A sequential exploratory mixed methods study of midwives' experiences after making an error in clinical practice.

A dissertation submitted by

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Declaration

I, Natasha Carr, confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

Acknowledgment of Harm and Impact in Maternity Care in England

This research seeks to understand the whole system harm that arises when clinical errors impact parents, babies, and families in England's maternity care. When mothers and babies suffer life-changing errors or catastrophe, at what ought to be the most joyful period of their life, these errors too regularly result in avoidable pain, injury, or gratuitous mortality that linger long after the immediate harms have been addressed. Ockenden (2022), Kirkup (2015,2022) and APPG (2024) all pay tribute to the courage of the families who have come forward, and rightfully so. Their stories are as compelling as they are heart-rending, demonstrating the deficiencies in NHS maternity service's safety culture, conversation, and accountability. These should be at the heart of every academic examination of midwives' errors and patient safety. With the deepest respect to the distress and damage suffered by those impacted, may their stories continue as a poignant reminder of the costs of unsafe care and a significant urge for reluctant growth. It is my wish that this study will mobilise the ongoing push for safety, clarity, and compassion in maternity services throughout England.

"We do not blame, or identify, those who have made honest clinical errors. Clinicians should not have to live in fear of clinical error and its aftermath; it is an inescapable accompaniment to practice everywhere" (Kirkup, 2022, p.18).

Abstract

Introduction

Maternity services are under scrutiny in the United Kingdom. The experiences and support needs of midwives in England who had made errors in practice, and the potential impact on practice and safety were unknown until this study was conducted. This thesis explores the experiences of midwives who had made errors, framing experiences through the lens of the second victim.

Methods

A narrative literature review provides a foundational overview of the current literature and determines the significance of the matter of safety in healthcare and more specifically the context of safety and errors in midwifery practice. The establishment of a gap in the extant research lay the groundwork for the research and the main methodologies previously used in the research were explored and this determined and justified a focused research proposal and this research.

A two-phase sequential exploratory mixed methods study was conducted. The first phase included a qualitative descriptive study utilising semi-structured face to face interviews with midwives who had experienced making an error in practice using purposive sampling. Thematic data analysis with an inductive approach was used to analyse the data. The second phase employed a questionnaire based on the first phase to a wider sample of midwives in England. Descriptive and inferential statistics were used to analyse data using SPSS version 25.0.

Results

Using the data generated from the study (phase 1, 15 midwives and phase 2, 513 midwives), the midwife as a second victim was established and a support mechanism for midwives was generated. The findings of this study provide essential insights into midwives' experiences following errors in clinical practice, with implications for clinicians, providers, managers, and policy makers to improve safety in healthcare in England. Midwives experience the second victim phenomenon following the making of an error which was unknown previously, experiencing both physical and psychological symptoms. Midwives' experience is bound up with self-blame, blame from others and perceived blame. Frameworks that describe the experiences and support required to recover from being a second victim midwife, have been developed.

Conclusion

The study provides a view of the experiences of midwives in England following making an error in practice, locating midwives as professionals who can become second victims. It showed insights into the emotional and professional impact of errors on midwives. The findings highlighted the need to address the blame and symptoms in midwives following errors that could impact safety. It shows the necessity for a new model of support for midwives that is grounded in the evidence.

Acknowledgements

I would like to express my deepest and sincere appreciation to my supervisors and to all the midwives in my study for sharing their time and experiences with me, without whom this work would not have been possible.

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A thank you and acknowledgement to my family, Nick, Josh and Eddie for asking when I am going to complete this work!

For my mum and dad who are not here to see this.

Special thanks are also dedicated to the University of Staffordshire and Birmingham City University for the generous offer to study with them.

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List of Terms and Abbreviations

Table 1 List of Terms and Abbreviations

AI	Appreciative Inquiry
Antenatal / AN	The period before birth, or relating to pregnancy
AMRC	Academy of Medical Royal Colleges
CNST	Clinical Negligence Scheme for Trusts
CTG	Cardiotocograph, a form of fetal heart rate monitoring used antenatally or during labour
CQC	Care Quality Commission
DH	Department of Health
GMC	General Medical Council
GROW	Gestation Related Optimal Weight The Perinatal Institute administers the Gestation Network www.gestation.net which provides tools for assessment of fetal growth and birthweight by defining each pregnancy's growth potential through the GROW software
HCP	Health Care Professional
HDU	High Dependency Unit
HSIB	Health Safety Investigations Branch HSIB completes investigations that look at factors that have harmed or may harm NHS patients. HSIB works closely with patients, families and healthcare staff affected by patient safety incidents, and never attributes blame or liability. HSIB investigations are delivered through two programmes: national and maternity. There are differences in how they are carried out and how reports are published but the aims are the same: to share learning and to make safety recommendations that improve safety at a national level
HSSIB	Health Services Safety Investigations Body
Intrapartum	The period during labour, delivery, or childbirth

NRLS	The national reporting and learning system. NHS patient safety recording system, the forerunner to the LFPSE.
LFPSE	Learning From Patient Safety Events Service, the successor to the NRLS.
Postnatal	Relating to or denoting the period after childbirth
PTSD	Post Traumatic Stress Disorder
NHS	National Health Service
NHSE	NHS England leads the National Health Service in England.
NHSI	NHS Improvement. NHS Improvement and NHS England have worked together as a single organisation since 1 April 2019, to help improve care for patients and provide leadership and support to the wider NHS.
NHS Resolution / NHSR	NHS Resolution's purpose is to provide expertise to the NHS to resolve concerns fairly, share learning for improvement and preserve resources for patient care. NHS Resolution is a special health authority.
NHSBA	National Health Service Business Authority It is an executive non-departmental public body of the Department of Health and Social Care which provides a number of support services to the National Health Service in England and Wales.
NMC	Nursing and Midwifery Council, the current regulator of nursing, midwifery and nursing associates.
NNU	Neonatal Unit. A specialist intensive care unit caring for premature, small and sick babies from birth.
MBRRACE	Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries
PHSO	Parliamentary and Health Service Ombudsman. The independent investigator of UK government departments and other public departments and the NHS in England.
PSIRF	Patient Safety Incident Response Framework. It sets out the NHS's approach to developing and maintaining effective systems and processes for responding to patient safety incidents for the purpose of learning and improving patient safety.

PTSD	Post Traumatic Stress Disorder. A mental health condition that is caused by witnessing or being part of an extremely stressful event.
RCM	Royal College of Midwives
RCOG	Royal College of Obstetrics and Gynaecologists
SMS	Safety Management System
STS	Secondary Traumatic Stress describes the emotional distress a person may experience after exposure to the traumatic experiences of others.
UKCC	United Kingdom Central Council for Nursing, Midwifery and Health Visiting, the previous regulator of nursing and midwifery in the UK.
VE	Vaginal Examination
WHO	World Health Organisation

Chapter 1: Introduction

1.1 Research Problem

1.1.2 Research Aim

To address the gap in the extant literature, the aim of this research is to explore, describe and understand midwives' experiences after making an error in clinical practice.

1.1.3 Research Objectives

• To describe midwives' experiences following making an error in clinical practice.

•To make evidence-based recommendations to maximise the recovery of midwives following an error in clinical practice which may impact on safety.

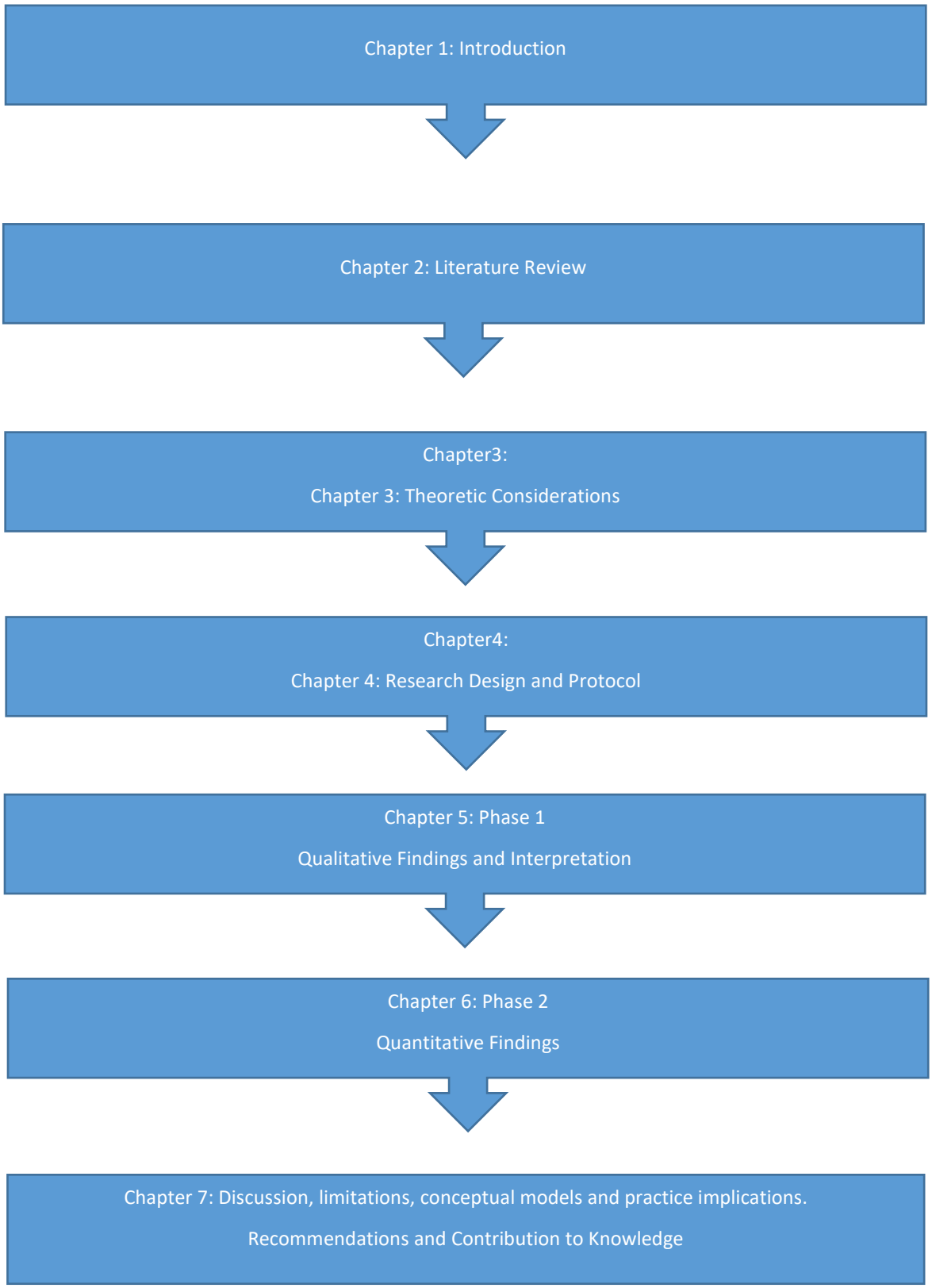
1.1.4 Research Design

A pragmatic approach was adopted to achieve the acquisition of new knowledge. An exploratory sequential mixed methods study was undertaken which complimented the ontological position of the midwife researcher and met the aim and objectives of the research. The first phase was a qualitative data study examining midwives' experiences of making clinical errors. This study analysed 15 midwives' experiences. This was used to inform the second phase study which explored a wider sample of midwives' experiences of errors (n= 513), based on the data of the first study.

1.2 Thesis outline

This chapter introduces the research context, the problem, its aim, and objectives. Chapter 2 presents the extant body of literature and arguments leading to the necessity for the present research. Chapter 3 discusses theoretical considerations and Chapter 4 the research design. Chapter 5 presents the phase 1 study: the qualitative findings and interpretation. Chapter 6 depicts the phase 2 study: the quantitative findings and interpretation. Chapter 7 draws the research together with a discussion, consideration of limitations, presentation of the final conceptual models and implications for practice and demonstrating the unique contribution of this thesis to knowledge.

Diagrammatic representation of the outline of the PhD Thesis. Figure 1.0



Chapter 2: A Narrative Literature Review: From Safety in Healthcare to Midwifery Errors.

