</b>	7	0.7	0.8	0.7	0.7
<b>Job Satisfaction</b>	5	0.8	0.9	0.8	0.8
<b>Stress Recognition</b>	4	0.8	0.8	0.7	0.8
<b>Perceptions of Management</b>					
Ward	6	0.7	0.8	0.7	0.7
Trust	6	0.8	0.8	0.8	0.8
<b>Working Conditions</b>	4	0.7	0.7	0.7	0.7
<b>Collaboration and Communication</b>	4	0.9	0.9	0.9	0.9

### 5.1.7 Summary of Quantitative Findings

The quantitative study measured the RNs perceptions of safety culture over four timepoints to determine the stability of safety culture in their workplace and organisation. Of the six domains and the additional collaboration and communication domain, the RNs consistently reported positive perceptions of the teamwork climate, indicating a stable and robust support climate through effective teamwork with their colleagues and doctors. These findings correlated with a consistently positive safety culture that indicated a non-punitive response to incident reporting and a safe environment for patients. Regardless, the PRR scores (Figure 5.3) indicated a small decline in their perceptions from T2 to T4 which could imply that the perceptions they held for the remaining domains could have triggered the changes in their views.

The RNs were positive about communication and collaboration with other health professionals and their peers, as well as their job satisfaction and working conditions. However, this fluctuated over time, indicated by the wide variation between positive and neutral responses. The RNs liked their jobs and felt proud to work in their clinical areas; however, the working

conditions were least favourable due to the resources available and the training of inexperienced staff. Stress recognition and perceptions of management were the least positive and unstable across the timepoints. The RNs held higher positive perceptions of their ward managers than their trust managers. The findings indicated that stress recognition, workplace leadership, and organisational leadership would require improvement.

The following section will present the qualitative study findings to understand further the RNs perceptions of safety culture and how and why the digital story may have influenced any changes to their perceptions and patient safety-related behaviours.

## **5.2 Qualitative Data Findings**

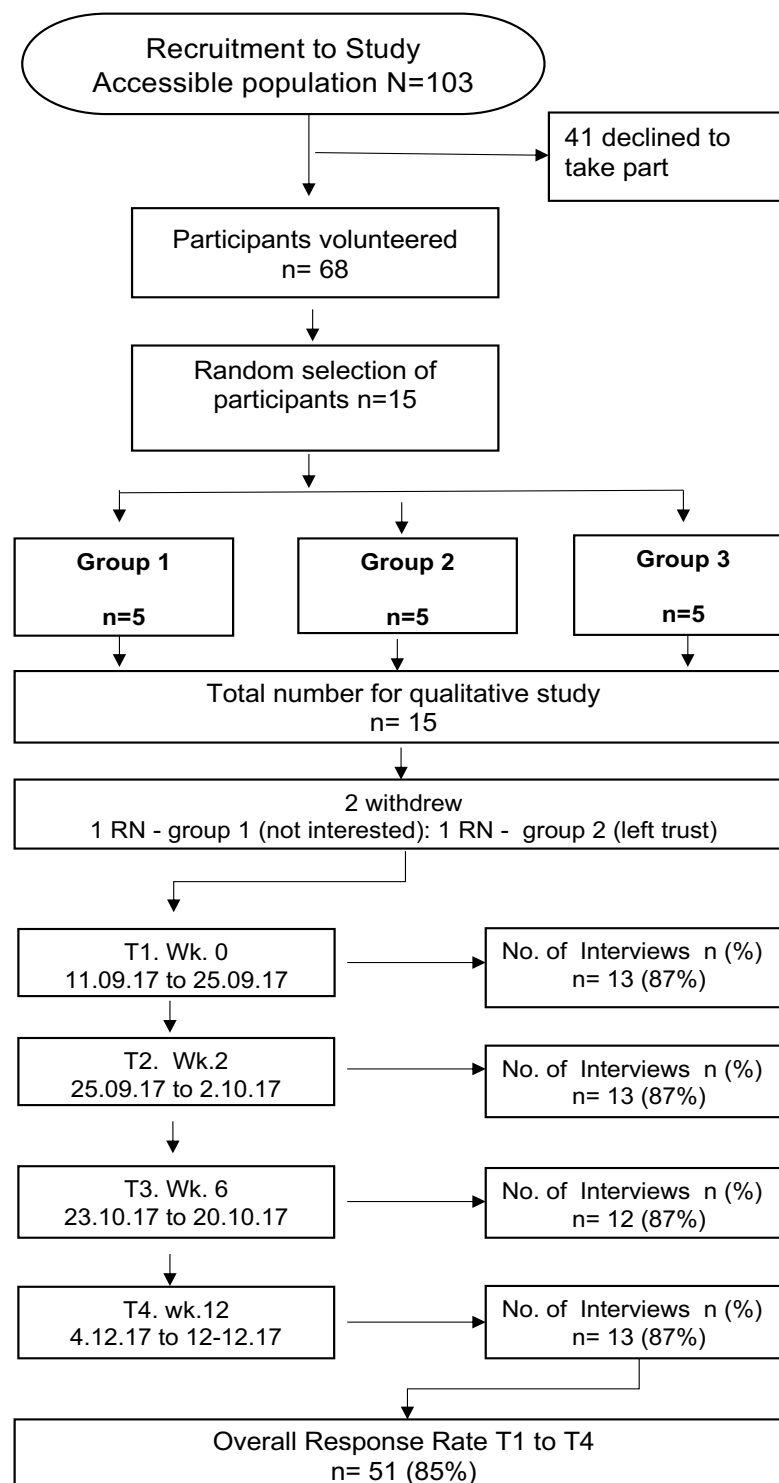
### **5.2.1 Introduction**

This section presents the qualitative findings to provide an in-depth understanding of safety culture and its relationship to clinical practice from the lived experience of 13 RNs working in a large NHS Acute Trust. A total of 51 semi-structured interviews were conducted with 13 RNs working in specialised acute medical wards at four timepoints (see Appendix 4.4). This section will commence with the participants flow and response rate for each timepoint and the demographic characteristics of the RNs, followed by a review of the data analysis process. An introduction to the presentation of the findings and a detailed presentation of the findings will follow. A summary of the qualitative findings will conclude this section of the chapter.

### **5.2.2 Participant Flow and Response Rates**

Figure 5.12 explains each timepoint's recruitment, and response rate. The qualitative phase of the study selected a sub-sample of RNs from the quantitative sample. All RNs (N=109) were invited to participate in the qualitative study, and 68 (62%) volunteered and consented, with 41 (38%) declining for no apparent reason. A purposive maximum variation sampling method selected 15 RNs (five from each paired ward) who volunteered to participate. After collecting data at T1, two RNs withdrew from the study due to lack of interest (n = 1) and leaving the trust (n = 1); subsequently, all their collected data was discarded. A total of 51 semi-structured interviews took place over three months, from September to December 2017 (see Appendix 4.9), yielding a response rate of 85%. The response rate was consistent with 13 (87%) for T1, T2, and T4. For T3, the response rate was 12 (80%), as one RN was unavailable when conducting the interviews.

**Figure 5.12 Flowchart of Participant Flow and Response Rate**





### 5.2.3 Demographic Characteristics and Professional Profile for the Qualitative Study

Table 5.5 provides the demographic (gender, age, ethnic group, and education) and professional profile (job title, post-qualifying experience, employed in NHS trust and clinical area, full or part-time status, shift pattern, and hours per day) for each RN for each group. Each group is colour coded: Group 1 (trust education) is yellow, Group 2 (digital story only) is blue, and Group 3 (digital story and reflection) is green.

Of the thirteen RNs, 11 were of white origin, 1 Indian, and 1 Asian. The age groups ranged from 21 to over 55 years, with most of the RNs' ages ranging between 25 and 44 years (n=8), with fewer who were between 21 and 25 (n=2), 45 and 54 years (n=2), and over 55 years old (n=1). There was a variation in post-registration experience, as two RNs had less than 12 months, 13 months to 2 years (n = 2), 3–5 years (n = 1), 6–10 years (n = 4), 16–19 years (n = 2), and over 20 years (n = 2). Only one had obtained a master's degree, six held a BSc (Hons) degree, one a BSc degree, and the remaining four held a diploma. All educational qualifications were specific to pre-registration education except for the Advanced Nurse Practitioner (ANP) role, which required a master's level qualification (post-registration). Employment in the NHS Trust ranged from 6 months to over 20 years, and all RNs worked full time. Eleven RNs worked 12 hours/day with rotational day and night shift patterns, and the remaining two RNs working 7.5 hours/day fixed day shifts. Most held the Staff Nurse (Band 5) role (n=8), and the remaining five had other roles ranging from Junior Sister/Senior Staff Nurse to ANP (Band 6 to Band 8). All thirteen RNs were given a pseudonym when analysing the data to maintain confidentiality (as illustrated in Table 5.5)

**Table 5.5 Demographic Characteristics and Professional Profile of the Registered Nurses**

Name	Gender	Age Group	Ethnic Group	Education	Job Title	Post Qualifying Experience	Employed in NHS Trust	Employed in clinical area	Normal Working Hours	Shift pattern	Hours/day
<b>Group 1: Trust Education</b>											
<b>Cara</b>	Female	25-34	White British	BSc (Hons)	Junior Sister	3-5 yrs.	3-5 yrs.	6–10yrs	Full time	Rotate	12 hrs
<b>Vicky</b>	Female	18 - 24	White - European	BSc	Staff Nurse	13-24 mths.	1-2 yrs.	1-2yrs	Full time	Rotate	12 hrs
<b>Natalie</b>	Female	18 - 24	White British	BSc (Hons)	Staff Nurse	6-12 mths.	3-5 yrs.	0-6 mths	Full time	Rotate	12 hrs
<b>Kerry</b>	Female	45 - 54	White British	Masters	Advanced Nurse Practitioner	>20 yrs.	>20 yrs.	3-5yrs	Full time	Rotate	12 hrs
<b>Group 2: Digital patient story</b>											
<b>Millie</b>	Female	25 - 34	White British	Diploma	Staff Nurse	6-10 yrs.	6-12mths.	6 -12 mths	Full time	Rotate	12 hrs
<b>Kay</b>	Female	35 - 44	White British	Diploma	Staff Nurse	6-12 mths.	3 - 5 yrs.	3-5yrs	Full time	Rotate	12 hrs
<b>Grace</b>	Female	55 - 64	White British	A - level	Ward Manager	>20 yrs.	6-10 yrs.	6–10 yrs.	Full time	Fixed days	7.5 hrs
<b>Kate</b>	Female	45 - 54	Asian	BSc (Hons)	Staff Nurse	16-20 yrs.	3 - 5 yrs.	3-5yrs	Full time	Rotate	12 hrs
<b>Ivy</b>	Female	35 - 44	Indian	BSc (Hons)	Staff Nurse	16-20 yrs.	3 - 5 yrs.	3-5yrs	Full time	Rotate	12 hrs
<b>Group 2: Digital patient story and 30 minutes reflection</b>											
<b>Maureen</b>	Female	25 - 34	White – Eastern European	BSc (Hons)	Staff Nurse	1-2 yrs.	1-2 yrs.	1-2yrs	Full time	Rotate	12 hrs
<b>Rose</b>	Female	25 - 34	White British	Diploma	Staff Nurse	6-10yrs.	6-10 yrs.	6-10yrs	Full time	Rotate	12 hrs
<b>Louise</b>	Female	25 - 34	White British	Diploma	Senior Staff Nurse	6-10yrs.	3 - 5 yrs.	6–12mths	Full time	Rotate	12 hrs
<b>Ann</b>	Female	35 - 44	White British	BSc (Hons)	Senior Quality Nurse	6-10 yrs.	6-10 yrs.	6-10yrs	Full time	Rotate	12 hrs

### 5.2.4 Theme Development

The semi-structured interviews were analysed using Smith *et al.*'s (2022) seven-step framework for IPA. Initially, three Group Experiential Themes (GETs) were identified: *Safety Culture as a Professional*, *Safety Culture in the Workplace* and *Safety in Numbers* and related subthemes (see Chapter 4, Table 4.9). However, when writing the qualitative findings, it became more apparent that the subthemes did not truly reflect the GETs. In keeping with IPA and the lived experience, only one GET focused on the RN and all the subthemes were too large because they captured too many concepts. In addition, the subthemes *Professional Duty of Candour*, *Organisational Duty of Candour*, *Leadership in the Workplace*, and *Leadership in the Organisation* (see Table 4.9) were repetitious and significantly associated with reporting structures and incidents. Because of these issues, the data set was rearranged to redefine the related GETS and subthemes. The analysis revealed one main overarching theme of professionalism, as the RNs accounts featured around three GETs, which were identified as *Professional Duty of Care*, *Professional Duty of Candour*, and *Professional Duty to Continuous Professional Development* (CPD). Table 5.6 illustrates the final GETs and subthemes in alignment with a subset of PETs.

**Table 5.6 Theme Development**

<b>OVERARCHING THEME: PROFESSIONALISM</b>		
<b>Group Experiential Themes</b>	<b>Subthemes</b>	<b>Subset of Personal Experiential Themes</b>
<b>GET 1: Professional Duty of Care</b>	<ul style="list-style-type: none"> <li>• To do no harm</li> <li>• Social interactions and Collaboration. <ul style="list-style-type: none"> <li>◦ Social interaction: Communication</li> <li>◦ Social Interaction: Collaboration environment</li> </ul> </li> <li>• Safety in numbers</li> </ul>	<ul style="list-style-type: none"> <li>• To prevent errors and harm</li> <li>• The moral and ethical duty of care</li> <li>• Provide safe, holistic patient centred care</li> <li>• Communication with patients can be improved</li> <li>• Treat patients how you would like to be treated/respect and dignity</li> <li>• Positive impact on collaborative working</li> <li>• Influence of staff attitudes on patient care</li> <li>• Compliance with safer staffing levels</li> <li>• Impact of working understaffed and under pressure</li> </ul>
<b>GET 2: Professional Duty of Candour</b>	<ul style="list-style-type: none"> <li>• To speak up or not to speak up</li> <li>• The power of leadership <ul style="list-style-type: none"> <li>◦ Ward leadership</li> <li>◦ Organisational Leadership</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Organisational systems approach</li> <li>• To err is human</li> <li>• Punitive response to errors</li> <li>• Open culture vs. blame culture</li> <li>• Realities of reporting incidents - speaking up or staying silent</li> <li>• Learning from errors</li> <li>• Leadership – empowering v disempowering</li> <li>• Importance of feeling safe and supported when errors occur</li> <li>• Organisational leaders are not visible, detached from the reality of working on the front line</li> <li>• Targets drive organisational leaders</li> <li>• Measuring the quality of organisational safety</li> </ul>
<b>GET3: Professional Duty to CPD</b>	<ul style="list-style-type: none"> <li>• Organisational and Workplace Culture to CPD</li> <li>• Organisational and Workplace Infrastructure CPD</li> <li>• Personal and Professional Development</li> </ul>	<ul style="list-style-type: none"> <li>• Being competent practitioners</li> <li>• Keeping up to date with patient safety outcomes, e.g., Sepsis, Falls</li> <li>• E-learning</li> <li>• Keeping up to date with trust policies</li> <li>• Mandatory training</li> <li>• Effectiveness and efficiency of organisational CPD</li> <li>• Electronic methods of delivery and communication</li> <li>• Factors affecting accessibility to CPD</li> <li>• Personal and professional development from being in study</li> <li>• Changes to SC perceptions and patient safety practice</li> <li>• Increased knowledge, skills, and behaviours</li> </ul>

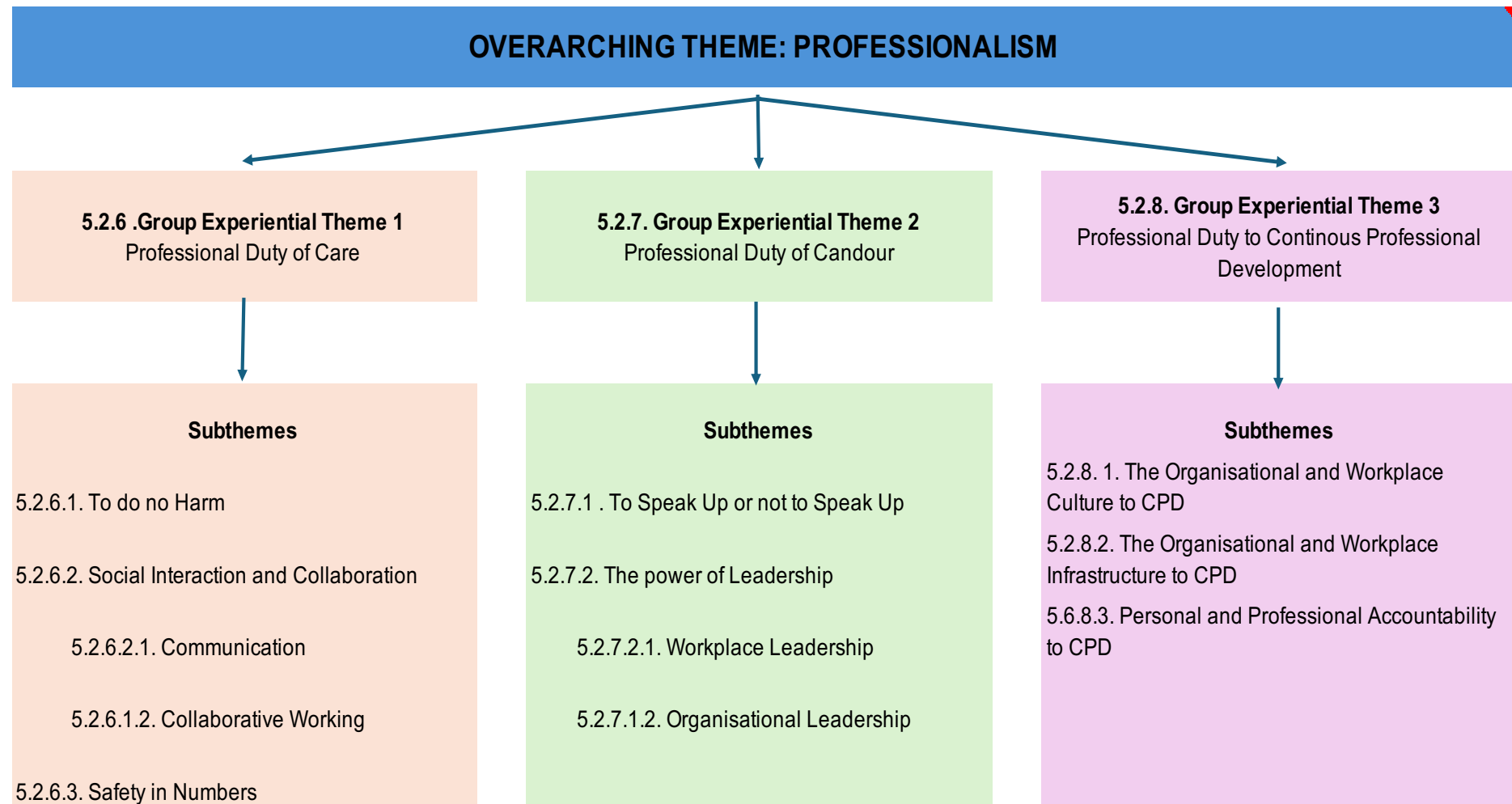
### 5.2.5 Presentation of the Findings

Each section will provide a brief introduction to the GET and include a table illustrating each individual and group's total number of RNs who contributed for each timepoint. The tables will be colour-coded for each group for ease of readability. The black text illustrates the RNs safety culture perceptions for each subtheme, and the red text shows the number of RNs who reported changes in their patient safety-related practice. Appendices 5.1 illustrates the individual contribution for each GET and associated subthemes for each timepoint.

Verbatim quotes and transcription annotations will support the data analysis. An additional transcription annotation [...]. was used to highlight where the text had been removed that bore no significance to verbatim quotes. Quotes of less than twenty words are embedded into the text (in italic script), with more extended quotes presented separately from the main body of the text and identified in italic script. No priority is given to the presentation of the GETs, as they are considered equally important. A pseudonym will be used when using quotes with the individual group and timepoint number (e.g., Kerry, G1, T2).

Initially, the analysis of the findings was divided into each group. However, due to the similarities and differences within each GET and subtheme, it was considerably repetitious. Consequently, the findings are discussed for each subtheme, and verbatim quotes are easily identifiable. The findings will be presented in detail, as demonstrated in Figure 5.13 and will reflect the RNs perceptions of safety culture, changes of perceptions, and the impact upon their patient safety-related behaviours. To support the findings, Appendices 5.2 to 5.7 provides a summary of changes of their perceptions of safety culture and patient safety-related behaviours for each GET and associated subtheme.

Figure 5.13 Qualitative Findings, Group Experiential Themes and Subthemes



## 5.2.6 Group Experiential Theme One: Professional Duty of Care

The first GET captured the perceptions of all RNs over four timepoints concerning their professional duty of care. It was developed by identifying three subthemes: *to do no harm*, *social interaction and collaboration*, and *safety in numbers*.

**Table 5.7 Total Number of Registered Nurses Contributing to Professional Duty of Care**

Subthemes	Group 1				Group 2				Group 3			
	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
	*4	*4	*4	*4	*5	*5	*5	*5	*4	*3	*4	*4
<b>To do no harm</b>	3	0	0	0	4	2	0	0	4	0	1	2
	0	0	0	1	0	2	0	3	0	0	4	2
<b>Social Interaction and Collaboration:</b> <i>Communication</i>	2	3	0	0	0	4	5	4	2	1	1	2
	0	0	0	1	0	4	4	2	0	1	0	2
<i>Collaborative Working</i>	1	4	2	0	1	4	3	0	2	3	3	0
	0	0	0	0	0	0	0	0	0	0	0	0
<b>Safety in Numbers</b>	2	4	2	1	2	3	5	0	1	3	3	0
	0	0	0	0	0	0	1	0	0	0	0	0

\*Total number of RNs in each group for each timepoint  
Contribution RNs - Safety Culture Perceptions  
**Impact/changes to patient safety-related behaviours**

### 5.2.6.1 To do no Harm

In T1, the predominant feature of eleven RNs description of safety culture captured their legal, ethical, and professional duty to do no harm. Their perceptions of preventing harm mirrored their altruistic behaviours towards caring and helping patients, which was perceived as fundamental to promoting a positive safety culture. This was articulated in different ways, as Louise (G3) expressed her altruistic values related to doing no harm:

*'No one likes to think that anyone in our care gets hurt, or something would happen to them [patients] that could have been prevented [pause]. No nurse wants to harm a patient. It is not in us, is it?'* (Louise, G3, T1).

Whereas Cara (G1) took a personalised approach by describing the psychological impact if her care was unsafe:

*'It's your own instinct really. I would hate to go home thinking that I have put somebody at danger for any sort of reason..., it is in my heart..., it is something that is within me. So, I would be mortified if anything that I had done that had put any aspect of my nursing care, you know, into that category of being unsafe'* (Cara, G1, T1).

Eight RNs described their professional duty to do no harm altruistically in the context of assessing and delivering safe patient care. Nevertheless, there were mixed opinions of what constituted safe patient care, as their responses were divided between two conceptual models of care. Cara (G1), Kate (G2), Ivy (G2), and Maureen (G3) perceived this from a humanistic and holistic perspective as patients were perceived as unique individuals through '*seeing the patient as a whole and not just a number*' (Cara, G1, T1). Kate (G2, T1), however, captured the essence of the biopsychosocial, religious, and cultural aspects of care:

*'The safety of the patient first and foremost [...], it's about understanding the culture of the patient.... To deliver the highest care that I can give to the patient [...], I need to ask the family first, or the patients about their culture beliefs and religions'* (Kate, G2, T1).

In contrast, Natalie (G1), Vicky (G1), Clare (G3), and Ann (G3) viewed PCC and patient safety as a series of nursing tasks associated with the patient's physical condition, which is commensurate with the medical approach to care. Their perceptions were restricted to preventing deterioration, using risk assessments, completing vital signs, and administering medications:

*'Making sure you are safe with your medication, knowing what you are giving, that everything is signed [...], I would look at my patient, make sure they look physically OK, do a set of observations, so medically I can see through the figures on the machines and the readings on the machines that they are OK, they are safe'* (Natalie, G1, T1).

And knowing what to do in an emergency:

*'Know what to do in emergency situations, know how to act, making sure the patient doesn't deteriorate'* (Vicky, G1, T1).



The desire to do no harm relating to the assessment and delivery of safe, patient-centred care was explicitly described from a professional and personal perspective. This is not surprising given the altruistic and professional values that motivated the RNs to protect patients from harm, as illustrated by Grace:

*'Staff love their jobs, you know they love the job, none of them come here to cause any harm, they all want to be here' (Grace, G2, T2).*

Ann (T3, G3) shared a similar view, but this symbolised dignity and respect by treating patients to family members:

*'Let's be honest nursing is not a job where you're well paid or good hours. So, if you are in this environment, the majority of people care and [pause], I think we try and relate it to their own family members' (Ann, T3, G3).*

Interestingly, given the importance of their ethical, moral, and professional duty of care to protect patients from harm, most of the RNs did not express any further views in subsequent timepoints. Remarkably, in T3, the RNs belonging to Group 3 referred to the digital story to report positive changes in their approach to personalised patient care and decision-making skills. As all the RNs (in group 3) reflected on the digital story, they reported that it made them think about the bigger picture to avoid potential harm to patients. Clare (G3, T3) used the digital story to validate the positive changes in her decision-making skills, as illustrated in the following quote:

*'With decision making, because obviously in the story they weren't really thinking about things, they were just doing their own...what they thought was right, but they hadn't actually thought about things. So yes, I suppose it has made me question a little bit more and take a little bit more time to think about it [...] So, it's those sorts of let's think about the whole situation and how it's better for the patient. So yes, I suppose it's made me think more really' (Clare, G3, T3).*

In T4, only Kay (G2) equally reflected upon the digital story and reported positive changes to her practice because it had *'made her a safer person'* (Kay, G2, T4). As a result, her normal practice of habitual task-based approach to patient care had changed to an individualised and patient-centred care approach. Remarkably, Cara (G1) shared similar changes in practice, but interestingly, this was a direct result of the questions that was asked during the semi-structured interviews that reflected her responses in the SAQ:

*'So, it's definitely made me think differently, more holistically about patient care [...]. I think my awareness of it [safety culture] has improved .... yeah! It's like the discussions, through talking with yourself, and thinking about things and obviously answering the questions [from the SAQ] and thinking about situations' (Cara, G1, T4).*

In T1, all RNs explicitly indicated their moral, legal, and professional duty of care to prevent harm. However, there was no notable change in their perceptions of safety culture in subsequent timepoints. Regardless, as the RNs progressed through the timepoints, there were some improvements to their patient safety-related behaviours, which slightly differed across the groups. All the RNs in Group 3 and three RNs in Group 2 critically evaluated their current safety-related behaviours, which enhanced their decision-making skills, and they approached patient care more holistically. Maureen (G3, T3) specifically associated her changes with the digital story, as she said:

*'I think the thing is, after a, following a patient fall, you need to think about the worst thing that can happen, following the fall, you don't need to take it as a, oh! it was a minor fall, and it will not affect the patient because... let's say they bang their head just slightly, but because they are on Warfarin, that could be fatal for them, and even if they [patient] are not complaining about pain you know like wrist or elbow pain unwitnessed fall you don't know if they hurt themselves because sometimes they will not tell you'.*

During the interviews, Cara (G1) also reported improvements directly from reflecting on her perceptions of safety culture.

#### **5.2.6.2 Social Interaction and Collaboration**

From a social and cultural perspective, the social interaction and collaboration between nursing teams and other healthcare professionals were crucial to patient safety. All RNs throughout the timepoints interpreted their duty to care to keep patients safe in a way they interacted with each other through communication and working collaboratively. These were perceived as influential factors that created a positive or negative safety culture that directly impacted upon patient-centred care.

### 5.2.6.2.1 Communication

The social interaction between nurses, nursing teams, patients and their families, and doctors played a crucial role in communicating patient care to avoid missing or delaying nursing care and providing continuity of care. Consequently, clear, and effective communication directly influenced safe nursing care, yet only three RNs in T1 emphasised this point. Natalie (G1) briefly described why she communicated with patients to *'ask them [patients] if they feel OK'*. Clare (G3), and Louise (G3) described how communication was beneficial between nurses, but only Clare (G3) related it to both verbal and written methods. Communication strategies such as nursing handovers, regular verbal updates, and nursing documentation were perceived to provide continuity of care and prevented delays and missed nursing care:

*'Always gives really good communication between each other [...], we do handovers every shift, we go through the folders [written], so nothing is missed'*  
(Clare, G3, T1).

It was not until T2-T4 that the RNs began to conceptualise their social interaction between individuals or groups and how this positively or negatively influenced safe nursing practice. Maureen (G3), and Louise (G3) continued to positively report the effectiveness of the communication strategies, including nursing documentation within their teams, as implied by Louise (G3, T3):

*'We tend to communicate the patient stuff very well. The nurses are very good at handing over everything and communicating everything. They are very good at writing in the notes [patient notes], so we have a good backlog of everything'.*

Seven RNs (G1 and G2) were less complimentary about communication with nurses and doctors as they perceived this as weak. A habitual and concerning problem was the doctors' lack of, or failure to communicate patient care to nursing staff which created a negative safety culture. In T2, six RNs and one RN in T3 emphasised similar anxieties caused by communication challenges between nurses and doctors. It was implied that it threatened their professional identity and their duty of care as patient care was compromised which meant that patient care was often delayed or missed. Kerry (G1, T2) anxiously vented her frustration by relating to a clinical incident where a doctor referred a patient to the ward for a blood test without informing her, and consequently the patient had to wait:

*'A good example, I think, how perhaps communications breakdown...he [patient] did just come for a blood test, and yes, he might have just gone back home, but he still required a level of care that I couldn't give him, and then you do go home thinking a bit well if that had been my dad, I wouldn't have been very happy either' (Kerry, G1, T2).*

Her anger and guilt reflected how a family member would react, suggesting that treating patients how they would like to be treated, with dignity and respect, was an essential moral and professional duty for Kerry. Grace (G2, T2), shared similar frustrations and anger as she raised her voice to emphasise the threat to patient safety:

*'We have eight consultants that rotate two a week, [...] and this situation is really causing problems with communication [...] then, it impacts on patient care... the patient doesn't get continuity [of care], and we have had drastic cases where people [patients] have been on oxygen, prescribed oxygen on a Friday [by one consultant], consultant changes on a Monday, so they change it, put him off nebulisers onto inhalers, off inhalers back on ... and that is not good, that is not safe and that's not good' (Grace, G2, T2).*

At T3, there was no change to safety culture perceptions as the RNs in group 1 did not discuss this, and for groups 2 and 3, their perceptions were comparable with T2.

Intriguingly, none of the RNs perceived safety culture and its relationship to communication with patients and families until they were asked if there had been any improvements to their patient safety behaviours. Only Cara (G1) in T4 reported that she was more aware of asking patients other questions when communicating with them. In comparison to those in group 1, six RNs (G2 and G3) shared similar noteworthy patient safety-related behavioural changes in how they interacted with patients and their relatives. Millie, Kate, and Kay (G2); Maureen, Louise, and Ann (G3) created more time to listen and interact with patients and their relatives. As a result, this enhanced their knowledge and skills of assessment and management of safe patient care and decision-making skills. This implied that the digital story was a powerful motivator for this meaningful change, as Maureen (G3, T4) related to the story when she said:

*'Yeah, yeah, It makes me listen more to my patient; be aware about what happened in the past if erm... if basically, if they have any fall to look after the side effects following the fall, or to listen to the patient's family to pick up any concerns, or to pick from their story any concerns that we have and if we have any concerns about it and something is not quite right.... Yeah, it is more on the communication part; more on the management of a situation as well,*

*communication part with the doctor or a member of staff or purely with the patient'.*

Three RNs (Natalie G1, Clare G3, and Louise G3) highlighted the importance of communication and its relationship to patient safety in T1. For subsequent timepoints, some RNs reported positive perceptions of communication with nurses, which showed a marked change, particularly for those in group 2. Some of the RNs (G2 and G3) perceptions changed from positive to negative as they reported poor communication between doctors and nurses and how this negatively impacted upon patient safety. Interestingly, for the RNs in group 3 there were significant changes to patient safety-related behaviours when communicating with patients compared to the RNs in Group 2. However, when compared to group 3, 50% of RNs in group 2 showed a remarkable change in their safety culture perceptions and patient safety-related behaviours.

#### **5.2.6.2.2 Collaborative Working**

The social interaction and the way nurses worked collaboratively with their peers and other members of the multidisciplinary teams were equally important to keeping patients safe, but this was not fully explored until T2. Only Natalie (G1), and Kay (G2) associated a positive working environment with working collaboratively and metaphorically related this to being part of a family:

*'We are like one great big family [...] And yeah, we have ups and downs, but again patients come first [...] and if there is a crisis on the ward, we are all there, all of us, and I just love being part of it' (Kay, G2, T1).*

In T2 and T3, there was an explicit change of perceptions as most connected collaborative working to environmental and organisational factors. The RNs perceptions through the timepoints revealed different views on the workforce diversity and how these impacted upon team dynamics. The notion of effective collaborative working and safe nursing practice was implied in the separate roles, the skill mixes of the team, and the added value this brought to the teams. Where there was a clear understanding of their [and others] roles and responsibilities, they worked together respectfully. This reflected an appreciation of *'parallel*

*working'* in that individuals did their work and collaborated, communicated, and shared information for specific situations. Kerry (G1, T2) strongly suggested that this occurred during times of crisis, such as emergency situations, busy environments, and staff shortages, and said that:

*'...[we] have a good teamwork, because it's a busy environment and I think that does provide a culture of, of having to work together... here [the ward] is a mixture of abilities, so I think that's what helps the team go along. I think just looking out for one another and ...I would like to think that if you could see somebody struggling, that somebody will help... it's safe for the patient'.*

The perceived benefits of a positive team climate are that it created a positive working environment, increased productivity of nursing work, enhanced job satisfaction, and promoted patient safety, which was discreetly inferred as *'you get the job done'* (Cara, G1, T2). In contrast, when teams did not work together, this creates a negative team climate and compromised patient safety as *'things won't get done'* (Ivy, G2, T2). Collaborative working was problematic for two RNs in group 1 and four RNs in group 2, as they indicated that the relationship between other staff was not as strong as nursing team members worked alongside each other but were focused on their own patient's and responsibilities. Consequently, they rarely demonstrated supportive behaviours to assist others in their work. Contributory factors included the blurring of roles between qualified and unqualified nursing staff, increased workload, and inadequate staffing. This often led to conflict within the team, increased stress levels, and poor attitudes of staff. Ivy (G2, T2) summarised this succinctly:

*'When we don't work together, especially in a busy environment, things won't get done, and sometimes people get stressed; the patient can be demanding. So, if you don't work together, I don't think we would manage to meet all the needs of the patients when we look after so many poorly patients especially, and that can cause stress on other staff; then sometimes when they are stressed, we tend to miss things, and our concentration levels go down, so I think we can make errors'.*

Poor teamwork as a direct result of others also created challenges for qualified nurses when they tried to balance their workload and manage the threats to patient safety. Vicky (T2) and Cara (T2), both from Group 1, shared similar views and frustrations:

*'Little things like that can [e.g. pressure area care, giving patient drinks, vital signs] get overlooked when the attitude of staff is wrong, and it's really hard as a nurse when you have got your workload to do, to make sure that those little things are done when it is not being done by your support worker... and you know it's that teamwork that needs to be there to make sure that patients are getting the safe care' (Cara, G2, T2).*

By T3, Cara (G1) found this massively stressful, which had a profound impact on her physical and psychological well-being as she tearfully said:

*'It's very much who you're working with [...] personality, and you know if you have negative people, it doesn't create a good environment for staff and patients. it's really hard, it's hard [working with negative staff attitudes] ... If I looked at the board [rota] or the night before, if I looked who is on tomorrow, fills me with dread sometimes. I cannot sleep worrying about what's going to happen or what isn't going to happen tomorrow. Who is going to answer back to me or...? (Laughs)... I feel physically sick about going into work'.*

In T2 and T3 only, there were mixed perceptions of collaborative working that reflected the external factors that promoted or inhibited a positive team culture in the workplace. Interestingly, none of the RNs discussed any changes to their existing practice throughout the timepoints. Their safety culture perceptions changed, and they continually acknowledged the external factors that could have enhanced their knowledge, skills, and behaviours. Subsequently, this could have been used to enhance or improve existing collaborative working practices rather than taking it at face value. For example, some of the RNs became more assertive in challenging those who did not work collaboratively and implemented strategies to enhance/improve collaboration within the teams. Regardless, this was a missed opportunity for the RNs to challenge these negative behaviours and improve the team culture. The failure to identify individual changes may have resulted from the perceptions of their workplace and organisation's culture, and their boundaries and scope of their role and nursing practice.

#### **5.2.6.3 Safety in Numbers**

Regardless of age, experience, or role, the RNs overwhelmingly perceived that *'staffing was a big issue'* (Kay, G1, T1) within the organisation. All the RNs had negative perceptions about poor staffing levels and the relationship to higher number of incidents relating to missed or delayed care, in particularly medication errors. This was constant throughout the timepoints

(see Appendix 5.1), as the consensus was that the current staffing levels did not meet the current patient and service demands. In T1, Vicky (G1), and Millie (G2) acknowledged that inadequate staffing levels put patients at risk of harm as they are unable to provide the required care:

*'She [the patient] could have gone to {name of the hospital} Hospital ages ago, and she [the patient] didn't have to be here and putting herself at risk in this environment because obviously we are not having staff, enough time, we don't have 1-2-1 care' (Vicky, G1, T1).*

The patient experience was also poor as they *'get a raw deal'* (Kerry, G1, T1) from waiting longer and not receiving the care they need.

Although not as explicit in T1, for T2 and T3, inadequate staffing was unequivocally a major concern for all RNs affected by various external factors that they could not control. This increased patient risk and compromised the RNs' professional duty to do no harm, leaving them feeling angry and frustrated. Although not directly asked during the interviews, item number 29 in the SAQ was specific to staffing levels: *'The level of staffing in this clinical area is sufficient to handle the number of patients'* could have provoked this discussion. Overwhelmingly, 10 RNs reported that service demands, environmental factors, higher levels of patient dependency, and patient acuity (due to the complexity of patient care in acute medical units) placed an increasing strain on the current nursing workforce. These external pressures put patients at risk of harm due to errors occurring and missed nursing care. Maureen (G3, T2), and Kerry (G1, T2) reported that inadequate staffing meant they could not do everything required for individual patients. Kerry (G1, T2) echoed the risk to patients as she metaphorically describes this to baking a cake:

*'You know I always go back to baking a cake. They [the organisation] want you to make a cake, but they are not going to give you any eggs and sugar. So, the cake that you are going to get is pretty awful, isn't it? So, it's like, [sigh] gosh, I have got to do that, and I have made a couple of mistakes... I did this because I had got X, Y and Z going on at the time, I was on my own, these were the external pressures that had forced me to sort of make that error' (Kerry, G1, T2).*

Poor staffing levels also increased the nurse's workload, which meant nurses constantly worked under pressure. This was perceived to exacerbate the risk of errors related to human



factors, such as fatigue and stress. As the RNs became increasingly tired, they were more prone to causing errors, with administration of medication being the primary concern:

*'With it being short-staffed all the time and [staff] having to slog their guts off, on the ward if staff are tired, then it does affect patient care...and I have nearly made some mistakes when I have been tired. In medications, you know, diluting things in the wrong fluid, medication is the big thing if you are tired'* (Cara, G1, T2).

By T3, RNs continued to report recurring concerns of inadequate staffing levels and the risk to patients. Millie's (G2, T3) words of *'keeping a stiff upper lip'*, and *'plod on'*, emphasised their resilience as nurses cope with the current demands and acclimatise to the situation. Similarly, Louise (G3, T3) frustratingly stated:

*'We were promised by increasing our patients that we would get more staff, and we haven't. It's terrible at the minute everyone's exhausted, everyone's staying late, ... it, it's not fun at the moment. We've had a few really, really pants weeks... So, we cope, so it doesn't matter if we're one down because we'll cope'* (Louise, G3, T3).

The RNs' perceptions reflected the external and organisational factors associated with inadequate staffing levels. It is not surprising to see that there were no changes in their current patient safety practices for 12 RNs. This may be due to the limitations and boundaries of their role which were factors relating to social interaction and collaboration (see 5.2.6.2). In addition, as an organisational issue, there was a sense of powerlessness in changing the current situation. However, Grace (G2, T2), who was a ward manager had the authority and power to change how she managed the staff duty rota and positively reported a meaningful change that was influenced by watching the digital story:

*'I think definitely in regard to falls it has, because you know the patient story that we watched, I know it was about a fall, but because of the short staffing we have had, we have had an increase in falls... So, I have had to go and speak to all the staff and try and jiggle the staffing around, so that somebody is with this guy all the time'* (Grace, G2, T3).

The digital story about a fall incident increased her awareness of falls prevention. Consequently, she increased staffing levels to care for and prevent harm to those at risk of falling.

### 5.2.7 Group Experiential Theme Two: Professional Duty of Candour

The second GET, '*Professional Duty of Candour*', captured the perceptions of all RNs across the four timepoints that related to the proverbial phrase '*To err is human*' (IOM, 2001) as reflected in Millie's (G2, T1) experience.

*'I missed a medication, and it was dealt with... I addressed my issues and reflected on it, [...] and it was a learning curve [...]. I reflected about the environment at the time of doing a hand-over, you know communication and that's what it was, a lack of communication and environmental means I missed a dose'* (Millie, G2, T1).

In T1, from an organisational level, compliance with patient safety systems was fundamental to preventing harm and keeping patients safe. These included trust policies and procedures, national and local guidelines for patient care, completion of patient risk assessments, care bundles, care plans, nursing documentation, and various patient checklists. When incidents occurred, all but two RNs were acutely aware of the organisational system (Datix) for reporting incidents, and the processes for investigating further (Root Cause Analysis). Although these systems are robust, they were cumbersome to complete because they were '*a bit OTT [over the top]*' (Louise, G3, T1) and '*time consuming*' (Grace, G2, T1). Despite their compliance with these systems and processes, the perceptions of all RNs were characterised by speaking up or remaining silent. These two opposing behaviours were associated with reporting incidents and challenging poor practices. Consequently, this theme, '*Professional Duty of Candour*', was created after two subthemes were identified from the total responses from RNs: *to speak up or not to speak up* and the *power of leadership* (as indicated in Table 5.8). Appendix 5.1 illustrates individual responses.

**Table 5.8 Total Number of Registered Nurses Contributing to GET Two:  
Professional Duty of Candour**

Subthemes	Group 1				Group 2				Group 3			
	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
	*4	*4	*4	*4	*5	*5	*5	*5	*4	*3	*4	*4
To speak up or not to speak up	3	4	4	0	3	5	4	3	3	3	3	3
	0	0	0	3	0	1	0	4	0	2	2	2
The Power of Leadership: Workplace Leadership  Organisational Leadership	0	2	1	0	0	5	3	0	1	3	3	0
	0	0	0	0	0	0	0	0	0	0	0	0
	1	4	2	2	1	3	5	0	1	3	3	0
	0	0	0	0	0	0	0	0	0	0	0	0

\*Total number of RNs in each group for each timepoint/  
Contribution RNs - Safety Culture Perceptions  
Impact/changes to patient safety-related behaviours

### 5.2.7.1 To Speak Up or Not to Speak Up

In T1, eight RNs described their professional duty of candour and the relationship to a positive or negative safety culture. There was a consensus from seven RNs that protecting patients from potential harm was a general predictor for the likelihood of nurses speaking up. Nonetheless, this depended upon a positive open culture that empowered nurses to speak up, challenge poor practices, and report patient safety incidents:

*'We can be open and honest about things with each other, so if we did see something that we weren't too sure why that happened, we can... I feel that we can easily talk to one another about like, how come you did that? Or what was that all about?'* (Clare, T1, G3).

This was not the situation for Millie (G2, T1), as she concluded that a blame culture existed within the working environment, and that created a negative safety culture. Thereafter, the impact created a domino effect, as nurses conformed to silent behaviours for fear of speaking up. This hindered their capacity to learn from mistakes, unintentionally lowered staff morale, and prevented nurses from collaborating effectively as a team. All these factors had negative consequences for patient safety:

*'Where people are blaming you, it affects the morale then, because...everybody like pointing the finger, oh you have done this wrong, there is no learning from it [...] that breaks the team up and ...your safety falls'* (Millie, G2, T1).

In T2, for the eight RNs who responded in T1, their perceptions changed as they shifted their focus and explored the factors that encouraged nurses to speak up or conform to silent behaviours. For Cara (G1, T2), Vicky (G1, T2), Kay (G2, T2), and Ivy (G2, T2), a supportive and collaborative working environment was perceived to be a positive indicator for speaking up. Kay (G2, T2) illustrated this through a practice exemplar relating to a drug error by a nursing colleague:

*'We [the nursing team] didn't hold that against them [the individual], and we supported that person and said, look, this has happened, this is how we have got to deal with it, let's move forward! [...] but as a team, we pull together, and we try and support one another through things like that' (Kay, G2, T2).*

From their perspective, the ability to learn from errors through retraining, reflective practice, and team meetings was also viewed as a powerful indicator of speaking up. This was made more explicit in T2 only, as Kerry (G1), and Maureen (G3) described this through their personal experience of making a mistake:

*'I think it is something that you can learn from, and I always, in a way, go PHEW! At least that was a near miss, and I remember, I am not going to do that again' (Kerry, G1, T2).*

Finally, the emotional guilt personally expressed through the powerful semantics of 'devastating... haunt me forever' (Louise, G3, T2) and 'feeling upset, mortified, and worried' (Vicky, G1, T2) when mistakes had been made were powerful motivators not only for speaking up but also changing behaviours:

*'Personally, you reflect on that and think, my god!, that can never happen again [...], you know when you find out that something has occurred, it ...can be a bit demoralising sometimes, because you think my god, we didn't achieve what we should have achieved there, erm... it stays with you. That mistake that you make it stays with you for the rest of your career, doesn't it?' (Louise, G3, T2).*

Some of the perceived barriers to speaking up counteracted the perceived benefits of speaking up (e.g., preventing harm) that were conducive to silent behaviours, thus putting patients and staff at risk of harm. These barriers related to the anticipated adverse outcomes that triggered immediate emotional or psychological reactions amongst some RNs. A common concern for Cara, Vicky, and Kerry (all belonging to group 1) was a fear of punishment and shame:

*'Some people are scared to speak up because they are worried about being sort of put back in a box kind of thing and so a lot of staff don't actually voice how they are feeling inside... the trouble is no-one likes to admit when they have made a mistake, and I think people get really, really worried, And I think as well there is the shame of not wanting other people to know about it' (Cara, G1, T2),*

and conflict in the working environment:

*'I've noticed that, and I think sometimes people don't report as much as they should because of being afraid what the other person will say...And we've had issues of people reporting others and the others being really upset about those people...And it's all like, Oh! you do mistakes too, why are you reporting me? Do you think you're perfect and you don't do any mistakes? and you also do them, and they get very upset about it' (Vicky, G1, T2).*

Vicky mentioned the hierarchical structure (G1, T2) in conjunction with the experience gap.

This expression was accompanied by hierarchical status, where staff nurses reported incidents only. Yet, addressing the errors with the individual staff was in the remit of senior nurses:

*'I don't feel the responsibility of being the one saying to all the ward you're doing this wrong, but I do feel seniors should do it. My job is reporting, I do my role which is reporting more than that I'm not going to do. I can't do anything else; I'm not going to the staff and say you made a mistake because I don't think that's my job as a band five nurse' (Vicky, G1, T2).*

### **5.2.7.2 The Power of Leadership**

All thirteen RNs consistently over time uncovered the impact and power of the workplace and organisational leadership. The ability of leaders to reward and connect with nurses fostered a positive safety culture where nurses felt safe and empowered to speak up. In contrast, leaders who were disconnected and punished nurses created a negative safety culture, resulting in nurses conforming to silence. Nurses felt punished and unsupported when ward and trust managers did not listen and failed to take action. In addition, the trust managers (organisational leadership) who were not visible, were disconnected from the realities of clinical practice, and driven by targets.

#### **5.2.7.2.1 Workplace Leadership**

Effective leadership from senior nurses who manage the ward environment notably influenced positive speaking up behaviours. They acted as effective role models that fostered an open

culture that rewarded nurses for speaking up safely through encouragement and support. Grace (G2, T1-T3), a ward manager, and those RNs in a non-ward manager role shared this view. From a personal perspective, Grace (G2, T2-T4) consistently positioned herself as an effective leader that was grounded by her positive attitude towards patient safety, her non-punitive attitude towards incident reporting, and the power to connect with those she managed. Her positive leadership qualities provided a supportive environment that empowered nurses to speak up:

*'In promoting safety... the massive barrier to safety is that people are scared to report. Every nurse on the ward I have told at one time or another, I don't care what you have done wrong, I don't care what it is, I will back you all the way, and we will investigate it together, and no nurse will be crucified on this ward' (Grace, G2, T2).*

For the remaining 12 RNs who were not in a ward manager role, changes to how they perceived leadership in the workplace were noteworthy. Of importance was the impact of good and poor workplace leadership and its interconnectivity to speaking up or silent behaviours when errors occurred. In T2 and T3, Natalie (G1), Millie, Kate, Kay (G2), Maureen, Louise, and Ann (G3) shared similar views about the effectiveness of their workplace leadership and how it promoted a positive safety culture. They perceived that having a positive relationship with, and respect for their ward manager empowered nurses to speak up. In comparison, ward managers who were unapproachable and unsupportive imparted fear, shame, punitive responses to errors and conflict in the workplace. This created barriers to speaking up, and the reaction from Millie (G2, T2), and Natalie (G1, T2) implied that these behaviours compelled nurses to remain silent:

*'We have got good managers [...] they are quite easy to go to because they are quite open [...], you don't feel like it is the end of the world when you report anything. Whereas I can imagine if they were strict and old school, matrons, and ward sisters, [nurses] would be a bit more reluctant [...]. They [her ward managers] are understanding, they don't point the fingers, they don't make you feel like it's the end of the world and you have done wrong. They give empathy as well; they comfort you as well as teaching you to see these things as a learning curve' (Millie, G2, T2).*

Furthermore, Vicky, Kerry, and Cara, all from group 1, accepted that speaking up made no difference:

*'A lot of mistakes happen, yet my colleagues do not bother to report because they say nothing is done, and they just simply decide not to tell' (Kerry, G1, T2).*

The ability of ward managers to disempower nurses created a negative safety culture that increased the probability of nurses remaining silent, which became habitual and complicit behaviour, thus compromising patient safety.

#### **5.2.7.2.2 Organisational Leadership**

Ineffective leadership within the ward environment was less discernible than organisational (trust) leadership. This was more apparent in T2, and consistent in T3, as the perceptions of workplace leadership provoked 12 RNs, who were all less gracious and more critical of organisational leadership (trust managers) and their commitment to patient safety. Firstly, the lack of communication and visibility of trust managers meant they were disconnected from the realities of day-to-day activities in the workplace environment. The RNs were less trusting, and consequently, they became disconnected from trust managers:

*'I suppose my perceptions of trust managers is because they are not on the ward and they don't do the day-to-day things, and you just think, well! you have not been on the ward, and you have not experienced what we experience...and it's like removed slightly, so then you feel that because they are removed, I am removed from what they are saying as well' (Millie, G2, T2).*

The disconnect between trust managers and nurses was upsetting for three RNs when they raised concerns. Kay (G2, T2) indicated that nurses *'can't get their voice heard'*, and Kerry (G1, T2), feeling frustrated and disheartened, believed that trust managers simply did not listen and did not act upon concerns raised:

*'You have to come to work every day and fight the day-to-day... we are always fighting fire; we never try to prevent the fire from happening... So, I'm feeling very frustrated and devalued knowing that there are going to be some major safety issues...erm...not listened to really, and just being told, to get on with it' (Kerry, G2, T2).*

Secondly, the remaining RNs across all groups expressed major concerns to their trust managers about inadequate staffing. As discussed in s5.2.6.3, insufficient staffing levels caused by organisational factors were a significant risk to patient safety. These factors were correlated with a lack of connectivity from trust managers in the working environment as they

did not understand the day-to-day activities and complexity of patient care and they were less compliant with safe staffing policies:

*'They [trust managers] will happily perhaps take staff off you, even though you it leaves you below your ideal safe numbers...the policy is that there should be at least one nurse to ten patients, and in the past, we have worked with 1 to 14' (Millie, G2, T2).*

More importantly, it was perceived that the trust managers were too absorbed within the target-driven culture of the organisation. To avoid breaching national and organisational targets it was reported that trust managers' decisions and strategies to improve patient flow (e.g., increasing bed capacity, opening new wards, inappropriately moving patients from ward to ward, and discharging patients earlier) put additional strain on staff resources. This was a primary concern for four of the RNs as they feared for their career. These triggered emotive feelings of anger, frustration and powerless because their professional, legal, and moral commitments to provide safe care were threatened:

*'They open it [new ward], fill it with patients, and then they have got no staff. So, then they have to pull staff from everywhere, and I have done a shift, I was moved to there once, and I had 11 patients, and I was the only member of staff on their... having to do everything, and, and I feared for my pin [NMC registration], that day I tell you!' (Cara, G1, T2).*

The RNs believed that reporting incidents did not make a difference and remaining silent became normal practice. Louise, feeling angry and dismayed, captured this in the following quote:

*'You just get used to the crap...yes, I do think that the way they move patients is disgusting; yes, I think the way they move staff is disgusting. I also know, after being here for so many years, that me moaning makes absolutely no difference...it doesn't change how the Nurse Practitioners are at night when they are moving staff. It doesn't change how {ward name} ships inappropriate patients over to you; it doesn't change that there is a queue at the door in A and E (accident and emergency) ... so, yes, I have become accustomed to it, acclimatised to it' (Louise, G3, T2).*

For T2 and T3, the RNs conceptualised their professional duty of candour and its relationship to the individual, workplace, and organisational factors that either empowered them to speak up or disempowered them where remaining silent became habitual. Nevertheless, compared to T1, changes to their perceptions were notable in T2 and consistent in T3 only as they



explored the negative and positive factors that influenced these behaviours and the impact upon their current practice.

As their perceptions of reporting practices decreased through the timepoints, their patient safety-related behaviours increased especially for those in groups 2 and 3 (as indicated in Table 5.7). As most of the RNs developed more knowledge of safety culture and the consequences of patient safety incidents, it promoted a remarkable change in their attitudes, skills, and behaviours towards preventing harm, and reporting concerns and incidents. In T4 only, Cara, Vicky, and Kerry (G1) reported positive changes in their attitude and behaviour towards speaking up and reporting concerns which was provoked by reflecting on the questions during the semi-structured interviews. Equally, it empowered them to challenge nursing practice and motivate other staff to change their attitudes and behaviours towards reporting:

*'I've, I've definitely grown more confidence in the last sixteen weeks, in being able to sort of have the conversations and say actually this is compromising patient safety so we need to talk about it. And it's not about pointing the finger or anything it's just about being constructive and trying to learn from it' (Cara, G1, T4).*

The RNs in group 2 referenced the digital story and reflected on their discussions through the semi-structured interviews. However, compared to group 1, the changes in this group were more transparent. Kay (T2 to T4) became more assertiveness which increased her confidence to challenge poor practice. Grace (G2, T4) noted the power of senior leaders and their expectations to comply with their decisions, which she metaphorically referred to as '*blue sky*'. As a result of this, her resilience and confidence grew over time to a point where she challenged the status quo of trust management decisions when patient safety was comprised:

*'I can be 'blue sky, blue sky until the cows come home, but when it is compromising patient safety, there is no way...if I don't do what I am telling all my staff to do, which is when you are worried about something, I want you to be screaming from the bloody rooftops, then you might as well throw in the towel. So, I found that this process of seeing you (laughs) and spewing out all my nightmare has helped me focus on that' (Grace, G2, T4).*

Finally, for group 3, only Louise (T4) referred to the emotiveness of the digital story and how this influenced a positive change in her behaviour to speak up:

*'I wouldn't want to be one of them that doesn't raise when you should have raised it If it needs raising, I will rather raise it [...] it was quite emotive [digital story], wasn't it?'*

In relation to preventing harm, five RNs reported changes to their attitudes and behaviours regarding patient safety systems, perceiving it as fundamental to safe patient care. Ivy (G2), Maureen (G3), and Louise (G3) were consistently more compliant and accurate when completing risk assessments (T2), which extended to teaching nursing staff the importance of this (T3 and T4):

*'I am trying to do my best when I am completing my fall assessments, and I am trying to pass it to the nurse that it is really important [...]. We have documentation, but sometimes the nurses are just ticking the boxes sometimes, so I am trying to explain to them [...] to ask the patient if he is afraid of falling, or if he had any falls or anything like this' (Maureen, G3, T3).*

For Louise (G2, T3), Kay (G2, T4), and Clare (G3, T4), their attitudes and behaviours towards record keeping had improved, as Louise stated:

*'I'm quite a stickler anyway with paperwork anyway, but it, it does give me, erm, a little bit of..., of, ammo in terms of when I'm talking to some of the other staff that I saw this (digital story), and it stayed with me a little bit. When it comes to things like that [nursing documentation], I'm quite anal about things anyway, so still makes you more aware of your documentation' (Louise, G3, T3).*

It was unclear what provoked this change, and it can be implicit in the digital story and the changing perceptions discussed above. It may be suggested that together, it could have inadvertently encouraged them to reflect upon their current practice and acknowledged how they were less compliant, accurate, and thorough than initially implied.

### 5.2.8 Group Experiential Theme Three: Professional Duty to Continuing Professional Development

The final GET, '*Professional Duty to Continuing Professional Development*' (CPD), captured the perceptions of the RNs across the timepoints and its significance to safe, patient centred care. Their professional requirements to remain current, and up to date were directly influenced by undertaking CPD activities internally within the organisation rather than externally (e.g., Higher Education Institutes). Consequently, this GET was constructed from three subthemes: *Organisational and workplace culture to CPD*, *organisational and workplace infrastructure to support CPD*, and *personal and professional accountability to CPD*.

**Table 5.9 Total Number of Registered Nurses Contributing to GET Three: Professional Duty to Continuous Professional Development**

	Group 1				Group 2				Group 3			
Subthemes	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
	*4	*4	*4	*4	*5	*5	*5	*5	*4	*3	*4	*4
Organisational and Workplace Culture to CPD	2	4	3	2	1	2	2	1	1	2	2	1
	0	0	0	0	0	0	0	0	0	0	0	0
Organisational and Workplace Infrastructure to CPD	0	4	3	0	1	3	0	0	0	0	2	0
	0	0	0	0	0	0	0	0	0	0	0	0
Personal and Professional Accountability to CPD	0	0	0	0	0	0	0	0	0	2	0	0
	0	2	0	4	0	3	3	3	0	2	4	4

\*Total number of RNs in each group for each timepoint/

Contribution RNs - Safety Culture Perceptions

Contribution of RNs - Impact/changes to patient safety-related behaviours

#### 5.2.8.1 The Organisational and Workplace Culture to CPD

In T1, Cara, Natalie (G1), Kay (G2), and Clare (G3) similarly described the importance of CPD and its relationship to safe nursing practice. Their perceptions focused on the organisational accountability and commitment to continuous quality improvements when referring to CPD. Their perceptions of CPD, however, were limited to statutory and mandatory training

requirements (e.g., Health and Safety at Work, Prevent, Manual Handling) and key clinical performance indicators (KPIs) (such as prevention and reduction of falls, pressure ulcers, acute kidney injury, sepsis, hospital-acquired infections, and mortality) as alluded to by Kay (G2, T1):

*'We all need to know how to use the safety equipment, keeping up to date with the training and manual handling... Things like falls, risks, bedrails, anything that you know can put a patient at any harm, ...and obviously like keeping up to date with all your training...to keep up with risk assessing, manual handling and that sort of thing. Keep up to date with policies, procedures and erm just looking on both sides, keeping myself safe, keeping colleagues safe'.*

Across T2 and T3, the interpretations of CPD from seven RNs consistently reflected the organisational culture toward CPD. The organisation's commitment and expectation of meeting these requirements were key motivators for nurses to engage with CPD, as indicated by Cara (G1, T3), who said that *'mandatory training is a bare minimum, so all staff have to do that'*. Cara, Vicky, Natalie (G1), Kay (G2), and Ann (G3) comparably praised the organisation for their commitment to CPD, as there were *'a lot of training courses that are available for us [nurses]'* (Natalie, G1, T2) that was *'ongoing all the time, manual handling, all sorts'* (Kay G2, T3). However, while this had a positive impact on patient safety practices, it was limited to subject-specific training as opposed to developing awareness, knowledge and understanding of safety culture. The organisational commitment to CPD was also extended to the employment of *Nurse Educator* and *Quality Nurse* roles and these were perceived positively as they supported the delivery of ongoing and regular CPD activities:

*'Quality nurses coming into falls assessments training on the ward [...] People [specialist nurses] come around and do new trainings and highlight things, even the pressure sores as well'* (Vicky G1, T3).

Several channels of communication existed within the organisation to disseminate these activities and patient safety-related information, including email, posters on notice boards, bulletins, NHS Trust intranet, social media pages, and updates in ward meetings. Face-to-face teaching from specialist nurses was available but this was limited compared to online resources. Electronic communication and online training delivery were discernibly considered

the preferred methods for the organisation. Yet, it was criticised the most by Cara, Vicky, Natalie, Kerry (G1), and Grace (G2), as it was not always efficient and successful for two main reasons. Firstly, the online courses related to statutory and mandatory training might be seen to increase accessibility and flexibility, but they were not congruent with individual learning styles. The oversight of the organisation to consider diversity and inclusivity of learning needs meant that the ability of nurses to engage with and learn from was not always guaranteed, as succinctly clarified by Grace (G3):

*'Because we have to do it by a certain time and it's on the computer, you read through it...yeah, yeah, yeah – do the quiz, done. I don't really learn that way, that's not really me. I mean yes, I can retain information from some PowerPoint slides for an hour and then go and do the quiz, that's fine, but will I retain it afterwards? Not really – I just don't learn that way'* (Grace, G3, T4).

Kerry (G1, T2) agreed, and perceived it as a tick box exercise, as she candidly and cynically reported:

*'I screenshot the pages (perhaps I shouldn't say this), you answer a few questions at the end of it, and you pass, and you learn nothing from it... Oh! 60% of the staff have got their fire training' ticked!... I have just done my mandatory training (laughs), and now I couldn't even tell you what elements I did on it really [...], I can't say I have really learnt much from it'* (Kerry, G1, T2).

Secondly, there was an expectation that nurses would regularly access emails and CPD activities, but this was not always possible due to lack of time:

*'It [CPD activities] sent to people's emails...I can guarantee you that two thirds of the staff won't check their emails or have the time to go and do [training]. It's great to say, oh you can go on training from 2.00 – 4.00, but if your staff are pulled, you end up staying and you can't go on it. So, emails are useless'* (Cara, G1, T2).

The value of the organisational culture, commitment, and expectation of nurses to access training was questionable as the RNs perceptions intertwined with the managerial and workplace infrastructure to support the uptake of CPD activities.

#### **5.2.8.2 The Organisational and Workplace Infrastructure to Support CPD**

In T2 and T3 only, the success or failure of nurses to engage in CPD depended on the organisational and workplace infrastructure and its interconnectivity with leadership and staffing resources. Nurses working in a clinical educator (CE) or clinical quality (CQ) roles

were viewed as instrumental in promoting safe nursing practice as they provided a learning culture that increased the uptake of nurses accessing face-to-face learning activities:

*'They [clinical educators] are continuously trying to enhance the knowledge of the staff, so every week they give us a different handover [educational] ... They [clinical educators] will remind you [of training] even though you are only doing three days a week, at least you don't miss out' (Kate, G2, T2).*

Interestingly, not all wards were fortunate to have these roles as mentioned above, and consequently, nurses were reliant upon their ward manager. For Kay (G2, T2), Kate (G2, T2), Ivy (G2, T2), and Vicky (G1, T3), the motivation of, and the effectiveness of their ward manager leadership encouraged nurses to engage with CPD activities:

*'We [nursing staff] are quite up to date with everything [...]. They [ward managers] help more with our training. They send us emails about updating our training, and they give us information if there is any training going around and some ward training as well – like falls prevention and things like that' (Ivy, G2, T2).*

Despite the support from ward managers, the uptake of accessing emails and attending CPD activities was problematic because nurses did not have time for either. Inadequate staffing levels was the most discernible factor, as nurses could not create space to access and attend CPD activities for fear of putting patients at risk. Therefore, their professional obligation to stay current and fulfil their duty of care compelled them to choose between taking care of patients or participating in CPD activities. In T3, it was undisputable for Cara, Natalie, and Kerry (all belonging to Group 1), who prioritised the safety of patient care. Feeling repeatedly dissatisfied with the lack of organisational and workplace infrastructure to support CPD, Cara (G1) annoyingly stated:

*'We [nurses] were asked to go to a drop-in session for the new NEWS2 charts, but I couldn't go because there was no one to cover me [...] they're [ward managers] quite happy to put on all these sessions but most of the time we can't go, because they're [nurses] all quite busy [...]so, it looks on paper like they're doing loads, but the reality is that most staff can't take the time off to go to them' (Cara, G1, T3).*

These findings have shown that the RNs neglected to associate CPD with safety culture, as the connection to keeping up to date and safe nursing care was undoubtedly confined to statutory and mandatory training. Furthermore, the communication, promotion, and delivery

of these activities were ineffective and inefficient. The lack of uptake and engagement with CPD meant that the RNs were unable to keep up to date which had implications for safe patient care. Therefore, it came as no surprise that they did not prioritise their personal and professional responsibility to CPD during the interviews. It was not until they were questioned about the impact of the intervention that they confirmed positive changes in their knowledge of safety culture and their patient safety related behaviours.

#### **5.6.8.3 Personal and Professional Accountability to CPD**

In T1, when asked about their perceptions of safety culture, seven RNs were unfamiliar with this phrase. The use of long pauses, erm's and hmm before responding to the question and also followed by *'oh, you have put me on the spot'* (Ann, G3, T1), *'oh, what a question'* (Grace, G2, T1), and *'I have never heard of the phrase safety culture before'* (Cara, G1, T1), confirmed their lack of understanding of this concept. The RNs were more familiar with patient safety, as expressed by Vicky (G1, T1), who said:

*'I have never thought much about the term safety culture, I have to admit, erm, I thought more about patient safety'* (Vicky G1, T1).

However, they were unaware of the different connotations of each term, as safety culture was repeatedly used interchangeably with patient safety throughout the timepoints.

Interestingly, the lack of understanding of safety culture in T1, prompted twelve RNs to recognise their personal and professional limitations regarding this concept. When asked what their expectations were, some expressed they would like to understand the meaning of safety culture (Cara, G1, Natalie, G1) or to improve their knowledge of safety culture (Vicky, G1, Natalie G1, Kate G2). The remaining RNs wanted to develop their understanding of other safety aspects (Millie, G2, Clare, G3, Louise, G3, Ann G3), and some wanted to improve patient care by sharing their experience of being in the study with their colleagues (Louise, G3, Grace, G2). As the RNs progressed through the timepoints, changes to their knowledge, skills, and behaviours regarding safety culture were unequivocally related to this study when compared to the organisational CPD activities.

For group 1, all RNs had increased their awareness of safety culture and the broader concepts. However, Cara and Kerry (G1) specifically reported that discussions from the semi-structured interviews were thought-provoking, which led to positive changes for them. For Kerry (G1, T2), she reported a positive change in her behaviour relating to her accountability when accessing and attending CPD activities:

*'Having reflected upon it (laughs) it's not until you actually stop and think about it [...], it has made me realise I need to do a bit more ...and highlighted that actually it is no excuse saying that somebody doesn't tell you that there is new Sepsis thingy out, I need to make that happen' (Kerry G1, T2).*

Cara (G1, T2) held a distinct perspective, acknowledging the crucial role of education in enhancing patient safety. She believed that it was within her role to foster learning and development for junior nurses:

*'The junior staff aren't asking the questions, so it's about making sure that they are up to date and are aware of different terminologies [...] so it's about nurse education, to be able to provide safe patient care, to be able to promote an environment where patients feel safe and are being treated safely because the staff have the knowledge to be able to provide the safe care' (Cara, G1, T2).*

Although their perceptions represented some changes to their behaviours, any shift in patient safety-related behaviours was not implicit compared to those in groups 2 and 3. The RNs in these groups reported explicit changes in their safety culture perceptions that had led to corresponding changes in their patient safety related behaviours, all of which were associated with the digital story.

The digital story evoked emotional responses that made it memorable, realistic, and an unforgettable experience as Grace (G2, T2) said: *'It [the digital story] puts an emotional tag on it, and you remember it'*. Furthermore, it had a positive influence on patient safety-related behaviours, as Kay (G2, T2) resonated with the digital story when managing a patient who had fallen out of bed:

*'Everybody noticed he [the patient] was on the floor, instinct is to get them up, but no, we couldn't get him up [...] he was in a funny position on the floor. I said, no, get somebody here first, and then we will move him ...and that was what I did' (Kay, G2, T2).*



In T3 and T4, from an individual perspective, Kay (G2), Ivy (G2), Louise (G3), Clare (G3), and Ann (G3) had accessed other digital stories to further enhance their knowledge, skills, and behaviours. Some RNs used their emotional experience to acknowledge the added value of using a digital story as a learning tool to *'get people inspired'* (Louise, G3, T2) and shared with their colleagues to promote learning as it encouraged nurses to engage in a reflective conversation:

*'We were all thinking, God, I can't believe that happened! And yeah it, it does make you think, doesn't it? So, we talked about it [...] some people were like, oh that was bad! and then other people were like, why would they move them?' And then, we were just chatting away, and they were saying it was a bit sad really – a catalogue of errors'* (Clare, G3, T4).

There was also a sense of empowerment in challenging the status quo of the organisation and workplace culture towards CPD. Their increased knowledge of safety culture and changes to their patient safety related behaviours provoked some of the RNs to propose various ways where they could implement digital stories in their workplace. This was perceived as a positive step towards promoting a positive learning culture in the workplace and the organisation. For Millie (G2, T2), she suggested using the digital story and reflection in the ward team meetings to replace the *'bog-standard agenda'*. In contrast, all the RNs in Group 3 suggested alternative approaches, such as using digital stories in weekly handovers,

*'Yeah, I think it's a good thing to think about. Joanne [name changed], our Clinical Educator, does a weekly handover on a certain subject, and it might like to be a good idea if we could have something where we could have a screen, and people watch a bit more. It's made me perhaps think, actually, you know, we perhaps could train and educate our staff more'* (Ann, G3, T4).

preceptorship and student handbooks:

*'Going forward, when I'm talking to students, I could use the story as an example for improving safety and all the attitudes of staff towards safety?'* (Clare, G3, T4).

Maureen (G3, T4), on the other hand, took up the Falls Champion role where she worked. This was a significant transformation for her career progression and her personal and professional development, which was influenced by the digital story.

### 5.2.8 Summary of Qualitative Findings

The qualitative findings within this section were structured in the following three GETs:

*Professional Duty of Care, Professional Duty of Candour, and Professional Duty to CPD.* The overarching principle from the data was how the RNs upheld their legal, ethical, and professional principles, standards, and values that enshrined their professionalism in keeping patients safe. However, it was clear that external factors relating to communication and teamwork, staffing problems, ward and organisational leadership negatively affected patient safety that compromised their professional duty to keep patients free from harm. Evaluating whether the digital story affected their knowledge and understanding of safety culture, the data suggests that perceptions of safety culture have changed, but there were similarities and differences across the groups. As previously stated, Appendices 5.2, 5.4, and 5.6 summarised these changes across the timepoints for each GET and associated subthemes. The reported changes in safety culture perceptions could be attributed to the digital story or to the questions asked during the interviews because they inspired the RNs to reflect upon their responses to the questions in the SAQ. Therefore, it could have increased their knowledge of safety culture concepts and its relationship to patient safety related behaviours.

Many RNs reported changes or improvements in their patient-safety related behaviours and their application to practice suggesting that this was directly related to the digital story (as illustrated in Appendices 5.3, 5.5, and 5.7). There were only minor differences and similarities between groups 2 and 3, and the plausible explanation is that the RNs in group 2 spontaneously reflected upon the content of the digital story at the end of viewing it. Remarkably, they changed how they delivered patient care, improved their speaking up behaviours and increased accountability and responsibility for their own personal and professional development. The external factors, such as those associated with the working environment, such as inadequate staffing levels, teamwork, and the ward and organisational leadership, were factors they perceived as out of their control to improve.

### **5.3 Summary of Chapter**

This chapter has presented the quantitative and qualitative study findings. The quantitative results showed how a large group of RNs felt about safety culture at four different times, using the seven domains in the SAQ survey. There is always a risk of response bias when using surveys, as there is a tendency to under-report or over-report (Latkin, 2017). Therefore, the findings may not be genuine opinions of the RNs' safety culture and can affect the validity of the findings. In addition, the quantitative findings represent a surface level of safety culture where their perceptions of the domains were positive or negative. The qualitative results showed the outcomes of a small group of RNs at four different times and included ideas about safety culture that are linked to the SAQ domains. Since this study is qualitatively dominant, these concepts were incorporated and presented in three group experiential themes and subthemes to comprehensively understand the RNs' safety culture perceptions and patient safety-related behaviours. This was an essential part of the study, to determine whether changes resulted from their workplace and organisational culture or the impact of the digital story.

Overall, the findings showed that safety culture is a complex phenomenon incorporating different facets to promote a positive or negative safety culture. The value of using the mixed methods approach in this study is that the qualitative findings supported and complemented the quantitative findings and added value and depth. As indicated in the summary of the quantitative findings, the RNs' perceptions of the domains were positive or negative based on their responses to the item questions. In the qualitative findings, a common theme of the RNs' perceptions of safety culture reflected their professionalism and professional values. Therefore, the qualitative finding provided a comprehensive understanding of safety culture from their lived experience, which gave an in-depth understanding of a range of factors that positively or negatively impacted safety culture. This also included the implications for patient care and the professional status of the RNs.

As discussed in Chapter 3 (s3.3.3), the strength of using mixed methods was facilitated by integrating the two data sets to address the methodological weaknesses and overcoming bias when using a single process. The quantitative and qualitative findings are triangulated and presented in the following chapter, to provide a comprehensive and synthesised discussion of the findings. Figure 6.1 illustrates how the two data sets were merged.

## CHAPTER 6: DISCUSSION

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### 6.1 Introduction

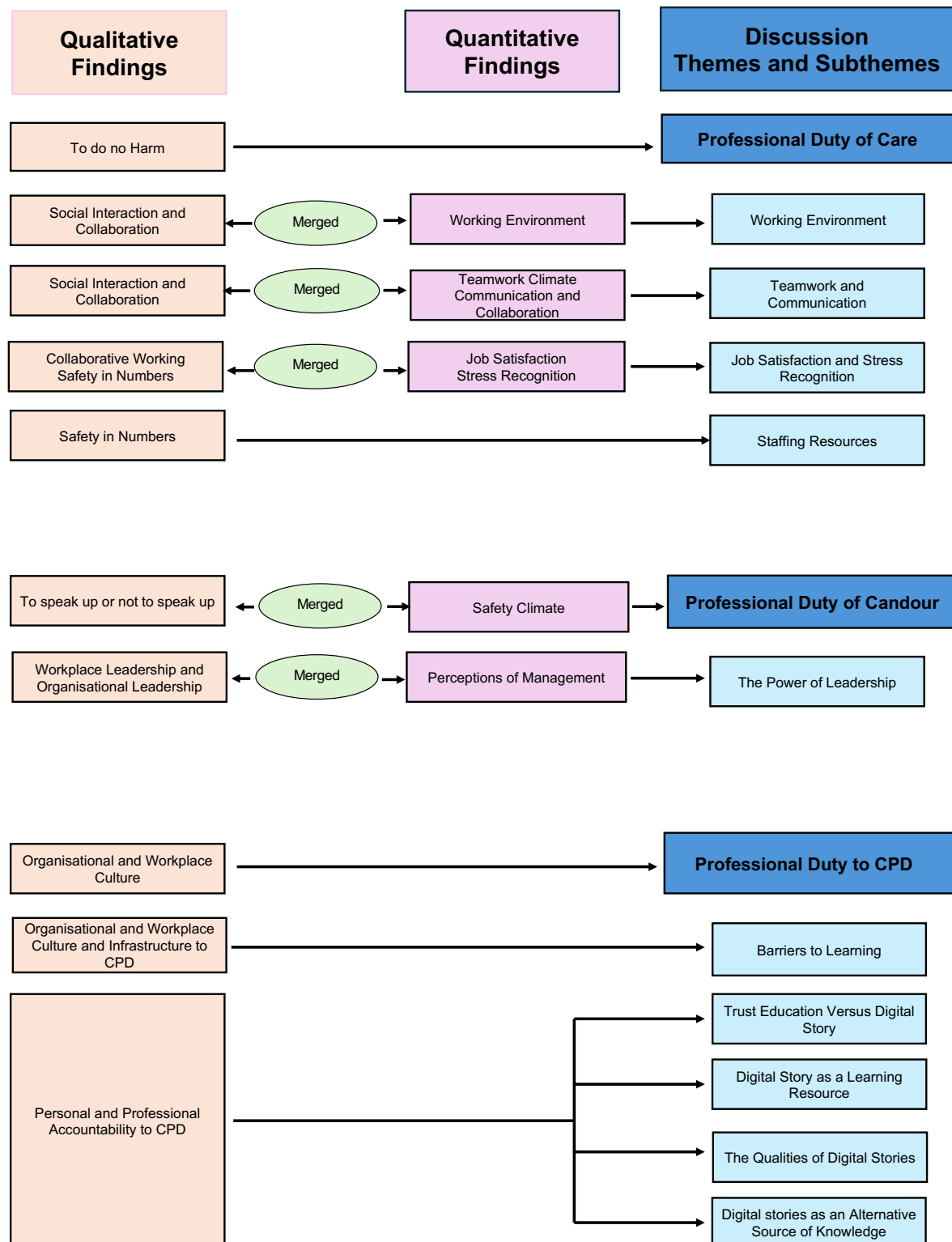
This chapter aims to provide a comprehensive and synthesised discussion of the findings while situating them within the broader body of evidence. The studies discussed within the Background Chapter (Chapter 1) and Literature Review Chapter (Chapter 2), as well as the relevant broader literature, will be drawn upon to identify and highlight the differences and similarities between the findings within the current evidence to establish the significance and original contributions to knowledge that has emerged from this study.

The present study is original in examining the RNs' perceptions of safety culture and patient safety-related behaviours when using a digital story with a mixed methods explanatory sequential design. Concerning safety culture perceptions, previous studies have primarily used quantitative safety attitude surveys at one point. Still, none of these have used mixed methods or measured changes or stability of safety culture perceptions over time. Furthermore, some studies have used interventions to improve safety culture, however there were no studies that used a digital story. Previous studies that use digital stories or digital storytelling are primarily qualitative in the context of pre-registration nurse education and health promotion. None of the studies have explored the impact of these interventions concerning safety culture or patient safety. A few studies have used quantitative and qualitative methods using a pre-intervention and post-intervention design but do not merge the two data sets in the final interpretation of the findings.

Three group experiential themes (GETs) were identified in the qualitative study: *Professional Duty of Care*, *Professional Duty of Candour*, and *Professional Duty to Continuing Professional Development*, and these themes will be used to structure this chapter. To ensure that the evidence is comprehensive, the quantitative and qualitative findings must be merged in the final interpretative stage (Cresswell, 2015; Creswell and Cresswell, 2018; Plano-Clarke, 2011). Also referred to as triangulation, this helps to overcome bias, increases the depth of

understanding (Kinn and Curzio, 2005; Murphy and Dingwall, 2003), and enhances the strengths and limitations of each method to provide reliable, valid, and trustworthy findings. This chapter will therefore triangulate the two data sets by merging the qualitative and quantitative findings relating to two of the GETs: *Professional Duty of Care* and *Professional Duty of Candour* to provide a comprehensive discussion of the RNs' safety culture perceptions. Figure 6.1 illustrates the structure of this chapter and how the two data sets were merged into the final interpretation.

**Figure 6.1 Structure of the Chapter and Merging of the Two Data Sets**



The chapter will start by addressing objective one for the qualitative study, which was to understand how the RNs interpreted safety culture at the pre-intervention phase (T1). The qualitative findings revealed a strong connection between safety culture, professionalism, and the professional values relating to preventing harm which was consistent throughout the GETs. The subsequent themes and subthemes (Figure 6.1) will address the remaining objectives. However, the subthemes should be seen as important, interconnected elements with some overlap rather than separate issues. For example, staffing issues and the impact on the working environment, teamwork, job satisfaction, and stress.

Each theme within this chapter begins with a summary of this study's findings. The meaning and importance of the findings will follow, as well as where they fit with the broader literature. This will identify and highlight the differences and similarities between the findings and current evidence. Where appropriate, each theme will conclude with its clinical relevance to practice. The strengths and limitations of this study, the significance and original contributions to new knowledge that emerged from this study, recommendations for future research, policy, practice, and education, and reflections of the researcher are separate from the discussion and can be found in Chapter 7.

## **6.2 Professionalism and Professional Values**

In this qualitative study, the first objective was to explore how the RNs understood and interpreted safety culture at the pre-intervention stage (T1). This would establish any post-intervention changes to safety culture perceptions and patient safety-related behaviours. When the RNs were asked what they understood about safety culture, they were uncertain and found it challenging to articulate what this meant to them. Long pauses, punctuated by 'erm', conveyed this doubt, with some RNs expressing they felt put on the spot, while others found the question challenging. Not familiar with the term, they often used it interchangeably with patient safety, that reflected their legal, ethical, and professional duty to do no harm. These findings were consistent with the literature from well-known international healthcare



organisations and the seminal work of established authors (e.g., IOM, 2001; Vincent, 2006; WHO, 2009), who defined patient safety as preventing harm. The literature in Chapters 1 and 2 offered several meanings to describe patient safety, safety culture, and safety climate, which illustrated the inconsistencies of the definitions. As a result, the terms are often used interchangeably due to the various abstract interpretations and similarities in their definitions.

The RNs described patient safety as being at the forefront of patient care to ensure patients were safe and free from harm. Leger and Phillips (2017) reported similar findings in their grounded theory study. The study explored the perceptions of 13 bedside RNs regarding patient safety in an adult acute care hospital. Their results showed the nurses held a '*deep-seated*' sense of duty to their patients and their obligation to prevent harm by encompassing the '*do no harm*' aspect of patient care (Leger and Phillips, 2017, p667). The qualitative findings in this study concur that the '*do no harm*' principle of keeping patients safe was an aspect of patient care that was strongly influenced and underpinned by their professionalism and professional values. Hallam (2000) and Summers and Summers (2015) suggest that this represents nurses as caring and altruistic. These findings were not surprising but noteworthy as the theoretical underpinning of the nursing profession is underpinned by the core values of caring and compassion (NMC, 2018; Sharp, 2018) to ensure patients are at the heart of everything they do. Hughes (2013) suggests that nurses are recognised for their patient-centred care based on these core values, which is a key motive for people entering the nursing profession. This was reflected in the qualitative findings in this study (T1), as the RNs reported that they loved their jobs and did not go to work to cause harm. One RN referred to nursing as their vocation, citing the reward they receive from caring for patients as their primary reason for entering the profession.

Many studies have explored nurses' and student nurses' motives for entering the profession. The findings of these studies consistently report that the primary reason for entering the profession was the desire to care for and help others (Jirwe and Redman, 2012; Kallio *et al.*, 2022), a vocation (Kallio *et al.*, 2022; Ziedelis, 2019), and to make a difference (McLaughlin

*et al.* 2010; Miers *et al.*, 2007). The findings in these studies support the long-held stereotype that nursing is a caring profession (Williams *et al.*, 2009). Eley *et al.*'s (2012) mixed methods study concurs, revealing that both registered and student nurses demonstrated empathy and a caring nature, made personal sacrifices, and prioritised others over themselves. These altruistic values are intrinsic to nursing care practice and are critical indicators of quality healthcare (Sharp, 2018). Dupree *et al.* (2011) and Schmidt and McArthur (2018) agree that professionalism and altruistic values are necessary elements of safety culture and safe patient care because they reflect the quality and standards of nursing care. These viewpoints were reflected in the qualitative findings, as the RNs held strong perceptions of their professional and altruistic values towards their duty of care to keep patients safe. This was portrayed as caring for and putting the patients first, treating them with dignity and respect, treating them as family members, and fundamentally preventing harm.

In comparison, other studies have described attributes associated with altruism (Cao, 2023) or measured altruistic behaviour (Abrahamsen, 2015). Cao *et al.*'s (2023) concept analysis concluded that professionalism is multidimensional, dynamic, and culture-orientated, manifested by the knowledge, attitudes, and behaviours underpinning successful clinical practice and safe patient care. However, the literature relating professionalism and altruism to patient safety or safety culture is sparse. Further research is necessary to understand their crucial role in ensuring safe patient care. To add to the body of research on safety culture, patient safety, and behaviours related to patient safety, it would be helpful to explore why and how professionalism, professional and altruistic values are connected to these concepts. This may also identify issues that require further development to promote a positive safety culture and safe patient care.

The pre-intervention phase of this qualitative study provided the first understanding of how the RNs interpreted and understood safety culture to be patient safety, which offers a unique perspective. Interestingly, the RNs initial perceptions of patient safety provided a simplistic

and descriptive understanding of professionalism and altruistic values. However, these concepts were deeply rooted within their professional duty of care, professional duty of candour, and professional duty to CPD.

### **6.3 Professional Duty of Care**

In T1, the RNs in the qualitative study endorsed the principles of the nursing profession laid out by the NMC (2018, p17), which requires registrants to *'be aware of, and reduce as far as possible, any potential for harm associated with your practice'*. As previously mentioned, applying the RNs' professional values around the centrality of patient care was viewed as an indicator of keeping patients safe. Therefore, their duty of care lay at the heart of their nursing practice because safe patient care and keeping patients safe was considered a priority. Remarkably, the findings from T1 indicated that their perceptions of safety culture and patient safety were parallel to their day-to-day nursing care activities as part of their professional and clinical roles. However, the relationship to safe patient care varied as some RNs perceived this as completing nursing tasks such as administering medications, recording vital signs, and performing patient assessments. Others perceived it as patient assessment, patient discharge, or compliance with patient safety measures such as risk assessments, policies, and procedures (e.g., falls, pressure ulcers, sepsis, and knowing what to do in an emergency). Adhering to patient safety measures may be explained using patient safety outcome indicators designed to measure the healthcare organisations' frequency, severity, and measurable harm (Tokareva and Romano, 2023). For nursing in acute care settings, five common hospital incidents (falls, pressure ulcers, venous thromboembolism (DVT), healthcare-associated infection (HCAI), and medication errors) that cause harm (DH, 2012) are incorporated into the NHS Safety Thermometer. Not only are they the measure of the organisational commitment to patient safety, but they can also pinpoint changes to a patient's physical health status that nursing care can directly affect.

The qualitative findings were interesting, as the RNs did not explicitly explain why they perceived these actions as part of safe care, and the different interpretations of patient care delivery were inconsistent with the core values of patient-centred care (PCC) as defined in the literature. One of the earlier definitions by the IOM (2001 p6), defined PCC as the '*provision of respectful care in response to patients' preferences, needs, and values*'. Similar definitions by distinguished authors (e.g., Kitson *et al.*, 2013; McCormack and McCance, 2006; Mead and Bower, 2000, 2002) capture these core elements. Based on these meanings, PCC should encompass an understanding of the patient's needs, involving the patient as a person, the patient-healthcare professional relationship, and the coordination of care across the healthcare system (Langberg *et al.*, 2019). Therefore, empathy, respect, values and beliefs, communication, and shared decision-making are some of the most important values for the patient experience and delivery of PCC (Håkansson Eklund *et al.*, 2019). While the RNs captured some of these elements described by Håkansson Eklund *et al.* (2019), their approach to patient care differed. Some adopted a holistic approach to patient care by being sensitive to the patient's physical, social, religious, and cultural beliefs. In comparison, some of the RNs had a narrow perspective as PCC was perceived as a series of routine nursing tasks associated with the patient's physical condition (such as administering medicine and completing vital signs).

A lack of a clear definition of PCC may justify the differences in their approach to patient-centred care. The publication of the IOM's (2001) '*Crossing the Quality Chasm*' report, defined quality in the health system as the '*provision of safe, timely, effective, efficient, and equitable patient-centred care*' (IOM, 2001, p4). Since then, the concept of patient-centred care has been extensively explored (Langberg *et al.*, 2019; Mead and Bower, 2000, 2002) and has been the centre of debate in the literature for over two decades, with definitions, frameworks, and nomenclature of PCC continuing to evolve (Janerka *et al.*, 2023). Despite their different and brief interpretations of PCC, the qualitative findings (T1) implied that the RNs were committed to keeping patients safe. However, facilitators of PCC are dependent on

management and organisational support (Berwick, 2013), as they are influential in creating a positive safety culture, emphasised by a positive working environment, effective teamwork, and communication (Sammer *et al.*, 2010). In comparison, ineffective management and organisational support can create a negative safety culture and promote poor teamwork and communication, which negatively impacts patient care (Sammer *et al.*, 2010). The quantitative findings in this study described and measured the RNs' perceptions of the working environment, teamwork, and communication. When merged with the qualitative findings (T2 to T4), the RNs explored and explained the impact of these factors and how they hindered their duty of care to keep patients safe.

### **6.3.1 Working Environment**

At the start of the quantitative study (T1), the findings showed a positive working environment perceived by 65 (65%) RNs who observed that the trust supported the training of inexperienced staff and that adequate resources were available to support decision-making. However, these factors were not associated with their working environment in the qualitative study. Four RNs described how communicating (verbal and written) with each other promoted safe care in their working environment. From T2 to T4, the quantitative findings indicated a change in their working environment as their perceptions started to decline. Only 29 (53%) RNs in T2 and 47 (54%) RNs in T4 reported positive perceptions compared to T1. These findings were consistent with the qualitative findings as the RNs had mixed perceptions about their working environment. Their perceptions were meaningful as they explored the factors that influenced the working environment and the impact on nurse and patient outcomes.

In T2, the qualitative findings were consistent with the quantitative findings, and the collective perspectives from the RNs in groups 1 and 2 were negative, indicating that not all are working in a positive environment. The findings were meaningful because they caused tensions between providing holistic PCC versus a task approach to patient care. In most situations, the RNs adopted a task approach as a result of the negative working environment, candidly reporting that patient care was frequently delayed or missed. This has serious implications for

the RNs as it poses significant patient safety risks and resonates with the extensive research (e.g., Ball *et al.*, 2014; Ball *et al.*, 2016; Griffiths *et al.*, 2014, 2018; Jones *et al.*, 2015, 2020), relating to delayed and missed nursing care and the increased risk of patient harm. This suggests that it is a growing problem and correlates with a weak safety climate (Ball *et al.*, 2014; Labrague, 2022). The evidence has shown that nurses working in a negative working environment were more likely to have increased rates of AEs. Consequently, these AEs lead to a wide range of severe and undesirable patient outcomes and a significant precursor of missed nursing care (Lake *et al.*, 2020; Mandal *et al.*, 2020; Stalpers *et al.*, 2015; Zhao *et al.*, 2020). In T2 to T3, the qualitative findings indicated that their perceptions of the working environment were positively or negatively affected by teamwork and communication and inadequate staffing levels.

#### **6.3.1.1 Teamwork and Communication**

In T1, the quantitative findings revealed that 88% (89) of RNs had positive perceptions of teamwork, indicating that the nurses and doctors worked well as a coordinated team. In addition, they felt supported in their working environment as they could ask questions or speak up about patient problems, knowing they would be resolved appropriately. Communication and collaboration were also perceived positively by 66% (64) of RNs, but less positively than teamwork. For the qualitative study (T1), all RNs interpreted their duty to keep patients safe fundamentally through teamwork and communication, but they did not elaborate further.

Interestingly, the quantitative findings in this study found that teamwork climate consistently had the highest scoring dimension across the timepoints. Most of the studies in the systematic literature review (Chapter 2, s2.1) concur as teamwork was the most important factor (PRR >75%), for a safe and supportive workplace (AbulAIRub and Alijah, 2014; Almutairi *et al.*, 2013; Alquwez *et al.*, 2018; Ammouri *et al.*, 2014; Aydemir and Koç, 2023; Hong and Li, 2017; Olsson *et al.*, 2016; Rawas and Hashish, 2023; Wang *et al.*, 2014; Zabin *et al.*, 2022). A limitation of these studies is that the findings only reflect one point in time. Unlike this study,

they do not measure the stability or changes that can occur over time, therefore, the quantitative findings in this study are of relevance. In T1, 89% of RNs held positive perceptions of teamwork, which steadily declined over time to 44% (T2) and 66% (T3 and T4), which correlated with the change in perceptions of their working environment. The RNs' perceptions in the qualitative results, on the other hand, were different from the SAQ descriptions (items) of these domains.

From T2 to T4, the qualitative findings indicated that teamwork and communication were interrelated concepts that positively or negatively affected the working environment. Compared to the quantitative findings in T2, the qualitative findings for teamwork and communication were negative for those in groups 1 and 2 (T2), as they explored the challenges that affected their working environment. The findings indicated that the day-to-day challenges of poor teamwork led to low morale within the teams. In addition, poor communication was often found to be the cause of delays or omissions in patient care, which often compromised patient safety. Typical reasons included nurses gossiping and arguing in front of patients, team members not doing their fair share of the workload, negative attitudes of other staff, and poor communication between doctors and nurses. In contrast, these reasons were not consistent with the quantitative findings for communication and collaboration. Based on the item descriptions for this domain, the findings showed that the RNs were positive across the timepoints. This indicated that the RNs perceived that the quality of communication and collaboration between doctors, nurses, and pharmacists were adequate, and that delays in patient care were uncommon. This corresponded with the qualitative findings in T3 for the RNs in group 3. However, when scoring the SAQ survey, this domain is not typically reported in previous and current studies, which is a limitation of this survey. Accordingly, there were no studies using the SAQ survey to compare the findings from this quantitative study. Communication with hospital handoffs (handover of patient care) and patient care transitions during and after shift changes are explored in studies using the

HOSPSC survey. Nonetheless, these questions are different from the SAQ items, and it is unreasonable to compare to studies that have measured communication using the HOSPSC.

A summary of how RNs viewed safety culture and how their perceptions changed from T2-T4 is shown in Appendices 5.2 and 5.3 and shows the similarities and dissimilarities between the groups. Considering that all groups equally explored and evaluated the safety culture concepts, the qualitative findings implied that their negative perceptions of the working environment were influenced by their perceptions of a poor teamwork climate. Therefore, this was considered a change from T1 and further supported by the steady decline in the teamwork climate and working environment domains in the quantitative findings. However, some RNs in groups 2 and 3 experienced a shift from positive perceptions relating to communication and collaboration to negative ones, a change that contradicted the quantitative findings. They perceived that communicating with doctors was often poor which frequently caused anxiety among some of the RNs as patient care was often delayed.

For almost two decades, effective teamwork in healthcare has been recognised as an essential ingredient of the patient safety movement and crucial for providing safe patient care (IOM, 2000; Mitchell *et al.*, 2012; WHO, 2009, 2017). The primary foundation of nursing professionalism is to promote patient safety by working collaboratively and communicating with patients, other nurses, and members of the multidisciplinary teams. Falcone *et al.* (2021, p7) argued that patient safety can be transformed by an approach that:

*'Emphasises understanding, integration, engagement, and accountability for safety by each team member for every patient, every time, every day'.*

From a professional perspective, the NMC (2018, p11) stipulates that for nurses to practice effectively, they *'must communicate clearly and work cooperatively to preserve the safety of those receiving care'*. Nurses deliver better patient care only when they experience an efficient workflow through effective teamwork and communication (Ma *et al.*, 2015). Conversely, communication should also include patients so that they can merge their observations, expertise, and decision-making responsibilities to optimise patient care (WHO, 2014).



Nevertheless, Swartz and Abbot (2007, p182) stated that nurses do not get to know the patients and sometimes refer to patients by a *'disease process, such as the open heart in room four or the woman with the gangrenous foot'*. This statement partially resonates with the findings in the qualitative study, as communication with patients was not initially considered (T1). Some RNs referred to the medical approach to care, meaning that they treated the patient's illness by adopting a task-based approach in preference to treating the patient holistically using PCC. However, the NMC (2018, p10) states that to practice safely, nurses must:

*'Use a range of verbal and non-verbal communication methods, and consider cultural sensitivities, to understand better and respond to people's personal and health needs' (Standard 7.4, p10).*

In T4, it was noteworthy to find positive changes in the RN's knowledge, skills, and behaviours when communicating and interacting with patients. Only one of the RNs in group 1 (T4) reported a positive change in communicating with patients that was directly influenced by the discussions during the semi-structured interviews. In contrast, the RNs in groups 2 and 3 reported that the digital story influenced their changes as it focused on healthcare professionals' lack of communication and failure to listen to the patient's sister. Consequently, the RNs in groups 2 and 3 directly referred to the digital story as they discussed and reflected on past and present clinical incidents.

The qualitative findings revealed that the RNs communication skills had improved as they took more time to listen, interact, and involve patients, which had positive outcomes for patient care. A qualitative study by Swartz and Abbot (2007) was one of two studies that relate to the qualitative findings of this study. Swartz and Abbot (2007) used a patient digital story to educate student nurses on delivering holistic patient care. They concluded that listening to the patient's spoken and hidden concerns allowed the students to understand what the illness meant to the patient. Furthermore, the student nurses learnt about the patient's values and beliefs, enabling them to provide quality care (Swartz and Abbot 2007). In a qualitative study by Waugh and Donaldson (2016) with pre-registration nurses, they used a patient digital story

in the context of learning about compassionate care. The findings concluded that the student nurses could recognise and critically discuss the elements of compassion, which included PCC and communicating with patients and their relatives.

#### **6.3.1.2 Staffing Resources**

Issues with inadequate staffing levels also impacted the working environment and the capacity to work as a team. In the SAQ survey, staffing resources is an item within the perceptions of the management domain and the quantitative findings in this study concluded that it was a significant problem across the organisation. These findings are consistent with other studies using the HOSPSC survey, where the staffing resources is a separate dimension. The conclusions of these studies found that safety culture was compromised because there was not enough staff to handle the workload (AbulAIRub and Alhijaa, 2014; Alquwez *et al.*, 2018; Ammouri *et al.*, 2015; Armellino *et al.*, 2010; Ballungrud *et al.*, 2012; Cho and Choi, 2018; Kakeman *et al.*, 2021; Rawas and Hashish, 2023; Wang *et al.*, 2014; Zabin *et al.*, 2022). This is further supported by the qualitative findings in this study, in which the RNs provide meaningful experiences of how this impacted on patient and nurse outcomes.

Initially, the RNs did not associate staffing levels with safety culture until T2 to T4. Due to the complexity of patient care in acute medical units, the RNs consistently and negatively alleged that there was not enough staff to meet the rising service needs, the increased patient dependency levels, and patient acuity. Based on the RNs' firsthand experiences, these external pressures increasingly put a strain on the current nursing workforce. Consequently, it was reported by the RNs that patients were at risk of harm because they could not do everything required for each patient. This raised concerns with the RNs, as the number of AEs, related to medication errors, and missed and delayed nursing care had increased causing them to fear for their nursing registration. Similar findings were found in the studies exploring missed nursing care, which concluded that low nurse staffing levels were directly linked to missed and delayed care, as well as more patient harm (Aiken *et al.*, 2014;

Ausserhofer *et al.*, 2014; Ball *et al.*, 2014; Chiang *et al.*, 2017; Griffiths *et al.*, 2018; Kalisch *et al.*, 2011; Lake *et al.*, 2020; Mandal *et al.*, 2020). Furthermore, in a large retrospective study by Ball *et al.* (2018), the findings revealed a correlation between low staffing levels, missed nursing care, and increased mortality rates.

Despite these external factors, some RNs in this qualitative study reported that staff shortages adversely impacted on their workload and patient care. In contrast, for some RNs in groups 1 and 2, having strong teamwork created a culture of working together or being part of a family that counterbalanced these negative occurrences. Contrary to the quantitative and qualitative findings relating to teamwork, their perceptions were inconsistent, as strong teamwork only applied when the ward was busy during a crisis or life-threatening emergency (e.g., cardiac arrest). Nevertheless, this was reflected by having adequate staffing levels and an appropriate skill mix, which did not always occur. This may explain why the quantitative findings showed positive yet declining responses to teamwork and the working environment. However, this was not reflected in the qualitative findings from T2 and T3, as most RNs drew upon the relationship between low staffing levels and the negative impact this created in the working environment. In this context, most RNs pointed out that poor staffing levels increased nurses' workload, caused conflict between other staff, and created negative attitudes towards working and supporting each other.

These factors created a vicious circle as poor teamwork led to communication breakdowns between nurses and nurses, nurses and doctors, and nursing documentation (e.g., care plans) would not be completed, thus leading to poor teamwork. The RNs candidly reported the negative impact on patient care, such as pressure area care, vital signs, and hydration would often be missed or delayed. As previously discussed, the qualitative findings are supported by other studies that have shown the relationship between a negative working environment and missed nursing care (Lake *et al.*, 2020; Mandal *et al.*, 2020; Stalpers *et al.*, 2015; Zhao *et al.*, 2020). Furthermore, studies (Ausserhofer *et al.*, 2014; Ball *et al.*, 2014; Lake *et al.*, 2020;

Mandal *et al.*, 2020) have demonstrated a correlation between inadequate staffing and both missed and delayed nursing care. Similarly, other studies have established associations between inadequate staffing, above-average workloads, and poor quality care (Aiken *et al.*, 2014; Jones *et al.*, 2015).

From T2 to T4, as previously mentioned, most RNs continued to explore their professionalism and professional values associated with their working environment, teamwork, communication, and the implications for patient care. For those in groups 2 and 3, the impact of these factors enabled the RNs to reflect on their professional duty to provide safe nursing care compared to those in group 1, who showed less concern. The findings implied that the digital story had been influential as the RNs recognised that the outcome for the patient in the digital story was avoidable. This triggered their emotional responses, such as anger, sadness, and frustration, which stimulated them to reflect upon what this meant in relation to their clinical practice. Therefore, the digital story, at its most effective, served as an opportunity for them to re-evaluate and reflect upon their experiences and feelings. This allowed the RNs to explore the multifactorial influences on safety culture and safe patient care that negatively impact patient care. The qualitative findings indicated that exploring these factors led to positive behavioural changes for most of the RNs in groups 2 and 3 (see Appendix 5.3).

From T2-T4 they reported changes in how they in how they communicated and interacted with patients which had enhanced their patient assessment and their decision-making skills. This allowed them to shift from their habitual behaviours of task-based delivery of care to a holistic PCC approach when assessing and managing patient care. The findings from previous and current studies using digital stories or digital storytelling concur as they have shown that listening and creating digital stories initiates reflective practice (Christianson, 2011; Eggenberger *et al.*, 2016; Haigh and Hardy, 2011; Jun *et al.*, 2020; LeBlanc *et al.*, 2017; McDrury and Alterio, 2016; Price *et al.*, 2017; Urstad *et al.*, 2018; Waugh and Donaldson, 2016; Yocum, 2018). Christianson's (2011) phenomenographic study was the only study that

identified reflection as a key theme. This study comprised 20 pre-registration nurses in an educational setting exploring diverse ways they experienced and made sense of digital stories. Using a digital story from Patient Voices, the student nurses described listening to the digital stories as '*a reflective experience*' (Christianson 2011, p. 291). It was found that the student nurses engaged in critical reflection as they began to understand and contextualise the meaning of the digital story from the storyteller's perspective.

Some of these studies concluded that engaging in reflection stimulated empathic feelings leading to a more profound understanding of the story, which led to positive changes in the participants' knowledge, skills, and behaviours (Christianson, 2011; Jun *et al.*, 2022; Waugh and Donaldson, 2016; Yocum, 2018) relating to patient care. In a qualitative study by Jun *et al.* (2022), they evaluated RNs' experience of participating in a digital storytelling workshop. The findings revealed that, through the storytelling process that created their digital stories, the RNs reported that they had the potential to empathise with patients. This can contribute to building a therapeutic relationship (Jun *et al.*, 2022), which is essential for the delivery of PCC, as defined by Håkansson Eklund *et al.* (2019). Other studies involving other healthcare professionals have reported that digital storytelling, or digital stories, has been shown to enhance clinical skills (D'Alessandro *et al.*, 2004) and critical thinking (Gazarian *et al.*, 2010; Kearney, 2011; McDrury and Alterio, 2016; Stacey and Hardy, 2011). (Reflection is further discussed in s6.5.4 and s6.5.5).

### **6.3.2 The Impact of a Negative Working Environment**

In healthcare, effective teamwork, communication, and adequate staffing levels are important for patient safety and quality patient care (Mitchell *et al.*, 2012). These factors are also fundamental for a healthy work environment to support optimal nurse outcomes and well-being (Aiken *et al.*, 2014; Elbejjani *et al.*, 2020; Kirwan *et al.*, 2013). Conversely, this study's qualitative and quantitative findings that is supported by the wider body of literature provides compelling evidence that poor teamwork, negative working environments, and not having

enough staff were major causes of missed and delayed nursing care and contributory to patient harm. The evidence suggests that this is a continuing and growing problem that has severe implications for healthcare organisations, not only for patient outcomes but also for nurse outcomes. In a recent mixed method study by Granel (2020), the findings from the semi-structured interviews revealed that inadequate staffing levels increased workload pressures, fatigue, and stress. Other studies have concluded that nurses who face the pressures of insufficient staffing, poor teamwork, and higher workload demands incur increased job dissatisfaction, burnout, and work-family conflicts (Estryn-Behar *et al.*, 2007; Kalisch and Lee, 2010; and MacPhee *et al.*, 2017).

#### **6.3.2.1 Job Satisfaction and Stress Recognition**

In T1, the RNs in the quantitative study were satisfied with their job as 79% (81) reported positive attitudes compared to 21% (19) who were negative. Those who were positive, indicated that they liked their job and were proud to work in their clinical area as it was considered a good place to work. Being part of a family increased the morale in the clinical area and were also linked to their positive attitudes toward their job. From T2 onwards, for some their perceptions changed as 29 % to 39% of RNs became more dissatisfied in their job. These findings were consistent with the changing and declining perceptions of teamwork and the working environment. For those who remained were satisfied in their job, the qualitative findings in this study suggested a connection between their job satisfaction and their working environment, but only if there was good teamwork and communication. The RNs perceived that having a strong culture of communicating and working together as a team was fundamental to patient care. The qualitative findings in this study validate the quantitative findings, as the RNs reported similar and consistent discreet explanations that suggested they were proud to be a nurse and part of a work family team. This may be expressed by the professional and altruistic values embedded within their professional practice. This accords with Warnock (2008), who suggests that nurses' professionalism can promote patient safety

through effective communication, honesty, respect for others, confidentiality, and responsibility, which can improve teamwork even with heavy workloads.

Despite having a positive attitude towards their job and their clinical environment, the constraints of the working conditions increased stress levels and fatigue. The quantitative findings showed that stress recognition was consistently the least positive scoring domain across the timepoints, with a median score of 3.8. Only T2 reported a median score of 4.0, which may reflect the smaller sample of 62 RNs who responded. Overall, this demonstrated a weak safety culture as 55% to 59% of RNs reported that stress and fatigue could impair their performance causing them to be less effective in clinical practice and more likely to cause errors.

In this qualitative study (T1), the RNs did not discuss the impact of stress and its relationship to their understanding of safety culture. The changes to their perceptions of stress recognition in T2 and T3 were mixed but primarily negative, which reinforced the quantitative findings. The change of perceptions showed no direct relationship to the digital story, as all RNs (in all groups) implicitly related this to communication with others, teamwork, and inadequate staffing levels. The impact of poor teamwork and communication with doctors increased stress levels and exhaustion, which was a noteworthy finding in groups 1 and 2. At the same time, inadequate staffing levels and the relationship to increased fatigue were more important across all groups. Regardless, increased stress levels and fatigue in nursing increased the risk of patients being harmed as the risk of medication errors and delayed or missed care (e.g., vital signs, personal hygiene, giving out drinks, and blood sugar monitoring) were greater. One of the RNs (G3) when feeling physically exhausted was reluctant to undertake a medication round for fear of making medication errors. Another RN (G1) emotionally described the profound impact on her physical and mental well-being to the point where she could not sleep and felt physically sick about going to work.

These consequences are relevant to nursing practice, as nurses experiencing higher burnout have higher rates of absenteeism (Adriaenssens *et al.*, 2015), and nurses tend to leave the profession (Mosadeghrad, 2013). This triggers even greater workloads, thus creating more work for the remaining staff. Recent data from the NMC (2023b) reported a rise of 3.8% (26,551) of RNs leaving the register from 2022 to 2023. Worryingly, the number of registrants leaving the profession had only slightly fallen by 1.4% (26,755) from the previous year, with more than half (52%) of those leaving the profession prematurely, and 48% due to retirement (NMC, 2023b). The NMC surveyed nurses who had left their profession to explore their reasons for leaving, and of the 26,551 professionals who left the register between 2022 and 2023, only 33% responded. Interestingly and unsurprisingly, the most cited reasons for leaving were *'burnout or exhaustion, lack of support from colleagues, concerns about the quality of people's care, workload, and staffing levels'* (NMC, 2023b, p4). It should be noted that this survey was undertaken after the COVID-19 pandemic, which may account for the high number of registrants leaving the register prematurely. Regardless of the cause, these factors that affected the RNs' working environment affected their moral, professional, and ethical values to keep patients safe as patient care delivery was compromised. Thomas and McCullough (2015) describe this as moral distress (MD), which results when professionalism and individual integrity become challenged because of the external circumstances. Subsequently, nurses' commitment to care is weakened against their will and values.

Jameton introduced MD into the ethics literature, claiming that MD occurs when someone *'knows the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action'* (Jameton, 1984, p6). The term also describes the psychological, emotional, and physiological pain that nurses and other health professionals experience when they *'act in ways that are inconsistent with deeply held ethical values, principles, or commitments'* (McCarthy and Gastmans, 2015, p132). The qualitative research associated with MD in nurses has captured a broad range of psychological and physical effects of MD. Hanna (2004) described the physical effects of MD as sleeplessness, nausea, migraines,



gastrointestinal upset, tearfulness, and physical exhaustion. Psychologically, MD has been associated with feelings of anger, frustration, guilt, loss of self-worth, anxiety, and depression (Corley *et al.*, 2005; Wiegand and Funk, 2012). These effects would support the emotive responses by most of the RNs in the qualitative study as they expressed feelings of anger, guilt, frustration, anxiety, sleeplessness, and tearfulness in relation to the constraints of their working environment and their capacity to provide safe nursing care.

Today, the phenomenon of MD is one of the core topics of clinical ethics that has continued to be a popular topic of debate for nursing within the ethics literature (Morley *et al.*, 2020). Although there is no explicit connection between MD and patient safety or safety culture within the ethics and patient safety literature, the consensus is that MD as an ethical dilemma harms patient care (Morley, 2020; Pauly *et al.*, 2012). This has significant relevance to practice, as, from a professional and organisational perspective, it can cause nurses to avoid clinical situations (Helft *et al.*, 2009), lose their capacity to care, and leave their place of employment and profession (Corley *et al.*, 2005; Helft *et al.*, 2009; Rushton, 2005). It is beyond this study's scope to discuss the broader ethical issues associated with this concept. Nevertheless, the conceptualisation described by Jameton (1984), McCarthy and Gastmans (2015), and the physical and psychological effects of MD can equally apply to the qualitative findings in this study and can have significant consequences for safe nursing care. It is therefore essential that NHS organisations and workplace leaders acknowledge the concept of MD and the negative impact on safe patient care, and the mental and physical well-being of nurses who are already struggling. The quantitative and qualitative findings of this study offer a unique perspective and contribution to new knowledge, as no previous studies have explored the impact of MD and its relationship to safety culture and patient safety. Further research is necessary to strengthen the findings of this study, given its relevance to safe nursing care.