2.1 Introduction

The overarching aim of this narrative literature review is to provide a foundational overview of the current literature and determine the significance of the matter of safety in healthcare and more specifically the context of safety and errors in midwifery practice. It will illustrate a gap in the research and lay the groundwork for the research (Baker, 2016) by presenting a comprehensive narrative synthesis of previously published information and research (Green et al., 2006, p.103). An analysis of the value of the extant literature (Grant and Booth, 2009), advances understanding and decision making in relation to the future research (Sutton et al. 2019). The review will draw conclusions about safety in maternity care and errors in midwifery practice, aiming to describe the larger picture rather than specifically addressing one key area (Campbell 2023), hence the review addresses several key areas. It will identify the main methodologies previously used in the research and will determine and justify a focused research proposal and subsequent study.

A narrative review is justified as it provides a strategic tool to frame the subsequent research that is presented, enabling the thesis to make a meaningful and original impact in midwifery. The broad nature of a narrative review (Sutton et al. 2019) allows the scope to offer a comprehensive picture of safety and error experience. The review will demonstrate that whilst literature exists in the realm of safety and error experience for other healthcare professionals, it is lacking for midwives and specifically for

midwives in England. It will justify the ensuing exploratory mixed methods study. The narrative review will enable contextualisation in the discussion chapter that will guide my own findings and interpretations. A characteristic of this kind of review is that the process for composing a narrative review is not well defined. As stated in the 2019 paper by Juntunen and Lehenkari detailing the method of doing narrative literature reviews is iterative, non-structured, and multi-layered, and the results are presented in a manner that integrates social context and pre-analysis (Juntunen and Lehenkari, 2019). The potentially wide issue of midwives experiences of making errors, impacting safety in healthcare, has a wealth of dimensions, and was best suited for a narrative assessment.

The delivery of safe healthcare is a global priority (WHO 2023). This chapter will present the extant literature on safety in healthcare. Safety in healthcare will be considered globally, then focused on the United Kingdom (UK) National Health Service (NHS) and maternity care specifically. The concept of errors will be defined with a necessary distinction made between errors and adverse events. A critical exploration of the known effect of errors on healthcare professionals will be made with a focus on midwifery. The rationale for the thesis and the significance of conducting this research is established in this chapter.

2.2 Safety in healthcare and maternity care

In 1999 the United States of America (USA) Institute of Medicine published a highly influential seminal document ‘To Err Is Human, Building a Safer Health System’ (Kohn et al., 1999) confirming the physical and financial toll of errors in American hospitals.

For the first time, the report recognised the findings of two large American studies in health care (Brennan, 1991and Thomas et al., 1999) that adverse events occurred varying between 2.9% and 3.7% of hospital stays, with over half of these adverse events occurring from preventable medical errors. This report announced that the extrapolated figures accounted for 44000 deaths of Americans due to medical errors per year (American Hospital Association, 1999). This publication prompted a global surge in research and investment in improving patient safety (Halligan et al., 2022). Using patient records from 1999, Vincent and colleagues in the United Kingdom (UK) discovered an adverse event rate of 10.8% to 11.7% of all patients admitted once. The Health Foundation and other organisations corroborated this using the figure of about 1 in 10 people being harmed (Health Foundation, 2011). It became acknowledged that health care related errors were a key hazard to patient safety (Waring, 2005 and Vincent et al., 2001). Following the USA report, an era of checklists, regulation and standardisation that assisted with the alleviation of some of the organisational system inadequacies emerged.

Patient safety is concerned with the prevention of errors and adverse effects to patients associated with healthcare (World Health Organisation (WHO), 2021a). The WHO has identified healthcare safety as a serious global public concern, estimating conservatively that patient harm is a key leading cause of morbidity and mortality in the world with 1 in 300 patients harmed during health care (WHO, 2019). However, Panagioti et al. (2019) estimated that 1 in 20 patients were affected by preventable harm in medical settings. Specifically in the UK, preventable harms in hospitals have shown to result in 934 excess bed days per 100,000 population (Hauck et al., 2019), with The Department of Health (DH), estimating again recently that 10% of hospital

admissions are affected (DH, 2000). In addition, European data, reliably show that errors and adverse events occur in up to 12% of hospital admissions, with similar findings from Spain, France and Denmark (WHO, 2019), with the harm being caused by a range of adverse incidents, with nearly half being avoidable and therefore likely to be errors (de Vries et al., 2008).

The WHO (2021b) asserts that countries must address patient safety and quality of care fears, with encouragement to scrutinise policies that support safety including the involvement of healthcare staff in the safety concerns, as it is acknowledged that safety is an essential element of a quality healthcare organisation. A vital contribution is the avoidance and reduction of harm to an acceptable minimum for all involved (WHO, 2018). However, a retrospective investigation on the avoidibility of hospital deaths in England claimed that 3.6% of hospital deaths still have a 50% or more chance of being avoidable (Hogan et al., 2015) which represents a possible 150 preventable deaths every week. A recent NHS staff survey (NHS, 2023) claimed that 33.5% of staff said they had seen errors, near misses or incidents in the last month that could have hurt staff, patients, or service users. Reporting such incidents commenced on a voluntary basis in 2003 and since 2010 has been compulsory in severe harm or death (Cooper et al., 2017). The National Reporting and Learning System (NRLS) received 652,246 incident reports from England between April and June of 2022, compared to April–June 2021, this indicates an 8.0% increase. This probably reflects adjustments made to service delivery during the COVID-19 pandemic time, which led to a relatively low number of reported occurrences, as well as an NHS reporting culture that is continuously improving and encourages staff to report incidents in order to promote patient safety improvement (NHSE, 2022). There is currently a pause in the annual publishing of this

data whilst publications are brought in line with the introduction of the Learning From Patient Safety Events (LFPSE) service to replace the NRLS which was decommissioned in June 2024.

There had been a statistically significant decrease in the maternal death rate between 2009-2012 and 2011-2013 in the UK, however, data from a collaborative investigation by MBRRACE-UK (Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries), show that even when excluding deaths from Covid-19 the maternal death rate in 2020-22 (11.54 per 100 000 maternities) was higher than that seen in 2017-19, (8.79 deaths per 100 000). Clear examples of maternity systems under pressure were seen, and this increase in maternal mortality raises further concern about safety (Knight et al. 2023). Although the majority of women received good care, improvements in care (which may have made a difference to the outcomes) were identified for 29% of women who died in the 2019 report (Knight et al. 2021), the subsequent report demonstrated that amongst the women who died, 14% were assessed to have received good care, but detailed assessment showed that, for another 52%, improvements in care may have made a difference to their outcome (Knight et al. 2023). However, the complexity of women was also noted, and pregnancy is not without risk for any woman. A country with an established midwifery body similar to that of the UK, New Zealand, reported that 48% of severe maternal morbidity was preventable in one health board in a small study (Sadler et al. 2013) and in an expert review of maternal deaths in New Zealand, 35% had potentially avoidable factors within their care (Farquhar et al., 2011). The rate of direct maternal death in New Zealand from 2011 to 2020 was 6.75 deaths per 100,000 maternities. This is a much higher rate than the rate in the UK from 2011 to

2019, which was 3.78 deaths per 100,000 maternities (Health Quality and Safety Commission, 2022).

The UK Confidential Enquiry into Maternal Deaths is a gold standard internationally for investigation and improvement in maternity care but will still underrepresent errors as morbidity caused by errors is not covered in these reports (Knight et al., 2019). The Kings Fund (2008) recognised that national data on morbidity in mothers and babies is meagre and problematic and as a consequence it was still not possible to always assess the contribution of errors in maternity care to maternal or infant morbidity. However, recent national reports including the Morecambe Bay Investigation (Kirkup, 2015), the Ockenden Review of maternity services at Shrewsbury and Telford Hospital NHS Trust (Ockenden, 2022), Reading the Signals: Maternity and Neonatal Services in East Kent Report (Kirkup, 2022), the triennial MBRRACE reviews (Knight 2021, 2023) and the National Maternity Review (Cumberlege, 2016) continue to stress that there is more that can and should be done in relation to safety.

Investigations into maternity incidents related to avoidable harm to mothers and babies leading to 3 maternal and16 baby deaths at Morecambe Bay NHS Foundation Trust between 2004 and 2008, led the Parliamentary Health Service Ombudsman Report (PHSO, 2013) to raise serious concerns about midwifery practices. The Kirkup Inquiry (2015) followed, clearly identifying multiple factors that "comprised a lethal mix" (p.7), of both person and system factors including substandard care, deficient skills and knowledge; working relationships that were extremely poor and poor responses to incidents. The report was not about blame for individual errors, but strongly criticised collusion, concealment of the truth and unprofessional behaviour. A further report by

the Kings Fund (Baird et al., 2015) catalysed major changes to the future of midwifery in England in response to this report. The recent Ockenden Report (2022) and Kirkup Report (2022) further highlighted the safety issues that have surfaced in the field of midwifery. However, Vincent and Amalberti's (2016) view is pertinent in that the longstanding concern with safety in obstetrics is a marker of the high standards and stakes of the speciality. Spotlight on Maternity (NHS England (NHSE), 2016) emphasises high level themes to focus on in order to improve safety in maternity care, inclusive of a broad level focus on safety in maternity, still echoing the 'To Err is Human' report (Kohn et al., 1999) which acknowledged that preventing errors meant designing a health service tackling all levels to ensure that it is safe. The same message is as valid today as it was almost thirty years ago, maybe more urgent, as unsafe maternity care has been a constant theme in the inspection reports of the Care Quality Commission (CQC), the independent regulator of health and social care (CQC, 2017). The CQC is concerned that there has not been enough learning from good and outstanding services or enough support for that learning from the wider system. The CQC have highlighted that the safety of certain hospital maternity services is still impacted by factors like the calibre of staff training, the poor working relationships between obstetric and midwifery teams and hospital and community-based midwifery teams, a lack of thorough risk assessments, and a failure to interact with, learn from, and listen to the needs of local women (CQC, 2022).

Over a decade ago it was claimed that giving birth in England in 2008 was likely to be safe for the overwhelming majority of women and babies (Kings Fund, 2008), however with a caveat: safety 'incidents' in maternity were recurrently reported, although two-thirds of these caused no harm to mothers or babies, with just over a fifth causing 'low

harm' and 1.5% causing severe harm. In addition, safety was not a priority in Trusts and maternity services were of low priority from a government perspective (Kings Fund, 2008). In contrast, the Kings Fund (2008, p.5) perceptively acknowledged that "Nowhere have the negative aspects of patient safety been more emphasised than in the maternity services, which in recent years have been subject to increasingly frequent reviews by professional and regulatory bodies," and this predated the key maternity inquiries (Ockenden 2022; Kirkup, 2015 and Kirkup, 2022). The NHS remains a relatively safe place in which to give birth (NHS, 2016; Kirkup, 2015; NHS Resolution, 2019; NHSE, 2019 and House of Commons, 2021), but when things go wrong in maternity care the effects can be devastating, more so than other areas of healthcare (Kirkup, 2015). By 2024 not one maternity service was rated as outstanding for safety in England and 47% were rated as require improvement for the safe key question, although only 18% were truly inadequate (CQC, 2024). High profile failures of safety in the NHS have raised new concerns over safety in the NHS generally and maternity care in particular (Kirkup, 2015; Ockenden, 2022 and Kirkup, 2022) and despite the focus on patient safety and many improvements, there are still recurring safety risks and incidents in healthcare (HSSIB, 2024b). There were 605,479 live births in England and Wales in 2022 (ONS, 2024b). The neonatal mortality rate declined up to the 3-year period 2013 to 2015, but there have been no significant changes from then until 2020 to 2022 (ONS, 2024a). With a national ambition to reduce these rates by 50% by 2025, still a significant proportion of clinical negligence claims relate to maternity errors (NHS Resolution, 2024, Figure 2.2).

Error reducing became a central part of policies and guidance to improve quality in healthcare in the NHS and formed a key strand of the Government's clinical governance

agenda. The 1990s saw the advance of risk assessment in the UK (DH, 2000) which initially focused on reducing litigation risks. The Clinical Negligence Scheme for Trusts (CNST) was established in 1995 (NHS Resolution, 2019) and most NHS Trusts became affiliated to the scheme, which required them to develop clinical incident reporting systems and comply with its risk management standards in order to receive discounted premiums (DH, 2000, 1999, 1998).