## 6.4 Professional Duty of Candour

The duty of candour intends to ensure that healthcare providers are transparent with patients when something goes wrong (Care Quality Commission, 2022; NMC and General Medical Council (GMC), 2022). In simpler terms, the registered healthcare professional must tell the person that an incident has occurred, apologise, and offer an appropriate remedy or support to the person (Care Quality Commission, 2022; NMC and GMC, 2022). The NMC and GMC (2022, p2), in their guidance states that:

*'It is a registrant's duty to be open and honest with their organisation and to encourage a learning culture by reporting adverse incidents that lead to harm and near misses'.*

In this study, the context of the duty of candour referred to speaking up when AEs occur (quantitative and qualitative) and challenging poor practice (qualitative). According to the quantitative findings of this study, the SAQ safety climate domain includes workplace and organisational factors related to speaking up when clinical errors occur. The findings in T1 showed that 84% (87) of RNs held positive perceptions of their safety climate, the second highest scoring domain. This indicated a strong and proactive organisational commitment to patient safety (Sexton *et al.*, 2006), where RNs could speak up about safety concerns and report AEs in a non-punitive environment. The RNs perceived that they were encouraged to discuss and report errors and safety concerns, knowing that they would be handled appropriately so that they could learn from mistakes.

The qualitative findings in T1 concurred, which was confirmed by their knowledge and compliance with the organisational safety systems. These included completing Datix when reporting AEs, completing risk assessments (e.g., falls, Waterlow Pressure Area Chart, Malnutrition Universal Screening Tool, sepsis screening, National Early Warning Sign (NEWS) charts), local trust policies, and Standards of Procedures (SOP). Despite the burdensome nature of these tasks, the RNs believed that these systems were effective in preventing harm and ensuring patient safety. Furthermore, most RNs reported that their main impetus for speaking up was to protect patients from harm. Nonetheless, this depended upon a positive

open culture that empowered nurses to speak up about AEs and challenge poor practice, as expressed by one of the RNs (group 2). She said that the systems are only as good as those who report AEs, and nurses do not report them due to a blame culture. Therefore, the ability to learn from errors was weakened because nurses chose to remain silent for fear of speaking up and this was consistently reported by the RNs across the groups in T2 and T3.

From T2 to T4, the quantitative findings showed that the safety climate was consistently positive, with a PRR ranging from 73% to 77%, indicating no change across the timepoints. However, the qualitative findings in T2 and T3 were contradictory as the RNs held mixed perceptions about their safety climate and their reasons for speaking up. Surprisingly, one of the groups reflected on their professionalism and altruistic values as their motivation for speaking up. From a professional perspective, the NMC (2018), which shapes nursing culture, values, and behaviour, expects nurses to:

*‘Exercise their professional duty of candour and raise concerns immediately in situations that put patients or the public at risk’ (NMC, 2018, p15)*

Indeed, professionally, and altruistically, the concern for the well-being of patients enables nurses to report and learn from errors. Some RNs in each group echoed this, as some implicitly indicated they were strong motivators for speaking up. These findings are similar to Leger and Phillip's (2018) grounded theory study, who found that nurses were professionally duty-bound to speak up, which was a key motivator for keeping patients safe. Furthermore, the RNs in the qualitative study reported that their emotional feelings of guilt when they made a mistake was a powerful motivator to learn from errors. Despite the positive motives for speaking up, the RNs were increasingly negative as they raised concerns about their workplace and organisational leadership (T2 and T3). Ultimately, this had a negative impact on the reporting behaviours for them and their peers which may justify why the RNs were negative about their organisational and ward leadership in the qualitative and quantitative findings.

#### 6.4.1 The Power of Leadership

The quantitative findings in this study showed that the RNs disapproved of the actions of their ward and trust managers, as their perceptions were consistently negative and the lowest scoring domain across the timepoints. The PRR for their ward managers, at its highest, was 55% (T1), which declined over the timepoints to its lowest PRR of 45% in T4. It was even less for their trust managers, with the highest PRR of 34% (T1) and the lowest PRR of 24% (T2). According to the SAQ items, they perceived that their managers were not doing a good job as they did not support their daily efforts. In addition, they knowingly compromised patient safety, did not deal with problems constructively, and did not communicate information and events that may affect their work. Surprisingly, these findings conflicted with their positive perceptions of their safety climate, which implied that their organisation had a blame-free culture and was committed to patient safety. Nevertheless, studies by Morrow *et al.*, 2016; Noort *et al.*, 2021; Okuyama *et al.*, 2014; Schwappach and Richard, 2018; Schwappach *et al.*, 2018; Seo and Lee, 2022) have found that the willingness of nurses and other healthcare professionals to speak up is not only connected to their safety climate but also to their workplace and organisational leadership. The qualitative findings in this study are consistent with these studies, as their perceptions changed when they explored the motives behind their leaders' actions that were comparable to their reporting behaviours.

The qualitative findings in T2 and T3 found that most RNs across all the groups expressed the importance of their ward leadership and how they empowered them to speak up or disempowered them which constrained them to silence. Alternatively referred to safety silence, healthcare professionals choose to remain silent despite being aware of a practical or potential risk to patients (Jeong *et al.*, 2021). For some, they consistently portrayed their ward leaders as effective leaders who supported and empowered them to speak up about safety concerns and report AEs. This was also perceived to promote a positive working environment where nurses could challenge other staff in a non-punitive environment and where they could learn from errors. The findings concurred with studies by Elmonstri *et al.*

(2017), Manapragada and Bruk-Lee (2021), and Sammer *et al.* (2010), who concluded that nurses who have positive perceptions of safety climate are more likely to speak up as they are less likely to fear negative consequences. Furthermore, organisations with a positive safety culture are characterised by a non-punitive response to incident reporting so that errors are reported and learnt from to improve patient safety and reduce adverse events (Jeffs *et al.*, 2014; Tear and Reader, 2023).

In effect, a strong patient safety culture supports relationships and behaviours that could infiltrate all levels and parts of an organisation. Indeed, the quantitative and qualitative findings in T2 and T3 would support their motivation for speaking up. They knew the correct channels to direct questions regarding patient safety and were aware of the safety systems to prevent harm and report AEs. However, the qualitative and quantitative findings also portrayed a weak safety culture that was attributed to poor leadership behaviours; it was perceived that the consequences of their actions and decisions created a blame culture. The findings are consistent with the studies from the systematic review (Chapter 2, s2.1), as 62% (Kakeman *et al.*, 2021) and 86.6% of nurses (Ammouri *et al.*, 2015) reported punitive responses to errors. Alquwez *et al.* (2018) reported that 301 (82%) of nurses did not report AE, and only 60 (17%) reported AE in the last 12 months. Feng *et al.* (2008) assert that a punitive response to errors contributes to a negative safety culture and poor patient outcomes. Leger and Phillips (2017) qualitative study found that nurses are not at ease when reporting incidents and the implications are that they do not report or learn, subsequently, perpetuating unresolved patient safety concerns (Leger and Phillips 2017).

The findings in this qualitative study indicated that poor leadership created a punitive response to errors. The impact of this led to some RNs habitually remaining silent for fear of punishment and shame, conflict in the workplace, and the hierarchical structure, which concurs with findings from previous studies (e.g., El-Jardali *et al.*, 2014; Rashed and Hamdan, 2015; Taylor *et al.*, 2012). Other studies by Okuyama *et al.* (2014), Noort *et al.* (2021), Morrow *et al.* (2016),

Schwappach and Richard (2018), and Seo and Lee (2022) found that the workplace and organisational leadership promote silent behaviours in nurses as well as encouraging those who speak up. Indeed, the Francis Inquiry (2013) reported that leadership at every level contributed to '*creating a culture of fear, a culture of secrecy, and a culture of bullying*' (Francis, 2013, p10), which led to the catastrophic failings in providing safe, quality care to patients.

The qualitative findings also indicated that ward and trust managers did not listen when they raised concerns about patient safety and staffing issues. Similarly, Etchegaray *et al.* (2020) concluded that employees would refrain from speaking up when leaders disregarded their opinions. Other perceived factors were not receiving feedback when they reported problems. These factors were responsible for RNs in this study choosing to remain silent because they felt it was a waste of time reporting concerns and AEs as nothing changed. Therefore, the RNs were despondent of their trust leaders because they perceived them to be disconnected from the realities of day-to-day practice, driven by targets and less compliant with safety staffing policies. This was viewed in the context of the fact that organisational leaders prioritised the need to achieve national targets by increasing the patient flow through the hospital to avoid breaching accident and emergency waiting time targets. Furthermore, the hospital's lack of adequate staffing resources, beds, and infrastructure made it difficult to manage the pressures they faced, potentially putting patients at risk. Subsequently, this triggered emotional responses of fear, anger, frustration, feeling demoralised and disempowered. All these factors were conducive to some of the RNs conforming to remaining silent. In a meta synthesis of 11 qualitative studies, Morrow *et al.* (2016) identified four themes associated with silent behaviours: fear of being ignored or disregarded, lack of support, hierarchical structure, and power dynamics. Similarly, Etchegaray *et al.* (2020), who explored healthcare professionals to identify barriers to speaking up about safety, found that '*fear of no change after reporting the patient safety concern, fear of retaliation, and disregard of opinion*' (Etchegaray *et al.*, 2020, p.230) was associated with poor leadership.

From a national perspective, the Freedom to Speak Up (FTSU) policy published by NHS England (2022b) protects employees when raising concerns. However, NHS England (2022b) reported only 96 whistleblowing disclosures between 2020 and 2021 from NHS acute and foundation trusts. The key issues reported were patient safety in clinical practice, the conduct of the executive directors, and concerns about governance. No further evidence was noted, as complaints are not publicly available. However, the small number of reported disclosures could imply that healthcare professionals are reluctant to speak up or it could imply healthcare professionals feel that they can trust and speak to their leaders (Adams *et al.*, 2020). On the hand, it could imply a lack of trust, respect, and collaboration with their organisational leaders, so they chose to speak up for the FTSU guardians, who are not affiliated with their NHS Trust ambassadors. The quantitative and qualitative findings in this study support both viewpoints, as some RNs trusted and respected their leaders and others were unable to trust and respect them. These findings are consistent with the quantitative studies in the systematic review (Chapter 2, s2.1) that demonstrated mixed perceptions of leadership (AbulAIRub and Alhijaa, 2014; Alquwez *et al.*, 2018; Ammouri *et al.*, 2015; Armellino *et al.*, 2010; Aydemir and Koç, 2023; Cho and Choi, 2018; Hong and Li, 2017; Kakeman *et al.*, 2021; Olsson *et al.*, 2016; Rawas and Hashish, 2023; Turunen *et al.*, 2013; Wang *et al.*, 2014; Wilson *et al.*, 2013; Zabin *et al.*, 2022). In three studies that used the SAQ survey (Aydemir and Koç, 2023; Olssen *et al.*, 2016; Hong and Li, 2017), the nurses' perceptions of management were the lowest scoring domain, indicating poor leadership at both levels. Hong and Li (2017) offered a plausible explanation that revealed that nurses were dissatisfied with their leader's performance in patient safety and supporting frontline staff.

This study's quantitative findings showed positive perceptions of safety climate and negative perceptions of management. The qualitative findings added depth to these findings by exploring the broader implications that affect the reporting behaviours of nurses. The findings inferred that despite their professionalism to keep patients safe, described in T1, speaking up about concerns and reporting AEs was important. However, in T2 and T3, the influence of

their leaders and the relationship to the RNs' choice to speak up or not to speak up is compelling for all groups. The findings suggest that their perceptions were influenced by how they perceived the working environment and organisational commitment to patient safety. From an individual perspective, it was clear that they could not challenge their leaders' status quo, and they appeared unwilling to change their reporting behaviours. However, in T4, when the RNs in Groups 2 and 3 were asked about the impact of the digital story, their positive attitudes and changes to their patient safety-related behaviours compared to Group 1 were remarkable. This may be justified by the gradual changes in the attitudes of RNs (groups 2 and 3) relating to key themes in the digital story. These included poor record keeping, non-adherence to risk assessments and policies, managing patient care, non-compliance with the reporting systems, and lack of sharing and learning from the untoward event. Regardless of whether the RNs in this study worked in a punitive or non-punitive environment, their changes led to greater compliance with risk assessments, documentation, and reporting AEs. More importantly, the digital story reflected ethical considerations.

As mentioned in the previous theme, *Professional Duty of Care*, the impact of the digital story consistently provoked their professional, ethical, and moral duty of care to protect patients from harm. The consequences of this can lead to increased moral distress as their actions are inconsistent with their professional and altruistic values (McCarthy and Gastmans, 2015, p132). However, as a moral profession, the nurse's duty of care is to protect patients from harm and act in the patient's best interest (NMC, 2018), which manifests as moral courage. Moral courage is characterised by nurses' willingness to take personal risks to protect patients (Black *et al.*, 2014; Numminen *et al.*, 2017; Numminen *et al.*, 2019; and Nunthawong *et al.*, 2020). According to Fahlberg (2015) and Numminen *et al.* (2017), having moral courage means finding the inner strength to challenge ethical conflicts, even at the risk of adverse outcomes for the acting individual. Therefore, nurses must be willing to speak up in the patient's best interest or act as patient advocates when safety or quality care is threatened (Gibson, 2018; Hamric *et al.*, 2015; Lindh *et al.*, 2008).



Generally, nurses do behave courageously (Kleemola *et al.*, 2020; Lachman, 2007; Numminen *et al.*, 2019), albeit they can sometimes lack sufficient courage. Some studies have shown that personal and work experiences such as negative experiences of dealing with ethical conflicts, fear and shame (Bickhoff *et al.*, 2016; Gibson, 2019; Sadooghiasl *et al.*, 2018), lack of confidence (Edmonson, 2015; Sadooghiasl *et al.*; 2018), and moral distress (Escola-Chau, 2018) inhibit nurses moral courage. In addition, organisational factors such as an unsupportive working environment (Gallagher, 2011), teamwork (Sadooghiasl *et al.*; 2018; Simmonds *et al.*, 2013), communication and collaboration between nurses and other health professionals (Taraz *et al.*, 2019); professional hierarchy (Sadooghiasl *et al.*; 2018; Simmonds *et al.*, 2013; Taraz *et al.*, 2019) also inhibit moral courage. Intrinsically, these factors correlate with the concepts of safety culture. Hence, nurses with moral courage can promote quality of care (Pohjanoksa *et al.*, 2019; Taraz *et al.*, 2019) and improve patient safety (Fahlberg, 2015; Kleemola *et al.*, 2020).

For nurses who lack moral courage it can be strengthened through education and self-study (Edmonson, 2015; Kleemola *et al.*, 2020). There is minimal evidence that uses digital stories to strengthen moral courage in nursing. Needless to say, there are some studies (e.g., Christianson, 2011; Eggenberger *et al.*, 2016; Haigh and Hardy, 2011; Jun *et al.*, 2020; LeBlanc *et al.*, 2017; McDrury and Alterio, 2016; Price *et al.*, 2017; Urstad *et al.*, 2018; Waugh and Donaldson, 2016; Yocum, 2018) that clearly showed that making and listening to digital stories were powerful and effective ways to learn (Chapter 2.2). As a powerful learning resource, the digital story in this study presented ethical and moral dilemmas that have shown to challenge the RNs moral duty to do the right thing and act in the patient's best interest. The qualitative findings for groups 2 and 3 (T4) could imply that the RNs' developed moral courage as they reported increased resilience, courage, confidence, and assertiveness to overcome their fears. As a result, they were able to challenge poor practices and managers' decisions when patient safety was compromised. LeBlanc *et al.* (2017) conducted a qualitative study that closely aligned with the qualitative findings in this study. They used digital stories in the

context of teaching social justice, where they embedded four digital stories (told by nurses) in an educational workshop for public health nurses (LeBlanc *et al.*, 2017). The data was qualitatively analysed from the nurse's written reflections to understand their perception of the context and impact of the digital stories. They found that nurses reflected on their uncertainty about following the rules and how they handled resistance from leaders who did not understand patient needs. As a result, the impact of the digital stories enabled the nurses to challenge the systems and their moral courage within those systems. Although this study was conducted in the context of social justice, these findings could equally apply to patient safety and the promotion of quality nursing care.

In the context of the broader literature, the qualitative findings in this study have shown that workplace and organisational leadership can positively or negatively influence reporting behaviours. O'Grady (2020) argues that management is responsible for providing a healthy, safe working environment that encourages an open, non-punitive response to reporting patient safety concerns. However, as highlighted by the RNs in the qualitative study and supporting literature, management is also responsible for fostering a blame culture and punitive responses to incident reporting for several reasons. The qualitative and quantitative results are similar to those of other studies and the conceptual literature. However, the digital story facilitated the RNs to acquire moral courage through improved knowledge, confidence, and interpersonal skills. Therefore, the findings are relevant to clinical practice because they enabled the RNs to challenge their professional values and develop moral courage to overcome fear and shame when speaking up. This was perceived as a step forward to promoting a positive reporting culture in their working environment, where some RNs used the digital story to motivate this change (Appendices 5.4 to 5.5 provide a summary of individual changes across the groups). Furthermore, they can act as role models and inspire others to speak up by emphasising the importance of patient safety and providing a good example for others to follow.

Developing moral courage through digital stories told by patients and nurses may be one method to improve the reporting culture. This finding was unexpected and offers a unique contribution to new knowledge, as there is minimal research that uses digital stories in developing moral courage. Likewise, studies that connects moral courage to reporting behaviours and a safety culture is scarce. Further qualitative studies using a digital story in nursing must explore the relationship between moral courage and speaking up or silent behaviours. In addition, quantitative research would also be necessary to measure the impact of using a digital story and the effect this has on developing moral courage concerning reported AEs and patient safety concerns.

### **6.5 Professional Duty to Continuous Professional Development**

Continuous professional development (CPD) enables nurses to acquire and apply skills relevant to sustaining person-centred, safe, and effective care (Manley, 2022). Professionalism has been suggested to be a powerful factor in promoting patient safety competencies in nursing (Lan *et al.*, 2021; Lee *et al.*, 2019). Yet, the meaning of professionalism in terms of patient safety competencies and CPD was not something the RNs in the qualitative study reflected on. In addition, the SAQ survey did not include education and training within the domains. Therefore, the qualitative findings were noteworthy as the RNs perceived the relationship between CPD and patient safety.

The NMC (2018) requires registrants to be safe and effective when caring for patients by always using the best available evidence and staying current with knowledge and skills. In T1, only four RNs articulated their awareness of their professional responsibilities of keeping up to date to keeping patients safe. However, their interpretation of this related to their organisational and workplace commitments and infrastructure towards CPD, which was limited to mandatory (e.g., trust policies, guidelines and standards of procedures, and patient outcomes such as infection control, sepsis, basic life support) and statutory training (e.g., legislative requirements such as Health and Safety at Work, Equality Act, General Data Protection Regulations). In T2 and T3, the qualitative findings remained unchanged, with more

RNs across all groups sharing similar views of their organisational requirements to keep up to date with mandatory. Healthcare organisations must comply with statutory legislative requirements and reduce organisational risks, making these findings predictable. Earlier research by Osmond (2003) revealed that nursing education in the UK was associated with compulsory and statutory training. More recently, the report by HEE (2016) highlighted the importance of education and training in relation to learning from AEs to improve patient safety. However, a strong focus of this report related to completion of mandatory and statutory training to enhance this. The fact that all staff must attend this training suggests why the RNs linked CPD to mandatory and statutory training. Therefore, it was not surprising that the RNs perceived this as a critical motivator to keeping up to date. However, the RNs raised concerns about the organisational and workplace infrastructure towards CPD and the barriers to learning they created.

#### **6.5.1 Barriers to Learning**

The qualitative findings in T2 and T3, found that some RNs across all groups worked in a positive learning culture that was influenced by the support from their ward managers, clinical educators, and quality nurses. However, not all RNs agreed, as they felt that the organisational and workplace infrastructure needed to support CPD was inadequate and created major barriers to learning. This was signified by the ineffective methods of communicating CPD activities as they were primarily delivered via emails, which nurses and other staff did not have time to access them. Furthermore, the lack of support and time to attend CPD activities related to increased workload and inadequate staffing levels were also perceived as a major barrier to learning. These factors meant that their ward leaders prevented them from attending and accessing CPD activities, or the RNs prioritised patient care over accessing or attending them. These findings are consistent with other studies (Attenborough *et al.*, 2021; Fillion *et al.*, 2005; Gallagher, 2007; Leong, 2012; Schweitzer and Krassa, 2010) where ward managers prevented nurses from attending CPD. In an integrative review by Coventry *et al.* (2015), of the 11 studies reviewed, they found that organisational culture, leadership, and workload

issues prevented nurses from leaving the clinical setting or making them reluctant to attend CPD.

Another major barrier to learning reported by most RNs (T2 and T3) across all the groups was the delivery method for education and training. Goudreau *et al.* (2015) suggest that the key motivator for learning is willingness to learn and its relevance to clinical practice. In relation to this study, face-to-face delivery methods were reported to be key motivators for learning because it was conducive to their learning style, and more importantly, the subject areas were relevant to clinical practice. Subsequently, face-to-face methods were their preferred choice that did increase their knowledge, skills, and behaviours that benefitted safe patient care. One of the RNs (G1) reported that she could undertake venous blood gas sampling after attending a workshop, which helped to minimise delays in patient care.

In contrast, most RNs (groups 1 and 2) were explicitly negative and critical of online delivery methods, nonetheless it was the most discernible method of accomplishing statutory and mandatory training. The findings indicated that they did not attend or were unwilling to attend, claiming that it was a 'tick box' exercise so that the trust could meet the governance requirements. The primary reason for their lack of engagement was that online learning was not conducive to their learning styles, and it had no impact on their learning. This has implications for nurses, as the inability to access and engage with CPD negatively influences patient safety and quality of care. It also compounds issues surrounding competence to practice and professional registration (Coventry *et al.*, 2015; NMC, 2018). To ensure RNs comply with the NMC (2018) standards and practice safely, the NMC (2021) expects registrants to renew their registration every three years. As part of this, they must meet the CPD requirements of 12 hours per year to maintain competence and performance (NMC, 2021). Although mandatory and statutory training is essential for safe and efficient service delivery and personal safety, it is excluded from the CPD requirements (NMC, 2021).

Continuous professional development is central to nurses' lifelong learning for keeping knowledge and skills up and constitutes a vital aspect of professional practice (Davies *et al.*, 2013; Mlambo *et al.*, 2021). The context of nursing practice is continually changing, such as changes to legislation, health policy, professional guidance, and national guidelines that affect how nurses practice and deliver care. As registrants, nurses must practice effectively using the most up-to-date evidence (NMC, 2018), which requires a commitment to lifelong learning. Dehan *et al.* (2020) claim that nurses must formally engage in lifelong learning and academic practice to acquire rich knowledge and evidence-based practice. Indeed, it would go some way in fulfilling the NMC (2019) re-registration requirements and improving the quality of patient care (Dehan *et al.*, 2020). However, Hegney *et al.* (2010) asserted that informal learning can also contribute to CPD and lifelong learning. Informal learning is acquired through work-based learning, reflection, interaction with colleagues, journal clubs, and peer supervision (Barker, 2013; Govranos *et al.*, 2014) and results in the acquisition of new knowledge and skills. The qualitative findings from this study concur with the literature, as the RNs referred to informal rather than formal approaches to CPD. Furthermore, most RNs across the groups became more aware of their professional responsibility for CPD as they progressed through the timepoints. In T4, RNs developed self-motivation and commitment to professional development by participating in this study and, to some effect, could be categorised as an informal approach.

### **6.5.2 Trust Education Versus Digital Stories**

As previously discussed, at the start of the study (T1), the RNs were unfamiliar with the term safety culture and used it interchangeably with patient safety. When asked what they hoped to gain by being part of this study, it prompted them to recognise their personal and professional limitations regarding this concept and its applicability to their clinical practice. The consensus was that they hoped to improve their knowledge and understanding of safety culture, discover other aspects of patient safety, and share their knowledge with colleagues. In T2 and T3, the RNs were asked about changes to their perceptions of safety culture and

their clinical practice from their previous interview. In T4, when they were asked about the impact of the intervention, the findings revealed that the digital story was more influential and effective in changing safety culture perceptions and patient safety-related behaviours for many reasons.

Over time, the RNs in group 1 demonstrated some improvement in their knowledge and understanding of safety culture and its impact on their clinical practice. By T4, they were able to impart this knowledge to their peers, thereby enhancing their comprehension of safety culture and the importance of patient-centred care. Participating in the study influenced these improvements and changes compared to trust education, which was exposed as having minimal impact. All the RNs (T2 and T3) across the groups consistently reported several issues with trust education that created barriers to learning, which can have repercussions for nurses and patient safety (as discussed above). Furthermore, for the RNs in group 1, the interviews were more effective than trust education as it allowed them time and space to explore the safety culture concepts more widely. As a result, it encouraged two RNs to reflect on how these concepts negatively or positively impacted their practice, leading to some improvements in patient-centred care delivery and reporting behaviours.

In contrast, the RNs in groups 2 and 3 (T2 to T4) revealed considerable improvements in their knowledge and understanding of safety culture compared to what they knew in T1. As previously mentioned, the digital story consistently provoked the RNs to challenge their professional, ethical, and moral duty of care to protect patients from harm. As a result, the qualitative findings discovered that the RN's knowledge and understanding of safety culture had improved and changed, which led to changes in their patient safety-related behaviours. These changes included improved communication skills, patient assessment and clinical decision-making skills, which led to a shift from task-based care to a patient-centred care approach. They were also more compliant with completing risk assessments, their nursing documentation was more thorough, and they developed the courage to speak up and report AEs (see further evidence in Appendices 5.2 to 5.7). Interestingly, the RNs also reported

feeling more confident, resilient, and assertive in using these skills to improve the safety culture and the reporting culture in their working environment.

### **6.5.3 Digital Stories as a Learning Resource**

The qualitative findings indicated that the digital story was influential in developing the RNs' knowledge and skills and changing patient safety behaviours which stretched beyond their initial expectations in T1. Compared to trust education, most of the RNs in groups 2 and 3 reported that the digital story was an effective learning resource because it was powerful, insightful, and inspirational. Likewise, the conceptual literature portrayed digital stories as innovative (De Jager *et al.*, 2017; De Vecchi *et al.*, 2017; Rodriguez *et al.*, 2021), evocative, empowering, and impactful (Rodriguez *et al.*, 2021), concurring with other well-known authors (e.g., Frank, 2010, 2013; Gidman, 2013; Lambert, 2010; Lambert and Hessler, 2018; Levett-Jones *et al.*, 2015; Moon and Fowler, 2008; Haigh and Hardy, 2011; Hardy, 2007; Hardy and Sumner, 2018; Stacey and Hardy, 2011). Furthermore, the empirical and conceptual literature in Chapters 1 and 2 provides compelling evidence that digital storytelling and digital stories are powerful and highly valued learning tools when compared to other teaching methods (Adamson and Dewar, 2015; Christianson, 2011; Conlon *et al.*, 2020; Eggenberger *et al.*, 2016; Haigh and Hardy, 2011; Jun *et al.*, 2020; LeBlanc *et al.*, 2017; McDrury and Alterio, 2016; Price *et al.*, 2017; Rodriguez *et al.*, 2021; Urstad *et al.*, 2018; Waugh and Donaldson, 2016; Yocum, 2018).

From a pedagogical perspective, the combination of music, personal voice, and the context of the digital story has been shown to increase student engagement (Christianson 2011; Waugh and Donaldson 2016), maintain interest and motivation to learn (Chan and Sage 2019). In a systematic review by Mojtahedzadeh *et al.* (2021), they concluded that the multimodality gives them flexibility in their usage making them suitable for different learning styles. There were no empirical studies that used digital stories or digital storytelling related to safety culture, however, some studies reported positive findings when using them for various purposes. For instance, Yocum's (2018) qualitative study found that the context of the digital story enhanced



the knowledge, skills, and behaviours of student nurses when caring for chronically ill older adults. Price *et al.* (2015) concluded that digital storytelling was compelling because it engaged students, fostered creativity, improved communication skills, and enhanced student learning about palliative care and end-of-life concepts. Similarly, Eggenberger *et al.*'s (2016) mixed methods study used a pre- and post-intervention design to explore digital stories in relation to family-centred care in an ICU setting. They reported positive improvements in the RNs' knowledge, skills, and confidence when delivering family-centred care. Although varied nursing topics have been used in these studies, the findings are relevant and transferable to the qualitative findings of this study.

#### **6.5.4 The Qualities of Digital Stories**

From T2 to T4, the qualities of the digital story in this study were described as emotive and memorable. Furthermore, the authenticity of the digital story derived from the storyteller's experiences symbolised proximity to the RNs' individual experiences. Subsequently, some RNs in this study reported positive knowledge, skills, and behaviour changes, as mentioned in the previous themes. Serrano *et al.* (2018) suggests that engaging in authentic learning experiences that are relevant to learning can liberate learners from their previously held assumptions. From this standpoint, it may explain why the digital story had a positive impact on their knowledge, skills, and behaviours related to safety culture and patient safety-related behaviour. Furthermore, by challenging their presuppositions, some of the RNs in both groups were inspired to break down some of the barriers associated with CPD and used digital stories as a teaching method in practice. Some RNs shared the digital story used in this study or their experience of listening to it with their colleagues and student nurses. These findings concur with Conlon *et al.* (2020), who explored the value of digital storytelling with mental health nursing students through the lens of authenticity. The findings indicated that the students developed a critical awareness of their ethical values by challenging the boundaries of societal influences towards mental health.

Conceptually, the art of storytelling and listening to stories engages storytellers and listeners in the personal experiences of others (Haigh and Hardy, 2011) because they capture the authentic lived experiences of the storyteller (Moon and Fowler, 2011). In this study, the authenticity of the digital story was perceived as a powerful source of knowledge as it triggered their emotional responses. In addition, some RNs put themselves in the storyteller's shoes as they related the experience to a family member. The findings support McDrury and Alterio's (2003) suggestion that a shared understanding of the storyteller and listener provokes emotions that can be a powerful motivation for learning. Christianson's (2011) and Waugh and Donaldson's (2016) studies have also demonstrated a strong connection between emotions and learning, thereby indicating that emotions are necessary for stimulating the affective and cognitive elements of learning. One reason proposed by Frank (1997) and Hallenbeck (2003) was that patient stories valued patients' and their families' subject and emotional perspectives. Therefore, the essential qualities of using patient stories are memorable and based on direct experience (Haigh and Hardy, 2011) and are a powerful incentive for learning. These qualities change listeners' understanding by offering insights implicit within the story that resonate with listeners' own experience and knowledge of the context, all of which lead to lasting changes in behaviours (Haigh and Hardy, 2011; Wilson, 2013). Moreover, Frank (2010, p. 3) believes that *'stories animate life because that is their work and then they go on to instigate'*. This creates the capability to engage with stories and initiate reflection (McDrury and Alterio, 2016).

#### **6.5.5 Digital Stories as an Alternative Source of Knowledge**

In the context of this study, the evidence from the literature resonates with the qualitative findings as the digital story provoked emotions that initiated engagement in reflective dialogue. By reflecting on the experience of the storyteller, the content of the story and their individual experiences, the RNs were able to contextualise the meaning and complexities. It was, however, surprising to find similarities between the groups because group 3 had additional time for reflective dialogue immediately after watching the digital story. However, the RNs in group 2 (T1) spontaneously reflected on the content of the digital story and its relationship to

their clinical practice. Reflection has always been essential for healthcare professionals, especially nurses, who are often patients' first point of contact (Schön, 1983). It is also an essential part of professional practice stipulated by the NMC (2018; 2019), which may justify why the RNs in group 2 spontaneously engaged in reflective dialogue after viewing the digital story.

Reflection and critical thinking are crucial to producing knowledge about practice (Rolfe *et al.*, 2001) and previous studies have shown that digital stories facilitate reflective practice which encourages a deeper level of learning (Christianson, 2011; LeBlanc, 2017; Waugh and Donaldson, 2016; Yocum, 2018). Furthermore, evaluative studies that have used patient stories or digital stories support the concept of reflection, as they allowed people to reflect on themselves and their social world in a way that leads to lasting changes in behavior (Christianson, 2011; Gidman, 2013; Greenhalgh and Hurwitz, 1998; Swartz and Abbott, 2007; Wilson, 2013). The qualitative findings concur with these studies as the digital story provided a different opportunity for the RNs to learn compared to trust education, which constrained them to learn. As an alternative form of knowledge, the use and impact of the digital story in this study are in accordance with transformative learning theories.

Critical reflective thinking and deep self-questioning cultivate and nurture transformational learning, which involves questioning (Mezirow, 1990). This changes the individual's thinking from concrete facts to abstract, resulting in an epistemological shift in their worldview from what we know to how we know (Kegan, 2000). In terms of epistemology, Dewey (1964), Piaget (1972), and Vygotsky (1987) all agree that knowledge is an active and adaptable way of making sense of experiences, which is often shaped by a person's social and cultural environment (Seifert and Sutton, 2010). The social and cultural assumptions within our past and present experiences are unconsciously embedded in what Mezirow (1997, p5) refers to as '*frames of reference*', comprising two components: '*habits of mind and points of view*'.

Habits of mind are broad, abstract, orientating, habitual ways of thinking, feeling, and acting, that are influenced by assumptions constituting a set of principles (Mezirow, 1997). This description corresponded with the qualitative findings in T1. The RNs' interpretations were limited and comprised of shared values, attitudes, and beliefs described by Mezirow (1997, p5) as '*points of view*'. Usually, it is uncommon for individuals to stop and '*examine the presuppositions upon which habits of expectation are predicted*' (Mezirow, 1991, p 15). Reinforcement further solidifies these habits, making them resistant to change. Therefore, the transformation of meaning perspectives is founded on experiential activities, experiencing a significant event or thought-provoking scenarios that trigger intense feelings. Mezirow (1991) describes these triggers as disorienting dilemmas, which are the '*catalyst for perspective transformation*' (Mezirow, 1991, p189).

Jarvis (2008) asserts that stories result in transformative learning if they lead individuals to experience a disorienting dilemma between their current beliefs and those the story evokes, and then a subsequent change to their perspectives, including their views of themselves and the world. Based on the qualitative findings in this study, it can be concluded that the digital story created a disorienting dilemma by evoking the RNs emotions. This allowed them to have a rational conversation, which Mezirow (2000) defines as a critical examination of one's own assumptions, beliefs, and attitudes. Through this process, the RNs continually challenged their professional values, their professional integrity and identity, and the social and cultural influences that positively and negatively impacted their perceptions of safety culture. Indeed, Eraut (1994) suggests that effective professional and personal development depends on a high level of self-awareness brought about by critical engagement with a complex or challenging event. Furthermore, McDrury and Alterio (2003) suggest that through an emotional and reflective engagement with multiple perspectives, storytelling can bring about learning that transforms how students view themselves and others.

From T2 to T4, the qualitative findings for those in groups 2 and 3 demonstrated a noticeable change in their frames of reference to perspective transformation. The digital story provoked

their emotions and instigated their capacity to critically reflect on multiple perspectives. As a result, the RNs were able to challenge their individual, social, and cultural practices relating to safety culture and patient safety at a deeper level. This was prominent in the level of engagement and responses during the semi-structured interviews (see Appendix 5.1). More importantly, the trajectory of positive changes to their safety culture perceptions and subsequent patient safety-related behaviours was remarkable (as illustrated in Appendices 5.1–5.7). Concerning their personal and professional development, some of these changes were established by the RNs' clinical practice exemplars across the timepoints. For example, one of the RNs developed more confidence and knowledge about managing patient falls, and another RN took up the 'Falls Champion' role. Interestingly, some RNs were empowered to challenge the barriers associated with CPD and used digital stories as a teaching method in practice to improve awareness of the safety culture concepts. Some RNs shared their experience of listening to the digital story, shared the digital story used in this study, or used other digital stories to promote reflection (see Appendix 5.7).

Capturing the perceptions of their professional duty to personal and professional development has considerable clinical relevance and implications for nursing practice. The findings in this study identified barriers to learning, which can compromise patient safety if nurses cannot meet their professional requirements to practice safely and competently. Using digital stories or digital storytelling with front-line nurses has the potential to address those barriers, as they are powerful learning tools that can be used to inspire and motivate learning. As an informal learning activity, it is a simple method to implement; nonetheless, when using transformational learning theories, it takes time to engage in the transformational process. Therefore, it is suggested that nurses must have the support, time, and space to engage with the transformational process, which was reported as a barrier to learning in this study. There is no further evidence to support this assertion, as no studies have used transformational learning theories to explore the impact of digital stories. However, the studies outlined in Chapters 1 and 2 have embedded digital stories or digital storytelling into an educational

programme or three-hour workshops, and the findings suggest that support, space, and time to engage in reflective dialogue and critical reflection were facilitated. Similarly, the qualitative findings in this study showed a trajectory of changes to safety culture perceptions and patient safety-related behaviours over four timepoints. Consequently, the impact of the digital story may not be as effective and powerful if the time and space to engage in the process was not permitted.

The findings in this study and the broader body of literature support the use and impact of digital storytelling and digital stories as an effective learning tool and an alternative source of knowledge. However, the evidence only pertains to pre-registration nurse education and does not apply this method in the context of safety culture and patient safety. Examining the effects of digital stories with RNs in clinical practice could enhance the results of this study. This would provide compelling evidence to support the use and effects of digital stories. Furthermore, there is a lack of studies that explore digital stories using transformational learning theories. Thus, the results add something new to what is already known, and future research studies that explore and evaluate digital stories and digital storytelling in the classroom should consider using transformational learning theories. Other than the qualities of digital stories that contribute to learning, an educational theoretical framework will offer new conceptual knowledge to the existing literature to explore why and how nurses learn from creating and listening to digital stories.

## **6.6 Summary of Chapter**

As mentioned at the beginning of this chapter, the aim was to provide a synthesised discussion of the findings contextualised and situated within the literature found in the Introduction Chapter (Chapter 1) and Literature Review Chapter (Chapter 2, s2.1 and 2.2), as well as the wider evidence. The similarities and differences between the findings and literature were highlighted, and their relevance to clinical practice and recommendations for future research were emphasised throughout the chapter, of which a final summary will be provided in Chapter

7. It is essential to reiterate that safety culture perceptions in this study were measured using the SAQ survey over four timepoints. The findings of this study were compared with studies that used different safety culture attitudinal surveys. Furthermore, the findings of the studies provided a snapshot of perceptions at one timepoint. Therefore, the findings do not reflect the changes in rapidly evolving, multifaceted, complex, and unpredictable organisations. Concerning digital stories, there is a significant lack of literature on post-registration nursing in the context of clinical practice. Therefore, many findings were compared with research from an educational context in pre-registration and post-registration nursing. In this context, digital stories or digital storytelling were embedded into an academic programme or workshops, and therefore, the findings may have indirect relevance. Furthermore, none of these studies used digital stories to explore the impact on perceptions of safety culture and patient safety. This gap demonstrated the significance of the findings, which present some of the first evidence in this area, thereby providing an essential foundation for future work, which are discussed in Chapter 7.

The qualitative findings that were triangulated with the quantitative data, provided a comprehensive understanding of how RNs perceived safety culture. The key findings from this mixed methods study showed that safety culture is a complex issue that incorporates many essential facets that promote a positive or negative safety culture. These included organisational and workplace factors, such as teamwork, communication, inadequate staffing, and leadership, which either negatively or positively impacted their working environment. The RNs perceived a negative working environment as posing significant patient risks due to frequent delays or missed patient care. RNs and their peers had fewer opportunities to learn from AEs, as they were less likely to report them. They perceived these factors as threats to their professional status, which in turn negatively impacted their mental and physical well-being. The qualitative and quantitative findings indicated that they were becoming less satisfied in their work and were stressed and exhausted, which exacerbated a higher risk of safe patient care and a higher risk of absenteeism and staff leaving.

As a powerful learning tool, the digital story had many qualities and was highly valued by the RNs. This was evidenced by the positive changes in their safety culture perceptions and subsequent patient safety-related behaviours. The findings have shown improved communication skills with patients and their relatives; enhanced patient assessment and decision-making skills; and a positive shift from a task-based to a person-centred approach when caring for patients. In relation to interpersonal skills and behaviours, the RNS reported an increase in their confidence, resilience, and assertiveness. As a result, they had developed their moral courage to challenge and report AEs. As an effective learning tool, the RNs in this study have shared and reflected on the digital story used in this study and other digital stories with their colleagues. This is a positive step toward improving safety culture and patient safety-related behaviours as they develop increased knowledge and understanding of the concepts and how they impact patient and nurse outcomes.

This study provides valuable evidence that can be built into clinical practice, work-based and informal learning, professional education, and organisational management to promote a safe culture and nursing practice. These are worthy of further consideration and are discussed in the concluding chapter.



## CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

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### 7.1 Introduction

This study has sought to measure and explore RNs' perceptions of safety culture and to establish the impact of using a digital story on changing their perceptions of safety culture and patient safety-related behaviours. The findings from this study were presented in four main themes: Professional Values, Professional Duty of Care, Professional Duty of Candour, and Professional Duty to CPD. The study findings have consistently shown that safety culture is a complex issue that incorporates many influential facets that promote a positive or negative safety culture. External factors such as teamwork, inadequate staffing, and leadership influenced these facets that negatively or positively impacted on their working environment. The literature relating to digital stories and digital storytelling was limited, but available studies have reported many positive benefits when used in nursing educational settings. The qualitative findings in this study suggest that changes in the RN's workplace and organisation influenced their perceptions of safety culture. However, using the digital story had a greater impact on changing the RN's perceptions and patient safety-related behaviours when compared to trust education. This chapter revisits the original objectives to present the main conclusions of this study. Recommendations are suggested for research, policy, education, and practice, and the researcher's reflections will conclude this chapter.

## **7.2 Research Aim and Objectives**

This mixed methods explanatory sequential study investigated the use and impact of a digital story to assess RNs' perceptions of safety culture and patient safety-related behaviours in acute specialised medical wards. Three objectives have been met to achieve the aim of this study:

- Objective 1: To obtain a baseline of what RNs understand of the term safety culture.
- Objective 2: To measure and explore RNs' perceptions of safety culture.
- Objective 3: To establish how the digital story may have impacted upon RNs' perceptions of safety culture and patient-safety-related behaviours.

### **7.2.1 Objective 1**

At T1, the data collected the RNs' initial understanding of safety culture through semi-structured interviews before assigning them to an intervention group. Their initial perceptions were descriptive and limited due to the unfamiliarity of the term safety culture. They used this interchangeably with patient safety when they described the importance of teamwork, communication, risk assessments, and nursing documentation but did not elaborate on why. Interestingly, the RNs held strong perceptions related to their professional and altruistic values to ensure patients were not harmed. The finding provided their first understanding of how they perceived safety culture and offered a unique perspective of how the RNs interpreted it. As the study progressed, their professionalism and professional values were explicit when exploring their perceptions of the safety culture concepts that aligned with the seven SAQ survey domains.

### **7.2.2 Objective 2**

#### **Theme 1: Professional Duty of Care**

The merging of the study's qualitative and quantitative findings (as illustrated in Figure 6.1) revealed that safety culture in healthcare is a complicated issue with many important and interconnected factors that can lead to a positive or negative safety culture. The quantitative study found that, despite their positive perceptions in T1 of the working environment,

teamwork, safety climate, communication, and collaboration, they declined over time (T2 to T4). It is difficult to establish why these declined over time as they correlated with their declining perceptions of management, stress recognition (already consistently negative), and job satisfaction. The qualitative findings provided in-depth views explaining why RNs' perceptions declined in the quantitative study.

The qualitative findings indicated that the RNs perceived that poor teamwork, poor communication, and insufficient staffing created a negative safety culture and working environment. This posed significant risks to patient safety because patient care was task-based and often missed or delayed which often threatened the RNs' duty to provide safe patient care which created tensions in the working environment. Subsequently, the qualitative and quantitative findings revealed that the RNs felt stressed, exhausted, and dissatisfied with their job. The consequences of poor nursing outcomes and an increase in moral distress can threaten safe patient care and the ability to retain nurses.

## **Theme 2: Professional Duty of Candour**

A key finding in this study was the RNs reporting behaviours. This was perceived positively in the quantitative findings and indicated a strong safety climate, but their perceptions slightly changed over time. The qualitative findings showed that RNs acknowledged organisational and workplace commitments to patient safety. However, the study revealed that some RNs failed to report adverse events (AEs) or confront poor practice and unsafe care. The reasons were that they were afraid to do so because a culture of blame existed where nurses were punished or were not heard. Organisational and workplace leadership were critical factors that encouraged silent behaviours because they did not listen and fostered punitive responses to AEs. The factors that motivated the RNs to speak up were having a non-punitive response to errors, where their ward leaders encouraged and supported them. Interestingly, despite their positive and negative perceptions of reporting behaviours, the quantitative and qualitative findings found that all the RNs held negative perceptions about trust and workplace leadership. However, the qualitative findings explicitly indicated that leadership was

responsible for creating a negative reporting and learning culture. The RNs' perceptions, using pre-defined questions (domains and items) in the SAQ survey, described the safety culture and merged them into the qualitative themes. When merged with the qualitative findings, the RNs' beliefs, assumptions, and values from their lived experiences provided in-depth meanings to the quantitative findings that stretched beyond the descriptions in the SAQ survey.

### **Theme 3: Professional Duty to Continuing Professional Development**

Finally, this critical finding was only explored in the qualitative findings, as the SAQ survey does not include CPD within the safety culture domain. Initially, CPD was identified as necessary for patient safety, but over time, safety culture and patient safety reflected their professional requirements to keep up to date. However, their organisational and workplace approach to CPD was to stay updated with mandatory and statutory training. Nonetheless, the infrastructure to support CPD was challenging because of the increasing workload, lack of time, and the resources available, which were not always conducive to their learning styles. Therefore, they could not attend or access CPD, they were reluctant to participate, or they lacked motivation to learn. The findings implied that for education and training to be effective, they must be relevant to clinical practice, accessible, and meet the diverse learning styles of nurses within the organisation.

#### **7.2.3 Objective 3**

Compared to trust education, the results showed that the RNs perceived the digital story as a strong and powerful learning tool that they could apply to their clinical practice because it was engaging, emotive, memorable, and an authentic experience. The catalogue of errors, the ethical and moral principles within the digital story, and the proximity to clinical practice triggered strong emotions. Subsequently, these qualities had initiated the RNs to reflect critically on their professional and altruistic values about patient safety. Furthermore, the digital story presented a distinct perspective that enabled them to challenge their presuppositions relating to the safety culture concepts and the impact on safe patient care. As the RNs

progressed along the timepoints, the findings revealed positive changes towards safety culture and patient safety-related behaviours as their knowledge and understanding of safety culture concepts increased. These included improved communication with patients and relatives, a shift from a task-based approach to a holistic PCC approach, and enhanced patient assessment and decision-making skills. Interestingly and unexpectedly, the findings showed that some RNs developed more resilience, confidence, assertiveness, and courage to challenge poor practice and speak up when patient safety was compromised. Remarkably, this change was seen as a step towards promoting a positive reporting culture through digital stories in an organisation that was perceived to impart fear and shame, and did not listen when reporting patient safety concerns.

This study's original aim and research objectives have all been met, and additional new knowledge has been revealed concerning the impact of using a digital story in changing RNs' perceptions of safety culture and patient safety-related behaviours.

### **7.3 Original Contributions to New Knowledge**

Given the absence of literature, this mixed methods explanatory sequential study was the first to establish how digital stories influenced RNs' perceptions of safety culture and patient safety-related behaviours within an acute NHS organisation. To the best of my knowledge, this study is unique and original and contributes to new knowledge in several ways. While this study's original contributions to knowledge have been specified in the rationale (Chapter 2, s2.4) and discussion (Chapter 6), this section will summarise them to emphasise the findings' significance.

The study contributes to new knowledge in the specific area of safety culture perceptions among the identified group of RNs.

- This study is unique in addressing the gaps in the literature by using a mixed methods research design. The systematic literature review (s2.1) showed that previous qualitative studies are limited, and many quantitative studies exist but only measure

safety culture perceptions at one time. By combining both methods in one single study, the generated evidence offered a comprehensive understanding of the RNs' perceptions of safety culture over four timepoints that no previous studies have explored.

- The qualitative findings (s5.2) provide the first understanding of how the RNs perceived safety culture concepts and the relationship to their professional duty of care, professional duty of candour, and professional duty to continuous professional development. This offers a unique perspective on safety culture that previous studies have not explored.
- The quantitative and qualitative findings provide the first understanding of moral distress and its relationship to patient safety. They offer a new perspective and original contribution to new knowledge that no previous studies have explored.
- The evidence presented in this thesis (Chapters 1, 2, and 6) has shown that safety culture studies are primarily conducted outside the UK, in countries where safety culture is an emerging and under-researched concept. The findings of these studies may be irrelevant to the UK due to social-cultural differences and seasonal changes that occur in healthcare organisations (e.g., winter pressures). The findings of this study are relevant to UK national policies and social and cultural factors within UK healthcare organisations.

This study contributes to new knowledge in using a digital story concerning safety culture perceptions and patient safety-related behaviours of a specified group of RNs.

- The systematic literature review and scoping review (Chapter 2) found no studies that explored the use of and impact of a digital story on safety culture perceptions and patient safety-related behaviours in nursing.
- The scoping review (s2.2) findings revealed that digital storytelling and digital stories are an under-researched but emerging concept. Studies exploring this concept are limited and conducted in the context of nursing education, primarily pre-registration

nursing. The qualitative findings concur with these studies but offer a unique contribution to new knowledge in the context of Registered Nurses working in complex clinical environments.

- The qualitative findings provide some of the first in-depth understanding on how the content and qualities of the digital story challenged the RNs' professionalism, professional and altruistic values, and the connection to safety culture and safe patient care, none of which have been explored in the current literature.
- Using a digital story as an intervention offers a unique contribution to new knowledge, as the findings of this study demonstrate a positive impact on the RNs' knowledge and understanding of safety culture that has led to positive changes in safety culture perceptions and patient safety-related behaviours. This offers a new dimension to safety culture and patient safety-related behaviour that no other studies have examined.
- Speaking up and silent behaviours when reporting AEs is a well-recognised phenomenon in nursing, as nurses experience greater difficulty speaking up than other healthcare professionals. The literature in Chapters 1, 2, and 6 reveal several factors that contribute to these behaviours, which correlates with the findings of this study. However, unexpectedly, the impact of the digital stories provides a new understanding of how they may be used to develop moral courage and improve reporting behaviours. This finding offers a unique contribution to knowledge, as there has been minimal research on how digital stories can foster moral courage. Equally, there is minimal research that connects moral courage to reporting behaviours and a safety culture.
- A uniqueness of the qualitative findings is that the impact and qualities of the digital story aligned with Mezirow's Transformational Learning Theory (1997). No previous studies have used educational learning theories to show how and why nurses learn from digital storytelling or digital stories.

## 7.4 Strengths and Limitations of the Study

This study utilised a mixed-methods explanatory sequential approach, with the qualitative data complementing the quantitative data to provide a comprehensive understanding of safety culture, and to establish any changes to safety culture perceptions and patient safety-related behaviours when using a digital story. It is a unique study addressing an area of limited knowledge in clinical practice, however there are several strengths and limitations of the study as discussed below.

- This study collected data between September 2017 and December 2017. It is acknowledged that this study may be outdated and lack clinical and empirical relevance. However, the safety culture literature search was re-run between 2018 and 2023, where only four quantitative studies were chosen for review from 99 papers. The findings of these studies were consistent with the previous studies and the broader body of literature and revealed no new knowledge concerning safety culture in nursing and no studies undertaken in the UK. An additional scoping review of the digital stories literature in nursing was also undertaken between 2007 and 2023. Only eight studies were selected, comprising five that used digital storytelling and three that used digital stories in nursing education. The findings revealed that the use of digital storytelling and digital stories was an emerging concept, but the evidence was sparse. The current evidence and the identified literature gaps support the rationale for undertaking this study (see study aim and objectives s2.4.1), and the data findings (Chapter 6) are synthesised with the literature from Chapters 1 and 2 and the wider body of literature. Consequently, the strengths of this study include its clinical relevance and up-to-date evidence, its unique contribution to new knowledge that previous studies have not explored, and its ability to address the gaps in the current literature.
- Using a mixed methods explanatory sequential study is labour intensive and typically involves interdisciplinary researchers with broad research skills. A limitation of this study was that it was conducted singlehandedly, which was very time-consuming and



required multiple research skills to be developed. Despite this, the strength of this approach was that it combined two research methodologies into one single study, which enhanced the credibility of the findings. By synthesising the two data sets, the qualitative findings enriched the quantitative findings and provided a comprehensive understanding of safety culture perceptions from the RNs lived experience. This provided valuable evidence of the stability of a safety culture within their workplace and organisation. This was an essential aspect of this study to establish if these factors impacted their safety culture perceptions and patient-safety related behaviours or if they were directly influenced by the digital story.

- For the qualitative study, a subsample of fifteen RNs was purposively selected from 68 RNs' who had participated in the quantitative study. Using a maximum variation sampling strategy and randomly allocating them into three groups (n=5 in each group) was considered a strength of this study. However, a limitation was that two groups received the digital story (one with and one without reflection). Although there were subtle differences between the groups, it was not significant to say that one group improved better. The comparisons were made against the RNs (n=5) in the trust education group (control group), which may have created some bias in the results due to unequal group sizes. Having an equal number of RNs (n=10) in the trust education group (control) would have balanced the groups and enhanced the credibility of the findings.
- The sample size for the qualitative study used purposive sampling to select an accessible population of RNs from six specialised medical wards. It utilised a paired control design by pairing the comparability of the wards, which is considered a strength of the design. The accessible population was based on the minimum national safer staffing levels per number of bed occupancy rather than the target population, thereby reducing the generalisability of the findings. One limitation of this method was that the sample size selected was not large enough to generalise the findings beyond these

specialised medical wards. Using a power calculation for the target population of nurses in all wards in the medical nursing division would have addressed this issue.

- The qualitative interview questions were triangulated with the SAQ domains (as illustrated in Appendix 4.8) to strengthen the credibility of the data findings. However, the qualitative interviews relating to safety culture perceptions were time-consuming. This limited the time to obtain data regarding the use and impact of the digital story on their safety culture perceptions and patient safety-related behaviours. The assumption was that these would be explained naturally during the interviews, however, the data was less in-depth than expected. Conducting a pilot study would have addressed this limitation and provided an equal balance of questions.
- During the collection of quantitative data across the timepoints, many changes were reported by the RNs (e.g., staff shortages, RNs being moved to other wards to cover staff sickness, and one ward moving to another part of the trust). These changes negatively impacted the RNs, meaning that their responses to the SAQ survey may not have been genuine. This may be further exacerbated by their working conditions, fatigue, and stress. Although the quantitative findings were rigorous and had strong internal consistency and reliability scores, they may be flawed due to respondent bias.
- The qualitative findings are subjective, and RNs' individual experiences of patient safety may not portray a reliable reflection of their professional conduct. The RNs may have behaved in a way expected in a professional role and may be reluctant to disclose practices that might be judged as unsafe. To mitigate this limitation, a reflective diary was kept recording my opinions, interview skills, and communication skills, which allowed me to change my behaviours and adopt an open, non-judgemental approach. The RNs were more comfortable and candidly reflected upon their clinical practice and used practice exemplars to support their perceptions, which enhanced the quality of the research.

- Some limitations were encountered when collecting and analysing the qualitative data. Firstly, response bias may have occurred during the semi-structured interviews, influencing, or inhibiting the RNs' responses. Secondly, the interpretation of the data may not have reflected the RNs lived experience. Being a novice researcher who is a Registered Nurse and an educator with limited experience in undertaking semi-structured interviews can affect my position as a researcher. A reflective diary was maintained throughout the processes and used as a focal point of discussion with my research supervisors to overcome this challenge. Furthermore, the qualitative data analysis used an analytical framework to structure the data analysis sequence, ensuring the credibility of the process and data findings.

## **7.5 Recommendations**

Recommendations have been examined, summarised, and proposed in four distinct areas, all of which are based upon the conclusions of this study and are outlined under the following headings: *recommendations for research, recommendations for policy, recommendations for practice, and recommendations for education.*

### **7.5.1 Recommendations for Future Research**

Based on the findings of this study, further, wider-scale research would be beneficial in exploring the specific aspects highlighted within it, which are as follows:

- Further exploration of safety culture perceptions using mixed methods longitudinal designs to address the level of change over time, how these levels may decline, improve, or stagnate, and what triggers these changes.
- Examination of how nurses portray their professional, moral, and ethical values about safe patient care and the impact on safety culture perceptions.
- There is a need for further exploration into how digital stories develop moral courage and the impact on nurses' reporting behaviours and the number of reported AEs.

- Further investigation into the full potential of creating and listening to digital stories, and their relationship to safety culture and patient safety-related behaviours is necessary to strengthen the findings of this study.
- Further research is required to explore the use and impact of digital stories in the context of clinical practice and post-registration education and training.
- Future studies should consider applying educational theories to address how and why nurses learn using digital stories or digital storytelling.

### **7.5.2 Recommendations for Policy**

The Trust Intranet is where important policies about Duty of Candour, quality performance indicators (like preventing infections and falls), patient safety initiatives, and patient safety alerts are shared. However, frontline staff do not always have time to access it. In addition, there was a lack of a clear, formal definition of patient safety and safety culture. Considering these findings, the following recommendations are presented:

- To provide a formal definition of patient safety and safety culture and include these in trust policies relating to key quality performance indicators and ensure that they are disseminated through all levels of the organisation.
- Given the importance of the policies, NHS Trusts should consider the effectiveness of their approach and review whether staff have read and accessed them. Formal and informal educational resources could incorporate the dissemination of key policies (see s7.4.3).
- To utilise social media platforms more effectively and spread information about important patient safety policies through the official NHS Trust accounts on these platforms. These could also be made easily accessible for staff with links to social media platforms.

### **7.4.3 Recommendations for Education**

The qualitative findings of this study showed that the CPD was too focused on mandatory and statutory training, and the delivery method did not motivate learning. Based on the findings of this current study, the impact of the digital story confirmed the importance of CPD and the positive benefits of increasing knowledge and understanding of safety culture and patient safety practices. The following recommendations are as follows:

- Organisational patient safety initiatives should include ongoing and accessible patient safety workshops using digital stories about safety culture concepts and related key national and local policies.
- When delivering face-to-face education related to key quality indicators, such as recognition of sepsis falls prevention, digital stories should be used in conjunction with other teaching and learning strategies.
- Implement digital stories into organisational and workplace induction programmes for newly appointed Registered Nurses and Healthcare Support Workers.

### **7.5.4 Recommendations for Practice**

The findings showed that digital stories were feasible and potentially powerful professional development opportunities. It offers an alternative, practical, cost-efficient learning resource to supplement work-based and informal learning in clinical practice settings. The following recommendations for practice are offered:

- Working collaboratively, organisations', ward leaders, and nurses should consider ways to implement strategies to embed the regular use of digital stories in the clinical practice setting.
- Utilise meaningful opportunities to integrate short digital stories and have time to reflect. For example, into weekly huddles, monthly ward meetings, and peer supervision sessions.
- When supervising pre-registration nursing students utilise the opportunities to integrate digital stories within supervision meetings to explore their understanding and

application of safety culture concepts and patient safety behaviours in relation to the NMC Standards of Proficiencies.

## **7.6 Reflections of the Researcher**

At the start of my PhD studies, I did not doubt that my area of interest was patient safety, and the Francis Enquiry (2013) was influential in my choice of topic. As I reviewed the literature, I found it so diverse that it was overwhelming, and I had no clear idea where to start. Eventually, the research question emerged after months of scoping and reading the literature. The literature review chapter was the most difficult, and I under-estimated how long it would take to finish. The process of reviewing and writing this chapter was iterative and consistent throughout the research process. I was also hopeless at documenting the literature searching processes, so I often had to repeat some of them, which was very time-consuming. However, this experience taught me that I must document everything, and it served as a foundation throughout my research journey.

Throughout the research project, I maintained a reflective diary to acknowledge my thoughts, experiences, and transitions as a researcher. It also recorded my understanding of research paradigms and methods, data collection, and analysis. As the study progressed, I became aware of my level of knowledge about research and areas for development. I sought every learning opportunity from various sources (e.g., training programmes, relevant literature, workshops, supervision meetings) to develop my research skills. Applying this knowledge and my experiences enabled me to grow as a researcher and complete this journey.

Paramount to this journey was the importance of remaining objective while collecting and analysing the data. The data collection for the quantitative and qualitative studies was demanding and time-consuming. For the quantitative data collection, initially in T1, I was aware of increasing response bias by coercing the RNs to complete the survey to avoid multiple visits to collect the data. However, using collection boxes for subsequent timepoints resolved this issue. Despite the reduction in response rates, they remained within an

acceptable range. I used SPSS to analyse the quantitative data, a daunting task given my limited statistical knowledge and lack of experience with the program. However, I was determined and enthusiastic to learn new knowledge and skills. Inputting the data took a long time, but through trial and error, I somehow enjoyed the process. Being able to statistically analyse and interpret them as a complete novice was not enjoyable. As previously stated, accessing the resources available and reading the literature that uses statistical analysis developed my knowledge further.

Throughout the qualitative study's data collection and analysis process, I remained mindful of my insider-outsider perspective as a researcher. However, at the start of the data collection process, this was quite challenging as I had solid personal ideas and experiences due to my prior socialisation as a nurse/nurse educator and professional 'insiderness'. At this point, because I shared a commonality of working in clinical practice for over 20 years, my familiarity with the RNs was easy, and I developed a good rapport with them, thereby obtaining rich data. However, I soon recognised that I had become too familiar with some RNs during the earlier interviews and may have imposed my values, beliefs, and preconceptions. During the interview, I realised that I needed to put those aside when entering the phenomenological world of the RNs. Nonetheless, if I had used Husserl's descriptive phenomenology, this could have been appropriate, as I would have attempted to 'bracket' my standpoints to ensure the data was free from bias. However, when employing Heidegger's interpretative phenomenology, researchers should not bracket these viewpoints, instead they should position themselves as '*being in the world*' (Heidegger, 1962, p. 156) and be seen as an active participant (Smith *et al.*, 2022).

To take advantage of my insiderness, I sought to apply Smith *et al.*'s (2009, p64) '*hermeneutic circle*', where researchers leave their research world and come around the hermeneutic circle of the participant's world. Simultaneously, I engaged in reflexivity, maintaining a reflective diary throughout the data collection process and actively participating in it. This helped me to

understand the insider-outsider experience as I moved around the hermeneutic circle. This enabled me to balance my familiarity and distance myself from the RNs within the middle ground of an insider and outsider that researching in healthcare as a practitioner and educator brings. As a result, I became more aware of my position in this process, and my interviewing skills developed, where I could pay full attention to the RNs and follow their lead by engaging and attentively listening to their words and meanings. This allowed a more open and in-depth conversation, which is integral to the inductive principles of IPA (Smith *et al.* 2009). Appendix 4.14 summarises my analytical and reflective notes for each timepoint to illustrate this change.

I applied the same principles when analysing the data to avoid introducing my assumptions and preconceptions into the analysis. My data analysis approach used Smith *et al.*'s (2022) analytical framework, where I could record my thoughts and thinking processes. As a novice researcher, the analysis of data and the data produced to be time-consuming but an enjoyable experience. By immersing myself in the responses and delving into their meanings, I also found it to be an emotive experience that triggered frustration, anger, and sadness. I documented these feelings, thoughts, and initial impressions using a reflective diary, along with the annotation and reflective memo functions in NVivo. I was aware that my interpretation of the data may be subjective, but having the opportunity to discuss, debate, and critique my thinking processes with my supervisors was invaluable and gave me direction where needed. Appendices 4.15 and 4.16 provide detailed analytical notes that reflect my journey during the qualitative data analysis process.

This was a part-time PhD study, and working full-time in a senior manager educational role presented many challenges. Upon reflection of my research journey, I have come to understand that it has been an emotional rollercoaster, fraught with challenges related to time management, work commitments, and periods of uncertainty about my ability to complete this journey. On the other hand, it has been an immense learning experience that undoubtedly helped me develop as a researcher. The knowledge, skills, and confidence I have gained in



many areas have been rewarding, particularly my self-awareness, tenacity, and enthusiasm for completing this thesis. Completing my thesis has been one of my most significant achievements to date, both personally and professionally, and I look forward to disseminating this study further.

## REFERENCES

- Abadi, M.B.H., Akbari, H., Akbari, H., Gholami-Fesharaki, M. and Ghasemi, M. (2017) The association of nursing workloads, organizational, and individual factors with adverse patient outcome, *Iranian Red Crescent Medical Journal*, 19(4), pp. 1–14. Available at <https://doi.org/10.5812/ircmj.43444>.
- Abrahamson, K., Ramanujam, R., and Anderson, J.G. (2013) Co-worker characteristics and nurses safety-climate perceptions, *International Journal of Health Care Quality Assurance* 26(5), pp. 447–454.
- Abrahamsen, B. (2015) Nurses' choice of clinical field in early career, *Journal of Advanced Nursing*, 71(2), pp. 304–314. Available at: <https://doi.org/10.1111/jan.12512>
- AbulAIRub, R.F. and Alhijaa, E.H. (2014) The impact of educational interventions on enhancing perceptions of patient safety culture among Jordanian senior nurses, *Nursing Forum*, 49(2), pp. 139–150. Available at: <https://doi.org/10.1111/nuf.12067>.
- Adams, M., Kelly, D., Maben, J., Mannion, R., Banks, C. and Jones, A. (2020) *How do heroes speak up? NHS staff raising concerns during COVID-19* [Blog]. Available at: <https://blogs.bmj.com/bmj/2020/08/11/how-do-heroes-speak-up-nhs-staff-raising-concerns-during-COVID-19/>. (Accessed 28.06.23).
- Adamson, E. and Dewar, B. (2015) Compassionate Care: Student nurses learning through reflection and the use of story, *Nurse Education Practice*, 15(3), pp. 155-61.
- Adriaenssens, J., De Gucht, V., Van Der Doef, M., and Maes, S. (2011). Exploring the burden of emergency care: predictors of stress health outcomes in emergency nurses, *Journal of Advanced Nursing*, 67(6), pp. 1317- 1328.
- Agency for Healthcare Research and Quality (2019) *Systems Approach*. Available at: <https://psnet.ahrq.gov/primer/systems-approach>. (Accessed: 02.02.23).
- Aiken, L.H., Sloane, D.M., Bruyneel, L., Van Den Heede, K., Griffiths, P., Busse, R., Diomidous, M., Kinnunen, J., Kózka, M., Lesaffre, E., McHugh, M.D., Moreno-Casbas, M.T., Rafferty, A.M., Schwendimann, R., Scott, P.A., Tishelman, C., Van Achterberg, T. and Sermeus, W. (2014) Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study, *The Lancet*, 383(9931), pp. 1824–1830. Available at: DOI: [10.1016/S0140-6736\(13\)62631-8](https://doi.org/10.1016/S0140-6736(13)62631-8).
- Ajjawi, R., and Higgs, J. (2007). Using Hermeneutic Phenomenology to Investigate How Experienced Practitioners Learn to Communicate Clinical Reasoning. *The Qualitative Report*, 12(4), 612-638. Available at: <https://doi.org/10.46743/2160-3715/2007.1616>

Akard, T.F., Dietrich, M.S., Friedman, D.L., Hinds, P.S., Given, B., Wray, S., and Gilmer, M.J. (2015) Digital storytelling: An innovative legacy-making intervention for children with cancer, *Paediatric Blood and Cancer*, 62(4), pp. 658–665.

Alahmadi, H.A. (2010) Assessment of patient safety culture in Saudi Arabian hospitals, *Quality and Safety in Health Care*, 19(e17) pp. 1-5.

Alingh CW, van Wijngaarden JDH, van de Voorde K, Paauwe J, Huijsman R. (2019) Speaking up about patient safety concerns: the influence of safety management approaches and climate on nurses willingness to speak up, *BMJ Quality and Safety* 28(1), pp 39-48. Available at: DOI: [10.1136/bmjqs-2017-007163](https://doi.org/10.1136/bmjqs-2017-007163)

Almutairi, A.F., Gardner, G. and McCarthy, A. (2013) Perceptions of clinical safety climate of the multicultural nursing workforce in Saudi Arabia: A cross-sectional survey, *Collegian*, 20(3), pp. 187–194. Available at: <https://doi.org/10.1016/j.colegn.2012.08.002>.

Alqattan, H., Morrison, Z. and Cleland, J.A. (2019) A narrative synthesis of qualitative studies conducted to assess patient safety culture in hospital settings, *Sultan Qaboos University Medical Journal*, 19(2), pp. e91–e98. Available at: DOI: [10.18295/squmj.2019.19.02.002](https://doi.org/10.18295/squmj.2019.19.02.002)

Alquwez, N., Cruz, J.P., Almoghairi, A.M., Al-otaibi, R.S., Almutairi, K.O., Alicante, J.G. and Colet, P.C. (2018) Nurses Perceptions of Patient Safety Culture in Three Hospitals in Saudi Arabia, *Journal of Nursing Scholarship*, 50(4), pp. 422–431. Available at: <https://doi.org/10.1111/jnu.12394>

Al Sabei, S.D., Labrague, L.J., Miner Ross, A., Karkada, S., Albashayreh, A., Al Masroori, F. and Al Hashmi, N. (2020) Nursing Work Environment, Turnover Intention, Job Burnout, and Quality of Care: The Moderating Role of Job Satisfaction, *Journal of Nursing Scholarship*, 52(1), pp. 95–104. Available at: <https://doi.org/10.1111/jnu.12528>.

Alsalem, G., Bowie, P. and Morrison, J. (2018) Assessing safety climate in acute hospital settings: A systematic review of the adequacy of the psychometric properties of survey measurement tools, *BMC Health Services Research*, 18(1), pp. 1–14. Available at: <https://doi.org/10.1186/s12913-018-3167-x>

Ammouri, A.A., Tailakh, A.K., Muliira, J.K., Geethakrishnan, R., and Al Kindi, S.N. (2015) Patient safety culture among nurses, *International Nursing Review*, 62(1), pp. 102–110. Available at: <https://doi.org/10.1111/inr.12159>.

Andrade, C. (2021) The Inconvenient Truth About Convenience and Purposive Samples. *Indian Journal of Psychological Medicine*, 43(1), pp. 86-88. Available at: <https://doi.org/10.1177/0253717620977000>

Arksey, H. and O'Malley, L. (2005) Scoping studies: Towards a methodological framework, *International Journal of Social Research*, 8(1), pp. 19–32. Available at: <https://doi.org/https://doi.org/10.1080/1364557032000119616>

Armellino, D., Quinn Griffin, M.T. and Fitzpatrick, J.J. (2010) Structural empowerment and patient safety culture among Registered Nurses working in adult critical care units, *Journal of Nursing Management*, 18(7), pp. 796–803.

Available at: <https://doi.org/10.1111/j.1365-2834.2010.01130.x>.

Armstrong, R., Hall, B.J., Doyle, J. and Waters, E. (2011) Cochrane update. Scoping the Scope of a Cochrane Review, *Journal of Public Health*, 33(1), pp.147-150.

Atkins, S. and Murphy, K. (1994). Reflective Practice, *Nursing Standard*, 8(39) pp. 49-56.

Ausserhofer, D., Zander, B., Busse, R., Schubert, M., De Geest, S., Rafferty, A.M., Ball, J., Scott, A., Kinnunen, J., Heinen, M., Sjetne, I.S., Moreno-Casbas, T., Kózka, M., Lindqvist, R., Diomidous, M., Bruyneel, L., Sermeus, W., Aiken, L.H. and Schwendimann, R. (2014) Prevalence, pattern's and predictors of nursing care left undone in European hospitals: results from the multicountry cross-sectional RN4CAST study on behalf of the RN4CAST consortium, *BMJ Quality and Safety*, 23, pp. 126–135. Available at: <https://doi.org/10.1136/bmjqs-2013-002489>.

Aveyard, H. (2019) *Doing A Literature Review in Health and Social Care. A Practical Guide*. London: Open University Press.

Aydemir, A. and Koç, Z. (2023) Patient safety culture and attitudes among emergency care unit nurses in Türkiye, *Eastern Mediterranean Health Journal*, 29(3), pp. 195–204. Available at: <https://doi.org/10.26719/emhj.23.026>.

Bagnasco A, Tibaldi, L., Chirone P, Chiaranda, C., Penzone, M.S., Tangelo, D., Aleo, G., Lazzaroni, L. and Sasso, L. (2011) Patient safety culture: an Italian experience, *Journal of Clinical Nursing*, 20(7–8), pp. 1188–1195.

Bailey, J. (2008) First steps in qualitative data analysis: Transcribing, *Family Practice*, 25(2), pp. 127–131. Available at: <https://doi.org/10.1093/fampra/cmn003>.

Baillie, L (2015) Promoting and evaluating scientific rigour in qualitative research, *Nursing Standards*, 29(46) pp36-42

Ball, JE, Bruyneel, L., Aiken, L.H., Sermeus, W., Sloane, D.M., Rafferty, A.M., Lindqvist, R., Tishelman, C. and Griffiths, P. (2018) Post-operative mortality, missed care and nurse staffing in nine countries: A cross-sectional study, *International Journal of Nursing Studies*, 78, pp. 10-15. Available at: <https://doi.org/10.1016/j.ijnurstu.2017.08.004>.

Bail, K. and Grealish, L. (2016) Failure to Maintain: A theoretical proposition for a new quality indicator of nurse care rationing for complex older people in hospital, *International Journal of Nursing Studies*, 63, pp. 146–161.

Ball, J.E., Griffiths, P., Rafferty, A.M., Lindqvist, R., Murrells, T. and Tishelman, C. (2016) A cross-sectional study of care left undone on nursing shifts in hospitals, *Journal of Advanced Nursing*, 72(9), pp. 2086–2097. Available at: <https://doi.org/10.1111/jan.12976>.

Ball, J.E., Murrells, T., Rafferty, A.M., Morrow, E. and Griffiths, P. (2014) Care left undone during nursing shifts: associations with workload and perceived quality of care, *BMJ Quality and Safety*, 23, pp. 116–125. Available at: <https://doi.org/10.1136/bmjqs-2012-001767>.

Ballangrud, R., Hedelin, B. and Hall-Lord, M.L. (2012) Nurses perceptions of patient safety climate in intensive care units: A cross-sectional study, *Intensive and Critical Care Nursing*, 28(6), pp. 344–354. Available at: <https://doi.org/10.1016/j.iccn.2012.01.001>.

Ballangrud, R., Hall-Lord, M.L., Persenius, M. and Hedelin, B. (2014) Intensive care nurses perceptions of simulation-based team training for building patient safety in intensive care: A descriptive qualitative study, *Intensive and Critical Care Nursing*, 30(4), pp. 179–187. Available at: <https://doi.org/10.1016/j.iccn.2014.03.002>.

Baratto, M.A.M., Pasa, T.S., Cervo, A.S., Dalmolin, G.D.L., Mariane, C.P.P., and Magnago, T.S.B. de S. (2016) CULTURE OF PATIENT SAFETY IN THE HOSPITAL SETTING: AN INTEGRATIVE REVIEW. *Journal of Nursing UFPE online*, 10(11), pp. 4126-4136A.

Barbour, R. (2014) *Introducing Qualitative Research: A Students Guide* (2<sup>nd</sup> Ed.), London: Sage.

Barker, J. (2013) *Evidence-based practice for nurses*, London: Sage Publications.

Barusch, A., George, M. and Gringeri, C. (2011) Rigor in qualitative social research: a review of strategies used in published articles, *Social Work Research*, 35(1), pp. 11–19.

Baugh, J.B., Saber, A., Harris, H.-M.E., Hallcom, A.S. and Harris, M.E. (2010) COMPUTER ASSISTED QUALITATIVE DATA ANALYSIS SOFTWARE: A PRACTICAL PERSPECTIVE FOR APPLIED RESEARCH, *Revista del Instituto Internacional de Costos*, 6, pp. 69–81. Available at: [https://revistaiic.org/articulos/num6/articulo4\\_esp.pdf](https://revistaiic.org/articulos/num6/articulo4_esp.pdf) (Accessed:10.08.22).

Benner, P. (1984) *From novice to expert, excellence, and power in clinical nursing practice*. California: Addison-Wesley.

Berger, R. (2015) Now I see it, now I don't: Researchers position and reflexivity in qualitative research, *Qualitative Research*, 15(2), pp. 219–234. Available at: <https://doi.org/10.1177/1468794112468475>.

Berwick, D. (2013) *A promise to learn-a commitment to act Improving the Safety of Patients in England*. National Advisory Group on the Safety of Patients in England. London: Her Majesty Stationary Office.

Bettany-Saltikov, J. and McSherry, R. (2016) *How to do a Systematic Literature Review in Nursing. A step-by-step guide* (2<sup>nd</sup> Ed), London: McGraw Hill Education.

Beus, J.M., McCord, M.A. and Zohar, D. (2016) Workplace safety: A review and research synthesis. *Organizational Psychology Review*, 6(4), pp. 352–381.

Bickhoff, L., Levett-Jones, T. and Sinclair, P. M. (2016) Rocking the boat - nursing students' stories of moral courage: A qualitative descriptive study, *Nurse Education Today*, 42, pp.35–40.

Bisbey, T.M., Kilcullen, M.P., Thomas, E.J., Ottosen, M.J., Tsao, K.J. and Salas, E. (2021) Safety Culture: An Integration of Existing Models and a Framework for Understanding Its Development, *Human Factors*, 63(1), pp. 88–110.

Bishop, A. and Macdonald, M. (2017) Patient involvement in patient safety: A qualitative study of nursing staff and patient perceptions, *Journal of Patient Safety*, 13(2), pp. 82–87.

Black, S., Curzio, J. and Terry, L. (2014) Failing a student nurse: A new horizon of moral courage, *Nursing Ethics*, 21(2), pp. 224–238.

Blegen, M.A., Sehgal, N.L., Alldredge, B.K., Gearhart, S., Auerbach, A.A. and Wachter, R.M. (2010) Improving safety culture on adult medical units through multidisciplinary teamwork and communication interventions: the TOPS Project, *Quality and Safety in Health Care*, 19(4), pp. 346–350. Available at: <https://doi.org/10.1136/qshc.2008.031252>.

Bourchard, T. (1976) Unobtrusive measures: An inventory of uses. *Sociological Methods and Research*, 4, pp.267-300.

Brasaitė, I., Kaunonen, M. and Suominen, T. (2015) Healthcare professionals' knowledge, attitudes, and skills regarding patient safety: A systematic literature review, *Scandinavian Journal of Caring Sciences*, 29(1), pp. 30–50. Available at: <https://doi.org/10.1111/scs.12136>.

Braun, V. and Clarke, V. (2006) Using thematic analysis in psychology, *Qualitative Research in Psychology*, 3(2), pp. 77–101. Available at: <https://doi.org/10.1191/1478088706qp0630a>.

Braun, V. and Clarke, V. (2022) *Thematic Analysis. A Practical Guide*. London: Sage.

Brennan, T.A., Leape L, Laird, N.M., Hebert, L., Peterson, L.M., Newhouse J. P., Weiler, P.C. and Hiatt, H.H. (1991) Incident of adverse events and negligence in hospitalized patients. Results of the Harvard Medical Practice Study 1. *The New England Journal of Medicine*, 324(6), pp. 370–360.

Briant, K.J., Halter, A., Marchello, N., Escareño, M. and Thompson, B. (2016) The Power of Digital Storytelling as a Culturally Relevant Health Promotion Tool. *Health Promotion Practice*, 17(6), pp. 793–801. Available at: doi: [10.1177/1524839916658023](https://doi.org/10.1177/1524839916658023).

Brinkmann, S. and Kvale, S. (2015) *INTERVIEWS. Learning the Craft of Qualitative Research Interviewing* (3<sup>rd</sup> Ed.), London: Sage.

Bristol Royal Infirmary Inquiry (2001) *The report of the public inquiry into children's heart surgery at the Bristol Royal Infirmary 1984-1995: learning from Bristol*. London.

Brown, C., Hofer, T., Johal, A., Thomson, R., Nicholl, J., Franklin, B.D. and Lilford, R.J. (2008) An epistemology of patient safety research: a framework for study design and interpretation. Part 1. Conceptualising and developing interventions. *Quality and Safety in Health Care*, 17(3), pp158-162.

Bruner, J. (2002) *Making stories*. New York: Farrar, Strauss, and Girous.

Bryman, A. (2016) *Social Research Methods* (6<sup>th</sup> Ed.), Oxford: Oxford University Press.

Burns, R., B. (2000) *Introduction to Research Methods*. London: Sage.

Caldwell, K., Henshaw, L. and Taylor, G. (2011) Developing a framework for critiquing health research: An early evaluation, *Nurse Education Today*, 31(8), pp. e1–e7.

Callahan, M.A. and Ruchlin, H. (2003) The role of nursing leadership in establishing a safety culture, *Nurse Economics*, 21(6), pp. 296–298.

Cao, H., Song, Y., Wu, Y., Du, Y., He, X., Chen, Y., Wang, Q. and Yang, H. (2023) What is nursing professionalism? A concept analysis, *BMC Nursing*, 22(1), pp.1-14.  
Available at: <https://doi.org/10.1186/s12912-022-01161-0>.

Care Quality Commission (2022) Regulation 20: Duty of Candour. Available at: <https://www.cqc.org.uk/guidance-providers/all-services/regulation-20-duty-candour#:~:text=To%20fulfil%20the%20duty%20of,negligence%20claims%20against%20the%20NHS>. (Accessed: 24.4.23).

Carlesi, K.C., Padilha, K.G., Toffoletto, M.C., Henriquez-Roldán, C. and Juan, M.A.C. (2017) Patient Safety Incidents and Nursing Workload, *Revista Latino-Americana de Enfermagem*, 25, pp. 1-8. Available at: <https://doi.org/10.1590/1518-8345.1280.2841>.

Carter, M. (2014) Vocation and altruism in nursing: The habits of practice, *Nursing Ethics*, 21(6), pp. 695–706. Available at: <https://doi.org/10.1177/0969733013516159>.

Chaboyer, W., Bucknall, T., Webster, J., McInnes, E., Gillespie, B.M., Banks, M., Whitty, J.A., Thalib, L., Roberts, S., Tallott, M., Cullum, N. and Wallis, M. (2016) The effect of a patient centred care bundle intervention on pressure ulcer incidence (INTACT): A cluster randomised trial, *International Journal of Nursing Studies*, 64, pp. 63–71.  
Available at: <https://doi.org/10.1016/j.ijnurstu.2016.09.015>.

Chaboyer, W., Harbeck, E., Lee, B.O. and Grealish, L. (2021) Missed nursing care: An overview of reviews, *Kaohsiung Journal of Medical Sciences*. 37(2) pp. 82–91. Available at: <https://doi.org/10.1002/kjm2.12308>.

Chan, C. and Sage, M. (2019). A narrative review of digital storytelling for social work practice. *Journal of Social Work Practice*, 35(1), pp.63-67.  
Available at: <https://doi.org/10.1080/02650533.2019.1692804>.



- Chang, A., Schyve, P.M., Croteau, R.J., O’Leary, D.S., and Loeb, J.M. (2005) The JCAHO patient safety event taxonomy: A standardized terminology and classification schema for near misses and adverse events, *International Journal for Quality in Health Care*, 17(2), pp. 95–105. Available at: <https://doi.org/10.1093/intqhc/mzi021>.
- Chang, Y. and Mark, B. (2011) Effects of learning climate and registered nurse staffing on medication error, *Nurse Researcher*, 60(1), pp. 32-9 [10.1097/NNR.0b013e3181ff73cc](https://doi.org/10.1097/NNR.0b013e3181ff73cc).
- Charon, R. (2007) What to do with stories: The sciences of narrative medicine, *Canadian Family Physician*, 53(8), pp. 1265–1267.
- Chiang, H.Y., Hsiao, Y.C. and Lee, H.F. (2017) Predictors of Hospital Nurses Safety Practices Work Environment, Workload, Job Satisfaction, and Error Reporting, *Journal of Nursing Care Quality*, 32(4), pp. 359–368.
- Cho, S.M. and Choi, J.S. (2018) Patient Safety Culture Associated with Patient Safety Competencies among Registered Nurses, *Journal of Nursing Scholarship*, 50(5), pp. 549–557. Available at: <https://doi.org/10.1111/jnu.12413>.
- Choudhry, R.M., Fang, D. and Mohamed, S. (2007) The nature of safety culture: A survey of the state-of-the-art, *Safety Science*, 45(10), pp. 993–1012. Available at: <https://doi.org/10.1016/j.ssci.2006.09.003>.
- Christiansen, A. (2011) Storytelling and professional learning: A phenomenographic study of students experience of patient digital stories in nurse education, *Nurse Education Today*, 31(3), pp. 289–293. Available at: <https://doi.org/10.1016/j.nedt.2010.10.006>.
- Churrua, K., Ellis, L.A., Pomare, C., Hogden, A., Bierbaum, M., Long, J.C., Olekalns, A. and Braithwaite, J. (2021) Dimensions of safety culture: A systematic review of quantitative, qualitative, and mixed methods for assessing safety culture in hospitals, *BMJ Open*, 11(7), pp. 1-13. Available at: <https://doi.org/10.1136/bmjopen-2020-043982>.
- Çiftcioğlu, Ş., Apaydın Cırık, V. and Efe, E. (2022) Student nurses perceptions of a patient safety culture: A descriptive and cross-sectional study, *Perspectives in Psychiatric Care*, 58(2), pp. 658–663. Available at: <https://doi.org/10.1111/ppc.12830>.
- Clarke, S. (2010) An integrative model of safety climate: Linking psychological climate and work attitudes to individual safety outcomes using meta-analysis, *Journal of Occupational and Organizational Psychology*, 83(3), pp. 553–578.
- Clarke, S.G. (2000) Safety culture: Under-specified and overrated? *International Journal of Management Reviews*, 2(1), pp. 65–90. Available at: <https://doi.org/10.1111/1468-2370.00031>.
- Cobb, R. A. and Negash, S. (2010). Altered bookmaking as a form of art therapy: A narrative approach. *Journal of Family Psychotherapy*, 21(1), pp. 54–69.
- Cohen, L., Manion, L. and Morrison, K. (2007) *Research Methods in Education* (6<sup>th</sup> Ed.). New York: Routledge.



Cohen, L., Manion, L. and Morrison, K. (2011) *Research Methods in Education* (7<sup>th</sup> Ed.) Abingdon-on-Thames: Routledge.

Conlon, M.M.M., Smart, F. and McIntosh, G. (2020) Does Technology Flatten Authenticity? Exploring the Use of Digital Storytelling as a Learning Tool in Mental Health Nurse Education, *Technology, Pedagogy and Education*, 29(3), pp. 269–278.

Available at: <https://doi.org/10.1080/1475939X.2020.1760127>.

Conway, J. (2008) Getting boards on board: engaging governing boards in quality and safety, *Joint Community Journal Quality Patient Safety*, 34(4), pp. 214–220.

Coombs, D. S., and Osborne, A.C. (2018) Negotiating insider–outsider status in ethnographic sports research, *Sport in Society*, 21(20), pp. 24–59. Available at: <https://doi.org/10.1080/17430437.2016.1221938>.

Cooper, K., Hatfield, E. and Yeomans, J. (2019) Animated stories of medical error as a means of teaching undergraduates patient safety: An evaluation study, *Perspectives on Medical Education*, 8(2), pp. 118–122. Available at: <https://doi.org/10.1007/s40037-019-0498-1>.

Cooper, M.D. (2016) *Navigating the Safety Culture Construct: A Review of the Evidence*. Available at: [https://behavioural-safety.com/articles/safety\\_culture\\_review.pdf](https://behavioural-safety.com/articles/safety_culture_review.pdf) (Accessed: 8.10.2022).

Corley, M.C., Minick, P. and Elswick, R. (2005) Nurse moral distress and ethical work environment. *Nursing Ethics*, 12(4), pp. 381–390.

Cortina, J.M. (1993) What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, 78(1), pp. 98–104.

Costello, J. and Horne, M. (2001) Patients as teachers? An evaluative study of patients' involvement in classroom teaching. *Nurse Education in Practice*, 1(2), pp. 94–102.

Coventry, T.H., Maslin-Prothero, S.E. and Smith, G. (2015) Organizational impact of nurse supply and workload on nurses continuing professional development opportunities: An integrative review, *Journal of Advanced Nursing*, 71(12), pp. 2715–2727. Available at: <https://doi.org/10.1111/jan.12724>.

Cresswell, J.W. (2008) *Research Design: Qualitative, Quantitative and Mixed Methods Research* (3<sup>rd</sup> Ed.), London: Sage.

Cresswell, J.W. (2012) *Qualitative Inquiry and Research Design: Choosing among five approaches* (4<sup>th</sup> Ed), Thousand Oaks: Sage.

Cresswell, J.W. (2015) *A Concise Introduction to Mixed Methods Research*. London: Sage.

Cresswell, J.W. and Cresswell J, D. (2018) *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. London: Sage.

Cresswell, J.W. and Plano Clarke, V.L. (2011) *Designing and Conducting Mixed Methods Research*, (2<sup>nd</sup> Ed). London: Sage.

Crookes, K., Crookes, P. A. and Walsh, K. (2013). Meaningful and engaging teaching techniques for student nurses: A literature review. *Nurse Education in Practice*, 13(4), pp. 239–243. Available at: <https://doi.org/10.1016/j.nepr.2013.04.008>

Cross, N. (2011) *Design thinking: Understanding how designers think and work*. Oxford: Berg Publishers.

Cueva, M., Kuhnley, R., Lanier, A., Dignan, M., Revels, L., Schoenberg, N.E. and Cueva, K. (2016) Promoting Culturally Respectful Cancer Education Through digital storytelling, *International Journal of Indigenous Health*, 11(1), pp. 34–49. Available at: <https://doi.org/10.18357/ijih111201616013>.

Cueva, M., Kuhnley, R., Revels, L.J., Cueva, K., Dignan, M. and Lanier, A.P. (2013) Bridging storytelling traditions with digital technology, *International Journal of Circumpolar Health*, 72(SUPPL.1). Available at: <https://doi.org/10.3402/ijch.v72i0.20717>.

Curry, L.A. and Nunez-Smith, M. (2015) *Mixed Methods in Health Sciences Research: A Practice Primer*. USA: Sage.

Dagmar, L., Kate, B., and Frances, H. (2007) *Recognising and responding appropriately to early signs of deterioration in hospitalised patients*. London.

D'Alessandro, D.M., Lewis, T.E. and D'Alessandro, M.P. (2004) A pediatric digital storytelling system for third-year medical students: The virtual pediatric patients. *BMC Medical Education*, 4(1), pp.10–15.

Davis, R.E., Koutantji, M. and Vincent C A (2008) How willing are patients to question healthcare staff on issues related to the quality and safety of their healthcare? An exploratory study, *Quality and Safety in Healthcare*, 17(2), pp. 182–188.

Davis, R.E., Pinto, A., Sevdalis, N., Vincent, C., Massey, R. and Darzi, A. (2012a) Patients and health care professionals' attitudes towards the PINK patient safety video, *Journal of Evaluation in Clinical Practice*, 18(4), pp. 848–853. Available at: <https://doi.org/10.1111/j.1365-2753.2011.01688.x>.

Davis, R E, Sevdalis N, Jacklin R and Vincent C A (2012b) An examination of opportunities for the active patient in improving patient safety, *Journal of Patient Safety*, (1), pp. 36–43

Davis, R.E., Sevdalis, N., Pinto, A., Darzi, A. and Vincent, C.A. (2013) Patients attitudes towards patient involvement in safety interventions: results of two exploratory studies, *Health Expectations*, 16(4), pp. e164-76. Available at: <https://doi.org/10.1111/j.1369-7625.2011.00725.x>.

Davis, R.E., Sevdalis, N. and Vincent, C.A. (2011) Patient involvement in patient safety: How willing are patients to participate? *BMJ Quality and Safety*, 20(1), pp. 108–114.

De Bienassis, K., Kristensen, S., Burtscher, M., Brownwood, I. and Klazinga, N.S. (2020) Culture as a cure: Assessments of patient safety culture in OECD countries, *Organisation for European Co-operative and Development Health Working Papers No. 119*. pp. 1-11

De Castro, A.B. and Levesque, S. (2018) Using a digital storytelling assignment to teach public health advocacy. *Public Health Nursing*, 35(2), pp. 157–164.  
Available at: <https://doi.org/10.1111/phn.12371>.

De Jager, A., Fogarty, A., Tewson, A., Lenette, C., and Boydell, K.M. (2017) Digital storytelling in research: A systematic review, *Qualitative Report*, 22(10), pp. 2548–2582.  
Available at: <https://doi.org/10.46743/2160-3715/2017.2970>.

DeLenardo, S., Savory, J., Feiner, F., Cretu, M. and Carnegie, J. (2019) Creation and Online Use of Patient-Centred Videos, Digital Storytelling, and Interactive Self-testing Questions for Teaching Pathophysiology, *Nurse Education*, 44(6), pp. E1–5.

De Vecchi, N., Kenny, A., Dickson-Swift, V. and Kidd, S. (2016) How digital storytelling is used in mental health: A scoping review, *International Journal of Mental Health Nursing*, 25(3), pp. 183–193. Available at: <https://doi.org/10.1111/inm.12206>.

De Vecchi, N., Kenny, A., Dickson-Swift, V. and Kidd, S. (2017). Exploring the process of digital storytelling in mental health research: A process evaluation of consumer and clinician experiences. *International Journal of Qualitative Methods*, 16, pp. 1–13.

Deilkås, E.T. and Hofoss, D. (2008) Psychometric properties of the Norwegian version of the Safety Attitudes Questionnaire (SAQ), Generic version (Short Form 2006), *BMC Health Services Research*, 8(191), pp. 1–10. Available at: <https://doi.org/10.1186/1472-6963-8-191>.

Delgado, C., Upton, D., Ranse, K., Furness, T. and Foster, K. (2017) Nurses resilience and the emotional labour of nursing work: An integrative review of empirical literature, *International Journal of Nursing Studies*, 70, pp. 71–88.  
Available at: <https://doi.org/10.1016/J.IJNURSTU.2017.02.008>.

Denscombe, M. (2007) *The good research guide for small-scale social research projects* (3<sup>rd</sup> Ed.), New York: McGraw Hill.

Department of Education (2008) *Haringey Local Safeguarding Children Board. Serious Case Review Child A*, London: Department of Health.

Department of Health (2000) *An Organisation without a Memory*, London: Department of Health.

Department of Health (2001) *Building a safer NHS for patients: Implementing an organisation with memory*, London: Department of Health.

Department of Health (2006) *Safety First*, London: Department of Health.

Department of Health (2010) *NHS Outcomes Framework*, London: Department of Health.

Department of Health (2012) *Transforming Care: A national response to Winterbourne View Hospital. Department of Health Review: Final Report*, London: Department of Health.

Department of Health (2016) *National Patient Safety Strategy 2016-2018*, London: Department of Health.

Department of Health (2019) *NHS Patient Safety Strategy: Safer culture, safer systems, safer patients*, London: Department of Health.

Department of Health (2021) *Framework for Involving patients in patient safety*, London: Department of Health.

Denzin, N. K. (1978) *The Research Act. A Theoretical Introduction to Sociological Methods.*, New York: McGraw-Hill.

Denzin, N. K (2010) Moments, Mixed Methods, and Paradigm Dialogs, *Qualitative Inquiry*, 19(6), pp419-427.

Denzin, N. K. and Lincoln, Y. S. (2011) *The SAGE Handbook of Qualitative Research* (4<sup>th</sup> Ed). Thousand Oaks: Sage.

Dewey, J. (1925). *Experience and nature*, Whitefish, MT: Kessinger.

Dewey, J. (1964) *Democracy and Education. An Introduction to the Philosophy of Education*, New York: Macmillan Publishers

Dirik, H.F. and Intepeler, S.S. (2017) The work environment and empowerment as predictors of patient safety culture in Turkey, *Journal of Nursing Management*, 25, pp. 256-665. Available at: [https://nls.idls.org.uk/welcome.html?ark:/81055/vdc\\_100046123114.0x00001b](https://nls.idls.org.uk/welcome.html?ark:/81055/vdc_100046123114.0x00001b)

Dubois, C.A., D'amour, D., Tchouaket, E., Clarke, S., Rivard, M. and Blais, R. (2013) Associations of patient safety outcomes with models of nursing care organization at unit level in hospitals, *International Journal for Quality in Health Care*, 25(2), pp. 110–117. Available at: <https://doi.org/10.1093/intqhc/mzt019>.

Dupree, E., Anderson, R., McEvoy, M. D., and Brodman, M. (2011) Professionalism: A necessary ingredient in a culture of safety. *The Joint Commission Journal on Quality and Patient Safety*, 37(10), 447–455. [https://doi.org/10.1016/s1553-7250\(11\)37057-2](https://doi.org/10.1016/s1553-7250(11)37057-2).

Dykes, P.C., Duckworth, M., Cunningham, S., Dubois, S., Driscoll, M., Feliciano, Z., Ferrazzi, M., Fevrin, F.E., Lyons, S., Lindros, M.E., Monahan, A., Paley, M.M., Jean-Pierre, S. and Scanlan, M. (2017) Pilot Testing Fall TIPS (Tailoring Interventions for Patient Safety): A Patient-Centred Fall Prevention Toolkit, *Joint Commission Journal on Quality and Patient Safety*, 43(8), pp. 403–413. Available at: <https://doi.org/10.1016/j.jcjq.2017.05.002>.

Eatough, V, and Smith, J A. (2017) Interpretative Phenomenological Analysis. In: Willig, C. and Stainton-Rogers, W. (Eds.) *Handbook of Qualitative Psychology* (2<sup>nd</sup> Ed.), London: Sage, pp. 193-211.

- Edge, J., and Richard, S.K. (1998) May I See Your Warrant, Please? Justifying Outcomes in Qualitative Research, *Applied Linguistics*, 19(3), pp. 334-356.
- Edmonson, C. (2015) Strengthening moral courage among nurse leaders, *Online Journal of Issues in Nursing*, 20(2), p. 9.
- Edwards, S. (2014) Finding a place for story: looking beyond reflective practice, *International Practice Development Journal*, 4(2), pp. 1–14.  
Available at: <https://doi.org/10.19043/ipdj.42.005>.
- Eggenberger S. K. and Sanders S. K. (2016) A family nursing educational intervention supports nurses and families in an adult intensive care unit, *Australian Critical Care*, 29(4), pp. 217–223.
- Elbejjani, M., Abed Al Ahad, M., Simon, M., Ausserhofer, D., Dumit, N., Abu-Saad Huijjer, H., and Dhaini, S. R. (2020). Work environment-related factors and nurses health outcomes: A cross-sectional study in Lebanese hospitals, *BMC Nursing*, 19, pp95-99
- El-Jardali, F., Sheikh, F., Garcia, N.A., Jamal, D. and Abdo, A. (2014) Patient safety culture in a large teaching hospital in Riyadh: Baseline assessment, comparative analysis and opportunities for improvement, *BMC Health Services Research*, 14(1), pp. 1–15.  
Available at: <https://doi.org/10.1186/1472-6963-14-122>.
- Eley, D., Eley, R., Bertello, M. and Rogers-Clark, C. (2012) Why did I become a nurse? Personality traits and reasons for entering nursing, *Journal of Advanced Nursing*, 68(7), pp. 1546–1555. Available at: <https://doi.org/10.1111/j.1365-2648.2012.05955.x>.
- Elmontsri, M., Almashrafi, A., Banarsee, R. and Majeed, A. (2017) Status of patient safety culture in Arab countries: a systematic review, *BMJ Open*, 7(2), pp. 1–11.
- Elsous, A., Akbari Sari, A., AlJeesh, Y. and Radwan, M. (2017) Nursing perceptions of patient safety climate in the Gaza Strip, Palestine, *International Nursing Review*, 64(3), pp. 446–454.
- Elwyn, G. and Corrigan, J.M. (2005) The patient safety story, *British Medical Journal*, 331(7512), pp. 302–304.
- Entwistle, V.A., McCaughan, D., Watt, I.S., Birks, Y., Hall, J., Peat, M., Williams, B. and Wright, J. (2010) Speaking up about safety concern: Multi-setting qualitative study of patients views and experiences, *Quality and Safety in Health Care*, 19(6), pp.1–15.  
Available at: <https://doi.org/10.1136/qshc.2009.039743>.
- Eraut, M. (1994) *Developing Professional Knowledge and Competence*, London: Routledge.
- Ergun, A., and A. Erdemir. (2010) Negotiating insider and outsider identities in the field: “Insider” in a foreign land; “outsider” in one’s own land, *Field Methods* 22, pp.16–38.
- Escolar-Chua, R. L. (2018) Moral sensitivity, moral distress, and moral courage among baccalaureate Filipino nursing students, *Nursing Ethics*, 25(4), pp. 458–469.

Estryn-Behar, M., Van der Heijden, B. I., Oginska, H., Camerino, D., Le Nezet, O., Conway, P. M., Fry, C., and Hasselhorn, H. M. (2007). The impact of social work environment, teamwork characteristics, burnout, and personal factors upon intent to leave among European nurses, *Medical Care*, 45(10), pp. 939– 950.

Etchegaray, J. M., Ottosen, M., Dancsak, T., Thomas, E. J. (2020) Barriers to Speaking Up About Patient Safety Concerns. *Journal of Patient Safety*, 16(4), pp. e230-e234, DOI: [10.1097/PTS.0000000000000334](https://doi.org/10.1097/PTS.0000000000000334).

Etikan, I. (2016) Comparison of Convenience Sampling and Purposive Sampling, *American Journal of Theoretical and Applied Statistics*, 5(1), pp. 1-4

European Union Network for Patient Safety (2010) *A General Guide for Education and Training in Patient Safety*, European Union Network for Patient Safety: Brussels.

Evers, J. C. (2011). From the past into the future. How technological developments change our ways of data collection, transcription and analysis. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 12(1), pp. 1-31.

Fahlberg, B. (2015) Moral courage: A step beyond patient advocacy, *Nursing*, 45(6), pp. 13–14.

Falcone, R. A., Simmons, J., Carver, A. M., Mullett, B., Kotagal, M., Lin, E., Muething, S., and von Allmen, D. (2021). Perioperative Safety: Engage, Integrate, Empower, Sustain to Eliminate Patient Safety Events. *Pediatric Quality and Safety*, 6(6), p. e495. Available at: <https://doi.org/10.1097/pq9.0000000000000495>.

Falguera, C.C., De los Santos, J.A.A., Galabay, J.R., Firmo, C.N., Tsaras, K., Rosales, R.A., Mirafuentes, E.C. and Labrague, L.J. (2021) Relationship between nurse practice environment and work outcomes: A survey study in the Philippines, *International Journal of Nursing Practice*, 27(1), pp. 1-10. Available at: <https://doi.org/10.1111/ijn.12873>.

Farokhzadian, J., Dehghan Nayeri, N. and Borhani, F. (2018) The long way ahead to achieve an effective patient safety culture: Challenges perceived by nurses, *BMC Health Services Research*, 18(1), pp. 1–13. Available at: <https://doi.org/10.1186/s12913-018-3467-1>.

Fei, K. and Vlasses, F. R. (2012) Creating a Safety Culture Through the Application of Reliability Science, *Journal for Healthcare Quality*, 30(6), pp. 37–43.

Feng, X., Bobay, K. and Weiss, M. (2008) Patient safety culture in nursing: A dimensional concept analysis, *Journal of Advanced Nursing*, 63(3), pp. 310–319. Available at: <https://doi.org/10.1111/j.1365-2648.2008.04728.x>.

Fenton, G. (2014) Involving a young person in the development of a digital resource in nurse education, *Nurse Education in Practice*, 4(1), pp. 49–54.

Field, A. (2013) *Discovering Statistics Using IBM SPSS Statistics* (4<sup>th</sup> Ed.). London: Sage.



Fielding N.G. and Lee R.M. (1998) *Computer Analysis and Qualitative Research*, London: Sage.

Fillion L., Fortier M. and Goupil R.L. (2005) Educational needs of palliative care nurses in Quebec, *Journal of Palliative Care*, 21(1), pp. 12–18.

Finlayson I. R. and Corley M. (2012). Disfluency in dialogue: An intentional signal from the speaker? *Psychonomic Bulletin and Review*, 19(5), pp. 921–928.

Available at: <https://doi.org/10.3758/s13423-012-0279-x>.

Finley, L. (2008) A dance between the reduction and reflexivity: explicating the phenomenological psychological attitude, *Journal of Phenomenological Psychology*, 39(1), pp. 1-32.

Fiolet, T., Srour, B., Sellem, L., Kesse-Guyot, E., Allès, B., Méjean, C., Deschasaux, M., Fassier, P., Latino-Martel, P., Beslay, M., Hercberg, S., Lavalette, C., Monteiro, C.A., Julia, C. and Touvier, M. (2018) Consumption of ultra-processed foods and cancer risk: Results from NutriNet-Santé prospective cohort, *British Medical Journal*, 360 (K322), p. 1-11. Available at: <https://doi.org/10.1136/bmj.k322>.

Flanagan, J. (1999) Public participation in the design of educational programmes, *European Journal of Cancer Care*, 8, pp. 107–112.

Flick U. (2018) *An Introduction to qualitative research* (6<sup>th</sup> Ed.), London: Sage.

Flin, R., Burns, C., Mearns, K., Yule, S., and Robertson, E.M. (2006) Measuring safety climate in health care, *Quality and Safety in Health Care*, 15(2), pp. 109–115.

Available at: <https://doi.org/10.1136/qshc.2005.014761>.

Flin, R. (2007) Measuring safety culture in healthcare: A case for accurate diagnosis, *Safety Science*, 45(6), pp. 653–667. Available at: <https://doi.org/10.1016/J.SSCI.2007.04.003>.

Flott, K., Nelson, D., Moorcroft, T., Mayer, E.K., Gage, W., Redhead, J. and Darzi, A.W. (2018) Enhancing safety culture through improved incident reporting: A case study in translational research, *Health Affairs*, 37(11), pp. 1797–1804.

Available at: <https://doi.org/10.1377/hlthaff.2018.0706>.

Flin, R., Patey, R., Glavin, R. and Maran, N. (2010) Anaesthetists' non-technical skills, *British Journal of Anaesthesia*, 105(1), pp. 38–44. Available at: <https://doi.org/10.1093/bja/aeq134>.

Flood, A. (2010) Understanding phenomenology, *Nurse Researcher*, 17(2), pp. 7-15.

Forthofar, M.S. (2003) Status of mixed methods in the health sciences, In, Tashakkori, A., and Teddlie, C. (Eds.) *Handbook of Mixed Methods in Social and Behavioural Research*. USA: Sage.

Francis, R. (2013) *Report of the Mid-Staffordshire NHS Public Inquiry*. London. Her Majesty Stationary Office.

- Frank, A. (1997) *The Wounded Storyteller: Body, Illness, and Ethics*, Chicago: University of Chicago Press.
- Frank, A. W. (2010). *Letting stories breathe: A socio-narratology*, Chicago: University of Chicago Press.
- Frank, A.W. (2013) *The wounded storyteller* (2<sup>nd</sup> Ed.), Chicago: University of Chicago Press.
- Gadamer, H. (1990) *Truth and Method* (2<sup>nd</sup> Ed.), Crossroad: New York.
- Gallagher, A. (2011) Moral distress and moral courage in everyday nursing practice, *Online Journal of Issues in Nursing*, 16(2), pp. 1-8.
- Gallagher, L. (2007) Continuing education in nursing: a concept analysis, *Nurse Today*, 27(5), pp. 466–473.
- Gambashidze, N., Hammer, A., Ernstmann, N. and Manser, T. (2020) Psychometric properties of the Georgian version of the Safety Attitudes Questionnaire: A cross-sectional study, *BMJ Open*, 10(2), pp.1-9. Available at: <https://doi.org/10.1136/bmjopen-2019-034863>.
- Gazarian, P.K. (2010) Digital stories: Incorporating narrative pedagogy. *Journal of Nurse Education*, 49(5), pp. 287–90.
- George, D. and Mallery, P. (2020) *IBM SPSS Statistics 26 Step by Step. A Simple Guide and Reference* (16<sup>th</sup> Ed.), New York: Routledge.
- Gibson, E. (2018) Student courage: An essential for today's health education, *Nursing Forum*, 53(3), pp. 369–375.
- Gibson, E. (2019) Longitudinal learning plan for developing moral courage, *Teaching and Learning in Nursing*, 14(2), pp. 122–124.
- Gidman, J. (2013) Listening to stories: Valuing knowledge from patient experience, *Nurse Education in Practice*, 13(3), pp. 192–196.  
Available at: <https://doi.org/10.1016/j.nepr.2012.09.006>.
- Giles, S., Panagioti, M., Hernan, A., Cheraghi-Sohi, S. and Lawton, R. (2015) Contributory factors to patient safety incidents in primary care: Protocol for a systematic review, *Systematic Reviews*, 4(1), pp. 1–7. Available at: <https://doi.org/10.1186/s13643-015-0052-0>.
- Glaser, B. G., and Strauss, A.L. (1967) *The discovery of grounded theory: strategies for qualitative research*, Transaction: Chicago.
- Gläser, J., and Laudel, G. (2013) Life with and Without Coding: Two Methods for Early-stage Data Analysis in Qualitative Research Aiming at Causal Explanations, *Qualitative Social Research*, 14(2), pp. 1-37.  
Available at <https://www.qualitative-research.net/index.php/fqs/article/view/1886> (Accessed 14.02.21)



Glendon, A.I. and Litherland, D., K. (2001) Safety climate factors, group differences and safety behaviour in road construction, *Safety Science*, 39(3), pp. 157–188.

Glesne, C. (2018) *Becoming Qualitative Researchers: An Introduction* (5<sup>th</sup> Ed.), New Jersey: Pearson.

Giorgi, A. (1970) *Psychology as a human science: A phenomenologically based approach*, Harper and Row: New York.

Giorgi, A. (1985) *Phenomenology and Psychological Research*, Pittsburgh, PA: Duquesne University Press.

Giorgi, A., and Giorgi, B. (2008) Phenomenology, In J.A. Smith (Ed.) *Qualitative Psychology: A Practical Guide to Methods* (2<sup>nd</sup> Ed.), London. Sage. pp. 29-49

Goble, E., Austin, W., Larsen, D., Kreitzer, L. and Brintnell, S. (2012) *Habits of Mind and the Split-Mind Effect: When Computer-Assisted Qualitative Data Analysis Software is Used in Phenomenological Research*, 13(2), pp. 1-22.

Available at: <https://www.qualitative-research.net/index.php/fqs/article/view/1709> (Accessed 23.02.19).

Goldingay, S., Epstein, S. and Taylor, D. (2018) Simulating social work practice online with digital storytelling: Challenges and opportunities, *Social Work Education*, 37(6), pp. 790–803.

Goudreau, J., Pepin, J., Larue, C., Dubois, S., Descôteaux, R., Lavoie, P. and Dumont, K. (2015) A competency-based approach to nurses' continuing education for clinical reasoning and leadership through reflective practice in a care situation, *Nurse Education in Practice*, 15(6), pp. 572–578. Available at: <https://doi.org/10.1016/j.nepr.2015.10.013>.

Govranos, M. and Newton, J.M. (2014) Exploring ward nurses' perceptions of continuing education in clinical settings, *Nurse Education Today*, 34(4), pp. 655–660. Available at: <https://doi.org/10.1016/j.nedt.2013.07.003>.

Granel, N., Manresa-Domínguez, J.M., Watson, C.E., Gómez-Ibáñez, R. and Bernabeu-Tamayo, M.D. (2020) Nurses perceptions of patient safety culture: A mixed-methods study, *BMC Health Services Research*, 20(1) pp.1-10. Available at: <https://doi.org/10.1186/s12913-020-05441-w>.

Grant, M.J. and Booth, A. (2009) A typology of reviews: An analysis of 14 review types and associated methodologies, *Health Information and Libraries Journal*, 26(2), pp. 91–108. Available at: <https://doi.org/10.1111/j.1471-1842.2009.00848x>

Gray, J.R., Grove, S.K. and Sutherland, S. (2017) *Burns and Grove's the Practice of Nursing Research: Appraisal, Synthesis, and Generation of Evidence* (8<sup>th</sup> Ed.), Elsevier: St. Louis.