In 1997 the Labour Government's (1997 – 2001) White Paper, set out a ten-year modernisation strategy for the NHS, putting formal responsibility for quality on every health organisation by making responsibility for arrangements for clinical governance at a local level (DH, 1997). This was underpinned by a new statutory duty of quality on NHS providers. However, in 2000, incident reporting was patchy, lacking in design and robustness, and has been heavily criticised (DH, 2000). In the wake of the Bristol Inquiry, (Kennedy, 2001) the National Patient Safety Agency (NPSA) was created as a Special Health Authority and an intensified emphasis on improving the safety of care through clinical governance strategies was generated (DH, 2000).This new national system for reporting and analysing adverse health care events examined root causes form incidents with the aim to prevent repetition by providing feedback, guidance, and patient safety alerts to make sure that key lessons were identified and learned. However, the Department of Health (DH, 2000., p. x) added to the safety confusion themselves by using the term adverse events which encompasses a multitude of events inclusive of, but not exclusive to errors. Significant investment in incident reporting systems ensued (Williams and Osborn, 2006), accompanied by professional requirements to support the use of such systems, which continue today (NMC, 2015). Furthermore, the reforming NHS Plan (DH, 2000) led to the establishment of the

National Institute for Clinical Excellence (NICE) to set standards of care and the Commission for Healthcare Improvement. This was a precursor to the Care Quality Commission (CQC), being established in 2009 as the independent regulator of health and social care in England. Its purpose being ensuring health and social care services provided people with safe, effective, compassionate, high-quality care and to encourage care services to improve. A subsequent NHS Long Term Plan (DH, 2019) continued to identify childbirth to be the safest it ever had been, but did highlight preventable maternity related deaths aiming to half them by 2025.The NHS supports a just culture, producing guidance comprising of consistent, constructive, and fair evaluation of the actions of any staff involved in patient safety incidents (including errors) to be used with the support of key regulatory bodies such as the Nursing and Midwifery Council (NMC), General Medical Council (GMC) and CQC (NHS England and NHS Improvement, 2020). Based on the work of Reason and the National Patient Safety Agency's Incident Decision Tree, to be 'just' equated with considering a systems approach before action is taken against an individual with guidance focused on treating staff in the NHS involved in a patient safety incidents in a congruent, positive, and equitable way (Appendix 1) (NHS Improvement, 2018 and Academy of Medical Royal Colleges (AMRC), 2022).

The reach for patient safety continued under the umbrella of the National Reporting and Learning System (NRLS) from April 2016 and the independent Healthcare Safety Investigation Branch (HSIB) launched in 2017 along with legal protection for whistle-blowers who uncovered and escalated information relevant to clinical and other mistakes (HSSIB, 2023). In 2019 the NHS Patient Safety Strategy (NHS England, 2019) was published. HSIB was the first organisation in the world to be an independent

investigator of patient safety incidents, scrutinising any patient safety incident that was referred to them in a non-punitive manner, promoting learning and improvement, rather than finding fault, attributing blame or holding people to account (HSSIB, 2023). October 2023 saw this body modified and replaced by HSSIB, now a fully independent arm's length body of the Department of Health and Social Care which continues to build on the expertise and experience of the former HSIB, whilst highlighting safety management systems (SMS), a proactive and integrated approach to managing safety which considers several strategies. Through safety policy it establishes senior management's commitment to improve safety and outlining responsibilities by defining the way the organisation needs to be structured to meet safety goals, and continues through safety risk management, inclusive of the identification of hazards and risks and the assessment and mitigation of risks. Safety assurance involves the monitoring and measuring of safety performance, the continuous improvement of the SMS, and evaluating the continued effectiveness of implemented risk controls. Lastly, safety promotion covers training, communication, and other actions to support a positive safety culture within all levels of the workforce (HSSIB, 2023). Launched in November 2015, the National Maternity Safety Ambition is to reduce the incidence of stillbirths, neonatal and maternal fatalities, and brain damage that happen shortly after birth by half by 2025. Safer Maternity Care, a new national action plan, was introduced in November 2017 to update this policy. This laid out further steps to enhance the thoroughness and calibre of research into term stillbirths, severe brain damage to infants, and maternal and infant fatalities. Up to September 2023, the program was a component of the HSIB but is now part of the CQC and are referred to as the Maternity and Newborn Safety Investigations (MNSI) program as of October 2023.

The most recent change to how healthcare organisations respond to incidents is the Patient Safety Incident Response Framework (PSIRF) (NHS England, 2023) with the emergence of a shift in approach to safety analysis. The NHS Patient Safety Syllabus (AMRC, 2022) and the Learn from Patient Safety Events service (LFPSE), replacing NRLS (NHS England, 2022), both acknowledge the approach of an SMS, and are additional advancements.

The Safety I approach is used to analyse incidents by examining failures in a system. The assumption is that predictability enables the causes of failures to be identified and examined. Links between the incident and its root causes can be identified enabling learning from it and ultimately processes such as guidelines and protocols are improved and therefore safety. Representing a change in the way of thinking by offering a complementary way of reasoning and emphasising a resilience approach, Safety II starts by looking at everyday practices. The method is in line with Appreciative Inquiry (AI), in which determining what goes well in the workplace is the starting point. Stemming from the aviation and construction sectors, Safety II tells us that without understanding the intricacies of how things actually operate in the real world, we cannot manage and improve safety. Although considering what works well is less threatening than investigating situations where patients came to harm or where health professionals become second victims (Scott et al. 2009) and blame emerges, even with all of its appeal and potential, there are still a lot of obstacles in the way of a successful interpretation and application of the Safety II perspective in healthcare. These

obstacles could lead to a lost chance to potentially improve quality and safety practices in the NHS (Verhagen et al., 2022).

Albeit healthcare is like other industries in that it follows guidelines and protocols, the practice of healthcare is complex and consists of many different dynamic processes that impact patient safety (The Patient Safety Company, 2024 and Vincent and Amalberti, 2016). Currently, Safety I and Safety II are two distinct, yet complementary views of safety and can coexist alongside each other depending on the situational requirements (Johnson et al., 2019). Successful safety management will rely on a variety of approaches developed from a diversity of insights and perspectives, with different healthcare processes and contexts demanding different strategies (Amalberti and Vincent, 2020 and Vincent and Amalberti, 2016).

2.3 Human error theory and healthcare

The prevailing view on errors in the health service has changed over time. The person approach dominated the error response during the 1990s, with a name, blame and shame mentality, coupled with a medical attitude that equated error with incompetence (Reason, 2008).This was visibly reflected upon in the publication An Organisation with a Memory (DH, 2000), noting that a blame culture can encourage the covering up of errors due to fear of retribution, and that it is often the response following an error to pinpoint the blame on to one or two individuals in a disciplinary manner. The health services also began to look to other organisations and to influential reports to learn lessons about safety, particularly aviation (Reason, 2008). Kohn et al. (1999) called for a shift from blaming practitioners for errors to a focus on preventing errors from occurring in the future. This was not to discount responsibility for errors, but

there was a need to work with individuals to make a healthcare system safer, and individual blame did little to assist this. The title of Kohn et al's. (1999) work leant itself to its sentiments; "to err is human", but it was felt that some errors could be prevented. Such international seminal reports, along with UK national enquiries have also focused professional and public attention on errors and safety, for example The Bristol Heart Inquiry exposed health system safety concerns in the UK for the first time, creating the foundation for future scrutiny (Kennedy, 2001). Successive scandals and inquiries have continued to fuel the debate on patient safety; An Organisation with a Memory (Donaldson, 2000), the Francis Report on Mid-Staffordshire NHS Foundation Trust (Francis, 2013), the Report on Morecambe Bay (Kirkup, 2015), Ockenden Report (2020, 2022), Kirkup (2022) and the Blood Inquiry (Hansard, 2018) all raising safety concerns, often over maternity services. Over time a more system focused model of error has prevailed and ingratiated itself into the health service (Reason, 2008 and AMRC, 2023). The patient safety movement is very much based on the premise that safety incidents are largely due to systems that are poorly designed, rather than the result of one individual's actions or inactions (Cooper et al., 2017).

2.3.1 Introduction to errors

Reason's (1990 p.9 / p.64) description serves as a major basis for error consideration. “Errors are planned actions that fail to achieve their desired consequences without the intervention of some chance or unforeseen agency”. Most studies classify patient harm as preventable if it occurs because of an identifiable modifiable cause, and its future recurrence can be prevented with appropriate adaption to a procedure or following instructions, but there hasn't been a uniform agreement reached (Panagioti et al., 2019). A definition of medical error requires the consideration of the full extent of errors, specifically, errors that result in harm as well as those that do not (Kohn et al.,1999; Barach and Small, 2000 and Holloway and Panzerm, 2001). Errors that do not result in harm are often referred to as near misses (Barach and Small, 2000).

2.3.2 Adverse events and near misses

Academics and governments have discussed error in amalgamation with, or in the context of adverse patient outcomes or patient safety incidents (DH, 2000; NHS, 2019 and Grober and Bohnen, 2005) with the WHO (2009) defining patient harm as “an incident that results in harm to a patient such as impairment of structure or function of the body and/or any deleterious effect arising there from or associated with plans or actions taken during the provision of healthcare, rather than an underlying disease or injury, and may be physical, social or psychological”, but these concepts may or may not involve errors. An essential construct for discussion of errors is the defining of errors and the differentiation of errors from other related issues such as adverse events (Smith, 2013). This research and the NHS (2019) are mindful that previous international estimates have been challenged for confusing errors and adverse events (Shojania and

Dixon-Woods., 2017).Some incidents are clearly errors, but some incidents are not errors, however the patient suffers a degree of harm as the incident or adverse event may have been an anticipated side effects or risk of the care being provided (Smith, 2013). An adverse event has been defined as “an incident which results in harm to a consumer” (Health Quality and Safety Commission, 2013 p.4) and would concur with Smith’s (2013) reasoning and that of the WHO (2007). Kohn et al. (1999) stress that not all errors result in harm, although those that do are preventable adverse events, and this is where confusion in terminology exists.

Some errors can be characterised as near misses, as the error does not reach the patient, although it is clearly still an error (Smith, 2013). The Department of Health (DH) (2000 p. xii) define a health care near miss as “A situation in which an event or omission, or a sequence of events or omissions, arising during clinical care fails to develop further, whether or not as the result of compensating action, thus preventing injury to a patient”. Kessels-Habraken et al. (2010) question whether it is useful to make a distinction between incidents that did and did not reach the patient but did not cause harm when defining near misses involving errors, or whether they may just as well be placed into one category. They used the definition of an incident as any deviation from the normal situation that was related to patient care, irrespective of the presence of harm. Kessels-Habraken et al. (2010) suggest that one should define near misses as incidents in which timely error recovery prevented the incident from reaching the patient. Then, no-harm incidents could be defined as incidents that reached the patient but did not cause harm, and accidents could be defined as incidents that reached the patient and caused harm. Those definitions would endorse the definitions as suggested

by the drafting group for an International Classification for Patient Safety (Runciman et al., 2009).

Some adverse events will result from a medical intervention or be part of the natural risk of a life event such as childbirth or an obstetric emergency and may not be preventable, or an adverse event maybe the side effects of planned care, a shoulder dystocia or postpartum haemorrhage, they are not attributable to errors from health care professionals. For example, a woman has a caesarean section and suffers from a life-threatening infection. This is a known complication of invasive surgery, and as such is an adverse event, but not an error. However, if the infection was a result of poor hand washing or incorrect instrument cleaning, then these could be construed as errors and would be preventable adverse events. There is international agreement in terminology around adverse events; the DH (2000 p.xii) define adverse health care event as "an event or omission arising during clinical care and causing physical or psychological injury to a patient", but this definition may or may not be inclusive of errors. As will be seen, these distinctions are not consistently utilised in the extant literature.

Research demonstrates how widely midwives perceive delivery trauma. According to a study by Toohill et al. (2018), midwives described birth trauma as: 1) seeing women treated disrespectfully; 2) experiencing disrespect as a midwife; 3) participating in substandard care practices; 4) dealing with the fact that things don't always go as planned; or 5) situational and workplace factors that make stress worse. According to Leinweber et al. (2017), traumatic birth events can include harm, death, injury, subpar treatment, or contempt from others. Cohen et al. (2017), includes exposure to the woman's hostile behaviour as well as mistakes, crises, problems, and death. Rice and

Warland (2013, p. 1060) found that midwives communicated their emotions regarding traumatic birth as 'feeling for the woman'. Specifically for midwives adverse or traumatic events may include errors, but frequently also does not and hence existing research on traumatic or adverse events may not reflect a clear picture of how midwives experience errors or the support that they require.