Green, J.C., Caracelli, V. J. and Graham, W.F. (1989) Toward a Conceptual Framework for Mixed-Method Evaluation Designs. *Educational Evaluation and Policy*, 11(3) pp. 255-274. Available at: <https://doi.org/10.3102/01623737011003255>.

Greenberg, C. C., Regenbogen, S. E., Studdert, D. M., Lipsitz, S.R., Rogers, S.O., Zinner, M.J. and Gawande, A. (2007) Patterns of communication breakdowns resulting in injury to surgical patients, *Journal of the American College of Surgeons*, 204 (4), pp. 533–540.  
DOI: [10.1016/j.jamcollsurg.2007.01.010](https://doi.org/10.1016/j.jamcollsurg.2007.01.010)

Greene, J. C., and Caracelli, V. J. (1997). *Advances in mixed-method evaluation: The challenges and benefits of integrating diverse paradigms*. San Francisco: Jossey-Bass.

Greene, J. and Caracelli, V. J. (2003) Making Paradigmatic Sense of Mixed Methods Inquiry. In Tashakkori, A., and Teddlie, C. (Eds.) *Handbook of Mixed Methods in Social and Behavioural Research* (pp. 91-110). CA: Sage.

Greenhalgh, T. and Hurwitz, B. (1999) Why study narrative? *British Medical Journal*, 318(7175), p. 48.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., Kyriakidou, O. and Peacock, R. (2005) Storylines of research in diffusion of innovation: a meta-narrative approach to systematic review. *Social Science and Medicine*, 61(1), pp. 417–430.

Griffiths, P., Dall'ora, C., Simon, M., Ball, J., Lindqvist, R., Rafferty, A.-M., Schoonhoven, L., Tishelman, C. and Aiken, L.H. (2014) Nurses Shift Length and Overtime Working in 12 European Countries: The Association with Perceived Quality of Care and Patient Safety. *Medical Care*, 52(11) pp. 975-981.

Griffiths, P., Recio-Saucedo, A., Dall'Orta, C., Briggs, J., Maruotti, A., Meredith, P., Smith, G.B. and Ball, J. (2018) The association between nurse staffing and omissions in nursing care: A systematic review, *Journal of Advanced Nursing*, 74(7), pp. 1474–1487.  
Available at: <https://doi.org/10.1111/jan.13564>.

Grix, J. (2004) *The Foundations of Research*, New York. Palgrave Macmillan.

Grogan, E., Stiles, R.A., France, J., S, T., Morris, A.J., Nixon, B., Gaffney, A., Seddon, R.P. and C., W. (2004) The impact of aviation-based teamwork training on the attitudes of health-care professionals, *Journal of the American College of Surgeon*, 199(6), pp. 843–848.

Guba, E. G., and Lincoln, Y. S. (1994) Competing paradigms in qualitative research. In: Denzin, N. K. and Lincoln, Y. S. (Eds.) *Handbook of Qualitative Research* (1<sup>st</sup> Ed.), Thousand Oaks: Sage. pp.105-177.

Guba, E., and Lincoln, Y.S. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N. Denzin and Y. Lincoln (Eds.), *Handbook of Qualitative Research* (3<sup>rd</sup> Ed.), Thousand Oaks: Sage. pp.191-215.

Gubrium, A. (2009). Digital storytelling: An emergent method for health promotion research and practice, *Health Promotion Practice*, 10(2), pp.186–191.  
Available at: <https://doi.org/10.1177/1524839909332600>

Gubrium, A.C., Fiddian-Green, A. Lowe, S., DiFulvio, G. and Del Toro-Mejías, L. (2016) Measuring Down: Evaluating Digital Storytelling as a Process for Narrative Health Promotion, *Qualitative Health Research*, 26(13), pp. 1787–1801.

Available at: <https://doi.org/10.1177/1049732316649353>

Gubrium, A., Fiddian-Green, A., Lowe, L., DiFulvio, G. and Peterson, J. (2019). Digital storytelling as critical narrative intervention with adolescent women of Puerto Rican descent, *Critical Public Health*, 29(3), pp. 290–301

Available at: <https://doi.org/10.1080/09581596.2018.1451622>

Gubrium, A.C., Hill, A. L., and Flicker, S. (2014a). A situated practice of ethics for participatory visual and digital methods in public health research and practice: A focus on digital storytelling, *American Journal of Public Health*, 104(9), pp.1606–1614.

Available at: doi: [10.2105/AJPH.2013.301310](https://doi.org/10.2105/AJPH.2013.301310)

Gubrium, A.C., Krause, E.L. and Jernigan, K. (2014b) Strategic Authenticity and Voice: New Ways of Seeing and Being Seen as Young Mothers Through digital storytelling, *Sexuality Research and Social Policy*, 11(4), pp. 337–347.

Available at: <https://doi.org/10.1007/s13178-014-0161-x>.

Guldenmund, F.W. (2000) The nature of safety culture: A review of theory and research, *Safety Science*, 34(1–3), pp. 215–257.

Available at: [https://doi.org/10.1016/S0925-7535\(00\)00014-X](https://doi.org/10.1016/S0925-7535(00)00014-X).

Gullick, J. and Shimadry, B. (2008) Using patient stories to improve quality of care, *Nursing Times*, 104(10), pp. 33–34.

Güneş, Ü.Y., Gürlek, Ö. and Sönmez, M. (2016) A survey of the patient safety culture of hospital nurses in Turkey, *Collegian*, 23(2), pp. 225–232.

Available at: <https://doi.org/10.1016/j.colegn.2015.02.005>.

Guse, K., Spagat, A., Hill, A., Lira, A., Heathcock, S. and Gilliam, M. (2013) (2013). digital storytelling: A novel methodology for sexual health promotion. *American Journal of Sexuality Education*, 8(4), pp. 213–227.

Guttman, O. T., Lazzara, E. H., Keebler, J. R., Webster, K.L. W., Gisick, L. M. and Baker, A. L. (2021) Dissecting Communication Barriers in Healthcare: A Path to Enhancing Communication Resiliency, Reliability, and Patient Safety, *Journal of Patient Safety*. 17(8) pp. e1456-e147.

Haigh, C. and Hardy, P. (2011) Tell me a story — a conceptual exploration of storytelling in healthcare education, *Nurse Education Today*, 31(4), pp. 408–411.

Available at: <https://doi.org/10.1016/j.nedt.2010.08.001>.

Håkansson Eklund, J., Holmström, I.K., Kumlin, T., Kaminsky, E., Skoglund, K., Högländer, J., Sundler, A.J., Condén, E., Summer Meranius, M. (2019) Same or different? A review of reviews of person-centred and patient-centred care. *Patient Education and Counselling*, 102 (1), pp. 3–11.

Hallam, J. (2000) *Nursing the image: media, image, and professional identity*. London: Routledge.

Haller, G., Garnerin, P., Morales, M.A., Pfister, R., Berner, M., Irion, O., Clergue, F., Kern, C. (2008) Effect of crew resource management training in a multidisciplinary obstetrical setting. *International Journal for Quality in Health Care*, 20(4), pp. 254-263.

Halligan, M. and Zecevic, A. (2011) Safety culture in healthcare: A review of concepts, dimensions, measures and progress, *BMJ Quality and Safety*, 20(4), pp. 338–343. Available at: <https://doi.org/10.1136/bmjqs.2010.040964>.

Hamric, A. B., Arras, J. D. and Mohrmann, M. E. (2015) Must we be courageous? *Hastings Center Report*, 45(3), pp. 33-40

Hanna DR (2004) Moral distress: The state of the science. *Research Theory and Nursing Practice*, 18, pp. 73–93.

Hardy, P. (2007) *An investigation into the application of the patient voices digital stories in healthcare education: Quality of learning, policy impact and practice-based value*. MSc dissertation, University of Ulster.  
Available at: <https://www.pilgrimprojects.co.uk/papers/phardymsc.pdf> (Accessed 28.05.22)

Hardy, P. and Sumner, T. (2018). *Cultivating compassion: How digital storytelling is transforming healthcare* (2<sup>nd</sup> Ed.), Switzerland: Palgrave Macmillan.  
Available at: <https://doi.org/10.1007/978-3-319-64146-1>.

Harrison-Dening, K. (2023) Life stories in dementia care: ensuring person-centred care, *Journal of Community Nursing*, 37(3), pp. 56–62.

Hart, C. (2018) *Doing a Literature Review: Releasing the Research Imagination* (2<sup>nd</sup> Ed.), London: Sage Publication.

Harvey, L. (1982) Research Notes. The Use and Abuse of Kuhnian Paradigms in the *Sociology of Knowledge*. *Sociology*, 16(1) pp. 85-101.  
Available at: <https://doi.org/10.1177/0038038582016001009>.

Health and Safety Commission (1993) *Third Report: Organising for Safety, ACSNI Study Group on Human Factors*. London: Health and Safety Commission.

Health Foundation (2011a) *Evidence Scan: Levels of harm*, London: The Health Foundation.

Health Foundation (2011b) *Evidence scan: Measuring Safety Culture*, London: The Health Foundation.

Health Foundation (2013) *Evidence Scan: Involving patients in patient safety*, London: The Health Foundation.

Health Research Authority (2017) *UK policy framework for health and social care research*. London: Health Research Authority.

Hedsköld, M., Sachs, M.A., Rosander, T., von Knorring, M., and Harenstam, K. (2021) Acting between guidelines and reality. Managers balancing between standardisation and adaptive behaviour in patient safety work-an interview study, *BMC Health Services Research*, 21(1), pp. 1–10. Available at: <https://doi.org/10.21203/rs.3.rs-19138/v2>.

Hegney, D., Tuckett, A., Parker, D. and Robert, E. (2010) Access to and support for continuing professional education amongst Queensland nurses, *Nurse Education Today*, 30(2) pp. 142–149.

Heidegger, M. (1962) *Being in Time*, Oxford: Blackwell

Helft P.R., Bledsoe. P.D. and Hancock, M. (2009), Facilitated ethics conversations: A novel program for managing moral distress in bedside nursing staff. *JONAS Healthcare Law Ethics Regulations*, 11(1), pp. 27–33.

Hellawell D. (2006) Inside-out: analysis of the insider-outsider concept as a heuristic device to develop reflexivity in students doing qualitative research, *Teaching in Higher Education* 11(4), pp. 483-494.

Hellenbeck, J. L. (2003) *Palliative Care Perspectives*, Oxford: Oxford University Press.

Hellings, J., Schrooten, W., Klazinga, N.S. and Vleugels, A. (2010) Improving patient safety culture, *International Journal of Health Care Quality Assurance*, 23(5), pp. 489–506. Available at: <https://doi.org/10.1108/09526861011050529>.

Herrington, J., Thomas, C. and Oliver, R. (2006). Authentic tasks online: A synergy among learner, task and technology, *Distance Education*, 27(2), pp. 233–247. Available at: <https://doi.org/10.1080/01587910600789639>.

Herron, E.K., Powers, K., Mullen, L. and Burkhart, B. (2019) Effect of case study versus video simulation on nursing students' satisfaction, self-confidence, and knowledge: A quasi-experimental study, *Nurse Education Today*, 79, pp. 139-134. Available at: <https://doi.org/10.1016/j.nedt.2019.05.015>.

Hinchman, L. and Hinchman, S. (1997) Introduction, in Hinchman, S. K. (Ed.) *Memory, identity, community: The idea of narrative in the human sciences*. New York: University of New York, pp. xiii–xxxii.

Hockey, J. (1993) Research methods – researching peers and familiar settings. *Research Papers in Education*, 8(2), pp. 199-225.

Hofstede, G. (1991) *Cultures and organizations*, London, McGraw-Hill.

Hogan, H., Healey, F., Neale, G., Thomson, R., Vincent, C. and Black, N. (2012) Preventable deaths due to problems in care in English acute hospitals: A retrospective case record review study, *BMJ Quality and Safety*, 21(9), pp. 737–745.  
Available at: <https://doi.org/10.1136/bmjqs-2011-001159>.

Holme, A. (2009) Exploring the role of patients in promoting safety: policy to practice. *British Journal of Nursing*, 18, pp. 1392–1395.

Holstein, J.A. and Gubrium, J.F. (2011) Animating Interview Narratives, in D. Silverman (Ed.) *Qualitative Research: Issues of Theory, Method, and Practice* (3<sup>rd</sup> Ed.), Los Angeles, Sage. pp. 149–167.

Hong, S., and Li, Q.J. (2017) The reasons for Chinese nursing staff to report adverse events: A questionnaire survey, *Journal of Nursing Management*, 25(3), pp. 231–239. Available at: <https://doi.org/10.1111/jonm.12461>.

Horsburgh, D. (2003) Evaluation of Qualitative Research. *Journal of Clinical Nursing*, 12(2), pp. 307–213

Horwood, C., Luthuli, S., Chiliza, J., Mapumulo, S. and Haskins, L. (2022) It's not the Destination it's the Journey: Lessons from a Longitudinal 'Mixed' Mixed-Methods Study Among Female Information Workers in South Africa, *International Journal of Qualitative Methods*, 21, pp. 1–10. Available at: <https://doi.org/10.1177/16094069221123718>.

Hovey, R.B., Morck, A., Nettleton, S., Robin, S., Bullis, D., Findlay, A. and Massfeller, H. (2010) Partners in our care: Patient safety from a patient perspective, *Quality and Safety in Health Care*, 19(6), pp. 4–7. Available at: <https://doi.org/10.1136/qshc.2008.030908>.

Howe, A. (2006). Can the patient be on our team? An operational approach to patient involvement in interprofessional approaches to safe care, *Journal of Interprofessional Care*, 20(5), pp. 527–534.

Howe, K.R. (1998) Against the quantitative-qualitative incompatibility thesis or dogmas die hard, *Educational Researcher*, 20(6), pp. 10–16.

Hrisos, S. and Thomson, R. (2013) Seeing it from both sides: Do approaches to involving patients in improving their safety risk damaging the trust between patients and healthcare professionals? An interview study, *PLoS ONE*, 8(11), pp. 1–11.  
Available at: <https://doi.org/10.1371/journal.pone.0080759>.

Hughes, F. (2013) *Strengthening health services through optimising nursing*. Health Brisbane: State of Queensland. Available at [https://www.health.qld.gov.au/\\_data/assets/pdf\\_file/0033/157569/strengtheninghltservicesplan.pdf](https://www.health.qld.gov.au/_data/assets/pdf_file/0033/157569/strengtheninghltservicesplan.pdf). (Accessed 25.10.19).

Husserl, E. (1962) *Ideas: General Introduction to Pure Phenomenology*. United States, Collier Books.



Institute of Medicine (2000) *To Err is Human: Building a Safer Health System, Professional Psychology: Research and Practice*. Washington D.C., National Academies Press.

Available at: [https://www.ncbi.nlm.nih.gov/books/NBK225182/pdf/Bookshelf\\_NBK225182.pdf](https://www.ncbi.nlm.nih.gov/books/NBK225182/pdf/Bookshelf_NBK225182.pdf) (Accessed 21.08.18).

Institute of Medicine (2001) *Crossing the Quality Chasm: A New Health System for the 21st Century*, Washington, D.C., National Academies Press.

Available at: <https://doi.org/10.17226/10027>.

International Atomic Energy Agency (1986) *SUMMARY REPORT ON THE POST-ACCIDENT REVIEW MEETING ON THE CHERNOBYL ACCIDENT. Report by the International Nuclear Safety Advisory Group*, Vienna, International Atomic Energy Agency.

Available at: <https://www.ilankelman.org/miscellany/chernobyl.pdf> (Accessed 19.07.18).

International Atomic Energy Agency (1991) *Safety Culture. A Report by the International Nuclear Safety Advisory Group*, Vienna, International Atomic Energy Agency.

Available at: [https://www-pub.iaea.org/mtcd/publications/pdf/pub882\\_web.pdf](https://www-pub.iaea.org/mtcd/publications/pdf/pub882_web.pdf) (Accessed 19.07.18).

International Atomic Energy Agency (1992) *INSAG-7 The Chernobyl Accident: Updating of INSAG-1*. Vienna: International Atomic Energy Agency. *A Report by the International Nuclear Safety Advisory Group*, Vienna, International Atomic Energy Agency.

Available at: [https://www-pub.iaea.org/mtcd/publications/pdf/pub913e\\_web.pdf](https://www-pub.iaea.org/mtcd/publications/pdf/pub913e_web.pdf) (Accessed 19.07.18).

IPSOS (2022) *Ipsos Veracity Index 2022*. Available at: <https://www.ipsos.com/en-uk/ipsos-veracity-index-2022> (Accessed: 5.11.22).

Jackson, K. and Blazeley, P. (2019) *Qualitative Data Analysis with NVivo* (3<sup>rd</sup> Ed.), London, Sage.

Jahan, N., Naveed, S., Zeshan, M. and Tahir, M.A. (2016) How to Conduct a Systematic Review: A Narrative Literature Review, *Cureus* 8(11), p. e864.

Available at: <https://doi.org/10.7759/cureus.864>.

Jameton A. (1984) *Nursing practice: the ethical issues*. Englewood Cliffs, NJ: Prentice Hall,

Jamshed, S. (2014) Qualitative research method-interviewing and observation, *Journal of Basic and Clinical Pharmacy*, 5(4), p.87.

Available at: <https://doi.org/10.4103/0976-0105.141942>.

Janerka, C., Leslie, G.D. and Gill, F.J. (2023) Development of patient-centred care in acute hospital settings: A meta-narrative review, *International Journal of Nursing Studies*, 140, pp. 1-13. Available at: <https://doi.org/10.1016/j.ijnurstu.2023.104465>.

Jeong, H.E., Nam, K.H., Kim, H.Y. and Son, Y.J. (2021) Patient safety silence and safety nursing activities: Mediating effects of moral sensitivity, *International Journal of Environmental Research and Public Health*, 18(21) pp. 1-10.

Available at: <https://doi.org/10.3390/ijerph182111499>.

Jeffs, L., Hayes, C., Smith, O., Mamdani, M., Nisenbaum, R., Bell, C. M. and Ferris, E. (2014) The effect of an organizational network for patient safety on safety event reporting, *Evaluation and the Health Professions*, 37(3), pp. 366–378.

Jirwe, M. and Rudman, A. (2012) Why choose a career in nursing? *Journal of Advanced Nursing*, 68(7), pp. 1615–1623.

Available at: <https://doi.org/10.1111/j.1365-2648.2012.05991.x>.

Johnson, R.B. (2017) Dialectical Pluralism: A Metaparadigm Whose Time Has Come, *Journal of Mixed Methods Research*, 11(2), pp. 156–173.

Available at: <https://doi.org/10.1177/1558689815607692>.

Johnson, R.B. and Onwuegbuzie, A.J. (2004) Mixed Methods Research: A Research Paradigm Whose Time Has Come, *Journal of Mixed Methods Research*, 33(7), pp. 14–26.

Johnson, R.B., Onwuegbuzie, A.J and Turner, L. A. (2007) Toward a Definition of Mixed Methods Research, *Journal of Mixed Methods Research*, 1(2), pp. 112–133. Available at: <https://doi.org/10.1177/1558689806298224>.

Johnstone, M.J. and Kanitsaki, O. (2006) The ethics and practical importance of defining, distinguishing and disclosing nursing errors: A discussion paper, *International Journal of Nursing Studies*, 43(3), pp. 367–376.

Available at: <https://doi.org/10.1016/j.ijnurstu.2005.04.010>.

Jones, T.L., Hamilton, P. and Murry, N. (2015) Unfinished nursing care, missed care, and implicitly rationed care: State of the science review, *International Journal of Nursing Studies*, 52(6), pp. 1121–1137. Available at: <https://doi.org/10.1016/J.IJNURSTU.2015.02.012>.

Jones, T., Drach-Zahavy, A., Amorim-Lopes, M. and Willis, E. (2020) Systems, economics, and neoliberal politics: Theories to understand missed nursing care, *Nursing and Health Sciences*, 22(3), pp. 586–592. Available at: <https://doi.org/10.1111/nhs.12700>.

Joseph Rowntree Foundation (2024) *UK Poverty 2024*. York, Joseph Rowntree Foundation. Available at: <https://www.jrf.org.uk/uk-poverty-2024-the-essential-guide-to-understanding-poverty-in-the-uk> (Accessed 03.03.24).

Jun, J., Siegrist, K. and Weinshenker, D. (2022) Evaluation of nurse's experiences with digital storytelling workshop: New way to engage, connect, and empower, *Journal of Nursing Management*, 30(5), pp. 1317–1323. Available at: <https://doi.org/10.1111/jonm.13619>.

Kakemam, E., Gharaee, H., Rajabi, M.R., Nadernejad, M., Khakdel, Z., Raeissi, P. and Kalhor, R. (2021) Nurses perception of patient safety culture and its relationship with adverse events: a national questionnaire survey in Iran, *BMC Nursing*, 20(1), pp. 1–11.



Kallio, H., Kangasniemi, M. and Hult, M. (2022) Registered nurses' perceptions of their career—An interview study, *Journal of Nursing Management*, 30(7), pp. 3378–3385. Available at: <https://doi.org/10.1111/jonm.13796>.

Kalánková, D., Kirwan, M., Bartoníčková, D., Cubelo, F., Žiaková, K. and Kurucová, R. (2020) Missed, rationed or unfinished nursing care: A scoping review of patient outcomes, *Journal of Nursing Management*, 28, pp. 1783–1797. Available at: <https://doi.org/10.1111/jonm.12978>.

Kalánková, D., Žiaková, K. and Kurucová, R. (2019) Approaches to understanding the phenomenon of missed/rationed/unfinished care – A literature review, *Central European Journal of Nursing and Midwifery*, 10(1), pp. 1005–1016. Available at: <https://doi.org/10.15452/CEJNM.2019.10.0007>.

Kalisch B (2006) Missed Nursing Care. A Qualitative Study, *Journal of Nursing Care Quality*, 21(4), pp. 306–313.

Kalisch, B.J., Landstrom, G.L. and Hinshaw, A.S. (2009) Missed nursing care: A concept analysis, *Journal of Advanced Nursing*, 65(7), pp. 1509–1517. Available at: <https://doi.org/10.1111/j.1365-2648.2009.05027.x>.

Kalisch, B.J. and Lee, K.H. (2010) The impact of teamwork on missed nursing care, *Nursing Outlook*, 58(5), pp. 233–241. Available at: <https://doi.org/10.1016/j.outlook.2010.06.004>.

Kalisch, B.J., Tschannen, D., Lee, H. and Friese, C.R. (2011) Hospital variation in missed nursing care, *American Journal of Medical Quality*, 26(4), pp. 291–299. Available at: <https://doi.org/10.1177/1062860610395929>.

Kalisch, B.J. and Xie, B. (2014) Errors of Omission: Missed Nursing Care, *Western Journal of Nursing Research*, 36(7), pp. 875–890. Available at: <https://doi.org/10.1177/0193945914531859>.

Karaca, A., Akin, S. and Harmanci, A.K.S. (2022) The Relationship between Perceived Quality of Care and the Patient Safety Culture of Turkish Nurses, *Journal of Nursing Research*, 30(4), pp. 1-11. Available at: <https://doi.org/10.1097/jnr.0000000000000505>.

Kastner, M., Tricco, A.C., Soobiah, C., Lillie, E., Perrier, L., Horsley, T., Welch, V., Cogo, E., Antony, J. and Straus, S.E. (2012) What is the most appropriate knowledge synthesis method to conduct a review? Protocol for a scoping review, *BMC Medical Research Methodology*, 12(114), pp.1-10. Available at: <https://doi.org/10.1186/1471-2288-12-114>.

Kearney, M. (2011) A learning design for student-generated digital storytelling, *Learning, Media and Technology*, 36(2), pp. 169–188. Available at: <https://doi.org/10.1080/17439884.2011.553623>

Kemper, P.F., de Brunijne M, van Dyke, C., So, L., Tangkau, P. and Wagner, C. (2016) Crew resource management training in the intensive care unit. A multisite controlled before–after study. *BMJ Quality and Safety*, 25(8), pp. 577–587.

Keogh, B. (2013) *Review into the quality of care and treatment provided by 14 hospital trusts in England: overview report*.

Available at: <https://wessex.hee.nhs.uk/wp-content/uploads/sites/6/2020/04/keogh-review-final-report.pdf> (Accessed 18.09.22).

Kho, M.E., Carbone, J.M., Lucas, J. and Cook, D.J. (2005) Safety Climate Survey: Reliability of results from a multicenter ICU survey, *Quality and Safety in Health Care*, 14, pp. 273–278. Available at: <https://doi.org/10.1136/qshc.2005.014316>.

Kim, K.J., Yoo, M.S. and Seo, E.J. (2018) Exploring the Influence of Nursing Work Environment and Patient Safety Culture on Missed Nursing Care in Korea, *Asian Nursing Research*, 12(2), pp. 121–126. Available at: <https://doi.org/10.1016/j.anr.2018.04.003>.

King, R.B. and Horrocks, C. (2014) *Interviews in Qualitative Research*. London: Sage.

Kingston, A., Comas-Herrera, A and Jagger, C. (2018) Forecasting the care needs of the older population in England over the next 20 years: estimates from the Population Ageing and Care Simulation (PACSim) modelling study, *The Lancet*, 3(9) pp. E447-E455.

Available at: [https://doi.org/10.1016/S2468-2667\(18\)30118-X](https://doi.org/10.1016/S2468-2667(18)30118-X).

Kinn, S. and Curzio, L. (2005) Integrating qualitative and quantitative research methods *Journal of Research in Nursing*, 10(3), pp. 317-336.

Kirk, S., Parker, D., Claridge, T., Esmail, A. and Marshall, M. (2007) Patient safety culture in primary care: developing a theoretical framework for practical use., *Quality and Safety in Healthcare*, 14(4), pp. 313–320.

Kirwan, M., Matthews, A., and Scott, P. A. (2013). The impact of the work environment of nurses on patient safety outcomes: A multi- level modelling approach. *International Journal of Nursing Studies*, 50(2), pp. 253–263. <https://doi.org/10.1016/j.ijnurstu.2012.08.020>.

Kirwan, M., Matthews, A. and Scott, P.A. (2013) The impact of the work environment of nurses on patient safety outcomes: A multi-level modelling approach, *International Journal of Nursing Studies*, 50(2), pp. 253–263. Available at: <https://doi.org/10.1016/J.IJNURSTU.2012.08.020>.

Kitson, A., Marshall, A., Bassett, K. and Zeitz, K. (2013) What are the core elements of patient-centred care? A narrative review and synthesis of the literature from health policy, medicine and nursing, *Journal of Advanced Nursing*, 69(1), pp. 4–15. Available at: <https://doi.org/10.1111/j.1365-2648.2012.06064.x>.

Kleemola, E., Leino-Kilpi, H. and Numminen, O. (2020) Care situations demanding moral courage: Content analysis of nurses' experiences, *Nursing Ethics*, 27, pp. 714–725.

Knox, S. and Burkard, A. (2009) Qualitative research interviews. *Psychotherapy Research*, 19 (4-5), pp. 566-575.

Kohn, L.T., Corrigan, J.M. and Donaldson, M.S. (2000) *To Err is Human*. Washington DC: National Academies Press (US).

- Kosmala, L. and Crible, L. (2022). The dual status of filled pauses: Evidence from genre, proficiency and co-occurrence. *Language and Speech*, 65(1), pp. 216-239. Available at: <https://doi.org/10.1177/00238309211010862>
- Kripalani, S., LeFevre, F., Phillips, C. O., Williams, M. V. Basaviah, P. and Baker, D. W. (2007) Deficits in Communication and Information Transfer Between Hospital-Based and Primary Care Physicians, *Journal of American Medical Association*, 297(8), pp. 831-841. Available at: [10.1001/jama.297.8.831](https://doi.org/10.1001/jama.297.8.831).
- Kristoffersen, M., and Friberg, F. (2015). The nursing discipline and self-realization. *Nursing Ethics*, 22(6), pp. 723–733. Available at: <https://doi.org/10.1177/0969733014543967>.
- Kuhn, T. (1996) *The Structure of Scientific Revolutions*. Chicago: University of Chicago.
- Kuper, A., Lingard, L. and Levinson, W. (2008) Critically appraising qualitative research, *BMJ*. 337, pp. 687-692.
- Labelle, J.B., Audet, L.A., Farand, P. and Rochefort, C.M. (2019) Are hospital nurse staffing practices associated with postoperative cardiac events and death? A systematic review, *PLoS ONE*, 14(10), pp. 1-18. Available at: <https://doi.org/10.1371/journal.pone.0223979>.
- Labrague, L.J. (2022) Linking nurse practice environment, safety climate and job dimensions to missed nursing care, *International Nursing Review*, 69(3), pp. 350–358. Available at: <https://doi.org/10.1111/inr.12736>.
- Lachman, V. D. (2007) Moral courage: A virtue in need of development? *MedSurg Nursing*, 16(2), pp. 131–133.
- Lake, E.T., Riman, K.A. and Sloane, D.M. (2020) Improved work environments and staffing lead to less missed nursing care: A panel study, *Journal of Nursing Management*. 28(8), pp. 2157–2165. Available at: <https://doi.org/10.1111/jonm.12970>.
- Lambert, J. (2009) Where it all started: The centre for digital storytelling in California., in J. Hartley and K. McWilliam (Eds.) *Story circle digital storytelling around the world*. Oxford: Wiley Blackwell, pp. 79–90.
- Lambert, J. (2010) *Digital Storytelling Cookbook*. Available at: <https://wrd.as.uky.edu/sites/default/files/cookbook.pdf>. (Accessed 27.07.2024)
- Lambert, J. (2013) *Digital Storytelling: Capturing Lives, Creating Community* (4<sup>th</sup> Ed.), New York: Routledge.
- Lambert, J. and Hessler, B. (2018) *Digital Storytelling: Capturing Lives, Creating Community*, (5<sup>th</sup> Ed.), New York: Routledge.
- Langdridge, D. (2007) *Phenomenological psychology: Theory, research and method*, Harlow; UK: Pearson Education.

Larkin, M., Watts, S. and Clifton, E. (2006) Giving voice and making sense in interpretative phenomenological analysis, *Qualitative Research in Psychology*, 3(2), pp. 102–120. Available at: <https://doi.org/10.1191/1478088706qp062oa>.

Larsson, I.E., Sahlsten, M.J., Segesten, K. and Plos, K.A. (2011) Patients Perceptions of barriers for participation in nursing care, *Scandinavian Journal of Caring Sciences*, 25(3), pp. 572–582.

Langberg, E.M., Dyhr, L., Davidsen, A.S., (2019) Development of the concept of patient-centredness: a systematic review. *Patient Education and Counselling*, 102(7), pp. 1228–1236

Laschinger, S., Heather, K. and Leiter, M. (2006) The Impact of Nursing Work Environments on Patient Safety Outcomes the Mediating Role of Burnout Engagement, *The Journal of Nursing Administration*, 36(5), pp. 259–267.

Latkin, C.A., Edwards, C., Davey-Rothwell, M.A., and Tobin, K.E. (2017) The relationship between social desirability bias and self-reports of health, substance use, and social network factors among urban substance users in Baltimore, Maryland, *Addictive Behaviors*, 73, pp. 133–136. Available at: <https://doi.org/10.1016/j.addbeh.2017.05.005>.

Lau, F. and Kuziemsky, C. (2016) *Handbook of eHealth Evaluation: An Evidence-based Approach*. University of Victoria: Canada.

Available at: <https://www.researchgate.net/publication/314236806>. (Accessed 19.07.22).

Lawton, R., O'Hara, J.K., Sheard, L., Armitage, G., Cocks, K., Buckley, H., Corbacho, B., Reynolds, C., Marsh, C., Moore, S., Watt, I. and Wright, J. (2017) Can patient involvement improve patient safety? A cluster randomised control trial of the Patient Reporting and Action for a Safe Environment (PRASE) intervention, *BMJ Quality and Safety*, 26(8), pp. 622–631. Available at: <https://doi.org/10.1136/bmjqs-2016-005570>.

Lawton, R., O'Hara, J.K., Sheard, L., Reynolds, C., Cocks, K., Armitage, G. and Wright, J. (2015) Can staff and patient perspectives on hospital safety predict harm-free care? An analysis of staff and patient survey data and routinely collected outcomes, *BMJ Quality and Safety*, 25, pp. 369–376. Available at: <https://doi.org/10.1136/bmjqs-2014-003691>.

LeBlanc, R.G. (2017) Digital storytelling in social justice nursing education, *Public Health Nursing*, 34(4), pp. 395–400. Available at: <https://doi.org/10.1111/phn.12337>.

Lee, S.E. and Dahinten, V.S. (2021) Psychological Safety as a Mediator of the Relationship Between Inclusive Leadership and Nurse Voice Behaviors and Error Reporting, *Journal of Nursing Scholarship*, 53(6), pp. 737–745. Available at: <https://doi.org/10.1111/jnu.12689>.

Lee, S.E., and Scott, L.D. (2018) Hospital Nurses Work Environment Characteristics and Patient Safety Outcomes: A Literature Review, *Western Journal of Nursing Research*, 40(1), pp. 121–145. Available at: <https://doi.org/10.1177/0193945916666071>.

Lee, Y.C., Huang, C.H., Hsu, C.Y. and Wu, H.H. (2016) A Longitudinal Study of Assessing the Patient Safety Culture from Nurses Viewpoints Based on the Safety Attitudes Questionnaire in Taiwan, *International Journal of Innovation, Management and Technology*, 7(6), pp. 266–271. Available at: <https://doi.org/10.18178/ijimt.2016.7.6.685>.

Leger, J.M. and Phillips, C.A. (2017) Exerting Capacity: Bedside RNs Talk About Patient Safety, *Western Journal of Nursing Research*, 39(5), pp. 660–673. Available at: <https://doi.org/10.1177/0193945916664707>.

Legislation.org (2018) Data Protection Act 2018 c.12, Available at: <https://www.legislation.gov.uk/ukpga/2018/12/contents/enacted> (Accessed 16.07.17).

Leong, C.S. (2012) Factors contributing to contemporary nursing shortage in Macao. *Journal of Nursing Management*, 20(4), pp. 491– 501.

Levac, D., Colquhoun, H. and O'Brien, K.K. (2010) Scoping studies: Advancing the methodology, *Implementation Science*, 5(1), pp. 1–9. Available at: <https://doi.org/10.1186/1748-5908-5-69>

Levett-Jones, T., Bowen, L. and Morris, A. (2015) Enhancing nursing students understanding of threshold concepts through the use of digital stories and a virtual community called Wiimali, *Nurse Education in Practice*, 15(2), pp. 91–96. Available at: <https://doi.org/10.1016/j.nepr.2014.11.014>.

Liamputtong, P. (2015) *Qualitative Research Methods* (4<sup>th</sup> Ed.), Oxford: Oxford University Press.

Lincoln, Y.S. and Guba, E.G. (1985) *Naturalistic Enquiry*. London: Sage.

Lindh, I.B., Severinsson, E. and Berg, A. (2008) Exploring student nurse's reflections on moral responsibility in practice, *Reflective Practice*, 9(4), pp. 437–448.

Lira, V.L., Campelo, S.M. de A., Branco, N.F.L.C., de Carvalho, H.E.F., de Andrade, D., Ferreira, A.M., and Ribeiro, I.P. (2020) Patient safety climate from the nursing perspective, *Revista Brasileira de Enfermagem*, 73(6), pp. 1–7. Available at: <https://doi.org/10.1590/0034-7167-2019-0606>.

Lohr, A.M., Raygoza Tapia, J.P., Valdez, E.S., Hassett, L.C., Gubrium, A.C., Fiddian-Green, A., Larkey, L., Sia, I.G. and Wieland, M.L. (2022) The use of digital stories as a health promotion intervention: A scoping review, *BMC Public Health*, 22(1), pp. 1-16.

Lohr, A.M., Van Gorden, N., McClelland, D.J., Dubinsky, E., Gerald, L.B., Wilkinson-Lee, A. and Carvajal, S.C. (2021) Updating search strategies for literature reviews with OUR2D2: An open-source computer application, *Journal of the Medical Library Association*, 109(2), pp. 317–322.



- Lohr, A.M., Vickery, K.D., Hernandez, V., Ford, B.R., Gonzalez, C., Kavistan, S., Patten, C.A., Njeru, J.W., Novotny, P.J., Larkey, L.K., Singh, D., Wieland, M.L. and Sia, I.G. (2023) Stories for change protocol: A randomized controlled trial of a digital storytelling intervention for Hispanic/Latino individuals with type 2 diabetes, *Contemporary Clinical Trials*, 126, pp. 1-9. Available at: <https://doi.org/10.1016/j.cct.2023.107093>.
- Longtin, Y., Sax, H., Leape, L.L., Sheridan, S.E., Donaldson, L. and Pittet, D. (2010) Patient participation: Current knowledge and applicability to patient safety, *Mayo Clinic Proceedings*, 85(1), pp. 53–62. Available at: <https://doi.org/10.4065/mcp.2009.0248>.
- Lopez, K.A. and Willis, D.G. (2004) Descriptive versus interpretive phenomenology: Their contributions to nursing knowledge, *Qualitative Health Research*, 14(5), pp. 726–735. Available at: <https://doi.org/10.1177/1049732304263638>.
- Lord Laming, (2003) *The Victoria Climbié Inquiry*, Norwich. Her Majesty Stationary Office.
- Lucero R G, Lake, E.T. and Aiken L H (2010) Nursing care quality and adverse events in US hospitals, *Journal of Clinical Nursing*, 19(15–16), pp. 2185–2195.
- Lyons, M. (2007) Should patients have a role in patient safety? A safety engineering view, *Quality and Safety in Health Care*, 16, pp. 140–142.
- Ma, C., Shang, J., and Bott, M. J. (2015). Linking unit collaboration and nursing leadership to nurse outcomes and quality of care. *The Journal of Nursing Administration*, 45(9), pp. 435–442. <https://doi.org/10.1097/nna.0000000000000229>.
- MacPhee M, Dahinten S and Havaei F (2017) The impact of heavy perceived nurse workloads on patient and nurse outcomes. *Administrative Sciences* 7, pp 1–17.
- Madden, C., Lydon, S., Murphy, A.W. and O'Connor, P. (2022) The patient's 'story': an examination of patient-reported safety incidents in general practice, *Family Practice*, 39(6), pp. 1095–1102. Available at: <https://doi.org/10.1093/fampra/cmac033>.
- Maggio, L.A., Sewell, J.L. and Artino, A.R. (2016) The Literature Review: A Foundation for High-Quality Medical Education Research, *Journal of Graduate Medical Education*, 8(3), pp. 297–303. Available at: <https://doi.org/10.4300/JGME-D-16-00175.1>.
- Mallorie, S (2024) *Illustrating the relationship between poverty an NHS Services*. The Kingsfund. Available at: <https://www.kingsfund.org.uk/insight-and-analysis/long-reads/relationship-poverty-nhs-services> (Accessed 12.02.24).
- Manapragada, A. and Bruk-Lee, V. (2016) Staying silent about safety issues: Conceptualizing and measuring safety silence motives, *Accident Analysis and Prevention*, 91, pp. 144–156. Available at: <https://doi.org/10.1016/j.aap.2016.02.014>.
- Mandal L, Seethalakshmi A., and Rajendrababu A. (2020) Rationing of nursing care, a deviation from holistic nursing: A systematic review, *Nursing Philosophy*, 21(1), p. e12257.

Manley, K., Martin, A., Jackson, C. and Wright, T. (2018) A realist synthesis of effective continuing professional development (CPD): A case study of healthcare practitioners' CPD, *Nurse Education Today*, 69, pp. 134–141.

Available at: <https://doi.org/10.1016/j.nedt.2018.07.010>

Mardon, R.E., Khanna, K., Sorra, J., Dyer, N. and Famolaro, T. (2010) Exploring relationships between hospital patient safety culture and adverse events, *Journal of Patient Safety*, 6(4), pp. 226-232. Available at: <https://doi.org/10.1097/PTS.0b013e3181fd1a00>.

Marlow, S.L., Lacerenza C. N., Paoletti, J., Burke, C.S. and Salas, E. (2018) A META-ANALYSIS OF TEAM COMMUNICATION Quality over Quantity? A Meta-Analysis of Team Communication and Performance, *Organizational Behavior and Human Decision Processes*, 144, pp. 145–170. Available at: <http://www.elsevier.com/open-access/userlicense/1.0/>.

Marín V.I., Tur, G. and Challinor, J. (2018) An interdisciplinary approach to the development of professional identity through digital storytelling in health and social care and teacher education, *Social Work Education*, 37(3) pp. 396–412.

Martin, H.M., Navne, L.E. and Lipczak, H. (2013) Involvement of patients with cancer in patient safety: A qualitative study of current practices, potentials and barriers, *BMJ Quality and Safety*, 22(10), pp. 836–842. Available at: <https://doi.org/10.1136/bmjqs-2012-001447>.

Matthews, C. (2014) Critical pedagogy in health education, *Health Education Journal*, 73(5), pp. 600–609. Available at: <https://doi.org/10.1177/0017896913510511>.

Mays, N., Roberts E, Popay J. (2001) 'Synthesising research evidence'. In *Methods for Studying the delivery and organization of health services*: in Fulop, N., Allen, P., Clarke, A. and Black, N. (eds). London: Routledge, p.194.

McCarthy J, Gastmans C (2015) Moral distress: A review of the argument-based nursing ethics literature. *Nursing Ethics*, 22(1), pp. 131-152.

Available at: doi:[10.1177/0969733014557139](https://doi.org/10.1177/0969733014557139)

McConnell-Henry, T., James, A., Chapman, Y., and Francis K. (2010) Researching with people you know: Issues in interviewing, *Contemporary Nurse*, 34(1), pp. 2-9.

Available at: <https://doi.org/10.5172/conu.2009.34.1.002>.

McCormack, B. and McCance, T. V. (2006) Development of a framework for person-centred nursing, *Journal of Advanced Nursing*, 56(5), pp. 472–479.

Available at: <https://doi.org/10.1111/j.1365-2648.2006.04042.x>.

McCormick, K., Salcedo, J. and Poh, A. (2015) *SPSS Statistics for Dummies* (3<sup>rd</sup> Ed.), New Jersey: John Wiley and Sons, Inc.

McCulloch. P., Mishra, A., Handa, A., Dale, T., Hirst, G. and Catchpole, K. (2009) The effects of aviation-style non-technical skills training on technical performance and outcome in the operating theatre. *Quality and Safety in Health Care*, 18(2), pp. 109-115.

McDonald, K.A., Bryce, C.L. and Graber M L (2013) Patient involvement strategies for diagnostic error mitigation, *BMJ Quality and Safety*, 22(10) pp. 789–792.

McDrury, J. and Alterio, M. (2003) Learning through Storytelling. Using Reflection and Experience to Improve Learning. US: Kogan Page.

McDrury, J. and Alterio, M. (2016) Learning through Storytelling. Using Reflection and Experience in Higher Education Contexts. London: Routledge.

McGuckin M, Waterman R, Storr J, Bowler I, C.W., Ashby M, Topley K and Porten L (2001) Evaluation of a patient empowering hand hygiene programme in the UK, *Journal of Hospital Infection*, 48(8), pp. 222–227.

McGuckin, M., Taylor A, Martin V, Porten, L. and Salcido, R. (2004) Evaluation of a patient education model for increasing hand hygiene compliance in an inpatient rehabilitation unit, *American Journal of Infection Control*, 32(4), pp. 235–238.

McLaughlin, K., Muldoon, O.T. and Moutray, M. (2010) Gender, gender roles and completion of nursing education: A longitudinal study, *Nurse Education Today*, 30(4), pp. 303–307.  
Available at: <https://doi.org/10.1016/j.nedt.2009.08.005>

McLellan, E., MacQueen, K.M. and Neidig, J.L. (2003) Beyond the Qualitative Interview: Data Preparation and Transcription, *Field Methods*, 15(1), pp. 63–84.  
Available at: <https://doi.org/10.1177/1525822X02239573>.

McMullan, M., Jones, R. and Lea, S. (2010) Patient Safety: Numerical Skills and drug calculations abilities of nursing students and Registered Nurses. *Journal of Advanced Nursing*, 66(4), pp. 891-899.

McMurray A, Chaboyer W, Wallis M, Johnson J and Gehrke T (2011) Patients perspectives of bedside nursing handover, *Collegian*, 18(1), pp. 19–26.

McQueen, A., Kreuter, M.W., Kalesan, B. and Alcaraz, K.I. (2011) Understanding Narrative Effects: The Impact of Breast Cancer Survivor Stories on Message Processing, Attitudes, and Beliefs among African American Women, *Health Psychology*, 30(6), pp. 674–682.  
Available at: <https://doi.org/10.1037/a0025395>

Mead, N, and Bower, P. (2000) Patient- centredness: a conceptual framework and review of the empirical literature. *Social Science and Medicine* 51(7), pp. 1087-1110.  
Available at: 10.1016/s0738-3991(02)00099-x.

Mead, N. and Bower, P. (2002) Patient-centred consultations and outcomes in primary care: a review of the literature. *Patient Education and Counselling*, 48(1), pp. 51-61.

Mearns, K.J. and Flin, R. (1999) Assessing the State of Organizational Safety-Culture or Climate? *Validation in Psychology*, 18(1), pp. 5–20.  
Available at: <https://doi.org/10.4324/9781351300247-1>.



Merleau-Ponty, M. (1962) *Phenomenology of Perception*. London: Routledge.

Meyer, V.M., Benjamins, S., El Mounni, M., Lange, J.F.M. and Pol, R.A. (2022) Global Overview of Response Rates in Patient and Health Care Professional Surveys in Surgery a Systematic Review, *Annals of Surgery*. 275(1), pp. e75–e81.

Available at: <https://doi.org/10.1097/SLA.0000000000004078>.

Mezirow, J. (1990) *Fostering critical reflection in adulthood*. San Francisco: Jossey-Bass.

Mezirow, J. (1991) *Transformative dimensions of adult learning*, San Francisco: Jossey-Bass.

Mezirow, J. (1997) Transformative learning: Theory to practice. In Cranton, P. (Ed.), *Transformative Learning in Action: Insights from Practice*, San Francisco: Jossey-Bass, pp. 5-12.

Mezirow, J. (2000). *Learning as transformation: Critical perspectives on a theory in progress*, San Francisco: Jossey Bass.

Miers, M. E., Rickaby, C. E., and Pollard, K. C. (2007). Career choices in health care: is nursing a special case? A content analysis of survey data. *International Journal of Nursing Studies*, 44(7), pp. 1196–1209. <https://doi.org/10.1016/j.ijnurstu.2006.04.010>

Mikecz, R. (2012) Interviewing elites: Addressing methodological issues. *Qualitative Inquiry*, 18, pp. 482–93.

Mitchell, J.I. (2012) Work life and patient safety culture in Canadian healthcare: connecting the quality dots using national accreditation results, *Healthcare Quarterly*, 15(1), pp. 51–58

Mitchell, I., Schuster, A., Smith, K., Pronovost, P. and Wu, A. (2016) Patient safety incident reporting: a qualitative study of thoughts and perceptions of experts, *BMJ Quality Safety*, 25, pp. 92–99.

Moher, D., Liberati, A., Tetzlaff, J. and Altman, D.G. (2009) Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement, *Annals of Internal Medicine*, 151(2009), pp. 264–269.

Mohsin-Shaikh, S., Garfield, S., and Franklin B. D (2014) Patient involvement in medication safety in hospital: An exploratory study, *Clinical Pharmacy*, 36, pp. 657–666.

Mojtahedzadeh, R., Mohammadi, A., Emami, A.H. and Zarei, A. (2021) How Digital Storytelling Applied in Health Profession Education: A Systematized Review, *Journal of Advances in Medical Education and Professionalism*, 9(2), pp. 63-78.

Moon, J. and Fowler, J. (2008) There is a story to be told...; A framework for the conception of story in higher education and professional development, *Nurse Education Today*, 28(2), pp. 232–239. Available at: <https://doi.org/10.1016/j.nedt.2007.05.001>.

Moreau, K.A., Eady, K., Sikora, L. and Horsley, T. (2018) digital storytelling in health professions education: a systematic review, *BMC Medical Education*, 18(1), pp. 1-8. Available at: <https://doi.org/10.1186/s12909-018-1320-1>.

Morrow, K.J., Gustavson, A.M. and Jones, J. (2016) Speaking up behaviours (safety voices) of healthcare workers: A metasynthesis of qualitative research studies, *International Journal of Nursing Studies*, 64, pp. 42–51. Available at: <https://doi.org/10.1016/j.ijnurstu.2016.09.014>.

Morse, J. M. (1991) Approaches to qualitative-quantitative methodological triangulation, *Nursing Research*, 40(2), pp. 120–123.

Morley, G., Ives, J., Bradbury-Jones, C. and Irvine, F. (2017) What is 'moral distress? A narrative synthesis of the literature, *Nursing Ethics*, 36(3) pp. 646–662. Available at: <https://doi.org/10.1177/0969733017724354>.

Mosadeghrad, M. A. (2013). Healthcare service quality: Towards a broad definition. *International Journal of Health Care Quality Assurance*, 26, pp. 203-219.

Moule, P., Aveyard, H. and Goodman, M. (2016) *Nursing Research. An Introduction* (3<sup>rd</sup> Ed.), London: Sage.

Munn, Z., Peters, M.D.J., Stern, C., Tufanaru, C., McArthur, A. and Aromataris, E. (2018) Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach, *BMC Medical Research Methodology*, 18(1), pp.1-7 Available at: <https://doi.org/10.1186/s12874-018-0611-x>.

Murphy, E., and Dingwall R, (2003) *Qualitative Methods and Health Policy Research*. New York: Aldine de Gruyter.

Murphy, R., and Higgins, A. (2018). The complex terrain of peer support in mental health: What does it all mean? *Journal of Psychiatric and Mental Health Nursing*, 25(7), pp. 441–448.

Mustard, L. (2002) The culture of patient safety., *Journal of Nursing Administration*, 4(4), pp. 111–115.

Mungai, W.N. (2019) Designing a Ph.D. proposal in mixed method research. In Md. R. Islam (ed.), *Social research methodology and new techniques in analysis, interpretation, and writing* Hershey, PA: IG Global, (pp.36-48).

Mwachofi, A., Walston, S.L. and Al-Omar, B.A. (2011) Factors affecting nurses perceptions of patient safety, *International Journal of Health Care Quality Assurance*, 24(4), pp. 274–283. Available at: <https://doi.org/10.1108/09526861111125589>.

Mynaříková, E., Jarošová, D., Janíková, E., Plevová, I. and Polanská, A. (2020) Occurrence of hospital-acquired infections in relation to missed nursing care: a literature review, *Central European Journal of Nursing and Midwifery*, 11(1), pp. 43–49.

National Institute for Health and Care Excellence (2014) Safe staffing for nursing in adult inpatient wards in acute hospitals.

Available at: <https://www.nice.org.uk/guidance/sg1/resources/safe-staffing-for-nursing-in-adult-inpatient-wards-in-acute-hospitals-pdf-61918998469> (Accessed 10.07.19).

Neumann, E. (2011) Negotiating power: Interviews with the policy elite—Stories from Hungary lost between genres. *European Educational Research Journal*, 10, pp. 225–332.

Newton, B., Rothlingova, Z., Gutteridge, R., Lemarchand, K. And Raphael, J. (2011) No room for reflexivity? Critical reflections following a systematic review of qualitative research, *Journal of Health Psychology*, 17(6), pp. 866-885.

NHS England (2019) *The NHS Patient Safety Strategy Safer culture, safer systems, safer patients*. London: NHS England.

NHS England (2020) *NRLS organisation patient safety incident reports: commentary*. London: NHS England.

NHS England (2022a) *National patient safety incident reports up to June 2022*. Available at: <https://www.england.nhs.uk/publication/national-patient-safety-incident-reports-up-to-june-2022/> (Accessed 23.07.22)

NHS England (2022b) *Freedom to speak up policy for NHS workers*. London: NHS England Available at: <https://www.england.nhs.uk/long-read/external-freedom-to-speak-up-policy-for-nhs-workers/> (Accessed: 15.08.22).

NHS England (2023a) NHS Patient Safety Syllabus training programme. Available at: <https://www.e-lfh.org.uk/programmes/patient-safety-syllabus-training/> (Accessed 23.04.23).

NHS England (2023b) *NHS Workforce Statistics – 2023*. London: NHS England. Available at: <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics/january-2023> (Accessed:13.04.23).

NHS England (2024) *Policy guidance on recording patient safety events and levels of harm*. Available at: <https://www.england.nhs.uk/long-read/policy-guidance-on-recording-patient-safety-events-and-levels-of-harm/> (Accessed 24.05.24).

NHS Health Education England (2016) *Improving Safety Through Education and Training*, Available at: <https://www.hee.nhs.uk/sites/default/files/documents/Improving%20safety%20through%20education%20and%20training.pdf> (Accessed: 04.07.23).

NHS Improvement (2018) *Levels of Harm*. London: NHS England.

Nieva, V.F. and Sorra, J. (2003) Safety culture assessment: A tool for improving patient safety in healthcare organizations, *Quality and Safety in Health Care*. 12(Suppl II) pp. ii17–ii23. Available at: [https://doi.org/10.1136/qhc.12.suppl\\_2.ii17](https://doi.org/10.1136/qhc.12.suppl_2.ii17).

Nightingale, F. (1863) *Notes on Hospitals*. London: Kings College.

Noble, H. and Smith, J. (2015) Issues of validity and reliability in qualitative research. *Evidence Based Nursing*, 18(2), pp. 34-35.

Available from: <http://ebn.bmj.com/content/ebnurs/early/2015/02/04/eb-2015-102054.full.pdf>.

Noordzij, M., Zoccali, C., Dekker, F.W. and Jager, K.J. (2011) Adding up the evidence: Systematic reviews and meta-analyses. *Clinical Practice*, 119(4), pp. c310-c316. Available at: <https://doi.org/10.1159/000328914>.

Noort, M.C., Reader, T.W. and Gillespie, A. (2021) The sounds of safety silence: Interventions and temporal patterns unmute unique safety voice content in speech, *Safety Science*, 140 (105289) pp. 1-14. Available at: <https://doi.org/10.1016/j.ssci.2021.105289>.

Numminen, O., Katajisto, J. and Leino-Kilpi, H. (2019) Development and Validation of Nurses Moral Courage Scale, *Nursing Ethics*, 26(7-8), pp. 2438–2455.

Numminen, O., Repo, H. and Leino-Kilpi, H. (2017) Moral courage in nursing: A concept analysis, *Nursing Ethics*, 24(8), pp. 878–891.

Nunthawong, J., Yunibhand, J. and Chaibawat, W. (2020) Development of Thai Moral Integrity Scale in Professional Nurses, *Pacific Rim International Journal of Nursing Research*, 24(1), pp. 102–117.

Nursing and Midwifery Council (2018) *The Code. Professional standards of practice and behaviour for nurses, midwives, and nursing associates*. London: Nursing and Midwifery Council.

Nursing and Midwifery Council (2021) Continuing Professional Development. Available at: <https://www.nmc.org.uk/revalidation/requirements/cpd/#:~:text=Requirements,-Back%20to%20topandtext=You%20must%20have%20undertaken%2035,must%20have%20included%20participatory%20learning> (Accessed 03.06.23).

Nursing and Midwifery Council (2023a) *The NMC register*. London: Nursing and Midwifery Council.

Nursing and Midwifery Council (2023b) *NMC Register Leavers Survey. Summary Report*. London: Nursing and Midwifery Council.

Nursing and Midwifery Council and General Medical Council (2022) *Openness and honesty when things go wrong: The professional duty of candour*. London: General Medical Council. Available at: <https://doi.org/10.1136/archdischild-2015-309631> (Accessed: 26.04.23)

O'Hara, J.K. and Lawton, R.J. (2016) At a crossroads? Key challenges and future opportunities for patient involvement in patient safety, *BMJ Quality and Safety*. 25, pp. 565–568. Available at: <https://doi.org/10.1136/bmjqs-2016-005476>.

Oandasan, I.F. (2009) Commentary: The way we do things around here. Advancing an inter professional care culture within primary care, *Canadian Family Physician*, 55, pp. 1173–1174.

Ockenden, D. (2022) *OCKENDEN REPORT - FINAL. FINDINGS, CONCLUSIONS AND ESSENTIAL ACTIONS FROM THE INDEPENDENT REVIEW OF MATERNITY SERVICES at The Shrewsbury and Telford Hospital NHS Trust*. London: Her Majesty Stationary Office.