2.3.3 Errors

The seminal report To Err is Human, which acted as a catalyst for almost all of the 21st Century attention that patient safety has received, (Kohn et al., 1999), defined error in healthcare as the failure of the planned action to be completed as intended or the use of a wrong plan to achieve an aim, closely following the work of Reason (1990).

Errors take a limited number of forms: mistakes (planning failures) and slips and lapses (execution failures) and it is crucially acknowledged that errors can happen at any stage in the process of care (Reason, 1990), although this definition disregards errors of omission. Additionally, an unintended act (either of omission or commission) is one that does not achieve its intended outcome is offered by Leape (1994). Grober and Bohnen (2005, p3.) propose that a medical error is actually "an act of omission or commission in planning or execution that contributes or could contribute to an unintended result". Reason in his later writing further classifies the nature and varieties of human error (Reason, 2001, 2008), with all definitions having deviation as a core theme. Reason (2008) discusses a classification taxonomy based on intention, action or contextual factors and this model is still used to understand errors today accommodating these definitions of errors. A summary of classifications of errors can be seen in Table 2.0.

Three performance levels (Skill, Rule, Knowledge (SRK)) and several error mechanisms (slips, lapses, and mistakes) are integrated inside the same framework by the Generic Error-Modelling System (GEMS) (Reason 1990). When these two dimensions are combined, one can learn more about the characteristics of errors, differentiate between errors based on knowledge and errors based on rules and recognise the specifics of how different error kinds differ.

Drawing on the body of psychology literature on how errors occur, Reason's GEMS Model categorises errors. Based on the earlier work of Rasmussen (1986), the ideas begin that people switch between different levels of cognitive control when faced with different situations, such as a skills or level-based control for everyday common activities. Errors at this level are action slips or lapses and are the result usually of distractions that disrupt the skills routine. Alternatively in more unusual situations, people look for familiar patterns and look for the best matched stored rule. Experience and training will help select the right rule. When no known rules apply, a substantial cognitive effort is required to initiate and utilise knowledge based cognitive control (Stewart and Chase, 1999). Errors made at the rule and knowledge-based levels of cognitive control are often known as mistakes or errors, although they have differing mechanisms. The GEMs model adds in intended (mistakes) and unintended (slips and lapses) unsafe acts.

Figure 2. Structured visual summary of Reason's Generic Error-Modelling System (GEMS), showing where ATS (Activation-Triggered Slips) fit in alongside mistakes and violations.

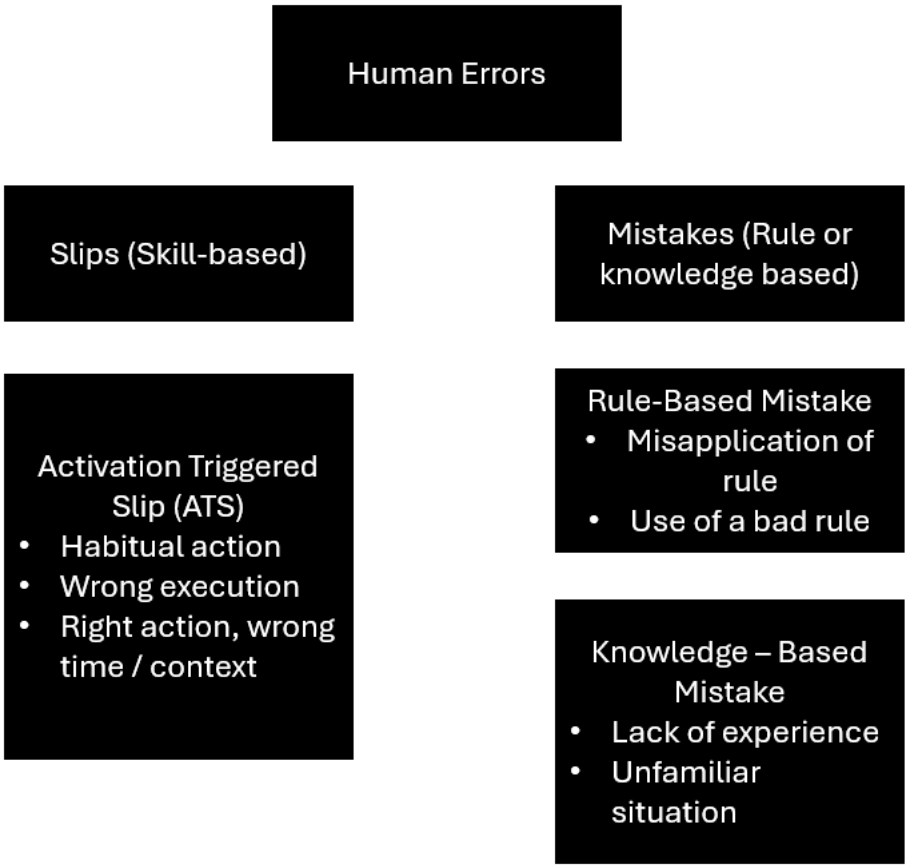


Table 2.0: Definition, descriptions and examples of error types using GEMS Classification (Reason 1990). Adapted from Tallentire (2015).

Error Type	Definition	Example of Error
Skill-based slips and lapses	Errors which result from some failure in the execution [slip] and/or storage [lapse] stage of an action sequence	Patient's notes not checked for current medications as possible cause of a problem such as an allergy. Failure to remove the tourniquet from the patient's arm following intravenous cannula insertion Mishearing or misinterpreting verbal information provided by a colleague or misinterpreting what was said in a telephone conversation.

Rule-based mistakes (RBMs)	The mistake arises from the application of a 'bad' rule or the misapplication of a 'good' rule [a rule of proven worth]	The midwife notices reduced variability in the fetal heart rate (FHR) but also notes that the woman has just received opioid analgesia (e.g. pethidine), which is known to cause temporary reduction in FHR variability without indicating fetal compromise. Despite this, the midwife applies the general rule (that reduced variability = concern) without considering the context. She initiates an unnecessary emergency transfer to the obstetric team, causing stress to the mother and potential disruption to the birthing process.
Knowledge-based mistakes (KBMs)	Mistakes arising from "the more laborious mode of making inferences from knowledge-based mental models of the problem space"	Myra Cabera (Morris, 2010) Failure to spot contraindications to medication (Reason, 2008). A midwife fails to respond correctly to a shoulder dystocia and panics and mistakenly: pulls on the baby's head, thinking this will help expedite delivery. She delays initiating the appropriate emergency manoeuvres due to uncertainty about the correct sequence. The pulling risks causing brachial plexus injury to the baby (e.g. Erb's palsy). The delay in performing manoeuvres increases the risk of hypoxia or birth trauma.
Violations	Deliberate deviations from those practices deemed necessary to maintain the safe operation of a potentially hazardous system	Due to time pressure and a shortage of staff, the midwife does not change gloves or perform hand hygiene between vaginal examinations of two different patients. This is a known breach of infection prevention protocols. The midwife rationalises the action by thinking: "I've just used gloves, and there's no visible contamination—it should be fine." However, a few days later, one of the women develops chorioamnionitis (infection of the fetal membranes), and an investigation reveals a possible cross-contamination.

However, the important aspect of latent errors is absent from the GEMS Model, and latent errors manifest within systems. However, latency is a feature of the context of a system rather than a cognitive mechanism which is the focus of the GEMS Model. Not with standing, the GEMS model has made significant contribution to safety discussions, and any latent factors can and should be considered in an investigation of errors in addition to using this model (Stewart and Chase, 1999).

2.4 Approaches to patient safety

There are two accepted ways of viewing the human errors, the person approach and the systems approach (Reason, 2000, 2008; Dekker, 2013; DH, 2000 and AMRC, 2023). These two dichotomies are both considered in models of patient safety.

2.4.1 Person approach to errors

The person approach to errors focuses on the unsafe act (Reason, 2000), the clinician committing the error would be the focus. This has also been described as the old view in aviation safety (Dekker, 2013). It would be claimed that the error arose from a behaviour associated with the individual, it was human error (Dekker, 2013), for example through inattention, negligence, recklessness, or carelessness (Reason, 2000) and associated remedies would be behavioural in orientation, such as re-training, specific safety campaigns or naming, blaming or shaming (Reason, 2000). The erring individual is the focus and Reason (2000) highlights that this was the prevailing tradition in medicine at the turn of the twenty first century, particularly as individual accountability is a professional requirement and legally enforceable in the UK (NMC, 2015).

Reason (2008) describes the person approach as a managerially and legally convenient approach to safety and error management. It is also contained in terms of length of any investigation. Dekker (2013) also illustrates that human error would be a common acceptable conclusion of an investigation. However, it has been highly criticised by Reason (2000) in his early work as hampering the safety culture. Austin and Smythe (2014) echo this wondering if midwives will feel safe in acknowledging errors when it is a societal expectation to publicly name the erroneous individual. Comparing medical practice to aviation, 90% of quality lapses in hands on practice were judged as blameless (Marx, 1997). A blame culture and reporting culture cannot coexist comfortably and cannot contribute satisfactorily towards greater safety. A line needs to be delineated between blame worthy errors and blameless errors (Reason, 2008) to enhance understanding and safety. Marx (1997) stressed the need to balance the need to maintain professional standards and accountability with the need and desire to report errors. There is a need to work with the best interests of safety in mind.

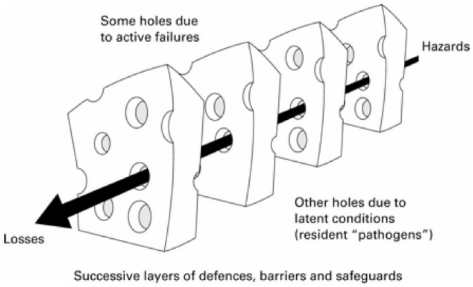
2.4.2 Systems approach to errors

As an alternative approach, human error may sometimes be the factor that immediately precipitates a serious failure, or a symptom of the system but there are usually deeper, systemic factors at work which if addressed would have prevented the error or acted as a safety-net to mitigate its consequences (DH, 2000. p. ix and Dekker, 2013). The systems approach to errors recognises that human performance depends on a dynamic and interrelated set of parts; with the focus on systems as a route to safety (ACMC, 2022). It underpins the NHS Patient Safety Strategy including the Patient Safety Incident Response Framework and A Just Culture Guide (NHSE, 2019). It recognises

that humans are fallible and that errors are inevitable; they will be expected (Reason 2000, 2008), even in the best run organisations (DH, 2000). Errors are caused by systematic factors regardless of practitioner's attributes (Christensen, 2019; Reason, 2000, 2008 and Dekker, 2013) as they are systematically connected to the features present in individual's tools, tasks or environment. A 'systems' approach to error considers all relevant factors and focuses on strategies that maximise the frequency of things going right (NHS, 2019). Hence, before or following errors, organisations need to consider the conditions under which individuals work rather than separating the individual from the context of the error. "Like the patient, people at the 'sharp end' are seen as victims of systematic error-provoking factors and flawed defences that combine, often unforeseeably, to cause unwitting patient harm" (Reason, 2008. p253). By taking this approach, failures in the system and how they can be strengthened to prevent repeat errors are considered, and the human error should only be the starting point of further investigation not the end point in itself (Dekker, 2013).

In line with the systems approach, Reason (2008) established the Swiss Cheese Barrier Model demonstrating how, when holes are aligned in an organisation's defences, this will permit an error to occur (Figure 2.1). The Swiss Cheese Model is based on the underlying Theory of Active and Latent Failures.

Figure 2.1 Swiss Cheese Barrier Model of How Events Occur Through Breached Defences



Perneger (2005)

Reason (1990) fist proposed the theory of active and latent failures, commonly known as the Swiss Cheese Model, suggesting that accidents in healthcare, a complex system, were caused by either a breakdown or absence of safety barriers across 4 distinct levels: Unsafe Acts, Preconditions for Unsafe Acts, Supervisory Factors, and Organisational Influences. Active failures were used to describe factors at the unsafe acts level and latent failures described unsafe conditions higher up in the system.

Active failures, consisting of the unsafe act of the person via a slip, a lapse, or mistake (Reason, 1990) or the omission and commission, planning and execution an act (Grober and Bohnen, 2005); the person factors are present, but also latent conditions within the system can contribute to the error. They are the resident pathogens; the decisions by managers, policy makers, designers, understaffing, time pressures, inexperience, sickness rates, staff relations or shift patterns. These preconditions, supervisory or organisational factors are dynamic (Wiegmann et al., 2022) and are latent failures. Individually each component is not enough for an error to occur, but lined up and

combined, they create the perfect conditions for an error to occur. This theory explains, in system terms, why errors happen and how they may be prevented from happening again. It moves the focus from the error of the person to the underlying organisational factors. Although widely used in healthcare (Underwood, 2013.) and is an extremely useful framework and safety model (Larouze and Le Coze, 2020, Wiegmann et al. 2022.), it is also widely criticised. Positively it makes complex ideas easily understandable and has contributed to promoting organisational accident models in many areas (Larouze and Le Coze, 2020). However, the critics argue it is too generic, and its diagrammatic simplicity may limit it in practice, and the underlying assumption is that things go wrong because of failures. Perneger (2005) has demonstrated users' lack of understanding about the model when in use and Le Coze (2013) highlights its analytical limitations, however the model has significantly contributed to shifting the focus of accident prevention from a person focused to the systemic view (Larouze and Le Coze, 2020).

Countering such criticism though, when understood correctly in can be an effective method for investigating and preventing accidents (Wiegmann et al. 2022) and can explain why accidents happen and how they can actually be prevented from happening again, hence it is actually a barrier model of how events happen through breached defences and can support patient safety (Larouze and Le Coze, 2020, Wiegmann et al. 2022). It is the pervasive model of safety thinking in both industry and the NHS.

2.5 The impact of error: the second victim

Despite the report 'To err is Human' (Kohn et al., 1999), bringing into sharp focus safety and having ripples worldwide, its focus was largely on patient safety and minimal

attention was paid to the individual professional; indeed, the four-tiered approach recommendations of the report were entirely patient focused. Similarly influential safety reports and publications in the UK arising at a comparable time (DH, 2000, p.16; Vincent et al., 1994. and Vincent, 1997), only briefly acknowledged that healthcare staff could experience shame, guilt and depression after a serious adverse event, and that these feelings could be exacerbated by follow-up action. However, Wu (2000) introduced the concept of the second victim after an error in health care had occurred. Wu (2000) discussed that this phenomenon occurs when an error is made by a doctor. There is the first victim, the patient, but there is also a second victim, the doctor involved in making the error. Scott et al. (2009, p.326) further substantiated this phenomenon describing second victims as "healthcare providers who are involved in an unanticipated adverse patient event, in a medical error and/or a patient related injury and become victimized in the sense that the provider is traumatized by the event". Frequently, these individuals feel personally responsible for the patient outcome and many feel as though they have failed the patient. A growing body of literature and research exploring the psychological, emotional and physical experiences of clinicians following safety incidents, both adverse events and errors in practice in healthcare has emerged in recent times. Much of this has been voiced as the healthcare professional being second victim.

2.5.1 The second victim: establishing the phenomenon

The earliest evidence about clinicians' experiences following errors and adverse events in clinical practice were focused on doctors in the United States of America (USA). Wu et al.'s (1991,1993, 2003) early work described that following errors in practice and

emotional responses in doctors were inclusive of: feeling remorseful (81%), guilty (72%), angry at oneself (79%) and inadequacy (60%). A further 6% of doctors reported avoiding patients with similar problems since an error and 28% feared negative repercussions following an error. A multitude of further research ensued demonstrating that the phenomenon that became known as the second victim had credibility and was widespread, not just in doctors, but also in some other healthcare professionals as will be explored below.

Expanding on Wu's early work, Waterman et al. (2007), Harrison et al. (2014) and Han et al. (2017) all confirmed that significant numbers of doctors displayed similar symptoms that could be characterised as this second victim phenomenon, reporting large percentages of doctors who reported increased anxiety (61%), less confidence (44%) having their sleep affected sleep (42%) and less job satisfaction (42%) when they had made an error (Waterman et al. 2007). McCay and Wu (2012) used a case study approach to illustrate the second victim phenomenon in a doctor who made a drug error that led to the death of a patient and subsequently to more errors and his own suicide attempt, and another medic who had experienced a couple of adverse events (non-errors) but recovered and carried on practising. Han et al.'s (2017) findings on surgeons corroborated that a large percentage of surgeons identified anxiety (66%), guilt (60%), sadness (52%), shame or embarrassment (42%) and anger (29%). The second victim phenomenon can also be identified in European clinicians, Mira et al. (2015) examining doctors, nurses and others who had reported errors in Spain characteristically reported emotional responses that were typical of the second victim, particularly guilt (58.8%), anxiety (49.6%) and reliving the event (42.2%). Most

healthcare professionals in this study identified with being involved in events as second victims at least once in their health careers.

Following Wu's (1991) seminal work, both Arndt (1994) and Meurier et al. (1997) tentatively examined the effect of errors specifically on nurses. With Arndt (1994) identifying guilt, shame and reconciliation with human precariousness following medication errors, whilst Meurier et al. (1997), using a questionnaire modified from Wu (1991), exposed emotional distress in response to errors (majority), 73% of nurses were angry at themselves, 42% were angry at others, 37% were fearful of repercussions and 66% experienced guilt. Similarly, Wolf et al. (2000) further broadening the research to be inclusive of nurses', pharmacists' and physicians' medication errors reported data corresponding to the concept of the second victim as described by Wu (2000). The highest ranked responses and concerns were guilt, nervous, worried, fear of disciplinary action or punishment and concern for the safety of patient, with a weak correlation between harm and response. Emotional responses included guilt, shame, and thoughts about the betrayed patients, colleagues, or family. Depression, suicidal thoughts, insomnia, and nightmares also followed error occurrence. The demonstration of the range of experiences within the second victim phenomenon was illustrated in both McCay and Wu (2012) and Wolf et al. (2000). Abusalem and Coty (2011) suggested that nurses experienced emotional distress and Lewis et al. (2015) found a relationship between nurse's involvement in preventable adverse events and the two domains of burnout: emotional exhaustion ($P = .009$) and depersonalization ($P = .030$). This research explicitly included obstetric units, but these data were not separated from other data and yielded no specific information in the direction of midwives. They concluded that preventable adverse events, (errors), provoked feelings of insecurity,

discomfort, guilt, and distress, with recommendations to observe nurses for signs of emotional exhaustion and depersonalisation following preventable adverse events. More recently, feelings of being a second victim were explored in Spanish midwives and obstetricians in relation to adverse incidents, suggesting for the first time that midwives are susceptible and sensitive to the phenomenon (Santana-Dominguez et al. 2022) but not specifically in response to errors.

Chan et al. (2018) were able to confirm the second victim in Southeast Asia, with reports of nurses responding psychologically after an error specifically with negative feelings and anger inclusive of sadness, stress, guilt, low self-esteem and a loss of confidence. Taifoori and Valiee's (2015) with nurse participants in Kurdistan discovered, based on predetermined criteria, that 85.6% had emotional reactions around harming the patient, 87% experienced guilt ,69.3% experienced self- anger and 67.3% experienced embarrassment. A systematic metanalysis of second victim symptoms to any adverse event or error (Busch et al. 2020) demonstrates the most prevalent second victim symptoms in Table 2.1. This can be summarised as a wide range and high occurrence of psychological symptoms, with more than two-thirds reporting troubling memories, anxiety, anger, remorse, and distress.

Table 2.1 The prevalence of second victim symptoms (Busch et al. 2020).

Symptom experienced	% of participants experiencing symptom	Confidence interval
Disturbing memories	81%	95% [CI] = 46–95
Anxiety/concern	76%	95% CI = 33–95
Anger toward themselves	75%	95% CI = 59–86
Regret/remorse	72%	95% CI = 62–81
Distress	70%	95% CI = 60–79
Fear of future errors	56%	95% CI = 34–75
Embarrassment	52%	95% CI = 31–72
Guilt	51%	95% CI = 41–62
Sleeping difficulties	35%	95% CI = 22–51

Physical symptoms of the phenomenon were revealed within the freedom of the qualitative research framework. Continuing with doctors, the qualitative approach enriched the data available on the second victim phenomenon as a purely quantitative research approach was methodologically limited with a loss of the personalised account of error experience by using predefined answers related to emotions and feelings. Luu et al. (2012) identified a consistent four phases of response in surgeons and doctors following an adverse event inclusive of 'The kick and physiological impact'; the visceral blow, the anxiety and stress response followed by the 'The fall'; the feeling of being out of control, the need to right oneself, emotion, dark cloud, depression and reputational damage. Treiber and Jones (2010) continued error research in nurses and saw evidence that concurred with Scott et al. (2009) and Wu (2000), stating that nurses were second victims; blame, fear and visceral responses were all described in response to making a medication error. Developing their work further, Treiber and Jones' (2018) concluded that recent nursing graduates could be second victims, displaying emotional reactions concurrent with the phenomenon; visceral reactions, emotions, or fear, these could manifest from internal or external sources. Mok et al.

(2020) too claimed that nurses experienced second victim-related physical, psychological, and professional distress, again concurring that the second victim response was a broad reality.

2.5.2 Fear

Some studies specifically highlighted fear as part of being the second victim (Rassin et al., 2005; Morrudo et al., 2019; Covell and Richie, 2009; Treiber and Jones, 2010, 2018; Delacroix, 2017; Crigger and Meek, 2007; Chan et al., 2018 and Ajri-Khameslou et al. 2017). Covell and Richie's (2009) examination of adult and paediatric nurses' medication errors, inductively uncovered the negative consequences of revealing errors, such as poor sleep, anxiety, and depression, confirming previous quantitative findings (Wu, 2000; Harrison et al., 2014 and Han, 2017). In addition, fear rated highly, particularly the fear of the consequences of revealing errors. Morrudo et al. (2019) examined medication errors in Brazilian nurses and found as did Covell and Richie (2009), that fear was also articulated. Developing their work further, Treiber and Jones' (2018) second victim graduates noted that fear was part of their phenomenon, either manifesting from internal or external sources. In Rassin et al.'s (2005) chronological account of the second victim, nurses identified on the day the error occurred, not only feelings around responsibility, anger, shame, and loss of confidence, but fear. There was fear for the patient's welfare, additionally confirmed by Delacroix (2017), but also fear for the repercussions of the error; victimisation was evidenced. Ajri-Khameslou et al. (2017) identified similarly the fear of the outcomes of errors whereas Harrison et al. (2014) found that 81.5% of doctors in their study were anxious about the potential for future errors. Crigger and Meek (2007) also confirmed that nurses displayed symptoms

of the second victim with fear being present; fear of punitive responses as did De Freitas et al. (2011) where there was a fear of punishment on revealing errors. Chan et al. (2018) additionally identified a fear of making future mistakes, a fear of reprisals and a fear of being 'black marked'. In a rare insight into midwifery errors, O'Boyle (2013) identified the experience of errors in midwifery practice incidentally whilst using an ethnographic methodology examining home birth in Ireland. A midwife discussed the death of a baby and the feelings of isolation, loss grief, guilt, blame, fear, loneliness, and suspicion that emerged which was summarised as 'being dragged over the coals' (O'Boyle, 2013. p5). There is little else available in this study as its primary focus was not to examine errors in practice and therefore no relevant recommendations about midwives and error experience were made. Wu et al. (1993, 2003) revealed that, 13% of doctors also reported discussing mistakes less as a consequence of negative reactions, with a small percentage (5%) not telling anyone. However, Harrison et al. (2014) worryingly found that 25% of participants had not reported incidents that had occurred even though they were aware they should have done, thus reflecting previous findings in this area (Kingston et al., 2004 and Rowin et al. 2008.), it was postulated that this was because of the psychological effects of the incident or a lack of confidence in the system around them (Lawton and Parker, 2002; Kingston et al.,2004; Rowin et al., 2008 and Jennings and Stella, 2011). There is substantial evidence that anxiety and fear can worsen the quality of care and lead to unfavourable birth outcomes (Kennedy and Shannon, 2004). Fear may be harmful rather than preventive against birth problems (Dahlen, 2010). After going through clinical trauma, excessive fear changes how people perceive risk and can make professionals defensive. Defensiveness may result from incorrectly interpreting a normal delivery as abnormal, which could lead to additional

"just in case" interventions (Morris, 2005) and a higher rate of interventions and surveillance (Healy, Humphreys, and Kennedy, 2016).