Ocloo, J. and Matthews, R. (2016) From Tokenism to Empowerment: Progressing patient and public involvement in healthcare improvement, *BMJ Quality and Safety*, 25, pp. 626–632.

Office for National Statistics (2022) *UK Health Indicators: 2019 to 2020*. Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/ukhealthindicators/2019to2020> (Accessed 09.04.24).

Office for National Statistics (2023) *Profile of the older population living in England and Wales in 2021 and changes since 2011*. Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/ageing/articles/profileoftheolderpopulationlivinginenglandandwalesin2021andchangessince2011/2023-04-03>. (Accessed 05.04.24).

Ohler, J. (2006) The World of Digital Storytelling. *Educational Leadership*. 63(4), pp. 44–47.

O'Grady, E (2020) Speaking up for Safety, *Canadian Journal of Medical Laboratory Science*, 81(1), p.14.

Okuyama, A., Wagner, C. and Bijnen, B. (2014) Speaking up for patient safety by hospital-based health care professionals: A literature review, *BMC Health Services Research*, 14(61), pp.1-8. Available at: <https://doi.org/10.1186/1472-6963-14-61>.

Olsson, C., Forsberg, A. and Bjersa, K. (2016) Safety climate and readiness for implementation of evidence and person-centred practice - A national study of Registered Nurses in general surgical care at Swedish university hospitals, *BMC Nursing*, 15(54) pp. 1-12. Available at: <https://doi.org/10.1186/s12912-016-0174-2>.

Onwuegbuzie, A. J., and Johnson, R. B. (2006) The Validity Issue in Mixed Research. *Research in the Schools*, 13 (1), pp. 48-63.

Organisation for Economic Co-operation and Development (2017) cited in Slawomirski, L., Auraaen, A. and Klazinga, N.S. (2017) *The economics of patient safety: Strengthening a value-based approach to reducing patient harm at national level*, Organisation for Economic Co-operation and Development (OECD) Health Working Papers [Preprint], (96). Available at: <https://doi.org/10.1787/5a9858cd-en>.

Osmond, T. (2003) Continuing Professional Development for Nurses - An Australian Imperative, *Nursing Australia*, 4(2), pp.18-22.

Ostrom, L., Wilhelmsen, C. and Kaplan, B. (1993) Assessing Safety Culture, *Nuclear Safety*, 34(2), pp. 163–172.

Pae, C.U. (2015) Why systematic review rather than narrative review? *Psychiatry Investigation*. 12(3) pp. 417–419. Available at: <https://doi.org/10.4306/pi.2015.12.3.417>.

Palese, A., Ambrosi, E., Prosperi, L., Garner, A., Barelli, P., Zambiasi, P. and Salani, L. (2015) Missed nursing care and predicting factors in the Italian medical care setting, *International Emergency Medicine*, 10(6), pp. 693–702.

Palmieri, P. A., Peterson, L.T., Pesta, B.J., Flit, M.A. and Saettone, D, M. (2010) Safety culture as a contemporary healthcare construct: Theoretical review, research assessment, and translation to human resource management, *Strategic Human Resource Management in Healthcare*, 9, pp. 97–133.

Pagliai, G., Dinu, M., Madarena, M.P., Bonaccio, M., Lacoviello, L. and Sofi, F. (2021) Consumption of ultra-processed foods and health status: A systematic review and meta-Analysis, *British Journal of Nutrition*, 125(3), pp. 308–318.  
Available at: <https://doi.org/10.1017/S0007114520002688>

Park, S. H., Hanchett, M. and Chenjuan, M. (2018) Practice Environment Characteristics Associated with Missed Nursing Care, *Journal of Nursing Scholarship*, 50(6), pp. 722–730.

Park, E., Forhan, M. and Jones, C.A. (2021) The use of digital storytelling of patient's stories as an approach to translating knowledge: A scoping review, *Research Involvement and Engagement*, 7(58), pp. 1-19. Available at: <https://doi.org/10.1186/s40900-021-00305-x>.

Park, M., Jang, I. and Giapp, T.T.T. (2021) Walking in the patients shoes: An innovative training method using storytelling to promote knowledge transfer of patient-centered care, *Nurse Education in Practice*, 56 (2021) 103199, pp. 1-7.

Pauly, B., C. Varcoe, and J. Storch. (2012) Framing the issues: Moral distress in health care. *HEC Forum*, 24, pp 1–11. Available at: DOI: [10.1007/s10730-012-9176-y](https://doi.org/10.1007/s10730-012-9176-y).

Patient Voices (2020) *Insight through first-person stories*.  
Available at: <https://www.patientvoices.org.uk> (Accessed 21.08.22).

Parahoo, K. (2014) *Nursing research: principles, process, and issues*. New York: Macmillan International Higher Education.

Patton. M. Q. (2002). *Qualitative research and evaluation methods* (3<sup>rd</sup> Ed.), Thousand Oaks, CA: Sage Publications.

Peoples, K. (2021) *How to Write a Phenomenological Dissertation. A Step-by-Step Guide*. London: Sage Publications Inc.

Perera, K. (2021) Interviewing academic elites: A discourse analysis of shifting power relations. *Qualitative Research*, 21, pp. 215–33.

Peters M. (2000) Does constructivist epistemology have a place in nurse education? *Journal of Nurse Education*, 39, pp. 166–172.



Peters, M.D.J., Godfrey, C., McInerney, P., Khalil, H., Larsen, P., Marnie, C., Pollock, D., Tricco, A.C. and Munn, Z. (2022) Best practice guidance and reporting items for the development of scoping review protocols, *JBIE Evidence Synthesis*, 20(4), pp. 953–968. Available at: <https://doi.org/10.11124/JBIES-21-00242>.

Peters, M.D.J., Godfrey, C., McInerney, P., Munn, Z., Tricco, A.C. and Khalil, H. (2024) 'Scoping Reviews' (2020). In Aromataris E, Lockwood C, Porritt K, Pilla B, Jordan Z. (Eds). *JBIE Manual for Evidence Synthesis*. JBI. Available from: <https://synthesismanual.jbi.global>. (Accessed 16.06.24)

Peters, M.D.J., Marnie, C., Colquhoun, H., Garritty, C.M., Hempel, S., Horsley, T., Langlois, E. V., Lillie, E., O'Brien, K.K., Tunçalp, Özge., Wilson, M.G., Zarin, W. and Tricco, A.C. (2021) Scoping reviews: Reinforcing and advancing the methodology and application, *Systematic Reviews*, 10(1), pp. 1–6. Available at: <https://doi.org/10.1186/s13643-021-01821-3>.

Peters, M.D.J., Marnie, C., Tricco, A., Pollock, D., Munn, Z., Alexander, L., McInerney, P., Godfrey, C. and Khalil, H. (2020) Updated methodological guidance for the conduct of scoping reviews. *JBIE Evidence Synthesis* 18(10) pp. 2119–2126. Available at: DOI: 10.11124/JBIES-20-00167.

Petty, J. and Treves, R. (2017) Development of a digital storytelling resource to support children's nursing students in neonatal care. *Nursing Children and Young People*, 29(2), pp. 32–37. Available at: <https://doi.org/10.7748/ncyp.2024.e1518>.

Piaget, J. (1972). Intellectual evolution from adolescent to adulthood. *Human Development*, 16, pp. 346–370.

Pittet, D., Panesar, S. S., Wilson, K., Storr, J., Cleary, K. and Donaldson, L. (2011) Involving the patient to ask about hospital hand hygiene: A National Patient Safety Feasibility study, *Journal of Hospital Infection*, 77(4), pp. 299–303.

Pohjanoksa, J., Stolt, M., Suhonen, R. and Leino-Kilpi, H. (2019) Wrongdoing and whistleblowing in health care, *Journal of Advanced Nursing*, 75 (7), pp. 1504–1517.

Polit, D.F. and Beck, C.T. (2018) *Essentials of Nursing Research. Appraising Evidence for Nursing Practice* (9<sup>th</sup> Ed.), London: Wolters Kluwer.

Pollock, D., Davies, E.L., Peters, M.D.J., Tricco, A.C., Alexander, L., McInerney, P., Godfrey, C.M., Khalil, H. and Munn, Z. (2021) Undertaking a scoping review: A practical guide for nursing and midwifery students, clinicians, researchers, and academics, *Journal of Advanced Nursing*, 77(4), pp. 2102–2113. Available at: <https://doi.org/10.1111/jan.14743>.

Pollock, D., Peters, M.D.J., Khalil, H., McInerney, P., Alexander, L., Tricco, A.C., Evans, C., de Moraes, É.B., Godfrey, C.M., Pieper, D., Saran, A., Stern, C. and Munn, Z. (2023) Recommendations for the extraction, analysis, and presentation of results in scoping reviews, *JBIE evidence synthesis*, 21(3), pp. 520–532. Available at: <https://doi.org/10.11124/JBIES-22-00123>.

Price, D.M., Strodman, L., Brough, E., Lonn, S. and Luo, A. (2015) Digital Storytelling, *Nurse Educator*, 40(2), pp. 66–70.

Pronovost, P. and Sexton, B. (2005) Assessing safety culture: Guidelines and recommendations, *Quality and Safety in Health Care*, 14(4), pp. 231–233.

Public Health England (2017) *Health matters: obesity and the food environment*. Available at: <https://www.gov.uk/government/publications/health-matters-obesity-and-the-food-environment/health-matters-obesity-and-the-food-environment--2>. (Accessed 25.02.24)

Punch, K.F. (2014) *Introduction to Social Quantitative and Qualitative Approaches*. London: Sage.

Rabol, L.I., Ostergaard, D. and Mogensen, T. (2010) Outcomes of classroom-based team training interventions for multiprofessional hospital staff. A systematic review. *Quality and Safety in Health Care*, 19, pp. 1-11.

Rawas, H., and Abou Hashish, E.A. (2023) Predictors and outcomes of patient safety culture at King Abdulaziz Medical City, Jeddah, Saudi Arabia. A nursing perspective, *BMC Nursing*, 22(1), pp. 1–13. Available at: <https://doi.org/10.1186/s12912-023-01391-w>

Rashed, A. and Hamdan, M. (2015) Physicians and Nurses Perceptions of and Attitudes toward Incident Reporting in Palestinian Hospitals, *Journal of Patient Safety*, 5(11), pp. 212–217.

Rathert, C., Brandt, J., and Williams, E.S. (2012) Putting the patient in patient safety: A qualitative study of consumer experiences, *Health Expectations*, 15(3), pp. 327–336. Available at: <https://doi.org/10.1111/j.1369-7625.2011.00685.x>.

Recio-Saucedo, A., Dall'Ora, C., Maruotti, A., Ball, J., Briggs, J., Meredith, P., Redfern, O.C., Kovacs, C., Prytherch, D., Smith, G.B. and Griffiths, P. (2018) What impact does nursing care left undone have on patient outcomes? Review of the literature, *Journal of Clinical Nursing*, 27(11-12) pp. 2248–2259. Available at: <https://doi.org/10.1111/jocn.14058>.

Rehman, A.A. and Alharthi, K. (2016) An introduction to Research Paradigms, *International Journal of Educational Investigations*, 3(8), pp. 51–59.

Reiners, G.M. (2012) Understanding the differences between Husserl's (descriptive) and Heidegger's (interpretive) phenomenological research, *Journal of Nursing and Care*, 1(5), pp1-3.

Reis, C.T., Paiva, S.G. and Sousa, P. (2018) The patient safety culture: A systematic review by characteristics of Hospital Survey on Patient Safety Culture dimensions, *International Journal for Quality in Health Care*, 30(9), pp. 660–677. Available at: <https://doi.org/10.1093/intqhc/mzy080>.



Repper, J. and Breeze, J. (2007) User and carer involvement in the training and education of health professionals: A review of the literature, *International Journal of Nursing Studies*, 44(3), pp. 511–519. Available at: <https://doi.org/10.1016/j.ijnurstu.2006.05.013>.

Richards, L. (2014) *Handling qualitative data: A practical guide*, London: Sage.

Richards, D.P., Poirier, S., Mohabir, V., Proulx, L., Robins, S. and Smith, J. (2023) Reflections on patient engagement by patient partners: How it can go wrong, *Research Involvement and Engagement*, 9(41), pp. 1-8. Available at: <https://doi.org/10.1186/s40900-023-00454-1>.

Richardson, A. and Storr, J. (2010) Patient safety: an iterative review on the impact of nursing empowerment, leadership and collaboration, *International Nursing Review*, 57(1), pp. 12–21.

Ricks, L., Kitchens, S., Goodrich, T. and Hancock, E. (2014). My story: The use of Narrative Therapy in individual and group counselling. *Journal of Creativity in Mental Health*, 9(1), pp. 99–110.

Ridelberg, M., Roback, K. and Nilsen, P. (2014) Facilitators and barriers influencing patient safety in Swedish hospitals: A qualitative study of nurses perceptions, *BMC Nursing*, 13(1), pp. 1-12. Available at: <https://doi.org/10.1186/1472-6955-13-23>.

Rimando, M., Smalley, K.B. and Warren, J.C. (2015) Design, implementation, and lessons learned from a digital storytelling project in an undergraduate health promotion theory course. *Journal of Health Education Teaching*, 6(1), pp. 1–10.

Robbins, J. and McAlearney, A.S. (2016) Encouraging employees to speak up to prevent infections: Opportunities to leverage quality improvement and care management processes. *American Journal of Infection Control*, 44(11) pp.1224-1230. Available at: DOI: [10.1016/j.ajic.2016.03.007](https://doi.org/10.1016/j.ajic.2016.03.007).

Roberts, K., Casey, M., Coghlan, D., Cornall, C., Hudson, C., Stokes, D. and Carroll, A. (2021) A scoping review protocol to map the evidence on the use of action research methodology by healthcare professionals and in healthcare team settings, *HRB Open Research*, 4 (68), pp. 1-10. Available at: <https://doi.org/10.12688/hrbopenres.13275.1>.

Robin, B. R. (2008) Digital storytelling: A powerful technology tool for the 21st century classroom. *Theory Practice*, 47(3), pp. 220-228.

Robinson, O.C. (2014) Sampling in Interview-Based Qualitative Research: A Theoretical and Practical Guide, *Qualitative Research in Psychology*, 11(1), pp. 25–41.

Robson, C. (2009) *Real World Research*, Oxford: Blackwell.

Rodriguez-Almagro, J., Prado-Laguna, M. D. C., Hernandez-Martinez, A., Monzon-Ferrer, A., Munoz-Camargo, J. C. and Martin-Lopez, M. (2021) The Impact on Nursing Students of Creating Audiovisual Material through Digital Storytelling as a Teaching Method, *International Journal of Environmental Research and Public Health*, 18(2), pp.1-10.

Rolfe, G. (2006) Validity, trustworthiness and rigour: quality and the idea of qualitative research, *Journal of Advanced Nursing*, 53 (3), pp. 304-310.

Rolfe, G., Freshwater, D., and Jasper, M. (2001) *Critical reflection in nursing and the helping professions: A user's guide*, Basingstoke: Palgrave Macmillan.

Rorty, R. (1990) Pragmatism as antipresentationalism, in Murphy, J.P., and Murphy, A. R. (Eds.) *Pragmatism: From Peirce to Davison*. Boulder, CO: Westview, pp. 1–6.

Rose, P. and Gidman, J. (2010) Evidence-based practice within values-based care. In: Rose, P., and McCarthy, J. (Eds.) *Values-Based Health and Social Care. Beyond Evidence-Based Practice*. London: Sage, pp. 25–47.

Rose, R., Chakraborty, S., Mason-Lai, P., Brocke, W., Page, S.A. and Cawthorpe, D. (2015) The storied mind: A meta-narrative review exploring the capacity of stories to foster humanism in health care, *Journal of Hospital Administration*, 5(1), pp. 52-61.  
Available at: <https://doi.org/10.5430/jha.v5n1p52>.

Ross-Walker, C., Rogers-Clarke, C. and Pearce, S. (2012) A systematic review of Registered Nurses; Experiences of the influence of workplace culture and climatic factors on nursing workloads, *JBHI Evidence Synthesis*, 10(49), pp. 3080–3145.

Runciman, W, Hibbert, P, Thomson, R, Van Der Schaaf, T, Sherman, H, Lewalle, P, Runciman, William, Hibbert, Peter, Thomson, Richard, Van Der Schaaf, Tjerk, Sherman, Heather and Lewalle, Pierre (2009) Towards an International Classification for Patient Safety: Key concepts and terms, *International Journal for Quality in Health Care*, 21(1), pp. 18–26.  
Available at: <https://doi.org/10.1093/intqhc/mzn057>.

Rushton, C.H. (2006) Defining and addressing moral distress. *AACN Advanced Critical Care*, 17(2), pp. 161–168.

Sadooghiasl, A., Parvizy, S. and Ebadi, A. (2018) Concept analysis of moral courage in nursing: A hybrid model. *Nursing Ethics*, 25(1), pp. 6–19.

Sahlström, M., Partanen, P., Azimirad, M., Selander, T. and Turunen, H. (2019) Patient participation in patient safety—An exploration of promoting factors, *Journal of Nursing Management*, 27(1), pp. 84–92. Available at: <https://doi.org/10.1111/jonm.12651>.

Salas, E., DiazGranados, D., Klein, C., Burke, C.S., Stagl, K.C., Goodwin, G.F. and Halpin, S.M. (2008) Does team training improve team performance? A meta-analysis, *Human Factors*, 50(6), pp. 903–933. Available at: <https://doi.org/10.1518/001872008X375009>.

Sammer, C.E. and James, B.R. (2011) Patient Safety Culture: The Nursing Unit Leaders Role, *Online Journal of Issues in Nursing*, 16(3), Manuscript 3.  
Available at: <https://doi.org/10.3912/OJIN.Vol16No03Man03>.

- Sammer, C.E., Lykens, K., Singh, K.P., Mains, D.A. and Lackan, N. A. (2010) What is patient safety culture? A review of the literature. *Journal of Nursing Scholarship*, 42(2) pp. 156-65. Available at: <https://doi.org/10.1111/j.1547-5069.2009.01330.x>
- Sarkhosh, S., Abdi, Z. and Ravaghi, H. (2022) Engaging patients in patient safety: A qualitative study examining healthcare managers and providers perspectives, *BMC Nursing*, 21(374), pp. 1-12. Available at: <https://doi.org/10.1186/s12912-022-01152-1>.
- Schindler, T.M. (2015) Variability, Range, Interquartile Range, and Standard Deviation, *American Medical Writers Association Journal*, 30(3), pp. 132–132.
- Schmidt, B. J., and McArthur, E. C. (2018). Professional nursing values: A concept analysis. *Nursing Forum*, 53(1), pp. 69–75. <https://doi.org/10.1111/nuf.12211>.
- Schnall, R., Stone, P., Currie, L., Desjardins, K., John, R.M. and Bakken, S. (2008) Development of a self-report instrument to measure patient safety attitudes, skills, and knowledge, *Journal of Nursing Scholarship*, 40(4), pp. 391–394. Available at: <https://doi.org/10.1111/j.1547-5069.2008.00256.x>.
- Schneider, B. (1990) *Organizational climate and culture*. San Francisco: Jossey-Bass.
- Schneider, B., Ehrhart, M.G. and Macey, W.H. (2013) Organizational climate and culture, *Annual Review of Psychology*, 64, pp. 361–388. Available at: <https://doi.org/10.1146/annurev-psych-113011-143809>.
- Schneider, B., González-Romá, V., Ostroff, C. and West, M.A. (2017) Organizational climate and culture: Reflections on the history of the constructs, *Journal of Applied Psychology*, 102(3), pp. 468–482.
- Schön, D.A. (1983) *The Reflective Practitioner: How Professionals Think in Action*, New York: Basic Books.
- Schubert, M., Ausserhofer, D., Desmedt, M., Schwendimann, R., Lesaffre, E., Li, B. and De Geest, S. (2013) Levels and correlates of implicit rationing of nursing care in Swiss acute care hospitals—A cross-sectional study, *International Journal of Nursing Studies*, 50(2), pp. 230–239. Available at: <https://doi.org/10.1016/J.IJNURSTU.2012.09.016>.
- Schubert, M., Glass, T.R., Clarke, S.P., Aiken, L.H., Schaffert-Witvliet, B., Sloane, D.M. and De Geest, S. (2008) Rationing of nursing care and its relationship to patient outcomes: The Swiss extension of the International Hospital Outcomes Study, *International Journal for Quality in Health Care*, 20(4), pp. 227–237. Available at: <https://doi.org/10.1093/intqhc/mzn017>.
- Schwandt, T.A. (1997) *Qualitative Inquiry: A Dictionary of Terms*. Thousand Oaks: Sage.
- Schwappach, D.L. (2010) Review: Engaging patients as vigilant partners in safety: A systematic review, *Medical Care Research and Review*, 67(2), pp. 119–149.

Schwappach, D.L.B., Frank, O., Buschmann, U. and Babst, R. (2013a) Effects of an educational patient safety campaign on patients' safety behaviours and adverse events, *Journal of Evaluation in Clinical Practice*, 19(2), pp. 285–291.

Available at: <https://doi.org/10.1111/j.1365-2753.2012.01820.x>.

Schwappach, D.L.B., Frank, O., and Davis, R.E. (2013b) A vignette study to examine health care professionals' attitudes towards patient involvement in error prevention, *Journal of Evaluation in Clinical Practice*, 19(5), pp. 840–848.

Available at: <https://doi.org/10.1111/j.1365-2753.2012.01861.x>.

Schwappach, D.L.B. and Gehring, K. (2014) 'Saying it without words': A qualitative study of oncology staff's experiences with speaking up about safety concerns, *BMJ Open*, 4(5), pp. 1–8. Available at: <https://doi.org/10.1136/bmjopen-2013-004740>

Schwappach, D.L.B. and Niederhauser, A. (2019) Speaking up about patient safety in psychiatric hospitals – a cross-sectional survey study among healthcare staff, *International Journal of Mental Health Nursing*, 28(6), pp. 1363–1373.

Available at: <https://doi.org/10.1111/inm.12664>.

Schwappach, D. and Richard, A. (2018) Speak up-related climate and its association with healthcare workers speaking up and withholding voice behaviours: A cross-sectional survey in Switzerland, *BMJ Quality and Safety*, 27(10). Available at: <https://doi.org/10.1136/bmjqs-2017-007388>.

Schwappach, D., Sendlhofer, G., Häslar, L., Gombotz, V., Leitgeb, K., Hoffmann, M., Jantscher, L. and Brunner, G. (2018) Speaking up behaviours and safety climate in an Austrian university hospital, *International Journal for Quality in Health Care*, 30(9), pp. 701–707.

Schwartz, M. and Abbott, A. (2007) Storytelling: A clinical application for undergraduate nursing students, *Nurse Education in Practice*, 7(3), pp. 181–186.

Available at: <https://doi.org/10.1016/j.nepr.2006.06.005>.

Schweitzer, D.J. and Krassa, T.J. (2010) Deterrents to nurses' participation in continuing professional development: An integrative literature review, *Journal of Continuing Education in Nursing*, 41(10), pp.441–447. Available at: DOI: [10.3928/00220124-20101001-04](https://doi.org/10.3928/00220124-20101001-04)

Schwendimann, R., Zimmermann, N., Küng, K., Ausserhofer, D. and Sexton, B. (2013) Variation in safety culture dimensions within and between US and Swiss hospital units: An exploratory study, *BMJ Quality and Safety*, 22(1), pp. 32–41.

Available at: <https://doi.org/10.1136/bmjqs-2011-000446>.

Schultz, M. (1995) *On studying organizational cultures*. New York: Walter de Gruyter.

Seifert, K. and Sutton, R. (2010) *Educational Psychology* (2<sup>nd</sup> Ed.), US: University Press of Florida.

Sendlhofer, G., Wölfler, C. and Pregartner, G. (2015) Patient safety culture within a university hospital: Feasibility trial, *Safety in Health*, 1(14), pp. 1-5.  
Available at: <https://doi.org/10.1186/s40886-015-0004-3>.

Seo, J.K. and Lee, S.E. (2022) Hospital management, supervisor support and nurse speaking-up behaviours: The mediating role of safety culture perception, *Journal of Nursing Management*, 30(7), pp. 3160–3167. Available at: <https://doi.org/10.1111/jonm.13737>.

Serrano, M.M., O'Brien, M., Roberts, K., and Whyte, D. (2018) Critical pedagogy and assessment in higher education. The ideal of 'authenticity' in learning. *Active Learning in Higher Education*, 19(1), pp. 19–21. Available at: DOI: [10.1177/1469787417723244](https://doi.org/10.1177/1469787417723244).

Sexton, J.B., Helmreich, R.L., Neilands, T.B., Rowan, K., Vella, K., Boyden, J., Roberts, P.R., and Thomas, E.J. (2006) The Safety Attitudes Questionnaire: Psychometric properties, benchmarking data, and emerging research, *BMC Health Services Research*, 6(44), pp.1-10. Available at: <https://doi.org/10.1186/1472-6963-6-44>.

Shannon-Baker, P. (2016) Making Paradigms Meaningful in Mixed Methods Research, *Journal of Mixed Methods Research*, 10(4), pp. 319–334.  
Available at: <https://doi.org/10.1177/1558689815575861>.

Sharp, S., Mcallister, M. and Broadbent, M. (2018) The tension between person centred and task focused care in an acute surgical setting: A critical ethnography, *Collegian*, 25(1), pp. 11–17. Available at: <https://doi.org/10.1016/j.colegn.2017.02.002>.

Sharpe, V. and Faden, A. (1998) *Medical Harm. Historical, Conceptual and Ethical Dimensions of Iatrogenic Illness*. Cambridge: Cambridge University Press.

Shaw, R. (2010) Embedding Reflexivity Within Experiential Qualitative Psychology. *Qualitative Research in Psychology*, 7(3), pp 233-243.

Shellenbarger, T. and Robb, M. (2015) Technology-based strategies for promoting clinical reasoning skills in nursing education, *Nurse Educator*, 40(2), pp. 79–82.  
Available at: <https://doi.org/10.1097/NNE.0000000000000111>.

Shenton, A. (2004) Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22(2), pp. 63-75.

Sherman, H., Castro, G., Fletcher, M., Hatlie M, Hibbert, P., Jakob, R., Koss, R., Lewalle, P., Loeb, J., Perneger, T., Runciman, W., Thomas, R., Van Der Schaaf, T. and Vitanen M (2009) Towards an International Classification for Patient Safety: The conceptual framework, *International Journal for Quality in Health Care*, 21(1), pp. 2–8.

Shostek, K. (2007) Developing a culture of safety in ambulatory care settings, *Journal of Ambulatory Care Settings*, 30(2), pp. 105–113.

Simmonds, A. H., Peter, E., Hodnett, E. D. and McGillis Hall, L. (2013) Understanding the moral nature of Intrapartum nursing, *Journal of Obstetric, Gynaecologic and Neonatal Nursing*, 42(2), 148–156.



Singer, S., Lin, S., Falwell, A., Gaba, D. and Baker, L. (2009) Relationship of safety climate and safety performance in hospitals, *Health Services Research*, 44(2P1), pp. 399–421. Available at: <https://doi.org/10.1111/J.1475-6773.2008.00918.X>.

Singla, A.K., Kitch, B.T., Weissman, J.S. and Campbell, E.G. (2006) Assessing patient safety culture: A review and synthesis of the measurement tools, *Journal of Patient Safety*, 2(3), pp. 105–115. Available at: <https://doi.org/10.1097/01.jps.0000235388.39149.5a>.

Slawomirski, L., Auraaen, A. and Klazinga, N.S. (2017) *The economics of patient safety: Strengthening a value-based approach to reducing patient harm at national level*, Organisation for Economic Co-operation and Development (OECD) Health Working Papers [Preprint], (96). Available at: <https://doi.org/10.1787/5a9858cd-en>.

Slevin, E. and Sines, D. (2000) Enhancing the truthfulness, consistency and transferability of a qualitative study: Utilising a manifold of approaches, *Nurse Researcher*, 7(2), pp. 79-98.

Smith, J.A. (2004) Reflecting on the development of interpretative phenomenological analysis and its contribution to qualitative research in psychology, *Qualitative Research in Psychology*, 1(1), pp. 39–54.

Smith, J.A., Flowers, P. and Larkin, M. (2009) *Interpretative Phenomenological Analysis*, (1<sup>st</sup> Ed.), London: Sage.

Smith, J.A., Flowers, P. and Larkin, M. (2022) *Interpretative Phenomenological Analysis. Theory, Method, and Research* (2<sup>nd</sup> Ed.), London: Sage.

Smith, J.A. and Nizza, I.E. (2022) *Essentials of Interpretative Phenomenological Analysis*. Washington DC: American Psychological Association. Available at: <https://doi.org/10.1037/0000259-000>.

Smith, J. A., and Osborn, M. (2003). Interpretative phenomenological analysis. In Smith, J. A. (Ed.), *Qualitative psychology: A practical guide to research methods*, London: Sage Publications, Inc. pp. 51-58

Soh, S.E., Barker, A., Morello, R., Dalton, M. and Brand, C. (2016) Measuring safety climate in acute hospitals: Rasch analysis of the safety attitudes questionnaire, *BMC Health Services Research*, 16(1), pp. 1–9. Available at: <https://doi.org/10.1186/s12913-016-1744-4>.

Sorra, J.S. and Dyer, N. (2010) *Multilevel psychometric properties of the AHRQ hospital survey on patient safety culture*, *Health Services Research*. Available at: <http://www.biomedcentral.com/1472-6963/10/199>. (Accessed 15.04.21).

Sorra, J., Gray, L., Streagle, S., Famolaro, T., Yount, N. and Behm, J. (2018) *Hospital survey on patient safety culture: user's guide*. Agency of Healthcare Research in Quality. Available at <https://www.ahrq.gov/sites/default/files/wysiwyg/sops/surveys/hospital/hospital-user-guide.pdf> (Accessed 16.09.21).

Sorra, J. and Nieva, V. (2004) *Hospital Survey on Patient Safety Culture*. Available at: <http://www.ahrq.gov>. (Accessed 17.06.17).

Soydemir, D., Intepeler, S. S. and Mert, H. (2017) Barriers to Medical Error Reporting for Physicians and Nurses, *Western Journal of Nursing Research*, 39(10), pp. 1348–1363. Available at: <https://doi.org/10.1177/0193945916671934>.

Spinelli, E. (2005) *The Interpreted World. An Introduction to Phenomenological Psychology*. Sage: London

Squire, C. (2009) From experience-centred to socioculturally-oriented approaches to narrative. In Andrews, M., Squire, C. and Tamboukou, M. (Eds.) (2009) *Doing Narrative Research*. Los Angeles: Sage. pp 47-71.

Srour, B., Fezeu, L.K., Kesse-Guyot, E., Allès, B., Méjean, C., Andrianasolo, R.M., Chazelas, E., Deschasaux, M., Hercberg, S., Galan, P., Monteiro, C.A., Julia, C. and Touvier, M. (2019) Ultra-processed food intake and risk of cardiovascular disease: Prospective cohort study (NutriNet-Santé), *British Medical Journal*, 365(l11451) pp. 1-14. Available at: DOI: [10.1136/bmj.l1451](https://doi.org/10.1136/bmj.l1451).

Stacey, G. and Hardy, P. (2011) Challenging the shock of reality through digital storytelling, *Nurse Education in Practice*, 11(2), pp. 159–164. Available at: <https://doi.org/10.1016/j.nepr.2010.08.003>.

Stalpers, D., de Brouwer, B.J.M., Kaljouw, M.J. and Schuurmans, M.J. (2015) Associations between characteristics of the nurse work environment and five nurse-sensitive patient outcomes in hospitals: A systematic review of literature, *International Journal of Nursing Studies*, 52(4), pp. 817–835. Available at: <https://doi.org/10.1016/J.IJNURSTU.2015.01.005>.

Stantcheva, S. (2023) How to Run Surveys: A Guide to Creating Your Own Identifying Variation and Revealing the Invisible, *Annual Review of Economics*, 15, pp. 205–234. Available at: <https://doi.org/10.1146/annurev-economics-091622-010157>.

Statista (2019) *Gender distribution of nurses worldwide from 2000 to 2018*. Available at: <https://www.statista.com/statistics/1099804/distribution-of-nurses-across-regions-worldwide-by-gender/> (Accessed:19.04.20).

Stenhouse. R., Tait. J., Hardy. P. and Sumner, T. (2013) Dangling conversations: Reflections on the process of creating digital stories during a workshop with people with early-stage dementia. *Journal of Psychiatric Mental Health Nursing*, 20(2), pp. 134–41.

Stone, P.W., Du, Y. and Gershon, R.R.M. (2007) Organizational climate and occupational health outcomes in hospital nurses, *Journal of Occupational and Environmental Medicine*, 49(1), pp. 50–58. Available at: <https://doi.org/10.1097/01.jom.0000251622.05429.0c>.

Stone, S., Slade R., Charlette B., Cookson B, Teare, L., Jeanes, B., Cooper, A., Roberts, J., Duckworth, G., Hayward, A., McAteer, J. and Michie, S. (2007) Early communication: does a national campaign to improve hand hygiene in the NHS work? Initial English and Welsh experience from the NOSEC study (National Observational Study to Evaluate the Clean Your Hands Campaign), *Journal of Hospital Infection*, 66(3), pp. 293–296.

StoryCenter. (2013). *Full circle*.

Available at: <https://www.storycenter.org/storycenter-blog/blog/2013/2/26/full-circle.html>.

(Accessed 16.06.24).

Streubert, H.J. and Carpenter, D.R. (2011) *Qualitative Research in Nursing: Advancing the Humanistic Imperative*, Wolters Kluwer: Philadelphia

Summers, S. and Summers, H.J (2014) *Saving Lives: Why the Media's Portrayal of Nurses puts us all at Risk* (2<sup>nd</sup> Ed.), Oxford: Oxford University Press.

Sutcliffe, K.M. (2011) High Reliability Organizations (HROs). Best Practice and Research, *Clinical Anaesthesiology*, 25, pp. 134–155.

Svendsen, M., Unterrainer, C. and Jønsson, T.F. (2018) The Effect of Transformational Leadership and Job Autonomy on Promotive and Prohibitive Voice: A Two-Wave Study, *Journal of Leadership and Organizational Studies*, 25(2), pp. 171–183. Available at: <https://doi.org/10.1177/1548051817750536>.

Swap, W., Leonard, D., Shields, M. and Abrams, L. (2001) Using mentoring and storytelling to transfer knowledge in the workplace, *Journal of Management Information Systems*, 18(1), pp. 95–114.

Swank. J.M., Ohrt, J.H, and Robinson, E. (2013) A qualitative exploration of counselling students' perception of altruism. *Journal of Humanistic Counselling*, 52(1) pp 23-38.

Taber, K.S. (2018) The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education, *Research in Science Education*, 48(6), pp. 1273–1296. Available at: <https://doi.org/10.1007/s11165-016-9602-2>.

Tatli, Z., Turan-Güntepe, E., Ozkan, C. G., Kurt, Y., and Caylak-Altun, E. (2017). The Use of Digital Storytelling in Nursing Education, Case of Turkey: Web 2.0 Practice. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(10), pp. 6807-6822. Available at: <https://doi.org/10.12973/ejmste/78032>.

Taraz, Z., Loghmani, L., Abbaszadeh, A., Ahmadi, F., Safavibiat, Z. and Borhani, F. (2019) The relationship between ethical climate of hospital and moral courage of nursing staff, *Electronic Journal of General Medicine*, 16(2), pp. 1-6.

Tartari, E., Weterings, V., Gastmeier, P., Rodríguez Baño, J., Widmer, A., Kluytmans, J. and Voss, A. (2017) Patient engagement with surgical site infection prevention: An expert panel perspective, *Antimicrobial Resistance and Infection Control*, 6(45) pp. 1-9. Available at: <https://doi.org/10.1186/s13756-017-0202-3>.

Tashakkori, A. and Teddlie, C. (1998) *Mixed Methodology. Combining Qualitative and Quantitative Approaches*. USA: Sage.

Tavakol, M. and Dennick, R. (2011) Making sense of Cronbach's alpha, *International Journal of Medical Education*, 2, pp. 53–55. Available at: <https://doi.org/10.5116/ijme.4dfb.8dfd>.



Taylor, J.A., Dominici, F., Agnew, J., Gerwin, D., Morlock, L. and Miller, M.R. (2012) Do nurse and patient injuries share common antecedents? An analysis of associations with safety climate and working conditions, *BMJ Quality and Safety*, 21(2), pp. 101–111. Available at: <https://doi.org/10.1136/bmjqs-2011-000082>.

Tear, M.J. and Reader, T.W. (2023) Understanding safety culture and safety citizenship through the lens of social identity theory, *Safety Science*, 158 (2023) pp. 1–14. Available at: <https://doi.org/10.1016/J.SSCI.2022.105993>.

Teddlie, C., and Tashakkori, A. (2003) *Handbook of Mixed Methods in Social and Behavioural Research*. USA: Sage.

Teddlie, C., and Tashakkori, A. (2009) *Foundations of Mixed Methods Research. Integrating Quantitative and Qualitative Approaches in the Social and Behavioural Sciences*. Thousand Oaks: Sage.

ten Have, P. (2007) *Doing Conversation Analysis. A Practical Guide* (2<sup>nd</sup> Ed.), London: Sage.

Thomas, J. and Harden, A. (2008) Methods for the thematic synthesis of qualitative research in systematic reviews, *BMC Medical Research Methodology*, 8 (45), pp. 1–10. Available at: <https://doi.org/10.1186/1471-2288-8-45>.

Thomas, D. M., Studdert, D.M., Burstin, H.R., Orav E., G., Zeena T, B., Williams E. J., Howard, K.M., Weiler, P.C. and Brennan, T.A. (2000) Incidence and Types of Adverse Events and Negligent Care in Utah and Colorado, *Medical Care*, 38(6), pp. 261–271.

Thomas, T.A. and McCullough, L.B. (2015) A philosophical taxonomy of ethically significant moral distress, *Journal of Medicine and Philosophy*, 40(1) pp. 102–120. Available at: <https://doi.org/10.1093/jmp/jhu048>.

Thompson, P. A., Navarra, M. B., and Antonson, N. (2005) Patient Safety: The Four Domains on Nursing Leadership, *Nursing Economics*, 23(6), pp. 331–333.

Todres, L., Fulbrook, P. and Albarran, J. (2000) On the receiving end: A hermeneutic-phenomenological analysis on a patient's struggle to cope while going through intensive care, *Nursing in Critical Care*, 5(6), pp. 277–287.

Tokareva, I. and Romano, P. (2023) Patient Safety Indicators. Available at: <https://psnet.ahrq.gov/primer/patient-safety-indicators>. (Accessed 15.06.23)

Townsend, A., Cox, S.M. and Li, L.C. (2010) Qualitative Research Ethics, *Physical Therapy*, 90(4), pp. 615–628.

Tregunno, D., Jeffs, L., Hall, L., Baker, R., Doran, D. and Bassett, S. (2009) On the Ball Leadership for Patient Safety and Learning in Critical Care, *Journal of Nursing Administration*, 39(7), pp. 334–339.

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M.D., Horsley, T., Weeks, L., Hempel, S., Akl, E.A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M.G., Garritty, C., Lewin, S., Godfrey, C. M., Macdonald, M. T., Langlois, E. V., Soares-Weiser, K., Moriarty, J., Clifford, T., Tunçalp, Ö. and Straus, S. E. (2018) PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation, *Annals of Internal Medicine*, 169 (7), pp. 467-473.

Turkmen, E., Baykal, U., Intepeler, S. S., Altuntaf, S. (2013) Nurses Perceptions of and Factors Promoting Patient Safety Culture in Turkey. *Journal of Nursing Care Quality* 28(4) pp. 360-367.

Turkmen, E., Baykal, U., Seren, S. and Altuntaf, S. (2011) Development of patient safety culture scale. *Journal of Anatolia Nursing Health Science*. 14(4), pp.38-46. (Original work published in Turkish)

Turner, P., Sheldon, F., Coles, C., Mountford, B., Hillier, R., Radway, P. and Wee, B. (2000) Listening to and learning from the family carer's story: An innovative approach in interprofessional education, *Journal of Interprofessional Care*, 14(4), pp. 387–395.

Turunen, H., Partanen, P., Kvist, T., Miettinen, M. and Vehvilainen-Julkunen, K. (2013) Patient safety culture in acute care: A web-based survey of nurse managers and Registered Nurses views in four Finnish hospitals, *International Journal of Nursing Practice*, 19(6), pp. 609–617. Available at: <https://doi.org/10.1111/ijn.12112>.

Urstad, K.H., Ulfaby, K.J., Brandeggen, T.K., Bodsberg, K.G., Jensen, T.L. and Tjøflåt, I. (2018) Digital storytelling in clinical replacement studies: Nursing students experiences, *Nurse Education Today*, 71, pp. 91–96. Available at: <https://doi.org/10.1016/j.nedt.2018.09.016>.

Valentin, A. (2013) Approaches to decreasing medication and other care errors in the ICU, *Current Opinion in Critical Care*, 19(5), pp. 474–479.

Valentine, M.A., Nembhard, I.M. and Edmondson, A.C. (2015) Measuring teamwork in health care settings: A review of survey instruments, *Medical Care*, 53(4), pp. e16-30. Available at: <https://doi.org/10.1097/MLR.0b013e31827feef6>.

VanFosson, C.A., Jones, T.L. and Yoder, L.H. (2016) Unfinished Nursing Care: An Important Performance Measure for Nursing Care Systems., *Nursing Outlook*, 64(2), pp. 124–136.

van Manen, M. (1990) *Researching Lived Experience. Human Science for an Action Sensitive Pedagogy*, SUNY Press: Albany.

van Manen, M. (2014) *Phenomenology of Practice*, New York: Routledge.

Vincelette, C., Thivierge-Southidara, M. and Rochefort, C.M. (2019) Conceptual and methodological challenges of studies examining the determinants and outcomes of omitted nursing care: A narrative review of the literature, *International Journal of Nursing Studies*, 100, pp. 1-14. Available at: <https://doi.org/10.1016/J.IJNURSTU.2019.103403>.

Vincent, C. (2006) *Patient Safety*. Edinburgh: Elsevier Churchill Livingstone.

Vincent, C. (2010) *Patient Safety*. London: Wiley-Blackwell.

Vincent, C., Neale, G. and Woloshynowych, M. (2001) Adverse events in British hospitals: preliminary retrospective record review. *British Medical Journal*, 316, pp. 517–519. Available at: <https://bmj.altmetric.com/details/1460106> (Accessed: 20.01.23).

Vincent, C.A. and Coulter, A. (2002) Patient safety: What about the patient? *BMJ Quality and Safety*, 11, pp. 76–80. Available at: <https://doi.org/10.1136/qhc.11.1.76>.

Vincent, C., Neale, G. and Woloshynowych, M. (2001) Adverse events in British Hospitals: Preliminary retrospective record review, *British Medical Journal*, 322(517), pp. 517–519.

Vogt, W.P., Vogt, E.R., Gardner, D.C. and Haeffeke, L.M. (2014) *Selecting the Right Analysis for your Data: Quantitative, Qualitative, and Mixed Methods*. New York: Guilford.

Vogus, T.J. and Sutcliffe, K.M. (2007) The Safety Organizing Scale Development and Validation of a Behavioral Measure of Safety Culture in Hospital Nursing Units, *Medical Care*, 45(1), pp. 46–54.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*, Cambridge, MA: Harvard University Press.

Wagner, C., Smits, M., Sorra, J. and Huang, C.C. (2013) Assessing patient safety culture in hospitals across countries, *International Journal for Quality in Health Care*, 25(3), pp. 213–221. Available at: <https://doi.org/10.1093/intqhc/mzt024>.

Walters, C.B. and Duthie, E.A. (2017) Patients' perspectives of engagement as a safety strategy, *Oncology Nursing Forum*, 44(6), pp. 712–718. Available at: DOI: [10.1188/17.ONF.712-718](https://doi.org/10.1188/17.ONF.712-718)

Wanden-Berghe, C. and Sanz-Valero, J. (2012) Systematic reviews in nutrition: Standardized methodology, *British Journal of Nutrition*, 107(S2), S3–S7. Available at: <https://doi.org/10.1017/S0007114512001432>.

Wang, X., Liu, K., You, L., Xiang, J., Hu, H., Zhang, L., Zheng, J. and Zhu, X. (2014) The relationship between patient safety culture and adverse events: A questionnaire survey, *International Journal of Nursing Studies*, 51(8), pp. 1114–1122. Available at: <https://doi.org/10.1016/j.ijnurstu.2013.12.007>.

Ward, J. K. and Armitage, G. (2012) Can patients report patient safety incidents in a hospital setting? A systematic review, *BMJ Quality and Safety*, 21, pp. 685–699.

Watcher, R.M. (2010) Patient safety at ten: Unmistakable progress, troubling gaps, *Health Affairs*, 29, pp. 165–173.

Waterman, A.D., Gallagher, T.H., Garbutt, J., Waterman, B.M., Fraser, V., and Burroughs, T.E. (2006) Brief report: Hospitalized patients' attitudes about and participation in error prevention, *Journal of General Internal Medicine*, 21(4), pp. 367–370.  
Available at: <https://doi.org/10.1111/j.1525-1497.2005.00385.x>.

Waterson, P., Carman, E.M., Manser, T. and Hammer, A. (2019) Hospital Survey on Patient Safety Culture (HSPSC): A systematic review of the psychometric properties of 62 international studies, *BMJ Open*, 9(9). Available at: <https://doi.org/10.1136/bmjopen-2018-026896>.

Watts, S. (2014) User Skills for Qualitative Analysis: Perspective, Interpretation and the Delivery of Impact, *Qualitative Research in Psychology*, 11(1), pp. 1–14.  
Available at: <https://doi.org/10.1080/14780887.2013.776156>.

Waugh, A. and Donaldson, J. (2016) Students' perceptions of digital narratives of compassionate care, *Nurse Education in Practice*, 17, pp. 22–29.  
Available at: <https://doi.org/10.1016/j.nepr.2016.01.008>.

Weaver, S.J., Lubomksi, L.H., Wilson, R.F., Pfoh, E.R., Martinez, K.A. and Dy, S.M. (2013) Promoting a culture of safety as a patient safety strategy: A systematic review, *Annals of Internal Medicine*, 158(2), pp. 369–374.  
Available at: <https://doi.org/10.7326/0003-4819-158-5-201303051-00002>.

Webster, J., and Watson, R.T. (2002) ANALYZING THE PAST TO PREPARE FOR THE FUTURE: WRITING A LITERATURE REVIEW, *MIS Quarterly*. 26(2) pp. xiii-xxiii

Weigmann, D.A., Zhang, H., von Thaden T. L., Sharma, G. and Gibbons, A.M. (2004) Safety culture: An integrative review, *The International Journal of Aviation Psychology*, 14(2), pp. 117–134.

Weitzmann, E. A. (2000) cited in Ritchie, A., Lewis, J., McNaughton Nicholls, C. and Ormston, R. (Eds.) (2014) *Qualitative Research Practice* (2<sup>nd</sup> Ed.), London: Sage. pp.289.

Wieczorek-Wojcik, B., Gaworska-Krzemińska, A., Owczarek, A.J. and Kilańska, D. (2020) In-hospital mortality as the side effect of missed care, *Journal of Nursing Management*, 28. pp. 2240–2246. Available at: <https://doi.org/10.1111/jonm.12965>.

Wiegand, D.L. and Funk, M. (2012) Consequences of clinical situations that cause critical care nurses to experience moral distress. *Nursing Ethics*, 9(4), pp79–487.

Williams, G., Dean, P. and Williams, E. (2009) Do nurses really care? Confirming the stereotype with a case control study. *British Journal of Nursing*, 18 (3) pp.162-165.

Willmott, J. and Mould, J. (2018) Health professionals' perception of patient safety culture in acute hospitals: An integrative review, *Australian Health Review*, 42(4), pp. 387–394.  
Available at: <https://doi.org/10.1071/AH16274>.

Wilson, D.K., Hutson, S.P. and Wyatt, T.H. (2015) Exploring the Role of digital storytelling in Pediatric Oncology Patients. Perspectives Regarding Diagnosis: A Literature Review, *Sage Open*, 5(1), pp. 1-10. Available at: <https://doi.org/10.1177/2158244015572099>.

Wilson, D.S. (2013) Registered Nurses collective safety organising behaviours: The association with perceptions of patient safety culture, *Journal of Research in Nursing*, 18(4), pp. 320–333. Available at: <https://doi.org/10.1177/1744987112461781>.

Wilson, D., Redman, R.W., Talsma, A. and Aebbersold, M. (2012) Differences in Perceptions of Patient Safety Culture between Charge and Non-charge Nurses: Implications for Effectiveness Outcomes Research, *Nursing Research and Practice*, 2012(1), pp. 1–10. Available at: <https://doi.org/10.1155/2012/847626>.

Wilson, R.M., Runciman W, B., Gibberd, R.W., Harrison, B.T., Newby L and Hamilton J D (1995) The Quality in Australian Health Care Study, *Medical Journal Australia*, 163(9), pp. 458–471.

Wood, J., and Wilson-Barnett, J. (1999). The influence of user involvement on the learning of mental health nursing students. *Nursing Times Research*, 4(4), pp. 257–270.

World Health Organization (2004) *World alliance for patient safety: Forward programme*, 2005. World Health Organization: Geneva.

World Health Organisation (2008) *World Alliance for Patient Safety. Forward Programme 2008- 2009*. WHO: Geneva.

World Health Organisation (2009a) *Conceptual Framework for the International Classification for Patient Safety. Version 1.1. Final Technical Report*. World Health Organisation. Geneva.

World Health Organisation (2009b) *Global priorities for patient safety research*. World Health Organisation, Geneva.

World Health Organization (2013) *Exploring patient participation in reducing health-care-related safety risks*, World Health Organisation, Geneva.

World Health Organisation (2014) *Definition of patient safety*, World Health Organization: Geneva.

World Health Organisation (2017) *Patient Safety. Making health care safer*. World Health Organisation. Geneva.

World Health Organisation (2021a) *Global Patient Safety Action Plan 2021-2020. Towards eliminating avoidable harm in health care*. World Health Organisation, Geneva.

World Health Organisation (2021b) *Global Health Workforce statistics database*. World Health Organisation, Geneva. Available at: <https://www.who.int/data/gho/data/theses/topics/health-workforce> (Accessed:04.12.22).

Wright, J., Lawton, R., O'Hara, J., Armitage, G., Sheard, L., Marsh, C., Grange, A., McEachan, R.R., Cocks, K., Hrisos, S., Thomson, R., Jha, V., Thorp, L., Conway, M., Gulab, A., Walsh, P. and Watt, I. (2016) Improving patient safety through the involvement of patients: development and evaluation of novel interventions to engage patients in preventing patient safety incidents and protecting them against unintended harm, *Programme Grants for Applied Research*, 4(15), pp. 1–296. Available at: <https://doi.org/10.3310/pgfar04150>

Xiao, Y. and Watson, M. (2019) Guidance on Conducting a Systematic Literature Review, *Journal of Planning Education and Research*, 39(1), pp. 93–112. Available at: <https://doi.org/10.1177/0739456X17723971>.

Xu J, Cheung C, Manu P and Ejohwomu O (2021) Safety leading indicators in construction: A systematic review, *Safety Science*, 139, pp. 1–16.

Yan, L., Yao, L., Li, Y. and Chen, H. (2021) Assessment and analysis of patient safety competency of Chinese nurses with associate degrees: A cross-sectional study, *Nursing Open*, 8(1), pp. 395–403. Available at: <https://doi.org/10.1002/nop2.640>.

Yule, S. (2003) *Senior Management Influence on safety performance in the UK and US energy sectors. Doctoral Thesis*. Scotland, University of Aberdeen.

Yocum, D. (2018) *Perceptions of Digital Storytelling in Pre-Licensure Nursing Education*. Unpublished Doctor of Nursing Practice Degree thesis. Regis College.

Zabin, L.M., Zaitoun, R.S.A. and Abdullah, A.A. (2022) Patient safety culture in Palestine: University hospital nurses' perspectives, *BMC Nursing*, 21(1), pp. 1–10. Available at: <https://doi.org/10.1186/s12912-022-00987-y>.

Zeynep, T., Ayfer, O., Ikbali, C., Tuluha, A., Nuray, A. and Suna, O. (2020) Determining the Patient Safety Culture of Operating Room Nurses in Turkey, *International Journal of Caring Sciences*, 13(1), pp. 708-715.

Zhao, C., Chang, Q., Zhang, X., Wu, Q., Wu, N., He, J. and Zhao, Y. (2019) Evaluation of safety attitudes of hospitals and the effects of demographic factors on safety attitudes: A psychometric validation of the safety attitudes and safety climate questionnaire, *BMC Health Services Research*, 19(1), pp. 1-11. Available at: <https://doi.org/10.1186/s12913-019-4682-0>.

Zhao, P., Li, P., Ross, K. and Dennis, B. (2016) Methodological Tool or Methodology? Beyond Instrumentality and Efficiency with Qualitative Data Analysis Software. *Forum: Qualitative Social Research*, 17(2), pp. 1-21. Available at: <https://doi.org/10.17169/fqs-17.2.2597>.

Zhao, Y., Ma, D., Wan, Z., Sun, D., Li, H. and Sun, J. (2020) Associations between work environment and implicit rationing of nursing care: A systematic review, *Journal of Nursing Management*, 28(8), pp. 1841–1850. Available at: <https://doi.org/10.1111/JONM.12895>.

Ziedelis A. (2019) Perceived Calling and Work Engagement Among Nurses, *Western Journal of Nursing Research*, 41(6) pp 816-833. Available at: 10.1177/0193945918767631



Zohar, D. (1980) Safety climate in industrial organizations: Theoretical and applied implications, *Journal of Applied Psychology*, 65(1), pp. 96–102.  
Available at: <https://doi.org/10.1037/0021-9010.65.1.96>.

Zohar, D. (2003) Safety climate: conceptual and measurement issues. In: Quick, J.C. and Tetrick, L. (eds.) *Handbook of Occupational Health Psychology*, Washington DC: American Psychological Association, pp. 123–142.

Zohar, D. (2010) Thirty years of safety climate research: Reflections and future directions, *Accident Analysis and Prevention*, 42(5), pp. 1517–1522.  
Available at: <https://doi.org/10.1016/J.AAP.2009.12.019>.

Zohar, D. and Erev, I. (2007) On the difficulty of promoting workers' safety behaviour: Overcoming the under-weighting of routine risks, *International Journal of Risk Assessment and Management*, 7(2), pp. 122–136.

Zohar D, Livne Y, tenne-Gazit O, Admi, H. and Donchin, Y. (2007) Healthcare climate: A framework for measuring and improving patient safety, *Critical Care Medicine*, 35(5), pp. 1312–1327.

Zohar, D. and Luria, G. (2010) Group Leaders as Gatekeepers: Testing Safety Climate Variations across Levels of Analysis, *Applied Psychology*, 59(4), pp. 647–673.