2.6 Adverse events and midwifery; an insight into experiences

Experiences of adverse events rather than errors have dominated midwifery inquiry. Beck et al. (2015) examined secondary traumatic stress (STS) finding that 29% of the nurse - midwives reported high to severe STS, and 36% screened positive for Post Traumatic Stress Disorder (PTSD) due to attending traumatic births, specifically fetal demise, neonatal death, shoulder dystocia or infant resuscitation. Supportive of previous research on adverse events, Wahlberg et al. (2016) reported symptoms of partial or probable PTSD by 15% of midwives and obstetricians following severe traumatic events on labour wards. In particular, 43% of participants reported the emotions of intense fear, helplessness, or panic, with 25% reporting a threat to professional identity and 70% of midwives had experiences of re-visiting the event. Likewise, Sheen et al. (2015) when examining midwives' experiences of traumatic perinatal events largely concerned with intrapartum midwifery and unexpected or sudden death, severe postpartum haemorrhage, multiple complications of obstetric emergencies or a lack of control (forceps delivery) in a horrific birth, found that 33% of participants were experiencing symptoms corresponding with PTSD. Cohen et al's. (2017) midwives showed PTSD levels significantly and positively correlated with STS and burnout and 16% presented with clinically significant PTSD symptoms related to experiencing of traumatic events, confirming the previous research. It is clear that midwives are psychologically affected following adverse events such as traumatic intrapartum events. PTSD and STS are concepts potentially similar to the second victim

phenomena and have been associated with negative consequences. However, these are distinct phenomena arising from adverse events and not errors, and it is important to clearly define and understand the unique consequences of each separate construct.

Of continuing interest, Kerkman et al. (2019) focused on traumatic adverse events and investigated the prevalence of work-related traumatic events, PTSD, anxiety, and depression among Dutch midwives, determining that anxiety related symptoms were reported by 14% of the respondents, significantly amongst midwives working in primary care (P = .014). Depressive symptoms were reported by 7% of the participants, amongst these, 17% screened positive for PTSD, revealing an estimated PTSD prevalence of 2% among Dutch midwives, which was found to be the lowest comparable reported prevalence. Previous studies had reported rates of 5% (Wahlberg et al. 2016), 17% (Leinweber et al. 2017), 26% (Beck and Gable, 2012) 33%, (Sheen et al.2015) and 36% (Beck, 2015). Kerkman et al. (2019) combined adverse events and errors but revealed that missing a diagnosis (an error) was the most emotionally stressful to midwives and hence errors warrant further attention. Additionally, it offered some insight on how midwives may respond across differing settings as most research pertaining to midwives and adverse events relates to intrapartum care. Concurring with Kerkman et al. (2019), Leinweber et al. (2017) found that midwives carry a high psychological burden related to witnessing birth trauma; feelings of horror (74.8%) and guilt (65.3%) about what happened to the woman and 17% of midwives met the criteria for potential PTSD (95% CI [14.2, 20.0]). Not labelled by the research as the second victim phenomenon or scrutinising errors, the symptoms are potentially reminiscent of the phenomenon. Leinweber et al. (2017) state that posttraumatic stress should be

acknowledged as an occupational pressure for midwives and as such strengthens the need for further investigation to examine all potential causes of it including errors.

2.7 Severity of the error or event

Waterman et al. (2007) found that even errors with little or no impact on the client could have lasting impacts on doctors. Muliira and Bezuidenhout (2015) and Muliira et al. (2015) reported on a maternal death (adverse event). The impact of maternal death has been described as akin to that of major disaster on emergency personnel (Cauldwell et al., 2016 and Mander, 2001). A high degree of death anxiety was reported across midwives (93%), leading to 59% of midwives having a moderate or high death anxiety and 40% suffering with depression associated with death (Muliira and Bezuidenhout, 2015). The more exposure to death, the more anxiety was seen (Muliira et al. 2015), for example by being the midwife in charge of the case. This experience can cause midwives to feel guilty and incompetent, although they continued to work. The results of the study clearly show that midwives exposed to maternal death experience psychological distress. The authors suggest that whilst midwives are able to cope by strategies such as active coping, planning, instrumental support and acceptance, there was a call for midwifery programmes to enhance midwives' knowledge and skills, and to prevent midwives from suffering the severe effects of psychological distress such as depression or PTSD. Cauldwell et al. (2016) explored the effect of maternal death on obstetricians, doctors and midwives in the UK from an adverse event perspective. It was concluded that maternal death has a long-lasting impact on UK professionals' feelings of grief, guilt and shame, and a culture of silence exists around maternal death driven by fear of responsibility and accountability. Additionally, Beck et al. (2015) having

already established psychological trauma in midwives existed after witnessing traumatic intrapartum events, specified that it was fetal demise, neonatal death, shoulder dystocia or infant resuscitation that was particularly difficult for midwives, all serious adverse events. Koehn et al. (2016) emphasised the effect of the continuing nature of error experiences over time, in an examination of serious harm or death events with nurses. Treiber and Jones (2010) also studying nurses saw evidence that concurred with Scott et al. (2009) and Wu (2000), that nurses may be second victims but in contrast to some research they found that the feeling of being devastated and the visceral responses from the errors remained vivid in the memory and that these reactions did not depend on severity of error (p1333).There was a call for more research partially due to the lack of generalisability of the qualitative research but, particularly of severe events and the support of nurses when they make an error to diminish distress (Beck et al . 2015). Appropriate training to prepare and support health professionals was also called for, as with Muliira and Bezuidenhout (2015) and Muliira et al. (2015).

2.8 Reactions from colleagues and organisational culture

Second victim's fear of the repercussions of errors and adverse events as identified above, are well founded when the findings about support or lack of it emerged and resonates with Reason's person-centred approach to considering errors (Reason, 2000). Meurier et al. (1997) showed 66% of nurses needed to discuss an error with colleagues, although only 60 % felt supported to do so, instead 31% felt humiliated with 18% feeling a loss of professional respect. Wolf et al.'s (2000) demonstrated reactions from nurse's colleagues occurred as a theme from the data, ranging from support to silence, with some colleagues attempting to minimise errors, and negativity from

management being evident. Rinaldi et al. (2016) provide continued substantiation of this, as support received was described as poor following an adverse event. Concurring, Covell and Richie's (2009) earlier examination of adult and paediatric nurses' medication errors, showed the negative consequences of revealing errors, with healthcare providers behaving differently towards them and intimidation. Further, Morrudo et al. (2019) found more nurses were removed from practice, received more professional attention, or were referred to administration or management in comparison other health care professionals. Chan et al. (2018) also found that nurses were subject to other's prejudice, were labelled and endured gossip. De Freitas et al. (2011) found Intensive Care Unit (ICU) nurses feared punishment on revealing errors and Quillivan et al. (2016) examining paediatric nurses associated a punitive safety culture which contributed to self-reported second victim symptoms in nurses. Causal inferences were not possible, but it is worthy of consideration in building a body of knowledge about the second victim. Lewis at al. (2015) examining nurses involved in preventable adverse events build on knowledge from other studies, as the authors call on unit mangers, peers, and physicians to support erring nurses.

Following errors, Delacroix (2007) illustrated a non-supportive culture despite the organisations having a theoretical 'just culture' approach; forgiveness, reassurance or personal interaction were lacking. Ullström et al. (2014) in addition, reported that the impact on the healthcare professional was related to the organisation's response to the event. Many professionals lacked organisational support, or they received support that was unstructured and unsystematically conducted. The investigation process and its inadequacies and poor routines in this process added to the participants' emotional distress. Corkhill et al. (2016) examining obstetricians in the UK found that 37% felt

undermined or blamed during ensuing investigations, with 90% stating this came from internal sources especially the risk management team. Emotionally, obstetricians felt upset, had poor sleep, low mood or had feelings of being overwhelmed. For 21% of obstetricians these feelings continued to affect them for longer than one month, however, only 16% accessed support either from family or other professionals as they were concerned it would affect their reputation (44%) or would affect their career (27%). Although this study is not inclusive of midwives or exclusive to errors, it was conducted in the same environment in which they work and as such midwives may be exposed to a similar environment or treatment by the investigatory process and adds to the poor environment around clinicians and the need to find answers for midwives.

Cauldwell et al.'s (2016) thematic framework also identified the professional and organisational culture and external expectations along with colleagues' reactions, leading to isolation in practitioners. Whilst there were supportive colleagues, and there was the seeking of support from colleagues by the erring clinician, finger pointing, and blame was also evident following adverse events. Some midwives and obstetricians were verbally attacked for what had happened and were made to feel isolated. May and Plewws-Ogan's (2012) study of doctors concurred with this study, identifying feelings of isolation, silence from colleagues and feelings that no one cared, with some accusatory engagement from colleagues. Confirming the nurses experience as a second victim following an error in clinical practice, Chard and Tovin's (2018) themes illustrated the need to feel safe in talking about errors with colleagues, reducing feelings of isolation and sharing error strategies.

Twenty-two studies have been identified previously in a systematic review (Carr et al., 2023, appendix 2) that are exclusively nursing focused and were concerned solely with error experience, removing the confusion of adverse event experience. Using thematic synthesis, one of the six themes relating to nurse's experiences following errors was 'Prejudice against them', a negative consequence of making an error in practice. Chan et al., (2017) and Mohsenpur et al. (2016) reported the labelling of colleagues. Respondents in the Chan et al. (2018) highlighted gossip causing prejudice. Criticism of nursing error makers, by their nursing colleagues was further noted (Covell and Richie, 2009; Treiber and Jones, 2018; Mohsenpur et al., 2016). This extended to responses from the nurse managers towards the error-maker, with reports of managers publicly denouncing the nurse, or changing workload allocations, which was sometimes perceived as punishment (Morrudo et al., 2019; Schelbred and Nord, 2007).

2.9 The second victim label

Dekker (2013) argues that using the term second victim adds legitimacy to error experience as the care giver experiences the event with the first victim (mother or baby) who is immediately affected. Wu et al. (2017) and Wu (2000) having coined the term second victim originally have also subsequently argued that labelling this significant phenomenon in a way that leaders find most comfortable may be the best way to acknowledge it and encourage the adoption of remedies. Because it is memorable and implies urgency, the term "second victim" may be useful to policy makers and health care management.

However, the terminology to discuss the experience that a practitioner has following an error in not insignificant, and it is claimed it may have implications for patient safety if it

further stigmatises the erring practitioner (Tumelty, 2018) or denotes passivity in the practitioner or alienates the patient that is harmed (Wu et al. 2017) however, the term is widely accepted in the literature. Nevertheless, it is now commonly acknowledged that a variety of systemic problems, rather than individual clinicians, contribute to medical errors and patient harm. The same things that hurt patients also have the potential to harm these people (Busch et al. 2020). Additionally, when patients are damaged by care, healthcare personnel frequently experience sensations including regret, guilt, humiliation, worry, and sadness. This implies that rather than focussing on a lack of accountability, attention should be directed towards the widespread feelings of shame and self-punishment among healthcare staff.

Studies are emerging that have investigated the use of the term second victim and Tumelty's (2018) study with barristers and physicians indicating the phrase "second victim" is disputed and requires further investigation. However, the term the second victim has the potential to raise awareness of the effects of medical errors on medical professionals because of its possible effect on the experience and suffering of the patient and acceptability that professionals can make mistakes. Across the contemporary literature the term 'second victim' will probably be used indefinitely until a more fitting and globally accepted term is found as the physician participants in Tumelty's (2018) study recognised the trauma and symptoms of the 'second victim' and it has been adopted for this work.

2.10 Support following an adverse event or error

Waterman et al. (2007) found there was a consistent feeling of a lack of support (90%), with 1 in 3 doctors feeling that their lives were being negatively affected following an

error. Han et al.'s (2017, p.1050) powerful comments from surgeons, 10 years later add substance to the experiences; reporting that there is "No such thing as a support system, only criticism and condemnation". However, in contrast, Schelbred and Nord (2007) and Treiber and Jones (2018) did find good support from some nursing colleagues, however reported higher negative responses and blame from medical colleagues (Schelbred and Nord, 2007).Calvert (2011) found that there was a failure of support for midwives after adverse events and the behaviour of other healthcare professionals and the organisation exacerbated the trauma, for example by being ostracised by colleagues and by inferences of incompetence. Analysis highlighted the destroying of relationships, harm to the practitioner and disruption of lives. However, the focus of this work was not on errors, but was on adverse events related to traumatic events in the clinical environment.

One of Sheen et al.'s (2015) emerging themes in relation to midwives experiencing adverse events was also the perception of blame and culpability. This related to both internal and professional processes, involving either self-blame, or perceiving that others, namely colleagues or family members blamed them for the traumatic event. Sheen et al. (2015) indicated that the experience of investigatory processes might additionally contribute to the suffering in the midwife after a traumatic perinatal incident. Similarly, Wahlberg et al. (2016) found that obstetricians and midwives experienced insufficient support which remained significant for midwives on labour ward, again this was focused on generic adverse events, but it does illustrate that lack of social support, inclusive of friends was a major factor for developing PTSD. These findings highlight a concerning safety culture in maternity care and the need to develop effective means to prepare and support midwives following trauma exposure, thus

decreasing the potential for adverse symptomatic responses to develop in the midwife. There is some preliminary evidence in relation to midwives' experiences following adverse or traumatic events, but not in relation to errors. In order to prepare and support midwives research is required specifically in response to their experiences following making an error and of the support that helps them or what they needed.

Even though studies suggest the need for staff to be encouraged to accept responsibility for their error within a framework of support and that strategies should be developed so that errors can be managed in a more constructive manner, (Meurier et al. 1997; Chard and Tovin, 2018 and Crigger and Meek, 2007), they also addressed the need for support, highlighting the lack of organisational support and feedback following adverse events and called for transparency in investigating adverse events. The promotion of a positive safety culture is required and for more research to assist with helping health professionals with support. Developing their work further, Treiber and Jones' (2018) identified both supportive and punitive work environments for nurses. The majority of nurses received fair treatment (85%) following committing an error, with 85% of nurses receiving understanding and 61% of nurses had received support following the error and 62% were treated with compassion. However, Morrudo et al. (2019) found more nurses were removed from practice following errors that other health care professionals. Schelbred and Nord's (2007) make a relevant contribution to the topic on nurses' experiences of errors by adding detail. They show that it was clear that nurses need support from mangers and colleagues after committing a medication error, with nurses preferring to talk with professionals rather than their own family members. Crigger and Meek (2007) elaborated through a theme which encompassed the need for support too, but with caveats, for example of the need to feel safe enough

to reveal errors. There were recommendations that strategies should be developed so that errors can be managed in a constructive manner with a need for openness and a non-punitive approach from employers.

Systematic analysis of institution-based second victim support programs emphasised that second victim care systems are still uncommon outside of the USA (Busch et al. 2021). Identified were implementation issues, including a persistent blaming culture, a lack of funding, healthcare workers' unwillingness to be vulnerable and seek assistance, and a lack of knowldge about the second victim phenomena as well as prog ramme accessibility and availability. However, when working, support initiatives were found to have positive effects on workplace safety and support culture generally, as well as on the impacted employees and peer responders specifically. The review identified the need for support structures and for an increased promotion of already existing support resources (Busch et al. 2021). It was concluded that common goals of the support programs, such as reducing emotional distress as a reaction to the stressful clinical event, fostering healthcare providers' coping strategies, and promoting individual resilience, may then act as a basis for long-term systemic resilience and flexibility. These goals would align with the Safety II approach.

2.11 Family responses to erring clinicians

Morrudo et al. (2019), Harrison et al. (2014) and Sheen et al. (2015) are the only studies to discuss the accusation from the relatives. Morrudo et al. (2019) positively found the non-personalisation of the error and non-punishing of the erring nurse from the employer, but there were comments from relatives. In the aftermath of an error the accusative relative was part of the experience too, and Sheen et al. (2015) illustrated

the blame from a woman to a midwife for the loss of her baby in the context of adverse events. In relation to disclosure, Harrison et al. (2014) found that over 80% of healthcare professionals were satisfied with their disclosure of an adverse event or near miss to patients and/or families which is similar to previous findings (Harrison et al. 2014), but this contradicts patient reports of dissatisfaction with the disclosure process (Iedema et al., 2011a; Iedema et al., 2011b and Gallagher et al., 2006) and recent inquiries (Kirkup, 2015; Kirkup, 2022 and Ockenden, 2022).

2.12 Coping strategies

"Coping is a process used for defending from pressurizing difficulties and hardships. It is common to distinguish between two levels of coping: the first focuses on the problem, the second on the emotions" (Rassin, 2005., p.878). Not all healthcare professionals had the same negative experiences following error or adverse events. Covell and Richie (2009) did demonstrate some positive consequences of revealing errors related to respect being gained for disclosure. Harrison et al. (2014) found some positive experiences with, 80.6% of professionals desiring to improve their practice to prevent reoccurrence and 42.7% getting empathy from colleagues on reporting events. Taifoori and Valiee's (2015) study on nurses based on predetermined criteria, discovered planning to do better following an error in practice, for example 97.2% decided to do better next time, 79.9% used apologising, 98.5% would be paying more attention to detail, 95.4% would be listening to patients more carefully, 94.1% would be following guidelines and procedures more accurately, 93.5% would be keeping better patient records and 92.8% would be undertaking better monitoring of patients.

This planning and actualising to do better was evident in qualitative research too. For example, Ajri-Khameslou et al's. (2017) themes described the learning from errors; enhancing the skill, raised attention, searching information and seeking consultation, training the clients more than ever before and stating the error and sharing one's experiences, the aim being to not repeat the faults that led to errors and mistrust. Chard (2010) had also established that seeking support and 'planful' problem solving emerged as significant predictors of constructive changes in practice following making an error and experiencing distress.

Abusalem and Coty's (2011) suggested that nurses coped with making care errors by immediately using 'planful' problem solving at the time the error occurred. They also reported changes to practice and that nurse's experienced emotional distress, concluding and recommending that there needed to be an improved support system via standards and procedures to help nurses cope with errors, in agreement with other research. Meurier's (1997) early work also found there was a need to discuss errors. Nurses reported changes in practice (80%) and nurses used positive and negative coping strategies. Accepting responsibility and planful problem-solving were found to lead to positive changes in practice, whereas distancing and self-controlling strategies were associated with defensive changes, particularly with a tendency not to divulge the error. Karga et al. (2011) found that external responses were positively associated with defensive changes, they concluded that errors promoted constructive changes in clinical practice when nurses were encouraged to use adaptive error coping strategies in a supportive, non-blaming culture. Findings indicated that internal emotional responses were positively associated with both constructive changes in practice and defensive changes in practices, similarly to Meurier's study (1997). However, with

quantitative studies there is the loss of a personalised account of error experience by only using predefined answers related to emotions and feelings. Delacroix (2017) summaries well, finding that following an error in nursing practice that coping with a new reality is context dependent and that personal and professional changes were either atypical coping or constructive coping. The constructive coping is allied to the planful coping of the previous studies with the error offering the opportunity for professional and personal improvements and implementing actions to prevent further errors. However, the atypical coping opens up a varying perspective; identifying strategies that did not address the real issues such as hypervigilance, avoidance obsessive behaviours and discounting. The hypervigilance and avoidance obsessive behaviours were engaged in to alleviate fear and anxiety related to making future errors.

Chan et al. (2018) describe drawing valuable lessons from the error event such as learning from the mistake, sharing personal experiences and taking extra precautions, similar to Abusalem and Coty (2011) Ajri-Khameslou et al. (2017) and Chard (2010). Additionally, the research identified an internal personal perspective; that helping 'the self' to recover was a feature, as was needing support from others to cope. Taking responsibility for the error made (accepting the consequences, acknowledging error made and making amends) and finding self –identity (feeling in control and trying to gain back the past recognition) were also important. De Freitas et al. (2011) also discussed the need for deep reflection to prevent future errors, calling for education to acknowledge patient safety issues to empower healthcare providers with effective coping skills, similarly to Trieber and Jones (2018).

Luu et al. (2012) developed a framework inclusive of a recovery phase. The recovery involved the development of coping strategies; there was a recognised onset of this phase by clinicians and there were fewer raw emotions. Talking with others and learning was possible in this stage. May and Plewws-Ogan's (2012) study of doctors revealed that opportunities to talk meaningfully about their experience were associated with their ability to recover after a serious medical error too, however some conversations were unhelpful such as those that were accusatory, minimised the error and that their family were of inadequate help. This was corroborated by Harrison et al. (2015) in both doctors and nurses.

Negative emotions were not the only parameters that were found to be a part of the second victim phenomenon. Harrison et al. (2014) further examining nurses and doctors (265) in the UK and USA, bridging the cross-country exploration of error experiences, clearly identified that professional and personal disruption occurs after an error in both countries but postulated that responses to error differed by profession. However, there were some positive emotions expressed amongst the negative emotions of determination and alertness. Ajri-Khameslou et al. (2017) developed themes, the first of which was confirmatory of the second victim phenomenon, but they also described positive and negative consequences to errors. The negative commonly included anxiety, psychological and physical consequences as previously described, but the positive were work related, for example by changing practices and learning form the error. In much of the nursing literature on errors, a positive outcome of the error was personal learning (Delacroix, 2017; Rassin et al., 2005; Koehn et al., 2016; Mohsenpour et al., 2016 and Ajri-Khameslou et al. 2017), or shared learning (Chan et al., 2018; Ajri-Khameslou et al., 2017; Morrudo et al., 2019; Schelbred and Nord, 2007; Covell and

Richie, 2009). However, Rassin et al. (2005), uncovered elements of fear and isolation and Morrudo et al. (2019) found that the fear of exposure prevented sharing of learning. Changes in practice were the positive experience that occurred following an error (Koehn et al., 2016; Covell and Richie, 2009; Chard, 2010; Karga et al., 2011, Abusalem and Coty, 2011 and Taifoori and Valiee, 2015), although again sometimes negative connotations occurred (Koehn et al., 2016 and Meurier et al., 1997). In contrast, Koehn et al. (2016) also illustrated that although personal (and often painful) lessons may have been learned following an error, sometimes this learning did not extend any further for example to others or organisations. Meurier et al. (1997) concur with this, but further explanation of this is not undertaken.