Zohar, D.M. and Hofmann, D.A. (2012) Organizational Culture and Climate, in *The Oxford Handbook of Organizational Psychology*. Oxford University Press.  
Available at: <https://doi.org/10.1093/oxfordhb/9780199928309.013.00>

## APPENDICES

### Appendix 2.1 Example of History using CINAHL Complete Database

- #1 nurs\* or nursing
- #2 patient OR client OR "service users"
- #3 AB story OR AB (storytelling or narrative or storytelling or stories)
- #4 (AB "digital stor\*" OR AB "digital storytelling" OR AB "patient voice\*")
- #5 (AB "digital stor\*" OR AB "digital storytelling" OR AB "patient voice\*") AND (S3 AND S4)
- #6 ((AB "digital stor\*" OR AB "digital storytelling" OR AB "patient voice\*") AND (S3 AND S4)) AND (S2 AND S5)
- #7 (((AB "digital stor\*" OR AB "digital storytelling" OR AB "patient voice\*") AND (S3 AND S4)) AND (S2 AND S5)) AND (S1 AND S6)
- #8 ("patient safety" OR "safety climate" or "safety culture") AND ("safety perception\*" OR "safety attitude\*" or safety outcome\*")
- #9 (("patient safety" OR "safety climate" or "safety culture") AND ("safety perception\*" OR "safety attitude\*" or safety outcome\*")) AND (S1 AND S8)
- #10 (((("patient safety" OR "safety climate" or "safety culture") AND ("safety perception\*" OR "safety attitude\*" or safety outcome\*")) AND (S1 AND S8)) AND (S7 AND S9)



## Appendix 2.2: Total Number of Papers for Each Database (Systematic Review)

	Databases	CINAHL Complete	PsycINFO	Medline	Education Research Complete	PubMed	Science Direct	ProQuest
	Date of Search	17.05.17	19.05.17	19.05.17	25.05.17	28.05.17	01.06.17	05.06.17
No.	Search terms	Number of articles						
#1	Nurs* or nursing	20,463	5,529	6,242	723	57,250	6,232	10,266
#2	Patient or client or service user	329,774	114,932	22,021	2,037	382,907	8,253	79,424
#3	Story or stories or storytelling or narrative	5,691	1,805	212	416	586	2,976	342
#4	“digital stor*” or “digital storytelling” or “patient voice*”	17	118	22	9	25	33	31
#5	#3 AND #4	2,591	207	234	5	149	2,976	368
#6	#2 AND #5	1,078	207	64	30	137	544	168
#7	#1 AND #6	380	9	19	4	68	100	52
#8	“patient safety” OR “safety climate” or “safety culture” OR “safety perception*” OR “safety attitude*” or ‘safety outcome*”	3,769	119	610	45	10,904	405	3,765
#9	#1 AND #8	288	3	173	13	558	22	238
#10	#7 AND #9	17	0	1	1	4	1	5

### Appendix 2.3 Example of Critical Appraisal for a Quantitative Paper

Wilson, D., Redman, R.W., Talsma, A. and Aebersold, M. (2012) Differences in Perceptions of Patient Safety Culture between Charge and Non-charge Nurses: Implications for Effectiveness Outcomes Research. <i>Nursing Research and Practice</i> , 2012(1), pp1-7			
Q	Description	Evaluation	Score
1	Does the title reflect the content?	Informative	2
2	Is the author credible?	The authors' names are included but not their professional titles or qualifications. The University of Michigan, School of Nursing, is included, but it is unclear if they all work there.	0
3	Does the abstract summarise the key components?	A brief abstract that does not include the aims of the study and only part of the methodology, so you must read the full paper to see if the study is of interest	1
4	Is the rationale for undertaking the research clearly outlined?	It is clear. The rationale for understanding differences in PSC among charge nurses and non-charge nurses and how they perceive PSC (related to the implementation of EBP to improve PSC	2
5	is the literature review comprehensive and up to date?	The literature review uses a balance of primary and secondary literature. It focuses on implementing EBP as a strategy to improve PSC and the role of nurse leaders. Background and barriers to EBP/guidelines link to PSC and discuss and debate this subject area. Supports with up-to-date research	2
6	Is the aim of the study clearly stated?	The aim was to explore the differences in perceptions of safety culture between charge nurses and non-charge nurses. However, the data analysis methods stated a hypothesis which could have been included with the aim. In addition, the patient safety culture was only reported on 4/12 dimensions of the HSOPSC. The aims could have been more explicit and stated what the research intended to do.	1
7	Are all ethical issues identified and addressed?	Approval was gained by the IRB of the medical Centre where the research was undertaken. Informed consent is achieved through written consent. There was no explanation of the study and what participants were expected to do. The questionnaire is sealed and coded, which implicitly implies confidentiality and anonymity. No evidence of voluntary participation, but it would be assumed that this was indicated if questionnaires were returned.	1
8	Is the methodology identified and justified?	Design and participants included. Data collection justified measures justified and included dependent and independent variables. Researchers used the HSOPSC questionnaire but did not explain what this questionnaire was in detail, other than how internal validity was established. It would have been appropriate to include further detail on the domains, the scale and how they scored the questions to indicate positive and negative perceptions.	1

9	Is the study design clearly identified, and is the rationale for the design choice evident?	Descriptive, cross-sectional and correlation design. Cross-sectional related to charge nurses and non-charge nurses. The choice of design is not provided, but it is appropriate for this study	2
10	is there an experimental hypothesis clearly stated? Are the key variables clearly defined?	Hypothesis not explicitly stated with the aims of the research. It was found later in the article under the data analysis section. Four independent variables. 1. Charge nurse's experience, 2. percentage of shifts worked in charge (<25% or > 25%), 3. number of years in charge on current unit (none, less than 1 year to 1-5 years. 4. Shifts worked at were categorical (Nominal data) as 3 options were permanent day, night, and rotating shifts. Four dependent variables were overall perceptions of PS, number of events reported, teamwork within units, and safety grade. It was not clear why only these four dependent variables were chosen.	2
11	is the population identified?	The population were RNs working in 12 units at a large academic medical Centre. Inclusion criteria applied.	1
12	is the sample adequately described and reflective of the population?	Total population of 710 RNs working in 12 medical surgical units. A questionnaire was sent to ALL 710, and 381 were completed and returned - RR 54%. Excluded missing data (that exceeded 10%), and the final sample was n=375 - RR 53%. The study did not state the sampling strategy used, but it would appear to be a convenience sample. As there are two types of groups, it would have been appropriate for the researchers to the total population of charge nurses to non-charge nurses and choose a proportionate stratified sampling so the sample size for each group is equal, thus reducing sampling bias and response bias and more representative of the population	1
13	is the method of data collection valid and reliable?	They used HSOPSC, a pre-validated instrument, and Cronbach's alpha confirmed internal reliability. However, the researchers did not detail what this instrument consisted of, how responses were measured and how they scored the responses. They only reported on 4/12 patient safety culture domains and did not include any detail why the other domains were omitted, thus questioning the validity and reliability of the tool used.	1
14	Is the method of data analysis valid and reliable?	Interval data was applied to independent variables except for the number of years in charge on the current unit, which was nominal data. They used SPSS version 18.0.3. two-tailed t-tests were used to confirm/reject the hypothesis, which stated that the nurses with no charge and some charge experience would have differences in perceptions of safety: SD, t-value, and p-values. Mean, and SD demonstrated normal distribution and less variance with a p-value of 0.01. The study revealed significant differences between the two groups and can correctly accept the hypothesis. Pearson's chi-square test relationship between the percentage of shifts in charge during the last month and the number of errors reported was	2

		appropriate. ANOVA to test the relationship between patient safety perceptions, working shifts in charge, and the number of years in charge years as a charge year during the past month (interval measurement). Significant differences existed between the groups, and Bonferroni's post hoc test was used to identify specific groups. ANOVA also supports the acceptance of the hypothesis. Missing data explained. In response to the tool used, data analysis should be read with caution due under-reporting of data generated from the responses.	
15	Are the results presented in a way that is appropriate and clear?	Two-tailed t-tests were used to confirm/reject the hypothesis, which stated that the nurses with no charge and some charge experience would have different perceptions of safety. The study revealed significant differences between the two groups and can correctly accept the hypothesis. Overall, the perceptions of PS a reported and presented in narrative and table format using mean. The further narrative included the number of errors reported in percentages between no charge experience and some charge experience. It could have been presented in table format to show significance between groups, given that the sample sizes are unequal. The results may be skewed, which could account for the differences between the groups, so data should be read cautiously. Pearson's chi-square tested the relationship between % of shifts in charge during the past month, and the number of events, and this was presented well and easily read. It would be appropriate if the researchers had included more tables to explain their narrative data.	1
16	Is the discussion comprehensive?	The discussion reports the research findings and compares with similar studies. The discussion includes new graduates, but this was not reported on in the study findings, so this should not have been included as what was defined as recent graduates. Given the nature of the study, a discussion around leadership would have been appropriate, as this should have been measured and reported. It would also add to the implications for future practice if nurse leaders were essential in promoting a safety culture.	0
17	Are the results generalisable?	The results are not generalisable for the following reasons. Conducted in one single site, the sampling strategy and unequal distribution of participants. The characters reported were done separately (variables used and charge nurse characteristics). It would be interesting to see years of experience, the relationship to the charge nurse's experience, etc. There was no wider explanation of the measurement tool and why only 4/12 domains were reported. The researcher did report this in their limitations.	1

18	is the conclusion comprehensive?	The conclusion includes limitations and implications for practice. The implications are reported in the data analysis, and this could have been strengthened by including leadership.	
		Excellent: 29 - 36	
		High: 22 - 28	22
		Medium: 15 - 21	
		Low: 8 - 14	
		Very Low: 0 - 7	

Caldwell *et al.* (2011) Framework for critiquing healthcare research.

## Appendix 2.4 Example of Critical Appraisal for a Qualitative Paper

Ridelberg, K., Roback, K., and Nilsen, P. (2014) Facilitators and barriers influencing patient safety in Swedish hospitals: A qualitative study of nurses perceptions. <i>BMC Nursing</i> . 13(23), pp1-12			
Q	Description	Evaluation	Score
1	Does the title reflect the content?	Informative and specific	2
2	Is the author credible?	Author's names only. Roles, place of work and qualifications are not included except for the 1st author. The first author's correspondence address suggests they work in a university in the health sciences department. In the data collection section, she states that she has a background in nursing and clinical patient safety at work. Information about the other two authors is included in the discussion section, but it would be appropriate to have this with the heading	1
3	Does the abstract summarise the key components?	Informative to use headings for key components	2
4	Is the rationale for undertaking the research clearly outlined?	The rationale is based on a literature review, which is scanty, as indicated below. The study explains using RNs but does not address gaps in the research literature.	1
5	is the literature review comprehensive and up to date?	The literature review is scanty and does not address any knowledge gaps (due to lack of information). It focuses on patient safety and how to improve patient safety practices, but further discussion on current practices and research evidence could have been included. There is no definition and not much discussion on other research, especially quantitative research that measures patient safety perceptions, and this could have enhanced this review and provided a more robust rationale for undertaking a qualitative study.	1
6	Is the aim of the research clearly stated?	The research aims to explore essential factors influencing patient safety as perceived by RNs', which are clearly stated.	2
7	Are all ethical issues identified and addressed?	Ethical approval for the Regional Ethical Review Board in Linköping, but this is unclear if this covers healthcare environments and whether the researcher gained access to the setting. Confidentiality, consent, and voluntary participation addressed. The purpose of the study and time for interviews included in the study.	1
8	Is the methodology identified and justified?	Yes	2
9	Are the philosophical background and study design identified, and the rationale for the design choice evident?	There is no philosophical background that underpins the study design. The data analysis section included a theoretical framework for analysing the data. The researchers state that the method is a qualitative study (in the abstract and not the main text).	1
10	Are the major concepts identified?	The researchers do not identify these as concepts but state the 'important factors' within the aim of the research.	2
11	Is the context of the study outlined?	The study setting explained the Swedish Health Care system and the sample was taken from 8 general hospitals in six county hospitals. To recruit nurses, staff in key positions were asked for nurses interested in discussing safety at work and then contacted by the researcher. There was no explanation of interested potential participants, and this is difficult to judge if the researcher chose any.	1

12	is the selection of participants described, and the sampling method identified?	Sample size: n=12. Recruitment of nurses used purposive sampling. There was no rationale for why this method was chosen. Participants are selected based on their knowledge and expertise in the subject area. Still, there is no explanation of how many nurses were interested in participating; it is difficult to judge if the researcher chose these. The researcher stated that the sample was heterogenous regarding characteristics, but 75% were ages, 40-60yrs, 99% were female, and 58% had more than 20 yrs. Experience. There was an equal spread of urban to rural hospitals used, but this was not aligned with where participants worked. Although representation is not a criterion, given the number of eligible study settings and the number of RN employed across the study sites, there is potential for sample bias. The sample size could have been larger using a quota sampling method to minimize bias by increasing the numbers and heterogeneity of the sample.	1
13	Is the method of data collection auditable?	Semi-structured interviews were conducted. Three faces to face in the office in their workplace, and nine via the telephone Face-to-face lasted 35-60 minutes and telephone 25-45 minutes. All interviews were undertaken during work hours and audio recorded. Interviews were based on 2 (open) overarching questions, which were included, and probing questioning was used. There are differences in how the interviews were conducted, which could lead to response bias. The researcher did not state whether she took notes during the interviews.	1
14	Is the method of data analysis credible and confirmable?	Yes, they were described in detail. The qualitative content analysis utilised Hsieh and Shannon's (2005) framework. Interviews were transcribed verbatim, reviewed by the researcher, and entered NVivo v9. All authors read transcripts and were then coded to categorise the data. A detailed description of data analysis was given, and triangulation was achieved as the authors independently analysed the data and then compared their findings. Various categories were mapped to Vincent's framework and provided a conceptual basis for analysing the data, allowing the researchers to adopt a deductive and inductive approach. Research bias has been minimised during this process.	2
14	Are the results presented in a way that is appropriate and clear?	The factors influencing patient safety were presented in a clear table format. Themes were identified, and participant responses were included to support the categories. The researchers used several participant responses but failed to include any responses for N4 and N9, which may be intentional or unintentional. However, there was no explanation for this.	1
15	Is the discussion comprehensive?	The discussion is comprehensive, relating to their findings. However, I feel this could have been supported with studies that have statistically measured patient safety/safety culture to support their findings and offer more depth, e.g., reporting, communication, and management structure. They also go on to define safety culture, which would have been more appropriate in the background of the study. They further address their research question by identifying similar research, which would have been appropriate at the start to strengthen the rationale for this study. Limitations addressed in the discussion	1

16	Are the results transferable?	Partially. The sample size is small (which is appropriate for qualitative studies). However, there was a large population of RN eligible for the research, and the size could have been increased. In addition, it is not clear how the participants were selected other than selected by clinicians. The characteristics of the sample are also questionable, as where the participants were employed. The selection was across six hospitals (distribution). Sample bias and response bias. 2. Data findings failed to report qualitative data from 2 participants. It is not explained why this was, which could reduce the sample size.	1
17	is the conclusion comprehensive?	Addresses limitations and implications for practice and summary of study and findings.	2
		Excellent: 29 - 36	
		High: 22 - 28	25
		Medium: 15 - 21	
		Low: 8 - 14	
		Very Low: 0 - 7	

Caldwell *et al.* (2011) Framework for critiquing healthcare research.



## Appendix 2.5 Systematic Literature Review: Emerging Themes

		Definition of patient safety	Definitions of Safety Culture	Definition of Safety Climate	Uses safety attitudinal scales	Teamwork	Incident Reporting	Communication	Leadership	Organisational Learning	Staffing levels	Safety Culture	Job satisfaction	Patient Safety Grade	Competences of	Patient Safety Education	Simulation Based
1	AbulAIRub & Alhijaa (2014)		x		x	x	x	x	x	x	x				x	x	
2	Almutairi <i>et al.</i> (2013)	x			x							x					
3	Alquwez <i>et al.</i> (2018)				x	x	X	X		X	x	x		x			
4	Ammouri <i>et al.</i> (2014)	x	x		x	x			x	x	x						
5	Armellino <i>et al.</i> (2010)		x		x	x	x	x	x	x	x				x		
6	Aydemir & Koç (2023)	x			x	x			x			x	x				
7	Ballangrud <i>et al.</i> (2012)		x	x	x	x	x	x	x	x		x		x			
8	Ballangrud <i>et al.</i> (2014)					x				x					x		x
9	Cho & Choi (2018)	x	x		x	x	x	x	x		x	x			x		
10	Hong & Li (2017)	x	x		x	x	x		x			x					
11	Kakeman <i>et al.</i> (2021)		x		x	x	x	x	x	x	x						
12	Leger & Phillips (2017)	x						x									
13	Olsson <i>et al.</i> (2016)			x	x	x							x		x	x	
14	Ridelberg <i>et al.</i> (2014)		x			x		x	x		x				x		
15	Rawas & Hashish (2023)	x	x		x	x	x	x	x	x	x			x			
16	Turunen <i>et al.</i> (2013)				x		x	x	x								
17	Wang <i>et al.</i> (2014)		x		x	x	x	x	x	x							
18	Wilson <i>et al.</i> (2012)				x	x	x					x		x			
19	Zabin <i>et al.</i> (2022)		x		x	x	x	x	x	x	x	x		x			
	TOTAL	7	11	2	16	16	12	12	13	10	9	8	2	5	6	2	1

## Appendix 2.6 Total Number of Papers for Each Database (Scoping Review)

Databases		CINHAL Complete	Medline	Academic Search Complete	Web of Science	Scopus	TOTAL
		14.04.24	14.04.24	15.04.25	16.04.24	18.04.24	
Date of Search							
No.	Search Terms						
#1	Patient stor* or storytelling and nurs* or nursing	308	44	219	36	73	680
#2	Digital stor* or digital storytelling and nursing	41	2	68	17	1	129
#3	Patient stor* and storytelling and healthcare or hospital or health services	190	49	163	36	92	530
#4	Digital stor* or digital storytelling and healthcare or hospital or health services	38	7	263	15	2	325

## Appendix 4.1 Permission Letter for SAQ- Short Form



Medical School

University of Texas at Houston-Memorial Hermann  
Center for Healthcare Quality and Safety

June 13, 2016

Dear Valerie Nixon,

You have our permission to use any of the following Safety Attitudes Questionnaires and the corresponding scoring keys:

- Safety Attitudes Questionnaire – Short Form
- Safety Attitudes Questionnaire – Teamwork and Safety Climate
- Safety Attitudes Questionnaire – Ambulatory Version
- Safety Attitudes Questionnaire – ICU Version
- Safety Attitudes Questionnaire – Labor and Delivery Version
- Safety Attitudes Questionnaire – Operating Room Version
- Safety Attitudes Questionnaire – Pharmacy Version
- Safety Climate Survey

Please note, we do not have editable versions for any of the SAQ surveys but feel free to modify the surveys to meet your research endeavors.

Respectfully,

University of Texas at Houston-Memorial Hermann  
Center for Healthcare Quality and Safety Team

6410 Fannin Street  
UTPB Suite 1100  
Houston, TX 77030  
<https://med.uth.edu/chqs/>

## Appendix 4.2 SAQ (36-Short Form 2006)

Safety Attitudes: Frontline Perspectives from this Patient Care Area					
I work in the (clinical area or patient care area where you typically spend your time):					This is in the
Department of:					Please complete this survey with respect to your experiences in this clinical area.
• Use number 2 pencil only. <small>USE A NO. 2 PENCIL ONLY</small>					Correct Mark  Incorrect Marks
• Erase cleanly any mark you wish to change.					Not Applicable
Please answer the following items with respect to your specific unit or clinical area.					Agree Strongly
Choose your responses using the scale below:					Agree Slightly
					Neutral
					Disagree Slightly
					Disagree Strongly
A	B	C	D	E	X
Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not Applicable
1. Nurse input is well received in this clinical area.					A B C D E X
2. In this clinical area, it is difficult to speak up if I perceive a problem with patient care.					A B C D E X
3. Disagreements in this clinical area are resolved appropriately (i.e., not <i>who</i> is right, but <i>what</i> is best for the patient).					A B C D E X
4. I have the support I need from other personnel to care for patients.					A B C D E X
5. It is easy for personnel here to ask questions when there is something that they do not understand.					A B C D E X
6. The physicians and nurses here work together as a well-coordinated team.					A B C D E X
7. I would feel safe being treated here as a patient.					A B C D E X
8. Medical errors are handled appropriately in this clinical area.					A B C D E X
9. I know the proper channels to direct questions regarding patient safety in this clinical area.					A B C D E X
10. I receive appropriate feedback about my performance.					A B C D E X
11. In this clinical area, it is difficult to discuss errors.					A B C D E X
12. I am encouraged by my colleagues to report any patient safety concerns I may have.					A B C D E X
13. The culture in this clinical area makes it easy to learn from the errors of others.					A B C D E X
14. My suggestions about safety would be acted upon if I expressed them to management.					A B C D E X
15. I like my job.					A B C D E X
16. Working here is like being part of a large family.					A B C D E X
17. This is a good place to work.					A B C D E X
18. I am proud to work in this clinical area.					A B C D E X
19. Morale in this clinical area is high.					A B C D E X
20. When my workload becomes excessive, my performance is impaired.					A B C D E X
21. I am less effective at work when fatigued.					A B C D E X
22. I am more likely to make errors in tense or hostile situations.					A B C D E X
23. Fatigue impairs my performance during emergency situations (e.g. emergency resuscitation, seizure).					A B C D E X
24. Management supports my daily efforts:					Unit Mgt A B C D E X Hosp Mgt
25. Management doesn't knowingly compromise pt safety:					Unit Mgt A B C D E X Hosp Mgt
26. Management is doing a good job:					Unit Mgt A B C D E X Hosp Mgt
27. Problem personnel are dealt with constructively by our:					Unit Mgt A B C D E X Hosp Mgt
28. I get adequate, timely info about events that might affect my work, from:					Unit Mgt A B C D E X Hosp Mgt
29. The levels of staffing in this clinical area are sufficient to handle the number of patients.					A B C D E X
30. This hospital does a good job of training new personnel.					A B C D E X
31. All the necessary information for diagnostic and therapeutic decisions is routinely available to me.					A B C D E X
32. Trainees in my discipline are adequately supervised.					A B C D E X
33. I experience good collaboration with nurses in this clinical area.					A B C D E X
34. I experience good collaboration with staff physicians in this clinical area.					A B C D E X
35. I experience good collaboration with pharmacists in this clinical area.					A B C D E X
36. Communication breakdowns that lead to delays in delivery of care are common.					A B C D E X
<b>BACKGROUND INFORMATION</b>					
Have you completed this survey before? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Don't Know Today's Date (month/year):					
Position: (mark only one)					
<input type="radio"/> Attending/Staff Physician		<input type="radio"/> Registered Nurse		<input type="radio"/> Clinical Support (CMA, EMT, Nurses Aide, etc.)	
<input type="radio"/> Fellow Physician		<input type="radio"/> Pharmacist		<input type="radio"/> Technologist/Technician (e.g., Surg., Lab, Rad.)	
<input type="radio"/> Resident Physician		<input type="radio"/> Therapist (RT, PT, OT, Speech)		<input type="radio"/> Admin Support (Clerk/Secretary/Receptionist)	
<input type="radio"/> Physician Assistant/Nurse Practitioner		<input type="radio"/> Clinical Social Worker		<input type="radio"/> Environmental Support (Housekeeper)	
<input type="radio"/> Nurse Manager/Charge Nurse		<input type="radio"/> Dietician/Nutritionist		<input type="radio"/> Other Manager (e.g., Clinic Manager)	
				<input type="radio"/> Other: _____	
Mark your gender: <input type="radio"/> Male <input type="radio"/> Female Primarily <input type="radio"/> Adult <input type="radio"/> Peds <input type="radio"/> Both					
Years in specialty: <input type="radio"/> Less than 6 months <input type="radio"/> 6 to 11 mo. <input type="radio"/> 1 to 2 yrs <input type="radio"/> 3 to 4 yrs <input type="radio"/> 5 to 10 yrs <input type="radio"/> 11 to 20 yrs <input type="radio"/> 21 or more					

Thank you for completing the survey - your time and participation are greatly appreciated.

PLEASE DO NOT WRITE IN THIS AREA



### Appendix 4.3 Amended SAQ used for the Quantitative Data Collection

Date (dd/mm/yy)		Candidate Number		Timepoint 2
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## SAFETY ATTITUDE QUESTIONNAIRE

### PERSPECTIVES FROM RN'S' FROM THE MEDICAL DIVISION

Please answer the following questions concerning your division or clinical area. Please choose your response by placing X using the scale provided

		A Disagree Strongly	B Disagree Slightly	C Neutral	D Agree Slightly	E Agree Strongly	X N/A
1	Nurse input is well-received in this clinical area						
2	In this clinical area, it is difficult to speak up if I perceive a problem with patient care						
3	Disagreements in this clinical area are resolved appropriately (i.e., not <i>who</i> is right but <i>what</i> is best for the patient)						
4	I have the support I need from other staff to care for patients						
5	It is easy for staff here to ask questions when there is something that they do not understand						
6	The doctors and nurses here work together as a well-coordinated team						
7	I would feel safe being treated here as a patient						
8	Clinical errors are handled appropriately in this clinical area						
9	I know the proper channels to direct questions regarding patient safety in this clinical area						
10	I receive appropriate feedback about my performance						
11	In this clinical area, it is challenging to discuss errors						
12	I am encouraged by my colleagues to report any patient safety concerns I may have						
13	The culture in this clinical area makes it easy to learn from the errors of others						
14	My suggestions about safety would be acted upon if I expressed them to management						
15	I like my job						
16	Working here is like being part of a large family						
17	This is an excellent place to work						
18	I am proud to work in this clinical area						
19	Morale in this clinical area is high						

		A Disagree Strongly	B Disagree Slightly	C Neutral	D Agree Slightly	E Agree Strongly	X N/A
20	When my workload becomes excessive, my performance is impaired						
21	I am less effective at work when I am fatigued						
22	I am more likely to make errors in tense or hostile situations						
23	Fatigue impairs my performance during emergency situations (e.g., emergency resuscitation, deteriorating patient)						
24a	Ward managers support my daily efforts						
24b	Trust managers support my daily efforts						
25a	Ward managers doesn't knowingly compromise patient safety						
25b	Trust managers doesn't knowingly compromise patient safety						
26a	Ward managers are doing a good job						
26b	Trust managers are doing a good job						
27a	Problems with staff are dealt with constructively by our ward managers						
27b	Problems with staff are dealt with constructively by trust managers						
28a	I get adequate, timely information about events that might affect my work from ward managers						
28b	I get adequate, timely information about events that might affect my work from trust managers						
29	The levels of staffing in this clinical area are sufficient to handle the number of patients						
30	The trust does a good job of training new staff						
31	All the necessary information for diagnostic and therapeutic decisions is routinely available to me						
32	Trainees in my discipline are adequately supervised						
33	I experience good collaboration with nurses in this clinical area						
34	I experience good collaboration with doctors in this clinical area						
35	I experience good collaboration with pharmacists in this clinical area						
36	Communication breakdowns that lead to delays in delivery of care are common						

Source: Safety Attitude Questionnaire by Sexton, Thomas, and Helmreich (2006)

Permission granted from University of Texas. Centre for Healthcare Quality and Safety

#### Appendix 4.4 Timeline of Data Collection Points

Study Weeks	QUANTITATIVE STUDY Dates of Distribution -SAQ	QUANTITATIVE STUDY Dates for Data Collection -SAQ	QUALITATIVE STUDY Data Collection – INTERVIEWS AND SAQ
<b>Week 0</b>	W/C 4 <sup>th</sup> September 2017	W/C 11 <sup>th</sup> September 2017	W/C 23 <sup>rd</sup> Sept 2017 Pre- Intervention: 1-1 Interview (15 -30 mins) intervention group 2: digital story (4 mins) intervention group 3: digital story (4 mins) and reflection (Duration up to 30mins) SAQ Survey (15-20 mins)
<b>Week 2</b>	W/C 18 <sup>th</sup> September 2017	W/C 25 <sup>th</sup> September 2017 and W/C 2 <sup>nd</sup> October 2017	W/C 25 <sup>th</sup> Sept to 2 <sup>nd</sup> October 2017 1-1 interviews (Duration up to 60mins) and SAQ Survey (15-20 mins)
<b>Week 6</b>	W/C 16 <sup>th</sup> October 2017	W/C 23 <sup>rd</sup> October 2017 and W/C 30 <sup>th</sup> November 2017	W/C 23 <sup>rd</sup> Oct to 30 <sup>th</sup> Nov 17 1 -1 interviews (duration up to 60 mins) and SAQ Survey (15-20 mins)
<b>Week 12</b>	W/C 27 <sup>th</sup> November 2017	W/C 4 <sup>th</sup> December 2017 and W/C 12 <sup>th</sup> December 2017	W/C 4 <sup>th</sup> Dec to 12 <sup>th</sup> Dec 2017 1-1 interviews (Duration up to 60) and SAQ Survey (15-20 mins)

#### Appendix 4.5 Email from Deputy Chief Nurse: Confirmation of Patient Story

**From:** Val Nixon [mailto:valnix7@msn.com]  
**Sent:** 08 September 2017 08:17  
**To:** [REDACTED]  
**Subject:** Re: patient stories

Good morning Linda

I like Jimmy's story too. Very emotive and covers fundamental aspects of care. Wilf picked up on the date is it was made in 2007 and felt it may be out of date as falls prevention has come a long way.

On 8 Sep 2017, at 06:20, [REDACTED] <[REDACTED]@uhnm.nhs.uk> wrote:  
Good Morning Val  
Think I like Jimmy story of fall best to use as typical.  
Thanks

This message was received from **outside** of UHNM. **STOP**. Were you expecting this email? Does it look genuine? **THINK**. Before you **CLICK** on links or **OPEN** any attachments

**From:** Val Nixon [mailto:valnix7@msn.com]  
**Sent:** 05 September 2017 17:19  
**To:** Collier, Linda [REDACTED] UHNM  
**Subject:** patient stories

I didn't think about the date as my focus was on the story. Do you think similar issues are still prevalent?

Val Nixon.  
Sent from my iPhone

[REDACTED] >

Reply

Fri 08/09/2017, 08:25

You

PhD work

Flag for follow up. Start by 23 March 2018. Due by 23 March 2018.

Yes most definite

This message was received from **outside** of UHNM  
**STOP**. Were you expecting this email? Does it look genuine?  
**THINK**. Before you **CLICK** on links or **OPEN** any attachments



#### **Appendix 4.6 Verbatim Transcript of Jimmy's Story – 2.44 minutes long**

My brother Jimmy was an inpatient in a psychiatric hospital where he was being treated for depression; he also had a learning disability. On the 5th of December 1999, he fell in a corridor which was unobserved, but the staff later recalled hearing a thud. He was found with his chin resting on a skirting board and his hands by his side. This indicated that he did not put his hands out to save himself, and his neck took the full force of the fall. Although he was unconscious for a while and unresponsive to pain stimuli, the nursing staff moved him back to his bed, they cleaned him up, and sent for the doctor, who arrived about an hour later. The notes of his examination are missing. The following day, his condition deteriorated, and he was transferred to Ninewells Hospital. The transfer later did not mention his fall. Over the next three weeks, Jimmy was transferred three times between the two hospitals as his condition fluctuated during this time. I repeatedly told the doctors about his fall and the fact that the marked deterioration and his physical condition were linked to this event, but nobody seemed to listen. I was regarded as a nuisance. Eventually, after an MRI scan, the injury was discovered; by that time, it was too late to do anything. The injury was reversible. He had a complete lesion at C4 [cervical] and was paralysed from his neck down. He died on the 9th of January 2000. Had Jimmy not been moved? Had the nurses sought medical help? Would his spinal injury have progressed from an initial partial lesion to a complete lesion? I will always wonder.

Patient Voices

<http://www.patientvoices.org.uk/flv/0047pv384.htm>

## **Appendix 4.7 Interview Schedule for Timepoint 1 (pre-intervention)**

### **Welcome and Introduction**

The participant will be welcomed to the interview session, introduce myself as the researcher.

The researcher will emphasise the purpose of the research study and remind the participant of the ethical rules observed.

Check the participant has read the participation information sheet, and questions will be invited by the researcher before them signing a consent form.

Obtain written consent to record and use the interview data.

To explain the purpose of the interview for this timepoint.

Ensure participants understand that their responses are from their experiences and perspectives.

To reassure the participant that there are no right or wrong answers.

### **Opening questions:**

Ask the participant about their current understanding of safety culture.

Use the questions as a guide:

- Tell me what you understand about the term 'safety culture'.
- What are your views on safety culture?
- What are your opinions of safety culture?

These questions are a guide and will be used for this interview. Depending on the responses, probing questions using an open-ended format will be used.

### **Probing questions:**

Why, tell me more?

Can you explain your reasons?

Can you please give me more detail about....?

You mentioned X; can you please explain what you mean by this?

Can you tell me about your experiences?

### **Winding up of session**

The researcher will summarise the key issues discussed and check that the participant is happy with this and has nothing else to add. The participant will be asked if they have any further questions/queries and will be thanked for attending.

Arrange dates and times for Timepoint 2 interviews

End of interview

## **Appendix 4.8 Interview Schedule for Timepoint 2 – 4 (post-intervention)**

### **Welcome and Introduction**

Participants will be welcomed to the interview session.

General conversation – E.g., ask participants how they are. Ask participants if they can continue with the interview.

Recap the previous interview and ask the participant if it is an exact account of the interview

Remind the participant of the ethical rules observed.

Invite the participant to ask any questions before starting.

To explain the purpose of the interview for this timepoint.

Ask the participant to complete SAQ.

Researcher to review responses.

### **Part 1: Opening questions: safety culture perceptions**

Questions are based on participant's responses from the six domains in the SAQ as described below:

- Teamwork climate (q1-6)

- Safety climate (q7-13)

- Job satisfaction (q15-19)

- Stress recognition (q20 - 24)

- Perceptions of management

  - Ward (q24a to 29)

  - Trust managers (q24b - 29)

- Working conditions (q30 – 33)

The following open questions will be used for each domain at each interview/timepoint.

### **Timepoint 2**

For the questions [questions relating to the specific domain], I can see that your responses are mostly negative/positive/neutral to [name of domain]. In your opinion, can you explain the reason for this? OR

Would you like to explain in more detail about....?

Why do you feel that [domain] is good/has room for improvement in your clinical environment?

How does that make you feel?

How do you think [negative/positive responses to a domain] impact clinical practice?

Would you like to share your clinical experiences to support your views?

For job satisfaction – (positive responses) Tell me why you like your job as a nurse.

(Negative responses) Tell me why your job is affecting how you feel.

Provide an opportunity at the end of questions to add anything to any of the answers provided.

### **Timepoint 3**

You were positive about [domain] at your last interview, and now this has changed. Can you tell me why? Or what has changed since your last interview?

How does that make you feel?

What impact has this change had on your clinical practice?

Would you like to share your clinical experiences to support your views?

Provide an opportunity at the end of questions to add anything to any of the answers provided.

#### **Timepoint 4**

If there are no changes to earlier responses, confirm with the participant that there are no changes to earlier interviews and continue to part 2.

Same as timepoint 3.

#### **Part 2: Open questions: Impact of the intervention**

##### **Trust Education**

Have you had any trust education since I last saw you?

How was this delivered?

Is this method effective?

How does this influence your clinical practice?

##### **Patient Story with/without reflection**

What can you remember of the story?

How has this influenced your practice? Can you give me an example of how you have applied what you have gained from [intervention] to clinical practice?

Have you shared this story with peers or nursing students?

What was their reaction?

Provide an opportunity at the end of questions to add anything to any of the answers.

These questions are a guide to stimulate a naturalistic conversation that will be probed further depending on the responses of each individual.

##### **Probing questions:**

Why, tell me more?

Can you explain your reasons?

Can you please give me more detail about

You mentioned X. Can you please explain what you mean by this?

Can you tell me about your experiences?

##### **Winding up of session**

I, the researcher, will sum up the key issues discussed and check that the participant is happy with this summing up and do not have anything else to add. The participant will be asked if they have any further questions/queries and will be thanked for attending.

Date and times arranged for next interviews for timepoint 3 and 4.

End of Interview.



































## Appendix 4.9 Dates and Timings of Qualitative Interviews

		Group 1				Group 2					Group 3			
		Cara	Vicky	Natalie	Kerry	Millie	Kay	Grace	Kate	Ivy	Maureen	Clare	Louise	Ann
<b>T1</b> <b>Wk. 0</b> <b>Pre int</b>	Calendar wk. No.	38	38	38	37	38	37	38	37	37	38	38	37	38
	Date	23.09.17	18.09.17	20.09.19	14.08.17	20.09.17	15.09.17	20.09.17	15.09.17	11.09.17	20.09.17	20.09.17	15.09.17	20.09.17
	Duration	12 mins	13 mins	9 mins	24 mins	16 mins	15 mins	15 mins	12 mins	11 mins	12 mins	7 mins	22 mins	13 mins
<b>T2</b> <b>Wk. 2</b> <b>Post int</b>	Calendar wk. No.	40	40	40	39	40	40	40	39	39	39	N/A	39	40
	Date	03.10.17	03.10.17	05.10.17	28.09.17	03.10.17	04.10.17	02.10.17	27.09.17	27.09.17	01.10.17	Off sick	27.09.17	04.10.17
	Duration	35 mins	35 mins	28 mins	54 mins	27 mins	42 mins	39 mins	40 mins	37 mins	40 mins	N/A	49 mins	25 mins
<b>T3</b> <b>Wk. 6</b> <b>Post int</b>	Calendar wk. No.	44	45	44	44	46	45	44	44	44	44	45	44	45
	Date	04.11.17	10.11.17	01.11.17	03.11.17	19.11.17	11.11.17	01.11.17	04.11.17	06.11.17	04.11.17	12.11.17	05.11.17	12.11.17
	Duration	33 mins	23 mins	19 mins	49 mins	21 mins	45 mins	34 mins	26 mins	18 mins	23 mins	33 mins	32 mins	27 mins
<b>T4</b> <b>Wk. 12</b> <b>Post int</b>	Calendar wk. No.	49	50	51	51	51	49	49	50	49	50	51	50	50
	Date	08.12.17	14.12.17	20.12.17	21.12.17	20.12.17	08.12.17	08.12.17	15.12.17	08.12.17	16.12.17	22.12.17	14.12.17	17.12.17
	Duration	16 mins	13 mins	8 mins	20 mins	17 mins	17 mins	28 mins	12 mins	16 mins	17 mins	15 mins	17 mins	9 mins

#### Appendix 4.10 Example of Exploratory Noting using Extract from Cara's Transcript for Timepoint 1.

	<p>I think it's little things like just making sure that their drinks are topped up and you know the buzzer is within reach and things that you would be mortified if you hadn't remembered, but you are so bombarded with discharges and paperwork and you are expected to do this and everyone is on so many antibiotics now. It is little things like that that are so important... and you know now there are falls and things that happen on the ward, because patients that can't meet their buzzer and that's a fact unfortunately, that is a fact.</p>	<p>busy environment leads to omissions of care</p> <p>excessive paperwork leads to omissions of care</p> <p>hydration, patients at risk of falls (not having buzzer)</p> <p>EMOTIVE : use of mortified again</p>
<p>Yeah</p>		<p>Incidents happen through small minor omissions which get overlooked - not reported...ignored...</p> <p>CULTURAL PRACTICES: Some aspects of care are neglected due to competing demands of cultural practices (as highlighted in red)</p> <p>PREVENTING HARM - IMPORTANT</p>
	<p>Erm...and you know it's things like that, that are overlooked I feel and then other things, the documentation as well, I think we are so caught up we have to do our care plan, that all the other risk assessments and things that are not deemed as important are neglected and then you can find they have gone four days without having any pressure areas documented, but in the risk assessment, it might be in the care plan, but it is not in the risk assessment booklet and that's about safety as well isn't it and making sure that things are identified, you know like the VIP score and venflons, should be done... there's paperwork to fill in and things like that get missed when people are so caught up with other things and I can understand it, but you know it shouldn't happen.</p>	

#### Appendix 4.11 List of Exploratory Notes from Cara's Transcript for Timepoint 1.

 Uncertainty of the concept of SC. illustrated by the	1 P3 (2)
 not heard of SC. uses patient safety	2 P3 (2)
 EDUCATION AND TRAINING - ONLINE	3 P3 (2)
 Professional responsibility	4 P3 (2)
 PREVENT HARM	5 P3 (2)
 IMPORTANT, AT THE FOREFRONT OF PATIENT CARE	6 P3 (2)
 INTUITIVE ..INTERNAL FEELING TO PREVENT HARM	7 P3 (2)
 Professional Responsibility	8 P3 (2)
 NATURAL, SUBCONSCIOUSLY	9 P3 (2)
 UNCONSCIOUS BEHAVIOUR/INTRINSIC/INTUITIVELY	10 P3 (2)
 professional behaviour	11 P3 (2)
 EMOT: Mortified	12 P3 (2)
 i picked up on this to elaborate on meaning	13 P3 (2)
 complexity of discharging patients and having out of date paperwork can result in omissions	14 P3 (2)
 medication important - keeping up to date, reading bulletins, administration routes	15 P3 (2)
 being aware of constant change of the social world we live in, constant change to current practices are key to promoting saf...	16 P3 (2)
 patient/relative expectations	17 P3 (2)
 patient expectations	18 P3 (2)
 suspicious of people	19 P3 (2)
 Role Responsibility; maintaining safety	20 P3 (2)
 busy environment leads to omissions of care	21 P3 (2)
 EMOT: use of mortified again - omissions of fundamentals for care caused by high workload demands	22 P3 (2)
 WORKLOAD - cultural practices of getting things done that is expected...	23 P3 (2)
 excessive paperwork	24 P3 (2)
 Incidents happen through small minor omissions which get overlooked - not reported...ignored...	25 P3 (2)
 CULTURAL PRACTICES	26 P3 (2)
 PREVENTING HARM - IMPORTANT	27 P3 (2)
 CHECKLIST	28 P3 (2)
 EMOT: sounds horrible (BAD, DREADFUL, AWFUL)	29 P3 (2)
 DOCUMENTATION	30 P3 (2)
 Promoting a positive experience for the patient	31 P3 (2)
 improve on patient centred care	32 P3 (2)
 improve nurses attitudes	33 P3 (2)
 she had to clarify if she had answered questions correctly - reassured her it was her perceptions.	34 P3 (2)

## Appendix 4.12 Example of Coding Structure for Experiential Statements from Group 1, T2)

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- INCIDENT REPORTING
        - Barriers for not reporting incidents
        - Causes of errors
        - Incident reporting process
        - Learning from errors
        - psychological impact on self through reporting incidents
        - Speaking Up
        - individual feelings affect how respond to SAQ
        - Performance in emergency situations
      - PROFESSIONAL IDENTITY
        - accountability and responsibility
            - challenging poor practice
            - junior staff not taking responsibility for challenging poor practice
            - Responsibility and accountability to prevent harm
          - education and training of new staff
              - education and training of new staff compromised
              - good preceptorship and feedback
              - HCA's need better training
              - Importance of education and training
              - new staff need supporting through preceptorship
              - new staff need to develop competence
              - poor induction for UK nurses
            - Patient expectations
            - Purpose of role
          - Struggling with self and prof. identity
              - importance of being an outsider
              - lack of respect
            - threat to professional identity
                - Feeling of disempowerment
                    - reduced staffing levels leading to delays in care
                    - That isn't how you would want your Grandparents nursed ...rushed like I'm having to do sometime
                    - 'well if that had been my dad, I wouldn't have been very happy either'.
                    - 'If you were a patient you wouldn't want to be sitting waiting for a buzzer going on and on and on
            - Resilience - Building resilience
          - RIGOUR TO PROMOTE PATIENT SAFETY
              - Importance of documentation
              - Importance of risk assessments
              - systems to promote safer care

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#### Appendix 4.13 Example of Coding Structure for Personal Experiential Themes from Group1, T2-4

Name	Files	References
SAFETY CULTURE AS A PROFESSIONAL	12	1
Professional Duty of Candour	8	
Avoidance behaviours	7	
Learned behaviours	6	
Professional Duty of Care	12	
as being accountable and responsible	1	
as being competent	12	
as effective	7	
as inadequate	7	
as suggestions to improve	4	
education and training of new staff	5	
is not accessible	9	
no training	10	
is affected by tiredness	1	
SAFETY CULTURE WITHIN THE ORGANISATION	8	
Leadership within the Organisation	8	
Organisational Duty of Candour	0	
Avoidance behaviours	0	
Learned behaviours	5	
Learning Culture	5	
Systems Thinking	3	
Doumentation	2	
Importance of risk assessments	1	
Incident reportin processes	2	
SAFETY CULTURE WITHIN THE WORKPLACE	9	
Communication in the Workplace	3	
is effective	0	
is ineffective	3	
Leadership in the Workplace	3	
challenging practice	0	
is disempowering	3	
Is empowering	0	
is invisible	1	
Safety in Numbers	8	
adequate staffing	2	
as a positive impact on workload	0	
improves staff morale	1	
reduces errors _ incidents	1	
inadequate staffing	8	

#### Appendix 4.14 Reflections - Data Collection – Semi-structured Interviews

<p>T1 Interviews</p> <p>Diary Entry</p> <p>24.09.17</p>	<p>All the pre-intervention interviews are now completed. I feel exhausted, relieved, and overwhelmed by the amount of time involved in arranging, undertaking, and collecting data. At the same time, I am feeling excited about future interviews and what I will uncover.</p> <p>The 1st interview went well. I have used my skills and experience from interviewing applicants for nursing and paramedic pre-registration programmes and interviewing applicants for lecturer and senior lecturer positions. These skills included listening, communicating, reassuring, and probing (to name a few). Following this interview, my expectations from the other RNs were high; I felt confident about my earlier interviewing experience and skills. Wishful thinking! After several interviews, I soon became quite surprised by how the RNs had difficulty understanding the concept of safety culture and referred to patient safety interchangeably. Although I used three questions to elicit their responses, understanding, values, views, and opinions, this did not help. I also used those interchangeably, which caused more confusion. This led me to question my interview skills and experience, as I had to do a lot of probing, prompting, reassuring there were no right and wrong answers, and explaining. I felt most of the time. I was being too coercive with the RNs by adopting leading questions instead of probing further. However, the RNs were more comfortable describing how it is conceptualised in their organisation: patient safety. This is fine as it is; it is their lived experience that they are describing from their world, their practice. Also, as I would be interviewing them again across the timepoints, gaining their trust and cooperation was essential.</p>
<p>T2 Interviews</p> <p>Diary Entry</p> <p>6.10.17</p>	<p>As the interviews were two weeks apart from T1, I immediately felt I was developing a good relationship with the participants as I was welcomed. We had a friendly conversation before starting the interviews. On completing all the interviews, the RNs were more comfortable with me, and the fact that I am an RN who previously worked in their trust seemed to address the power imbalance as they viewed me as an RN rather than my current position at the university and as a researcher. Subsequently, the RNs were more open and candid about their lived experiences in response to the questions as they discussed negative and positive impacts in relation to questions. Some were keen to give exemplars to illustrate their point. Reflecting upon those interviews, again, I did find my interviewing skills did improve, but not as much as I expected. I encouraged and reassured them to talk by using 'yeah' and nodding, but my eagerness took over because I was passionate about the subject. I tended to interrupt before they finished talking. I used fewer leading questions and replaced them with probing ones by focusing on the interview guide. While the interview guide was helpful initially, I relied upon the order of questions to avoid missing them, rather than trying to</p>

	<p>ask them conversationally. However, with some RNs, I got too involved in the conversation by sharing my experiences.</p> <p>On reflection, I considered how I interacted with the RNs and considered my preconceptions, thoughts, and perceptions, which I could not bracket. For other RNs, I could bracket these by not engaging in the conversation, but this was because, despite probing them, their responses were limited and descriptive. The following is my reflection on one of the interviews:</p> <p>As a researcher, I gave plenty of time to answer the questions but found myself clarifying the questions to get responses and repeating what she had already said. Did I lead the interview too much to obtain responses? I had to reassure her throughout the interview, but she appeared unsure how to respond. Responses felt like she was answering a question but was unsure if this was correct (displayed by raising her voice at the end of her response) as if seeking clarification that this was what I was looking for.</p> <p>How will I get the balance right? The interview skills needed for gathering data differ significantly from interviewing potential candidates for pre-registration education and job vacancies.</p>
<p>T3 Interviews</p> <p>Data Entry</p> <p>13.11.17</p>	<p>After reflecting on my interview technique and interpersonal skills, they are finally developing more rapidly. I can use the interview guide but ask questions in a more conversational and less structured way. E.g., when talking about teamwork and they mention staffing issues, we would discuss those issues rather than leave this until later (see interview guide – Appendix 4.9). The following is my reflection on one of the interviews:</p> <p>I do not think I will forget this interview, as it was very emotional. I have been in the same situation and feel emotions and frustration. The RN, when responding to a particular question, became incredibly angry and tearful. With my nursing hat on, I wanted to put my arms around her and comfort her, but with my researcher hat on, my instinct told me to leave her. I felt uncomfortable with this dilemma, but on the other hand, I thought I had a trusting relationship with her, for her to open and share her experiences. Together we completed the interview, and at the end, she thanked me for listening to her, staying calm, and allowing her to cry without showing compassion towards her. As for her, this was the right thing to do. I was proud of how I handled the situation, and it also meant that my experience and skills in collecting data were rapidly developing. On a negative note, this interview affected me deeply, as I got very emotional when I thought about it, which made me reflect upon the well-being of the RNs and myself as a researcher and how we would be affected by the study.</p> <p><b>At moments like this, I realise how far I have come since the T1 interviews.</b></p>

<p>T4 Interviews</p> <p>Diary Entry</p> <p>24/12/17</p>	<p>The final interviews are now completed, and I feel a mixture of emotions. It has been a roller coaster of feelings for me, from emotional listening to the RNs experience, feeling frustrated when interviews had to be rearranged due to unavailability, and exhaustion from undertaking many interviews. Despite this, I would do it all again as I have thoroughly enjoyed getting to know all the RNs taking part in the interviews and listening to their lived experiences relating to this study. I have After reflecting on my interview technique and interpersonal skills, they are finally developing more rapidly. I can use the interview guide but ask questions in a more conversational and less structured way. E.g., when talking about teamwork and they mention staffing issues, we would discuss those issues rather than leave this until later (see interview guide – Appendix 4.9). The following is my reflection on one of the interviews:</p> <p>I do not think I will forget this interview, as it was very emotional. I have been in the same situation and feel emotions and frustration. The RN, when responding to a particular question, became incredibly angry and tearful. With my nursing hat on, I wanted to put my arms around her and comfort her, but with my researcher hat on, my instinct told me to leave her. I felt uncomfortable with this dilemma, but on the other hand, I thought I had a trusting relationship with her, for her to open and share her experiences. Together we completed the interview, and at the end, she thanked me for listening to her, staying calm, and allowing her to cry without showing compassion towards her. As for her, this was the right thing to do. I was proud of how I handled the situation, and it also meant that my experience and skills in collecting data were rapidly developing. On a negative note, this interview affected me deeply. This was overwhelming, as it made me realise how our professional relationship had developed over the three months. The time constraint to take part in the interviews/study could have easily led to higher attrition. Still, I strongly feel the professional relationships that were formed contributed to the RNs continuing to take part in the study, subsequently achieving a high response rate. This experience taught me a different skill set when collecting the data. I have become a better interviewer, although there are still some areas for improvement.</p>
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#### Appendix 4.15 Data Analysis: Example of a Detailed Analytical and Reflective Notes for Louise (Group 3)

Participant	Timepoint	Analytical and Reflective Notes
Louise (Group 3)	T1	<p><b>1st READING</b></p> <p>I have read the transcript and made extra notes and annotations. I had to leave this and review it again as my feelings got in the way as I continued to be annoyed by her comments in her interview – As a clinician and educator, her words make me feel uncomfortable as she is saying what she thinks – we all have thoughts about what we think about patients and relatives, but as a professional, those thoughts stay in your head.</p> <p>As a researcher, this is the first interview I have not met her before, and she is incredibly open about her thoughts and opinions – is this reflected in her management style? What is she like with those she works with? Has this behaviour cascaded through the workplace? If so, is there a culture driven by negative attitudes? How does this impact patient safety</p> <p>Or, looking at it from another perspective – does she feel comfortable with me, which allows her to express her thoughts? Do we have an instant connection – rapport?</p> <p>I find it hard to remain objective at this point and will have to review it later. – I CAN'T BRACKET THOSE EMOTIONS/THOUGHTS/INVOLVEMENT – SUPPORTS THE USE OF HEIDDEGERS PHILOSOPHY</p> <p><b>2<sup>nd</sup> READING</b></p> <p>Here we go, reviewing the transcript.</p> <p>Now that I have identified two pre-intervention interview concepts, will I see this differently? The way I am feeling, I doubt it, so, bracing myself for round 2!!!! – PROCRASTINATING</p> <p>I still feel uncomfortable with this interview and question my ability to remain objective because of how I am feeling. The uncomfortable feelings come from how I perceive her blasé attitude and behaviors towards errors occurring,</p>

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and relatives are always 'bad and angry'. She refers to 'that backlash' (from relatives) and verbal attacks (from relatives). Relatives do not always see it from the nurse's point of view.

I will need to review this again tomorrow with a more open mind and stay objective. I will also need to try not to let this cloud my judgement when analysing the other interviews.

### 3rd READING

Having re-read the transcript, I am less annoyed with this. She has been open and honest. The only area where I feel annoyed is the blame aspect on patients and the feedback from relatives when an error has occurred. As a professional, I find this manner to be discriminatory behaviour and judgmental. How do these behaviours impact the team? Learning from errors happens because of feedback from angry relatives - has a lasting impression – hmmm!!!!... Learning from errors is hit-and-miss. She says they learn from errors through dissemination via ward meetings and posting on Facebook, so everyone is aware. This may indicate that they are aware but does not necessarily indicate that people learn.

Minor Datix reporting gets sorted by sisters but is not necessarily cascaded. Bigger things like falls get investigated, and RCA. She says that she learns from the impression of angry relatives and being told off- how does that encourage learning from errors? She describes this as no one likes to be told off, making you feel like crap.... dealing with backlash.... angry relatives (which makes me feel upset) ... Other words that can be used are anxious, upset, and concerned – she doesn't seem to have an awareness of relative emotions when there is an error, which makes me think does she listen to relatives concern'[s. Yes, it is a busy ward – which she alludes to, and patients are more sympathetic because they can see how busy staff are; however, where is the trusting relationship to know your relative is safe? She also refers to nurses being 'verbally attacked' – these expressions make me feel extremely uncomfortable. It is very insightful that preventing errors in the first place is paramount – and I do not think she sees this, as she constantly refers to her experience of dealing with relatives and how she describes them.... Throughout the interview, there is a constant need and reminder to 'make sure everything is in place,

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evidence trail, documentation—backlash from relatives. I wonder if she has had enough negative experiences in the past that have made her view safety culture this way. Or is a culture on the ward driven by those with negative attitudes? This is quite significant, as my experiences of collecting data on this ward were unpleasant to the point I hated going, especially when the sister was on duty. She would not let me collect SAQs and told me to come back another day – and again – and again.... Is there something she is hiding? Teamworking is mentioned, and the use of 'our', especially concerning errors, suggests she sees this as a team approach – Or lack of her to take responsibility for her actions? HONEST, OPEN, JUDGEMENTAL, CRITICAL, HYPERCRITICAL, EQUIVOCAL, ELUSIVE, INVASIVE, DEFENSIVE, FLIPPANT, DISMISSIVE, JOKEY, SUPERFICIAL, UNPERCEPTIVE, INDISCRIMINATING, evasive.

#### 4th READING

Listened to audio to pick up further linguistics. I do not think I have picked up any further information that I had. What I did pick up was that she is very team-focused, as presented as 'our' and 'we' and talks about teamwork quite often. I am very aware of human factors and how these impact patient safety and errors can occur. I still feel quite uncomfortable when discussing complaints from relatives – they disregard their concerns/issues because they are not there when errors occur. – WHAT DIFFERENCE DOES THAT MAKE.... ERRORS PREVENTABLE? I do, in some respect, get where she is coming from regarding documentation, as it is so important, but I felt too much emphasis was placed on documentation to provide an evidence trail and less importance on preventing harm in the first place (recall an incident from A and E – burn's).

REALISTIC/PRAGMATIC/PRACTICAL/

PESSIMISTIC/CYNICAL/DOUBTFUL/NEGATIVE/DISOURAGING/DISRESPECTFUL

THE TEAM FOCUSED V'S INDIVIDUAL – ERRORS – SHIFTED BLAME/LACKED RESPONSIBILITY.

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T2

**1<sup>st</sup> READING with audio recording**

I read this long interview once while listening to the audio recording. Some areas are quite positive concerning teamwork, communication, learning from errors (although I am not too convinced), and leadership (ward manager). She is extremely negative about trust managers and their lack of insight into the realities of working, putting patients at risk, a threat to patient safety through their decision-making, and moving staff and patients to achieve safer staffing levels and patient flow targets. I could feel the frustration in her voice when she was discussing this, and it was quite sad to think that this continues to go on - not listened to, a waste of time reporting anything. Is there a hierarchical power control going on here?

**2nd READING**

Interesting aid and insightful. This is quite insightful and contains lots of rich data. Strong emphasis on teamwork and good leadership. Some areas are contradictory, which I must go back to and review when I deconceptualise. TEAMWORK CULTURE AND SAFETY IN NUMBERS are two themes/subthemes I have picked up, and this depends upon strong leadership and staff empowerment. She views the team as MDT and diverse, but they all get on. Socialisation is important – which was similar to what I found on 045, which has an impact. Extremely negative about trust managers and their decisions to conform to targets. There is a marked impact on how she views things because of the story in making herself more aware. She says she would love to teach the other staff, which will make them realise the importance of risk management strategies - mainly because she must do the RCAs.... So why isn't she doing something about it now if it is so important? Something was alarming about her feeling stressed and tired and not wanting to do a medication round, yet she was doing a bank shift. Interesting. A different interview from the baseline in that she was very much risk management focused. The questions are different and based on the SC concepts. Interestingly, she has only briefly mentioned risk assessments.



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**3rd READING AND CODING.**

I have made lots of annotations in this data as some areas are contradictory in that she displays good teamwork, communication, etc., but underneath the data, unpicking her responses would suggest differently - maybe I am now becoming more analytical with the data - and I think that reading other participants responses is helping to do this 3rd reading of the transcript to make annotations.

This was quite insightful. Now I have read it through more thoroughly, and I have made a lot of annotations throughout. When she discusses teamwork, she relates this to teamwork across bands six and seven and how they work well together. There are some areas that she does relate to the team's diversity and how they pull together as a team. I have found that some responses do not always match her question responses. E.g., there are some questions where she scores quite positively, but her responses are more negative than positive. There are some areas in this interview where I feel uncomfortable with her responses when staff are tired in relation to making drug errors. She keeps saying it is the little things that get missed - but what are those? She lacks discussion around the fundamentals of patient care. She exhibits extreme negativity towards senior managers.

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**T3****1<sup>st</sup> READING**

Data relating to the patient's story was very brief. She said she would like to share it with other staff but did not because she was part of the study and thought it would affect the study. It still resonates in her mind, but she did not explore the impact on practice. She did ask about other stories. Although her SAQ responses were positive, she did explain that they have had a few bad weeks on the ward, which may have led to omissions (turns and IV meds). Affected morale. Quite positive about leadership and how they empower staff. Still short-staffed, which impacts the ward. HCA is caring for large amounts of patients - WHY are they doing this? SHOULD THEY BE SUPERVISED???? Negative about senior management - attitudes and CQUINS getting done, not visible, out of touch with reality. Communication is still problematic with doctors, especially with drug charts, and nurses are told not to give meds until updated on the drug charts. I have read this to annotate the transcript. I was quite annoyed

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at her last transcript, as I thought she was quite defensive and judgmental, as if blaming patients for falling or getting infections. Looking through this transcript, I think my annoyance may have clouded my judgement of this person, and I looked and annotated it. Still, my annotation was quite negative, as if I were looking for reasons why she responded the way she did. E.g., she says she has a strong safety culture on the ward but then mentions staff shortages and poor communication. Leadership is questionable, so if these are issues, how is the safety culture good? There are some areas in which she contradicts what she says - or is this just me being more analytical with her responses.

**2<sup>nd</sup> READING with audio recording**

I do not think I added any value to the interview as the previous interview. Her views of SC have not changed, and the same values came up. However, issues with staffing levels have come up, which has caused delays in care. Staff are anxious they will make a mistake - however, this does not seem to be escalated. Despite these challenges, there is still a strong teamwork approach. What she says about students and bank staff and how they learn from each other is interesting. Still issues with senior management and confirming targets and out of touch with reality - is there a Power relationship with management going on? Although she is aware of why things need to be done, it doesn't mean she agrees with it, as she sees at the frontline the impact these decisions are having on patient care - I can relate to this, as I found this an issue when I worked in A and E, which is one of the reasons why I left. The manager's decisions would override clinical decision-making, so I know where she is coming from.

So, this then relates to protecting patients, doing no harm...altruism and professional identity - I did not pick that up.

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T4

**1<sup>st</sup> READING**

I am still quite annoyed with this interview with the comments that she makes...The most prominent one is that junior staff are naive and do not understand the term 'safety culture'. On reflecting on this, this supports my first thoughts at the start of the study in that all those interviewed did not understand this concept.... which then makes me think, well, she did not know about this at the start, but she does now...so maybe she has learnt more then she

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lets on... Her focus is on documentation in case of a patient safety incident rather than nursing care and preventing incidents. I am also not convinced that she has disseminated this to other staff, despite her saying she has...this, I feel, is reflected in her laissez-faire attitude - Is this reflected in her leadership?

### **2nd READING**

I did read this transcript yesterday with the audio recording. At the time of the interview, I thought her responses were quite good and positive, and I left feeling accomplished - thinking yes, patient stories have a significant impact. Still, reading this transcript, I became increasingly annoyed at her responses. From memory (but I will go and read again), she said some aspects of patient care are not preventable - 'some patients are going to fall or get infection' - NO, they are all preventable... Then, it implied all staff would not know what safety culture was - SO IN TODAY'S NURSING PRACTICE, WHAT ARE LEADERS DOING TO INCREASE THIS - which leads me to think that it is all task orientated - e.g., staff are always referring to turn's, medication being missed/delayed - but it is rarely communication, compassionate care that is discussed. This interview annoyed me, to the point where I had to stop reading it because I was conscious of introducing bias into my interpretation of the interview.

### **3rd READING**

There is some change to her perceptions, and she has continued to reflect, but she is quite focused on risk management strategies and completion of documentation to protect nurses from being sued and recognition of what they did wrong - which she sees as not good. She also sees those in a leadership role as being more knowledgeable about safety culture than junior nurses, and I have found a correlation to this throughout this process. Has used patient stories as a good teaching and learning tool to use as leverage for stressing the importance of completing risk assessments, etc. It was not a good ending interview, but that could be partly my fault for not probing too much.

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## **Appendix 4.16 Example of Reflective Notes on Completion of Data Analysis**

### **GROUP 1: TRUST EDUCATION (Control Group)**

#### **Reflection on Vicky's Interviews**

Initially, this participant started positively, and I can sense her altruistic nature in caring for patients. Her positivity steadily declined due to the workplace, staff shortages and her perceptions of management (negative perceptions). She is very patient-focused and does not want to cause harm - she uses metaphors - just like firefighting, as part of their work culture, meaning moving from one crisis to another and implementing Band-Aid solutions to stop the flames - lack of resources, which leads to incomplete solutions. Some leaders lack the leadership skills to solve underlying management issues, as they have been promoted solely on their strong technical ability, have led me to think: as ward managers are front-line managers, why are the staff negative about trust managers when the ward managers are not communicating with them or fighting their corner? Do they lack leadership skills? So, when I look at this, and compared to other interviews, she is negative about trust managers and line managers - but is it because she is experienced and sees things differently?

#### **Reflective thoughts during data analysis on Vicky's transcript**

When I first read these transcripts, I got the sense that she did not learn anything from this process, but she has - so she says she has not changed, but her perceptions of safety culture have changed. Implicitly throughout other interviews, her negative perceptions were always about patients being put at risk - and this statement supports those claims. What I have also found quite helpful when coding is that it is easy to write an annotation to say what this looks like in statements that I code. This is better when I start to decontextualise the data. I tidied up nodes, and initially, when collecting the data, I did not think I focused too much on the impact of the patient story. Still, after three interviews and tidying up nodes, there is significant explicit and implicit data. The implied data has come from interpreting the data when asking questions on safety culture concepts. This is quite a surprise to me (now the highest number of nodes). I also noticed that my interview skills developed, so it was more conversational rather than relying on responses from the SAQ. It was more natural and less leading, more probing, except for those whose interviews were difficult. I also felt as though I had known the participants for a while. I developed a relationship with them that enabled them to open and be candid about their experiences. This is because I understood the working environment and the organisation due to my experience.

REVIEWING CASE BY CASE (THIS IS THE 8TH PARTICIPANT NOW), I CAN DEFINITELY SEE THE CHANGE IN HOW I READ THE DATA AND BECOME MORE ANALYTIC.

## **GROUP 2: STORY ONLY**

### **Reflection on Grace's Interviews**

I have to say this has been the most upsetting. Grace is an excellent role model, very patient and staff-focused, and would not compromise patient safety within her control. External factors increased staff stress, higher turnover, and increased incidents. The journey started quite positively, and it was evident that leadership was essential for promoting teamwork and collaborative working - necessary for safe practice. Each interview began to see her crumbling under the pressure of staffing an additional ward (to comply with targets) and using her most experienced staff. Through the process, she has reflected, which made her realise that her mental health and well-being were suffering, so to take control of the situation, she reduced her hours, which she says was a result of the study. So, in response to change, I did not think she had learnt anything from being in the study, but this enabled her to see the strong correlation between leadership and safety incidents. Leaders are essential to pull the team together and motivate staff. Also, reflecting on this experience made her more resilient and assertive because of being in the study. She also knows she cannot always keep a happy face and recognises the importance of talking through the issues - reflection. She is a strong advocate for patient stories and does have an impact. Interview skills –

### **Reflective thoughts during data analysis (T3) on Grace's transcripts**

It is interesting how I am seeing different things. From her interview, compassion fatigue sprang to my mind. Also, the ethical and moral issues that nurses face daily - do no harm, altruism, do not call in sick for fear of letting colleagues down, doing their best under the circumstances, their desire to care, and prioritising risk over benefit. These are all things that I did not consider from the first initial coding phase. It is not the internal factors that impact patient safety due to the altruistic nature of nursing - it is the external factors that influence their ability to provide safe care, putting nurses under considerable pressure and moral and ethical dilemmas regularly. External factors start with leadership. From T3, I also considered another issue relating to burnout and chronic workplace stress that is not managed. Symptoms of burnout are that they do not see any hope of positive changes or feelings of negativism - this may be why some staff are negative in their responses.

## **GROUP 3 - STORY AND REFLECTION GROUP**

### **Reflection on Clare's Interviews**

She is very insightful, and her journey through the process significantly impacts her decision-making and reflective skills and how she has facilitated this to other staff (even night staff). This has also developed her interpersonal and leadership skills, and she is more confident to challenge practice, which could lead to potential errors. That would imply that her knowledge, skills, and attitudes have changed in relation to patient safety through the application of critical thinking skills. Although she did say that she would have done some (relating to one incident) of this before the story, the story made her think and slow down a bit more and not get dragged into the habitual everyday practice of getting tasks completed.

**INITIALLY, I DIDN'T THINK THAT I FOCUSED TOO MUCH ON MEASURING THE IMPACT OF THIS STORY, BUT LOOKING AT ALL OF THE NODES, THE NUMBER OF NODES FOR THE IMPACT OF THE STORY IS 87 (AFTER 2 PARTICIPANTS). THERE IS A LOT OF IMPLICIT DATA THAT I DIDN'T SEE WHEN FIRST REVIEWING THE CODES, SO THIS IS A USEFUL EXERCISE.**

### **Reflective thoughts during data analysis on Clare's transcripts**

This positively impacts her decision-making skills and challenging practice based on the story and reflection. She is an experienced nurse and gave some excellent examples of how her skills developed. She also has disseminated this to staff. This ward is a positive working environment that directly impacts the perception of safety culture. It is a risk-averse environment, with good teamwork and an empowered team, and this is down to good leadership (based on her interview). What is interesting is that the ward leader at T3 was very negative and questioned her leadership skills, as Grace felt she was not able to protect staff and patients and therefore had a very different viewpoint, to the point that she reduced her hours - which makes me think that she was very adamant not to show her true feelings to staff. She did not, as the team thought very differently. Was the ward manager's burnout due to the pressure of keeping her staff and patients safe?????

**I AM NOW FEELING THE COMPLEXITIES OF THIS STUDY AND THE DATA AS LEADING ME DOWN DIFFERENT AVENUES. I ALSO NEED TO STAY FOCUSED AND REVIEW THIS TRANSCRIPT, AS I MAY BE BIASED IN HOW I VIEW THIS WARD AND THE WARD MANAGER. I HAVE ALWAYS HAD A GOOD PERCEPTION OF THIS WARD, AND MY PERCEPTIVE THOUGHTS WERE SUPPORTED BY THE INTERVIEWS**

## Appendix 4.17 Independent Peer Review Approval (Staffordshire University)



Faculty of Health Sciences

### INDEPENDENT PEER REVIEW APPROVAL FEEDBACK

<b>Researcher Name</b>	Val Nixon
<b>Title of Study</b>	Do patient stories enhance Registered Nurses' perceptions of safety culture in a NHS Acute Trust? A mixed methods explanatory sequential study.
<b>Status of approval:</b>	<b>Approved</b>

Thank you for your application to the Independent Peer Review Panel (IPR). You Application is now approved

#### Action now needed:

You must now apply to the Local NHS Research Ethics Committee (LREC) for approval to conduct your study. You must not commence the study without this second approval.

Please forward a copy of the letter you receive from the LREC to Peter Kevern at Blackheath Lane as soon as possible after you have received approval.

Once you have received LREC approval you can commence your study.

You should note that any divergence from the approved procedures and research method will invalidate any insurance and liability cover from the University. You should, therefore, notify the Panel of any significant divergence from this approved proposal.

When your study is complete, please send the Faculty ethics committee an end of study report. A template can be found on the ethics BlackBoard site.

**Comments for your consideration: None**

A handwritten signature in black ink that reads 'PM Kevern'.

**Signed:** Dr Peter Kevern  
Chair of the Faculty of Health Sciences Ethics Panel

**Date:** 18.1.17

## Appendix 4.18 HRA Ethics Approval Letter



Ms Valerie A Nixon  
172, Pacific Road,  
Trentham,  
Stoke on Trent, Staffs  
ST48UD

Email: [hra.approval@nhs.net](mailto:hra.approval@nhs.net)

24 February 2017

Dear Ms Nixon,

### Letter of HRA Approval

<b>Study title:</b>	<b>Do patient stories change Registered Nurses' perceptions of safety culture in a NHS Acute Trust? A mixed methods explanatory sequential study</b>
<b>IRAS project ID:</b>	<b>217256</b>
<b>REC reference:</b>	<b>17/HRA/0954</b>
<b>Sponsor</b>	<b>Staffordshire University</b>

I am pleased to confirm that HRA Approval has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications noted in this letter.

### Participation of NHS Organisations in England

The sponsor should now provide a copy of this letter to all participating NHS organisations in England.

*Appendix B* provides important information for sponsors and participating NHS organisations in England for arranging and confirming capacity and capability. **Please read *Appendix B* carefully**, in particular the following sections:

- *Participating NHS organisations in England* – this clarifies the types of participating organisations in the study and whether or not all organisations will be undertaking the same activities
- *Confirmation of capacity and capability* - this confirms whether or not each type of participating NHS organisation in England is expected to give formal confirmation of capacity and capability. Where formal confirmation is not expected, the section also provides details on the time limit given to participating organisations to opt out of the study, or request additional time, before their participation is assumed.
- *Allocation of responsibilities and rights are agreed and documented (4.1 of HRA assessment criteria)* - this provides detail on the form of agreement to be used in the study to confirm capacity and capability, where applicable.

Further information on funding, HR processes, and compliance with HRA criteria and standards is also provided.



It is critical that you involve both the research management function (e.g. R&D office) supporting each organisation and the local research team (where there is one) in setting up your study. Contact details and further information about working with the research management function for each organisation can be accessed from [www.hra.nhs.uk/hra-approval](http://www.hra.nhs.uk/hra-approval).

### Appendices

The HRA Approval letter contains the following appendices:

- A – List of documents reviewed during HRA assessment
- B – Summary of HRA assessment

### After HRA Approval

The attached document “*After HRA Approval – guidance for sponsors and investigators*” gives detailed guidance on reporting expectations for studies with HRA Approval, including:

- Working with organisations hosting the research
- Registration of Research
- Notifying amendments
- Notifying the end of the study

The HRA website also provides guidance on these topics and is updated in the light of changes in reporting expectations or procedures.

### Scope

HRA Approval provides an approval for research involving patients or staff in NHS organisations in England.

If your study involves NHS organisations in other countries in the UK, please contact the relevant national coordinating functions for support and advice. Further information can be found at <http://www.hra.nhs.uk/resources/applying-for-reviews/nhs-hsc-rd-review/>.

If there are participating non-NHS organisations, local agreement should be obtained in accordance with the procedures of the local participating non-NHS organisation.

### User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please email the HRA at [hra.approval@nhs.net](mailto:hra.approval@nhs.net). Additionally, one of our staff would be happy to call and discuss your experience of HRA Approval.

### HRA Training

We are pleased to welcome researchers and research management staff at our training days – see details at <http://www.hra.nhs.uk/hra-training/>

Your IRAS project ID is **217256**. Please quote this on all correspondence.

IRAS project ID	217256
-----------------	--------

Yours sincerely

[REDACTED]

Assessor

Email: [hra.approval@nhs.net](mailto:hra.approval@nhs.net)

Copy to: Professor [REDACTED] School of Life and Education, Sponsor  
Contact  
Professor [REDACTED] [REDACTED] R&D Contact  
Participating NHS organisations in England

## Appendix 4.19 Research Passport from NHS Trust

[REDACTED]  
University Hospitals of North Midlands



NHS Trust

### RESEARCH AND DEVELOPMENT DEPARTMENT

Academic Research Unit  
Courtyard Annexe – C Block  
Newcastle Road  
Stoke-on-Trent  
ST4 6QG

Tel: 01782 675398

Fax: 01782 675399

11th May 2017

(Reissued extension 9<sup>th</sup> August 2017)

Ms Valerie Ann Nixon  
172, Pacific Road  
Trentham,  
Staffordshire.  
ST4 8UD

Dear Valerie,

#### **Letter of access for research Extension – “Do patient stories change Registered Nurses perceptions of safety culture in a NHS Acute Trust”**

This letter should be presented to each participating organisation before you commence your research at that site. The participating organisation is **University Hospitals of North Midlands NHS Trust**.

In accepting this letter, each participating organisation confirms your right of access to conduct research through their organisation for the purpose and on the terms and conditions set out below. This right of access commences on **12<sup>th</sup> May 2017** and ends on **31<sup>st</sup> December 2017** unless terminated earlier in accordance with the clauses below.

You have a right of access to conduct such research as confirmed in writing in the letter of permission for research from **University Hospitals of North Midlands NHS Trust**. Please note that you cannot start the research until the Principal Investigator for the research project has received a letter from us giving confirmation from the individual organisation(s) of their agreement to conduct the research.

The information supplied about your role in research at the organisation(s) has been reviewed and you do not require an honorary research contract with the organisation(s). We are satisfied that such pre-engagement checks as we consider necessary have been carried out.

You are considered to be a legal visitor to the organisations premises. You are not entitled to any form of payment or access to other benefits provided by the organisation(s) or this organisation to employees and this letter does not give rise to any other relationship between you and the organisation(s), in particular that of an employee.

L004 - Example letter of access for university researchers who do not require an honorary research contract  
Version 2.3 August 2013

Research in the NHS: HR Good Practice Resource Pack

Page 1 of 3

While undertaking research through the organisation(s) you will remain accountable to your substantive employer but you are required to follow the reasonable instructions of the organisation(s) or those instructions given on their behalf in relation to the terms of this right of access.

Where any third party claim is made, whether or not legal proceedings are issued, arising out of or in connection with your right of access, you are required to co-operate fully with any investigation by the organisation(s) in connection with any such claim and to give all such assistance as may reasonably be required regarding the conduct of any legal proceedings.

You must act in accordance with the organisations policies and procedures, which are available to you upon request, and the Research Governance Framework.

You are required to co-operate with the organisation(s) in discharging its/their duties under the Health and Safety at Work etc Act 1974 and other health and safety legislation and to take reasonable care for the health and safety of yourself and others while on the organisations premises. You must observe the same standards of care and propriety in dealing with patients, staff, visitors, equipment and premises as is expected of any other contract holder and you must act appropriately, responsibly and professionally at all times.

If you have a physical or mental health condition or disability which may affect your research role and which might require special adjustments to your role, if you have not already done so, you must notify your employer and each organisation prior to commencing your research role at that organisation.

You are required to ensure that all information regarding patients or staff remains secure and *strictly confidential* at all times. You must ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice and the Data Protection Act 1998. Furthermore you should be aware that under the Act, unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.

You should ensure that, where you are issued with an identity or security card, a bleep number, email or library account, keys or protective clothing, these are returned upon termination of this arrangement. Please also ensure that while on the organisations premises you wear your ID badge at all times, or are able to prove your identity if challenged. Please note that the organisation(s) do not accept responsibility for damage to or loss of personal property.

This organisation may revoke this letter and any organisation(s) may terminate your right to attend at any time either by giving seven days' written notice to you or immediately without any notice if you are in breach of any of the terms or conditions described in this letter or if you commit any act that we reasonably consider to amount to serious misconduct or to be disruptive and/or prejudicial to the interests and/or business of the organisation(s) or if you are convicted of any criminal offence. You must not undertake regulated activity if you are barred from such work. If you are barred from working with adults or children this letter of access is immediately terminated. Your employer will immediately withdraw you from undertaking this or any other regulated activity and you **MUST** stop undertaking any regulated activity immediately.



NHS Trust

Your substantive employer is responsible for your conduct during this research project and may in the circumstances described above instigate disciplinary action against you.

No organisation will indemnify you against any liability incurred as a result of any breach of confidentiality or breach of the Data Protection Act 1998. Any breach of the Data Protection Act 1998 may result in legal action against you and/or your substantive employer.

If your current role or involvement in research changes, or any of the information provided in your Research Passport changes, you must inform your employer through their normal procedures. You must also inform your nominated manager in each participating organisation and the R&D office in this organisation.

Yours sincerely

  
  
**Senior Research Governance Facilitator, UHNM**

cc: **Wilfred McSherry, Profesor in Nursing, Staffordshire Univeristy**  
 **HR Administrator, University of Worcester**

## **Appendix 4.20 Participant Information Sheet**

### **Participant Information Sheet**

#### **Do patient stories change Registered Nurses perceptions of safety culture in an NHS Acute Trust? A mixed methods exploratory sequential study**

Thank you for taking the time to read this information sheet. This research study is being undertaken for a PhD at Staffordshire University. You have been invited to take part in this research study to share your experiences and attitudes towards patient safety.

This information sheet is designed to tell you why the research is being undertaken, why you have been invited to discuss your experiences and thoughts, and what would be involved. Please take time to read the following information and feel free to contact us if you would like to ask any questions.

#### **What is the purpose of the study?**

Patient safety is featured most prominent in health care, nationally and globally. Numerous strategies have been introduced to reduce patient harm over the past 15 years, but despite this, patients continue to suffer avoidable and unavoidable harm as outlined in several high-profile reports into failings in the quality of care. These include:

Major failings in patient safety are a global phenomenon (Rafferty, *et al.*, 2015) and causes of problems related to the nature of clinical practice, the healthcare professionals, and the culture of the organisation. It is evident from the literature that there is a growing need to increase the knowledge, skills, and attitudes of frontline healthcare professionals to improve patient safety (Brasaitte *et al.*, 2015). This study aims to undertake a thorough investigation of patient safety culture amongst Registered Nurses and will use patient stories as an educational strategy to explore and evaluate the impact of change from your perceptions to see if this leads to a change in safety culture.

#### **Why have I been chosen?**

You are invited to take part in this study to help me explore and evaluate the impact of patient digital stories and how this may impact on your perceptions of patient safety.

#### **What is involved?**

If you agree to take part in the study, a meeting will be arranged to explain the full details of the research study at a time and place that is convenient for you. If you wish to take part in the study, you must be willing to take part in the one-to-one interviews and sign a written consent form. You will be asked to complete a questionnaire at the start of the study and then repeat this three times at different intervals over 10 weeks (week 2, week 6 and week 12). Completion of questionnaire should take 15-20 minutes.

You will also be invited to volunteer to take part in the qualitative study. For this part of the study, 15 will be selected. If you are one of those selected to form a subgroup you will be allocated to 1 of 3 intervention groups which are:

**Group 1:** will undertake education and training provide by your trust, which will include mandatory training, regular updates/workshops relating to falls prevention and tissue viability

**Group 2:** will receive a patient digital story lasting approx. 20-30 minutes

**Group 3:** will receive a patient digital story and the opportunity to reflect upon that story. This will last for approx. 50 to 60 minutes.

For each subgroup, a pre-intervention interview will be conducted to gain information on what you hope to achieve from participating in the study. This is expected to last approx. 30 minutes. Following this you will be asked to complete the questionnaire. If you are allocated to group 2 or 3, you will receive the intervention following your pre intervention interview.

The post intervention interviews will be undertaken three times over 10 weeks (week 2, week 6 and week 12) where you will complete the questionnaire prior to your interview. The interview will take up to 1 hour where you will be asked some questions. All interviews will be conducted at a place that is convenient for you. If you do not object, the interview would be audio recorded and referred for accuracy to avoid the risk missing important information, and so notes do not have to be taken during the interviews. Transcriptions of audio recordings will be saved electronically, and password protected. Paper based material will be securely stored and kept confidentially. No one will have access to these except myself.

## **Do I have to take part?**

Taking part is completely voluntary. It is up to you whether you take part. If you decide to participate and then change your mind, you are free to withdraw from the study at any time prior to two weeks before completion of the study without stating a reason. If you do decide to withdraw from the study at any time prior to writing up the data. Any data collected from you will be destroyed.

## **Will taking part in the study be kept confidential?**

Yes, all information you provide will be stored securely and in an anonymised form. I will need to know your name and NHS email address to send electronic copy (if requested) of the questionnaire, or to contact you to arrange an interview. Your personal details will be stored electronically and encrypted which only myself will have access too. A numerical code will be allocated to you which you be used throughout the research study. This research will be conducted under the supervision of two research supervisors who will have access to the data. You will not be identifiable from any reports or publications that are produced because of this work.

## **What are the risks and benefits of the study?**

There will be no risks to you in taking part in this study. The benefits of the information that you provide to us will help us to explore and evaluate the impact of the digital stories' have on your perceptions of patient safety to determine if this will lead to a change in safety culture. The results will also gain a better understanding of patient safety from your perspective.

## **What will happen with the results?**

All the information collected will be analysed to produce a research thesis. It is anticipated the results will be used to inform and guide senior managers, clinicians, and educationalists to adopt patient stories wider to improve patient safety outcomes. The results of the research will target management, quality, nursing and education journals for publication and national and international conferences with a focus on themes such as quality Improvements and patient safety. Finally, to personally inform you of the study outcomes, a summary of the study outcomes and copies of published material will be sent to you.

## **Who is organising this research?**

This research project is part of a PhD study and will be conducted with the support of research supervisors. Support will also be sought from a Senior Research Officer (from the Research and Development department, the Director of Quality and Safety and Matron for the medical division. The School of Health and Social Care, Research Ethics Committee has approved this study.

**We hope that you will be joining this important research. Thank you very much for taking your time to read this information sheet.**

**If you need further information, please contact:**

***Val Nixon***

*Tel: 07825 688447*

*Email: [valnix7@msn.com](mailto:valnix7@msn.com)*





**Do patient stories change Registered Nurses perceptions of safety culture in an NHS Acute Trust? A mixed methods explanatory sequential study.**

**Participant Consent Form for Questionnaires**

Could you please initial each box.

1. I confirm that I have read and understood the information sheet for the above study. ☐
2. I have had the opportunity to ask questions and have had these answered to my satisfaction. ☐
3. I understand that my participation is voluntary and that I may withdraw from the study at any time prior to two weeks before completion of the study without giving any reason. I understand that any data collected prior to my withdrawal will be destroyed ☐
4. I understand that all information given will be treated with full confidentiality and will not be identifiable as mine in the written results, or any published reports. ☐
5. I consent to being contacted to take part in the one-to-one interviews ☐
6. I consent to take part in the above study. ☐

**Participant**

**Date**

**Signature**

---

**Researcher**

**Date**

**Signature**

---



**Do patient stories change Registered Nurses perceptions of safety culture in an NHS Acute Trust? A mixed methods explanatory sequential study.**

**Participant Consent Form for Qualitative Interviews**

Could you please initial each box.

1. I confirm that I have read and understood the information sheet for the above study. ☐
2. I have had the opportunity to ask questions and have had these answered to my satisfaction. ☐
3. I understand that my participation is voluntary and that I may withdraw from the study at any time prior to two weeks before completion of the study without giving any reason. I understand that if I withdraw, any information I have provided will be destroyed. ☐
4. I understand that all information given will be treated with full confidentiality and will not be identifiable as mine in the written results, or any published reports. ☐
5. I understand that the interview will be audio recorded, and I agree to this ☐
6. I consent to take part in the above study. ☐

**Participant**

**Date**

**Signature**

---

**Researcher**

**Date**

**Signature**

---

## Appendix 4.23 Participation Debriefing Form

### Participant Debriefing Form

#### **Do patient stories change Registered Nurses perceptions of safety culture in an NHS Acute Trust? A mixed methods exploratory sequential study**

Thank you for taking part in my study. You will be participating in a research study conducted by Val Nixon, (E: [valnix7@msn.com](mailto:valnix7@msn.com), T: 01785688447), which is being undertaken for a PhD at Staffordshire University. In conjunction with the Participation Information Sheet, this form will provide you with further information about this research.

Patient safety is featured most prominent in healthcare, nationally and globally. Numerous strategies/methods have been introduced to reduce patient harm over the past 15 years, but despite patients this, patients continue to suffer avoidable and unavoidable harm as outlined in several high-profile reports into failings in the quality of care. There is a growing need to increase the knowledge, skills, and attitudes of frontline healthcare professionals to improve patient safety. This study will use patient stories as an educational strategy to explore the impact of change in Registered Nurses perceptions, leading to improvements in patient safety.

The main objectives of the study are to:

1. Establish a baseline of your perception about patient safety
2. Explore your perception of any organisational/team/individual factors that may negatively and positively influence your perception
3. Identify positive or negative impact against the performance criteria used in the NHS Safety Thermometer.
4. Explore the effect of patient stories on your perceptions towards patient safety.

To complete this study, it will be undertaken in three phases which will involve completion of questionnaires (phase 1), individual interviews and intervention (phase 2). You will only be required to take part in the first 2 phases. There will be three subgroups, and you will be allocated to one of those groups (further information is detailed in the Participant Information Sheet).

Your participation is not only greatly appreciated by the researcher, but the data collected could add to the body of knowledge to make an original contribution to the existing theoretical, patient safety and nursing literature. It will also be used to inform and guide NHS Trust senior managers, clinicians, and educationalists to adopt patient stories widely as a cost-effective tool to improve knowledge, skills and attitudes leading to improved patient safety.

All your responses to the questionnaires and individual interviews will be confidential. Your name will be converted to a code number and only myself will see your name on your responses. For the data collected, as well as myself, your responses only, will be seen by my research supervisors. I would ask that you do not discuss the nature of this study with others as your comments could influence their perceptions which may bias our data. Failure to comply with this request may have severe repercussions with regards to the accuracy of the data. I hope you will support my research by keeping your knowledge of this study confidential.

As you know, your participation in this study is voluntary and you can withdraw from the study any time prior to two weeks of completion of study, at which point all data collected will not be used. Should you wish to withdraw from the study, then please contact Val Nixon (researcher) on the contact details above.

If you have any questions now about the research, please ask. If you think of any questions later, please contact Val Nixon (contact details above). The names and contact details of my research supervisors are;

Professor Wilfred McSherry,  
School of Health and Social Care,  
Staffordshire University,  
Blackheath Lane,  
Stafford.  
ST18 0YD  
T: 01785 353766  
E: [W.McSherry@staffs.ac.uk](mailto:W.McSherry@staffs.ac.uk)

Dr. Anna Tsaroucha  
School of Health and Social Care,  
Staffordshire University,  
Leek Road,  
Stoke on Trent  
ST4 2DE  
T: 01782 294260  
E: [A.Tsaroucha@staffs.ac.uk](mailto:A.Tsaroucha@staffs.ac.uk)

If you would like to know more about this research topic, please let me know and I will provide you will a list of references.

**AGAIN, THANK YOU AGAIN**

## Appendix 5.1 Individual Participants Contribution to the Group Experiential Themes

	Group Experiential Theme 1: Professional Duty of Care																
	Subthemes	No changes				Social Interaction and Collaboration								Safety in Numbers			
						Communication				Teamwork							
		Timepoints	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3
Group 1	Cara	x									x	x			x		
	Vicky	x				x	x				x	x		x	x		x
	Natalie	x				x	x			x	x				x	x	
	Kerry						x				x			x	x	x	
	TOTAL	3	0	0	0	2	3	0	0	1	4	2	0	2	4	2	1
	Cara				x				x								
	Vicky																
	Natalie																
	Kerry																
TOTAL	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Group 2	Millie	x						x			x	x		x		x	
	Kay	x					x	x	x	x	x			x	x	x	
	Grace		x				x	x	x						x	x	
	Kate	x	x				x	x	x		x	x			x	x	
	Ivy	x					x	x	x		x	x				x	
	TOTAL	4	2	0	0	0	4	5	4	1	4	3	0	2	3	5	0
	Millie		x		x		x	x	x								
	Kay				x		x	x	x								
	Grace		x				x	x									
	Kate				x		x	x									
	Ivy																
	TOTAL	0	2	0	3	0	4	4	2	0	0	0	0	0	0	0	0
Group 3	Maureen	x			x		x		x		x				x	x	
	Clare	x			x	x			x	x		x					
	Louise	x				x		x		x	x	x		x	x	x	
	Ann	x		x							x	x			x	x	
	TOTAL	4	0	1	2	2	1	1	2	2	3	3	0	1	3	3	0
	Maureen			x	x				x								
	Clare			x													
	Louise			x													
	Ann			x	x		x		x								
	TOTAL	0	0	4	2	0	1	0	2	0	0	0	0	0	0	0	0

X denotes safety culture perceptions (including changes). X indicates changes to patient safety-related behaviours DNI: did not interview

	Group Experiential Theme 2: Professional Duty of Candour												
	Subthemes	To speak up or not to speak up				The power of leadership							
						Ward Leadership				Organistaional leadership			
		Timepoints	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3
Group 1	Cara		x	x							x		x
	Vicky	x	x	x			x	x			x	x	x
	Natalie	x	x	x			x				x		
	Kerry	x	x	x						x	x	x	
	TOTAL	3	4	4	0	0	2	1	0	1	4	2	2
	Cara				x								
	Vicky				x								
	Natalie												
	Kerry				x								
	TOTAL	0	0	0	3	0	0	0	0	0	0	0	0
Group 2	Millie	x	x	x			x				x	x	
	Kay	x	x	x	x		x	x		x		x	
	Grace	x	x		x		x	x			x	x	
	Kate		x	x	x		x	x				x	
	Ivy		x	x			x				x	x	
	TOTAL	3	5	4	3	0	5	3	0	1	3	5	0
	Millie				x								
	Kay		x		x								
	Grace				x								
	Kate												
	Ivy				x								
	TOTAL	0	1	0	4	0	0	0	0	0	0	0	0
Group 3	Maureen		x				x				x	x	
	Clare	x	DNI	x	x		DNI	x	x		DNI		
	Louise	x	x	x	x		x			x	x	x	
	Ann	x	x	x	x		x				x	x	
	TOTAL	3	3	3	3	0	3	1	0	1	3	3	0
	Maureen		x	x	x								
	Clare												
	Louise		x	x	x								
	Ann												
	TOTAL		2	2	2	0	0	0	0	0	0	0	0

	Group Experiential Theme 3: Professional Duty of CPD												
	Subthemes	Organisational and Workplace Culture				Organisational and Workplace Infrastructure to support CPD				Personal and Professional Development			
	Timepoints	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
Group 1	Cara	x	x	x	x		x	x	x	x			
	Vicky		x	x	x					x			
	Natalie	x	x							x			
	Kerry		x	x			x	x					
	<b>TOTAL</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Cara		x								x		x
	Vicky												x
	Natalie												x
	Kerry										x		x
	<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>4</b>
Group 2	Millie									x			
	Kay	x	x	x		x	x			x			
	Grace		x	x						x			
	Kate						x			x			
	Ivy						x						
	<b>TOTAL</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>
	Millie										x	x	x
	Kay										x	x	x
	Grace												
	Kate										x	x	x
	Ivy												
	<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>3</b>
Group 3	Maureen		x				x	x					
	Clare	x	DNI	x			DNI				DNI		
	Louise										x		
	Ann		x	x			x	x			x		
	<b>TOTAL</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>
	Maureen											x	x
	Clare										x	x	x
	Louise											x	x
	Ann										x	x	x
	<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>4</b>

X denotes safety culture perceptions (including changes). X indicates changes to patient safety-related behaviours DNI: did not interview

## Appendix 5.2 Group Experiential Theme 1: Summary of Changes of Registered Nurses Perceptions of Safety Culture (T1-T4)

Group Experiential Theme 1: Professional Duty of Care					
Subtheme	Gr	T1	T2	T3	T4
To do no harm	1	<p>Described their professional duty of care to do no harm (Cara, Vicky, and Natalie)</p> <p>Discussed the relationship between doing no harm and its relationship to providing safe PCC (Cara and Natalie)</p>	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)
	2	<p>Described their professional duty of care to do no harm (Kay, Millie, Kate, and Ivy)</p> <p>Discussed the relationship to no harm by providing safe PCC (Kate, Ivy)</p>	Minor change as related to duty of care to do no harm and increased job satisfaction (Grace, Kate)	Not discussed (All RNs)	Not discussed (All RNs)
	3	<p>Described their professional duty of care to do no harm (Maureen, Clare, Louise, Ann)</p> <p>Discussed the relationship to no harm by providing safe PCC (Maureen, Clare, and Ann)</p> <p>Focus on task-orientated care (Clare)</p>	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)



<b>Social Interaction and Communication</b>	1:	Communicate with patients (Natalie)	Discusses the importance of communication (Natalie, Kerry)	Change from a description of communication to the exploration of the poor communication between nurses, nurses and doctors and the negative impact on patient care delivery and patient outcomes (Vicky, Natalie, Kerry)  Discussed the relationship between ineffective communication and the MNC (Cara)	No change (Cara, Natalie)
	2	Not discussed	Changes from non-discussion to the exploration of ineffective communication between nurses and its impact on MNC (Kay, Kate, Grace, Ivy)  Explored the relationship between ineffective communication between doctors and NMC (Grace)	No change (Kay, Kate, Grace, Ivy)	Not discussed (All RNs)
	3	Discussed positive communication between the nursing team and patients (Clare, Louise)	Not discussed (all RNs)	Change from discussion to exploration of effective communication and ineffective communication with doctors and its relationship to missed nursing care (Louise)  Explores the importance of good nursing documentation (Louise)	Not discussed (all RNs)

<b>Social Interaction and Collaboration Teamwork</b>	1	Recognition of collaborative working and teamwork for promoting a supportive environment (Cara, Vicky)	Explored negative staff attitudes and their impact on teamwork (Cara and Vicky)	Explored ineffective teamwork between nurses and its relationship to AE and MNC (Cara, Vicky, Natalie)  Negative staff attitudes and their impact on individual health and well-being (Cara)	Change of perceptions from negative perceptions relating to teamwork to understanding the Importance of teamwork to safe nursing care (Cara)
	2	Recognition of collaborative working and teamwork for safe patient care (Kay)	Changes from recognition to the exploration of effective teamwork and its relationship to MNC (Millie, Kay, Kate, Ivy, Grace)	Changed from negative to positive perceptions of teamwork to getting nursing tasks done (Millie)	Not discussed (All RNs)
	3	Recognition of good collaborative working and teamwork in their clinical area only (Clare, Louise)	Changes from recognition to the exploration of effective teamwork and its relationship to a positive working environment and safe patient care (Maureen, Ann, Louise)	No change (Ann, Louise)	Not discussed (All RNs)

Safety in Numbers	1	<p>Described that Inadequate staffing levels put patients at risk (Vicky)</p> <p>Described inadequate staffing and the negative impact on patient experience (Kerry)</p>	<p>Changes from risk to patients to exploring the relationship of poor staffing and the negative impact on patient care (Natalie and Cara, Kerry)</p> <p>Changes from risk to patients to exploring the relationship of poor staffing and the negative impact on the nurse's health and well-being (Cara)</p>	<p>Change in perception – Explored the impact of poor staffing and the negative effect on the nurse's health and well-being (Natalie, Kerry)</p>	Not discussed (All RNs)
	2	<p>Inadequate staffing levels in the context of patients with complex medical problems (Millie, Kay)</p>	<p>Explored the relationship between poor staffing and MNC and increased patient harm (Millie, Kay, Grace)</p> <p>Explored the relationship between poor staffing and the negative impact on the nurse's health and well-being (Grace)</p> <p>Conforms to task-orientated care and increase of AEs related to inadequate staffing (Grace)</p> <p>Explores the positive impact of adequate staffing and the relation to patient care (Kate)</p>	<p>No change (Millie, Grace, Kay)</p> <p>Explores the relationship between adequate staffing levels and positive impact on teamwork (Kate)</p> <p>Explores the relationship between adequate staffing levels and a reduction of falls (Ivy)</p>	Increased awareness of safety culture and its association with poor staffing levels and MNC and increase of AE (Millie, Grace)
	3	<p>Discussed the lack of financial and staffing resources and negative impact on patient care and its relationship to increasing AEs (Louise)</p>	<p>Explored the relationship between poor staffing and the negative impact on patient care (Maureen, Louise, Ann)</p> <p>Explored the relationship between poor staffing, increased workload and the negative impact on the nurse's health and well-being (Maureen, Louise, Ann)</p>	<p>Explored the relationship between inadequate staffing and the relationship to MNC (Maureen, Louise, Ann)</p> <p>Explored the negative impact of inadequate staffing in relationship to the working environment and increased stress levels (Louise)</p>	Not discussed (All RNs)

### Appendix 5.3 Group Experiential Theme 1: Summary of Changes of Registered Nurses Patient Safety Related Behaviours (T2- T4)

Group Experiential Theme 1: Professional Duty of Care				
Subtheme	Gr	T2	T3	T4
To do no harm	1	No changes (all RNs)	No changes (all RNs)	Changed from a task approach to an individualised approach to patient centred care (Cara)
	2	No changes (all RNs)	Developed communication skills to enhance assessment skills when patients are involved in a patient incident, so the patient is viewed holistically rather than seen the injury (Millie)	Changed from a task approach to an individualised approach to patient centred care (Kay)
	3	No changes (all RNs)	Improved clinical decision-making skills to enhance their practice to provide individualised patient centred care (Clare, Maureen, Ann)	Improved decision making in an emergency in particular patient falls (Clare)  Increased awareness and application of professional values when providing individualised patient centred care (Maureen)  Improved clinical decision-making skills to enhance their practice to provide individualised patient centred care (Maureen, Clare)

<b>Social Interaction and Communication</b>	1:	No changes (all RNs)	No changes (all RNs)	Improved communication skills with patients and relatives (Cara)
	2	Improved communication skill with patients and relatives (Kay, Millie)	Continued to improve communication skills with patients and relatives. Improved clinical decision-making skills to enhance their practice to provide individualised patient centred care (Millie, Kay, Kate)	Continued to improve communication skills (Millie, Kay)
	3	improved communication with patients and relatives (Ann)	No changes (all RNs)	Improved communication skills with patients and relatives (Maureen, Clare)
<b>Social Interaction and Collaboration Teamwork</b>	1	No changes (all RNs)	No changes (all RNs)	No changes (all RNs)
	2	No changes (all RNs)	No changes (all RNs)	No changes (all RNs)
	3	No changes (all RNs)	No changes (all RNs)	No changes (all RNs)
<b>Safety in Numbers</b>	1	No changes (all RNs)	No changes (all RNs)	No changes (all RNs)
	2	No changes (all RNs)	Shared the digital story when the workload is high and stressful to remind nurses to put themselves in their shoes (Grace)	No changes (all RNs)
	3	No changes (all RNs)	No changes (all RNs)	No changes (all RNs)

## Appendix 5.4 Group Experiential Theme 2: Summary of Changes of Registered Nurses Perceptions of Safety Culture (T1-T4)

Group Experiential Theme 2: Professional Duty of Candour					
Subthemes	Gr.	T1	T2	T3	T4
To speak or not to speak	1	Compliance with organisational safety systems (Datix, risk assessments, policies, and procedures (Cara, Vicky, Kerry)  Speaking up – open culture (Kerry, Vicky)  Reporting culture (Kerry)	Change from compliance with organisational systems to explore individual and workplace influences that promote or inhibit behaviours to challenge poor practice and report incidents. (Cara, Vicky, Kerry)  Silent behaviours (Vicky, Kerry)	No change (All RNs)	Not discussed (All RNs)
	2	Compliance with organisational safety systems (Datix, risk assessments, policies, and procedures (Millie, Kay, Kate, Grace, Ivy)  Blame culture and its relationship avoidance behaviours and negative safety culture (Millie)  Open culture and its relationship to speaking up behaviours (Grace) and learning from errors (Millie, Kay, Grace)	Change from compliance with organisational systems to individual and workplace influences that promote or inhibit behaviours to challenge poor practice and report incidents (Millie, Kay, Grace, and Ivy)  Speaking up behaviours relating to open culture (Grace and Ivy) and effective teamwork (Kay, Kate, Grace)  Importance of learning from errors (Kay)	No change (Grace, Ivy, Kate, Kay)  Change from learning from errors. Moved from individual learning to ward learning, and this is less positive (Millie)	No change (All RNs)
	3	Compliance with organisational safety systems (Datix, risk assessments, policies, and procedures (Clare, Louise, Ann)  Team involvement to increase awareness of reporting culture (Louise, Ann)  An open culture that promotes speaking-up behaviours (Clare, Louise)	Change from compliance with organisational systems to individual, workplace and organisational influences that promote or inhibit behaviours to challenge poor practice and report incidents (Louise, Maureen)  Accountability and responsibility of speaking up and its importance to learning from errors (Maureen)	No change (Ann, Louise, Maureen)  Compliant and reliant on checklists and risk assessments (Clare)	No change (All RNs)

<b>The Power of Leadership</b>	1	Not discussed (All RNs)	Positive ward leadership and its relationship to creating an open, non-punitive culture (Natalie)	The negative impact of poor ward leadership and its relationship to creating a blame culture and silent behaviours (Vicky)	Not discussed (All RNs)
<b>Ward leadership</b>			The negative impact of poor ward leadership and its relationship to creating a blame culture and silent behaviours (Cara)		
<b>Organisational (Trust) Leadership</b>		Ineffective organisational leadership and its relationship to blame culture (Kerry)	Ineffective organisational leadership (Natalie, Kerry), priorities of organisational leaders (Kerry)	Ineffective organisational and its relationship to a blame culture and incident reporting (Vicky)	Not discussed (All RNs)
<b>Ward leadership</b>	2	Importance of effective leadership to promote an open culture (Grace, Kay)	Explored the importance of effective leadership qualities to promote an open culture (Millie, Kay, Grace)	No change (All RNs)	No change (All RNs)
			Positive ward leadership to create a non-punitive response to incident reporting and speaking up (Millie, Kay, Grace, and Ivy)		
<b>Organisational (Trust) Leadership</b>	2	Not discussed (All RNs)	Changes to the relationship of compromised patient care due out of touch with realities and target driven (Mille)	Negative perceptions of trust leadership relationship to compromised patient care due out of touch with realities (Grace, Kay, Ivy)	No change (All RNs)
			Negative perceptions of organisation leaders and the lack of visibility (Grace)		
<b>Ward leadership</b>	3	Not discussed (All RNs)	Positive ward leadership to promote speaking up behaviours (Maureen, Louise, Ann)	No change (All RNs)	No change (All RNs)
<b>Organisational (Trust) Leadership</b>		Negative perceptions of organisational (trust) managers - driven by targets (Louise)	Lack of visibility of organisational managers (Maureen, Louise)	Changes from positive perceptions of organisational leadership to negative perceptions due to a lack of understanding of the working environment (Ann)	
			Changes to the relationship of compromised patient care due out of touch with the realities of clinical practice and not listening to nurses on the frontline (Louise)		

## Appendix 5.5 Group Experiential Theme 2: Summary of Changes of Registered Nurses Patient Safety Related Behaviours (T2- T4)

Group Experiential Theme 2: Professional Duty of Candour				
Subthemes	Gr.	T2	T3	T4
To speak or not to speak	1	No changes (all RNs)	No changes (all RNs)	<p>Changed from silent behaviours to speaking up behaviours (Cara, Kerry)</p> <p>Developed confidence to teach and encourage others to speak (Kerry)</p> <p>Increased confidence to reflect and challenge nursing practice (self and others) (Cara)</p>
		<p>Developed confidence to be more assertive to challenge poor practice (Millie, Kay)</p>	<p>Had a broader knowledge and understanding around causes of patient incidents to examine them more thoroughly (Millie)</p> <p>Continued to grow in confidence to challenge poor practice (Kay)</p> <p>Increased awareness of other risks to patient safety and has increased compliancy with completing risk assessments (Ivy)</p>	<p>Developed a wider knowledge and understanding relating to the importance of risk factors. Continues to be compliant with completing risk assessments</p> <p>Importance of teaching staff risk assessments to prevent harm (Ivy)</p> <p>Developed confidence to be more assertive and resilient to speak up to trust managers when patient care is compromised</p> <p>Changed from silent behaviours to speaking up behaviours to senior managers when patients are at risk</p> <p>Improved reflective skills to consider her stress levels and the impact upon her mental health and well-being and reduced working hours (Grace)</p> <p>Developed more knowledge and understanding about the wider implications of patient incidents</p> <p>Continues to challenge poor practice (Kay)</p> <p>Improvements in nursing documentation (Kay)</p>



	3	<p>Increased compliance with risk assessments, nursing documentation (Maureen, Louise)</p> <p>Informing, teaching staff to comply with reporting incidents and risk assessments (Maureen, Louise)</p> <p>Used digital story with nursing as a motivator for change (Louise)</p>	<p>Continued to be compliant with risk assessments and nursing documentation (Maureen, Louise)</p> <p>Continued to inform and teach other nursing staff to be compliant with risk assessments (Maureen, Louise)</p>	<p>Improved documentation (Clare)</p> <p>Improved speaking up behaviours (Louise)</p> <p>Developed reflective skills in self and with others to reflect on patient incidents (Clare)</p>
<b>The Power of Leadership</b>	1			
<b>Ward leadership</b>		No changes (all RNs)	No changes (all RNs)	No changes (all RNs)
<b>Organisational (Trust) Leadership</b>		No changes (all RNs)	No changes (all RNs)	No changes (all RNs)
<b>Ward leadership</b>	2	No changes (all RNs)	No changes (all RNs)	No changes (all RNs)
<b>Organisational (Trust) Leadership</b>		No changes (all RNs)	No changes (all RNs)	No changes (all RNs)
<b>Ward leadership</b>	3	No changes (all RNs)	No changes (all RNs)	No changes (all RNs)
<b>Organisational (Trust) Leadership</b>		No changes (all RNs)	No changes (all RNs)	No changes (all RNs)

### Appendix 5.6 Group Experiential Theme 3: Summary of Changes of Registered Nurses Perceptions of Safety Culture (T1-T4)

Group Experiential Theme 3: Professional Duty to CPD					
Subtheme	Gr	T1	T2	T3	T4
The organisational and workplace culture to CPD	1	Describe safety culture in reference to keeping up to date with current changes (Cara, Natalie)	<p>Continues to refer to statutory and mandatory requirements</p> <p>Describes the organisational commitment to CPD which related to mandatory training. Motivators or deter to engage with CPD activities (Cara, Vicky, Natalie, and Kerry)</p>	Negative perceptions of organisational commitment to CPD and the inadequacy of it. (Cara, Vicky, and Kerry)	No change (Cara, Vicky)
	2	Describe safety culture in reference to keeping up to date with statutory and mandatory training (Kay)	Continues to refer to statutory and mandatory requirements as their perceptions change to the organisational commitment to CPD, which either motivate or deter nurses to engage with CPD (Kay, Grace)	No change (Kay, Grace)	No change (Grace)
	3	Described safety culture as being up to date with mandatory training. (Clare)	<p>Describing education and links to quality of care – resources available and other methods. (Maureen, Ann)</p> <p>Continues to refer to statutory and mandatory requirements as their perceptions change to the organisational commitment to CPD, which either motivate or deter nurses to engage with CPD (Maureen and Ann)</p>	No change (Clare, Ann)	No change (Clare)

<b>The organisational and workplace infrastructure to CPD</b>	1	Describes the importance of CPD and its relationship to safe nursing care (Cara, Natalie)  Accountability of the organisation but focused on mandatory training (Cara, Natalie)	Impact of organisational and workplace infrastructure to support CPD. (Cara, Vicky Natalie, and Kerry)	No change (Cara, Kerry, Vicky)	Not discussed (all RNs)
	2	Lack of time to keep up date (Kay)  Describes the importance of CPD and its relationship to safe nursing care (Kay)  Accountability of the organisation but focused on mandatory training (Kay)	Positive impact of their ward leadership to support and encourage RNs to undertake CPD (Kay, Kate, and Ivy)	Not discussed (all RNs)	Not discussed (all RNs)
	3	Not discussed (All RNs)	Not discussed (all RNs)	Positive impact of their ward leadership to support and encourage RNs to undertake CPD (Ann)  Importance of effective leadership to increase uptake of CPD (Clare, Ann)	Not discussed (all RNs)
<b>Personal and Professional Development</b>	1	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)
	2	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)
	3	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)

### Appendix 5.7 Group Experiential Theme 3: Summary of Changes of Registered Nurses Perceptions of Patient Safety Related Behaviours (T2- T4)

Group Experiential Theme 2: Professional Duty to CPD				
Subthemes	Gr.	T2	T3	T4
The organisational and workplace culture to CPD	1	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)
	2	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)
	3	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)
The organisational and workplace infrastructure to support CPD	1	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)
	2	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)
	3	Not discussed (All RNs)	Not discussed (All RNs)	Not discussed (All RNs)

<b>Personal and Professional Development</b>	1	<p>Increased self-awareness and personal knowledge and behaviours to take responsibility for own learning (Kerry)</p> <p>Increased self-awareness and personal knowledge and behaviours to educate other (Cara)</p>	<p>Improved confidence to reflect upon own practice to ensure patient safety (Vicky)</p> <p>Increased awareness of accountability and responsibility (Vicky)</p>	<p>Developed reflective skills from discussion in the interviews which has enabled enhance the following awareness of safety culture and patient safety-related practices (Cara, Vicky, Natalie, Kerry)</p> <p>Increased their personal responsibility for personal and professional development (Cara, Natalie, Kerry, Vicky)</p> <p>Increased knowledge of safety improvements (Vicky)</p> <p>Increased confidence to teach nurses to evaluate and reflect on their clinical practice to understand why they are doing things (Cara)</p> <p>Increased confidence to teach others about the importance of safety culture to increase their awareness and its relationship to patient safety (Cara, Vicky, Kerry)</p> <p>Increased confidence to teach other nurses the importance of patient centred care, accountability, and responsibility to practice safe patient care (Cara)</p>
	2	<p>Become proactive to suggest how the use of digital story can be implemented in the ward (Millie)</p> <p>Enhanced personal knowledge and change in behaviours (Kay, Ivy)</p> <p>Importance of teaching other staff to improve patient care (Millie)</p>	<p>Had used the digital story or a different story to promote discussion and reflection with other staff (Kay, Ivy)</p> <p>Become proactive to suggest how the use of digital story can be implemented in the ward (Millie)</p>	<p>No change (Kay, Millie, Ivy)</p>

3	<p>Developed critical reflection skills in relation to clinical practice to identify areas of improvement (Ann)</p> <p>Discussed how positive about stories as a good learning tool (Ann)</p>	<p>Become proactive to suggest how the use of digital story can be implemented in the ward (Louise, Clare, Maureen, Ann)</p> <p>Enhanced personal knowledge and behaviours (Louise, Clare)</p> <p>Related to the digital story when discussing how their reflective skills have developed which had enabled them to undertake the following.</p> <p>Increased use of reflection on clinical practice with self and other staff (Maureen, Clare)</p> <p>Had used the digital story or a different story to promote discussion and reflection with other staff (Clare and Louise)</p> <p>Used reflection with others to learn from errors (Clare)</p> <p>Became a falls champion for her place of work (Maureen)</p>	<p>Increased awareness of safety culture and related concepts through discussion during interviews (Maureen)</p> <p>Increased awareness and knowledge of consequences relating to falls (Maureen, Clare)</p> <p>Disseminated digital story to colleagues, promoted reflective practice in others (Maureen, Clare, Louise, Ann)</p>
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