2.13 Frameworks of distress and recovery

Scott et al. (2009) continued the early work of Wu (2000) in the USA. Accepting the second victim phenomenon existed, they produced an influential six stage response recovery trajectory following an error in practice:

1. Chaos and accident response (realisation, get help, what happened?)
2. Intrusive Reflections (haunted, inadequacies, self-isolate)
3. Restoring personal integrity (acceptance by work / social structure, managing gossip, fear)
4. Enduring the inquisition (degree of seriousness realisation, investigation, disclosure, physical and psychosocial symptoms)
5. Obtaining emotional first aid (getting help, emergence of litigation)
6. Moving on (drop out, survive and cope or thrive)

It was postulated from this study that the post event trajectory is predictable following this response, complementing the earlier work of Crigger and Meek (2007) and Schelbred and Nord (2007). Schelbred and Nord's (2007) descriptions of immediate reactions; shock, dread, panic, reduce the harm, report the error and emotional responses of devastation personally, emotive language, professionally traumatic, align with the second victim phenomenon and professional responsibilities. The reactions from colleagues and managers; silence, help, minimising the error, talking to own health care professionals was preferable to family, support were comparable to the restoring personal integrity in Scott et al. (2009), but offered more detail around the impact of the professional's practice: impacts on practice; understanding, tolerance to other's mistakes, improved routines, vigilance, and devastation on personal and professional life. Luu et al. (2012) added to Scott et al's. (2009) framework, extending the framework, specifically the final phase by considering the cumulative impact of all adverse events on a doctor as the second victim over time, but also did not differentiate between experiences generated from errors or adverse events. Rassin et al. (2005) categorised a chronological organisation of themes across the error period, similar to a trajectory in relation to nurse's experiences following errors. The day the error occurred feelings around responsibility, fear, anger, and shame were experienced. The second phases came in the first month after the error. Nurses felt that they might get fired, who works errs, there was an inevitability about errors or there was an impending wait, waiting for the inquiry with every day being like an eternity. Finally, the long-lasting effects of the errors were evident months later, the third period, and sometimes the feelings got worse with time, reminiscent of PTSD. Although there were similarities, time scales were hypothesised and the emphasis that feelings could get worse with

time was articulated. Koehn et al. (2016) focused on decision making and learning from the nurses' errors rather than a recovery trajectory, but similar elements in the themes in the framework were noted; the physical experiences and anguish of the second victim, living in the aftermath of the error (memories, aloneness, changes in practice) and the lurking in the mind (persistence of memories, feelings, haunting, vigilance of avoiding error again). Mohsenpour et al. (2016) identified five themes in relation to nurses that were supported by previous studies such as Crigger and Meek (2007) on self-reconciliation and supports the second victim theory about the recovery trajectory of Scott et al. (2009), particularly in relation to the 'chaos' of Scott et al. (2009) matching the wandering of this study:

Wandering in unpleasant feelings (emotional and physical symptoms with synergic effect)

- Wandering in the conscience court
- Being arrested in time
- Time for change
- Spiritual exercise

The researchers recommend maintaining a balance between positive and negative aspects of 'being a wrongdoer' experience as it can help nurses manage adverse events and learn, thereby improving safety as a primary patients' right. Opportunities in the wandering in the conscience court allowed for reflection and taking on of responsibility. Again, generalisation to wider population with qualitative research can be problematic and the context may be limited to Iran, particularly the spiritual aspects. The researcher's call for more research to establish the meaning of ''being in the world''

(Van Manen, 2001) of errors (p. 10), but some new insights were revealed around feeling the experiences extending throughout nurse's professional careers, with one participant having made an error 21 years previously but commenting that it was still like the same moment in current time. In addition, some descriptors of feelings alluded to mothers and babies and may, although it cannot be clearly determined, be inclusive of maternity nurses as some of the experiences they describe relate to errors that would fall into the realm of midwifery practice if in the UK. However, often in non-UK countries midwifery is not a recognised profession and is covered by obstetric nurses whose autonomous practice differs. However, of note was a concern about a fetus following a drug error; the second victim effects were described as particularly protracted and obsessive despite reassurance. This could lend support again to the differing contexts of professions having varied second victim responses as postulated by Luu et al. (2012). Rinaldi et al. (2016) studying mixed health care professionals that included midwives, verified that participants experienced the 6 stages of the trajectory of recovery described by Scott et al. (2009), but with less clarity and not necessarily in the sequence previously defined. Again, the focus was on adverse events, and it is unclear if errors specifically were included and although midwives were involved, they only accounted for 4 participants, with the study being heavily dominated by nurses and other healthcare professionals and it is not possible to determine their contribution to the research. However, in terms of adding to the body of knowledge about the second victim, repetitive or intrusive memories were most experienced (85%), 42% of participants referred to anxiety, 27% thought about a job change, remorse was reported by 64% and anger by 61% of participants.

Beck and Gable (2012) examining STS following attending traumatic births in intrapartum nurses found 35% of the intrapartum nurses reported moderate to severe levels of STS and their professionalism was threatened, there was agony over what should have been, but there was also the haunting of the stress – longevity of symptoms and consideration of changing careers – this later aspect akin to Scott et al.'s (2009) dropping out. It was concluded that nurses need to consider the possible impact their work may be having on them and take preventative measures to address their current symptoms and cope. Whilst not considering errors in practice, this does show that nurses in the intrapartum area can be traumatised following witnessing trauma. Beck et al. (2015) having already established that STS is an occupational hazard for intrapartum nurses in a USA context, (Beck and Gable, 2012), found 29% of the nurse-midwives reported high to severe STS, and 36% screened positive for the criteria for PTSD as a consequence of attending traumatic births, specifically involving fetal demise or neonatal death, shoulder dystocia or infant resuscitation. Commonalities with the recovery trajectory of Scott et al. (2009) occurred, but with some focus on midwifery:

1. Protecting my patients: agonizing sense of powerlessness and helplessness

2. Wreaking havoc: trio of posttraumatic stress symptoms

3. Circling the wagons: it takes a team to provide support … or not

4. Litigation: nowhere to go to unburden our souls

5. Shaken belief in the birth process: impacting midwifery practice

6. Moving on: where do I go from here?

They concluded that the midwifery profession should acknowledge STS as a professional risk. This research is more midwifery focused rather than intrapartum nurse centric, which is positive and demonstrates the professional vulnerability of intrapartum midwives, however, there are three contextual factors that do not assist with discovering what experiences midwives in England have following errors; the research was conducted in America, it did not cover errors in practice and does not extend out of the intrapartum area. A meta ethnographic study of midwives' and nurses' experiences of adverse labour and birth events, containing 11 studies identified slightly different themes of:

- feeling the chaos.
- powerless, responsible and a failure.
- "It adds another scar to my soul"
- finding a way to deal with it.

Nurses and midwives, it was concluded, felt relatively unprepared for dealing with traumatic events and became traumatised by the experience. It was concluded that support was required for these healthcare professionals (Elmir et al. 2017). However, again this study is not error focused or midwife in England focused. It did however again highlight midwives' vulnerability to be traumatised by events that occur whilst caring for women and babies.

2.14 The longevity of the effects of errors

Wolf et al. (2000) identified early in the research on the second victim that the impact of errors or adverse events could be long term. Nurses were identified to be worried about

consequences for the patient, the trust, authority, and their job; it was a threat to their professional identity. Some felt no longer able to work as a nurse. Concurring with this, subsequent studies on a range of healthcare professionals identified the long-term impact of errors or adverse events. The long-term impact; the career implications; positive and negative consequences, change in scope or type of practice and retirement were identified by Luu et al. (2012) and Ullström et al. (2014) in doctors, nurses and other healthcare professionals who had reported avoidable serious adverse events (errors) that had been reported to a regulatory body. It was revealed that emotional distress, often long lasting, was at a personal and professional level. Han et al. (2017) examining surgeons revealed that the emotional toll of intraoperative adverse events was still significant 17 years after first being described in doctors by Wu (2000). All surgeons had negative emotions, and some comments were powerful and added substance to the experiences; “we all hide our grief, suffer in silence. The pain can be close to debilitating”. Cauldwell et al. (2016) identified unresolved distress in midwives following maternal death similarly extending the impact of adverse traumatic events on midwives as it was on surgeons in Han et al.’s (2017) study.

Scott et al.’s (2009) original research which proposed the six-stage response recovery trajectory following an error in practice ended with the sixth stage being moving on as part of the natural history of recovery with three potential paths: dropping out, surviving or thriving. Dropping out involved changing professional role, leaving the profession or moving to a different practice location. Thriving was associated with making something positive out of the experience and surviving involved the persistence of sadness or intrusive thoughts. Koehn et al. (2016) also emphasised the continuing nature of error experiences over time, when examining serious harm or death events, and were also

struck by that nurse's ability to recall details of error events. They called for more research partially due to the lack of generalisability, particularly of severe events and the support nurses needed when they made an error to diminish distress. However, Crigger and Meek (2007) postulated that the nurses reconciled the self both personally and professionally. This is in conflict with other studies documenting the long-term effects of making an error (Luu et al., 2012; Ullström et al., 2014; Wolf et al., 2000 and Scott et al., 2009). It is possible that some healthcare professionals do, and some do not recover, but this is unknown for midwives and error experiences.

2.15 Different professionals respond differently (across and within professions)

Second victim studies have considered a variety of healthcare professionals' experiences of errors and adverse events, across and within professions with the exclusion of midwives and error experiences. Wolf et al. (2000) found significant differences between health care professionals, with nurses most affected. Peer reactions were commented upon, namely blaming, shying away, being troubled and a failure to understand. Alarmingly some professionals never reported their errors as has been reported elsewhere (Nevalainen, 2014 and Harrison et al., 2014). It was determined that serious errors can have a great impact on nurses, in both a personal and professional capacity.

Luu et al's. (2012) examination of errors suggested that surgeon's experiences were markedly dissimilar to other doctor's responses and hypothesised that this was due to a differing professional context. Marmon and Heiss (2015) concurred with this. McCay

and Wu (2012) who demonstrated the second victim phenomenon in a medic who made a fatal drug error and subsequently to his own suicide attempt and another medic who experienced adverse events (none errors) but recovered and carried on practising, opening up the possibility that different healthcare professionals may have different experiences, but that the same professions can react quite differently to errors and adverse events. They concluded that anyone could become a second victim if they work in healthcare, however this is unsubstantiated as the evidence base is not there for some healthcare professionals such as midwives; there was a call for appropriate support and learning for victims though.

Contributing an alternative clinical location, speciality, and European context, Nevalainen's (2014) study of experiences and attitudes towards medical errors revealed that young Finnish general practitioners (GPs) feared errors more and GPs felt that they got better at coping with errors with more experience. Young GPs were more prone to tell colleagues about an actual error 72.2% v 56.3% (CI 95%). Experienced GPs were more prone to apologise about an error, 56% vs. 75.3%. This demonstrated different aspects to experiences and variations in experiences were again possible across differing professional groups and within specialities. Focusing on nurses, Harrison et al. (2014) moved the field forwards and reported stronger negative feelings post error experiences than doctors in relation to upset, guilt, being worried, distressed, scared, nervous, unhappy, self-doubt and regret, again lending support to the differing contexts of professions having varied second victim responses as postulated previously by Luu et al. (2012), Marmon and Heiss (2015) and Van Gerven et al. (2016). Mok et al. (2020) also found that nurses who were younger and less experienced were more likely to experience a greater second victim response, similar to Nevalainen (2014).

Lacking in error experience research in midwifery, responses to adverse events in midwifery can be examined, Schroder et al. (2016) found that midwives were more significantly affected in all areas than obstetricians, except general stress, with 21% no longer working on labour ward, and 25% of these had left as felt responsibility was too great following traumatic events. Of these 25%, female midwives also had significantly higher scores for sleep disorders, general stress, and somatic stress than those still on labour ward. Seys et al. (2013) had previously identified that being a woman (in addition to being a midwife in this study) could be a confounding factor in a worse experiences of an event. 'Adverse event' is an imprecise term with errors not being distinguishable in the study and hence the findings cannot be attributed to errors alone. The authors state that "the diversity of the events may have affected the psychosocial health and well-being of the HCPs (health care professionals) differently" (p.51) and henceforth it is important to examine errors directly. Wahlberg et al. (2016) found that midwives experienced more sick leave than obstetricians, reinforcing the potential for different professions to have different reactions to events or the context of their practice to have an effect. Mira et al. (2015) mixed HCP study however found that nurses showed greater solidarity in terms of supporting the second victim in both primary care ($p = 0.019$) and hospital ($p = 0.019$) settings. Again, this indicates potential differences across healthcare professionals, albeit in a more positive direction. Studies explicitly state that there were variances in the experiences of differing professions and within professions (Luu et al., 2012; McCay and Wu, 2012; Harrison et al., 2015; Nevalainen, 2014; Mira et al. 2015, Marmon and Heiss, 2015; Wahlberg et al. (2016); Schroder et al. 2016; Van Gerven et al. 2016 and Mok et al. 2020), which opens up the possibility of midwives having a different experience too.

2.16 Why midwives are different and need separate consideration

Despite the growing body of literature and research exploring the psychological, emotional, and wider experiences of healthcare professionals following errors in the workplace, there remains little research in relation to the field of midwifery. The largest evidence on preventable patient harm comes from hospitals (45 studies) with less evidence available for specific medical specialties (Panagioti et al., 2019). Missing from the discourse is the voice of the midwife, with little known in relation to midwives' emotional responses to, and experiences of errors in practice. Although well meaning, the investigation and implementation of practices based on anecdotal, or a non-midwifery evidence base may lead to unintended consequences or wasted safety resources (Halligan et al., 2022). A recent systematic review (Carr et al., 2023) revealed no studies focused exclusively on midwives' experiences of errors in clinical practice. And yet, it has been explicitly recognised for over 20 years that the potential consequences of obstetric and midwifery errors are very serious in human terms, and this is reflected in their continued prominence in litigation and recent inquires (DH, 2000; RCOG, 2017; Ockenden, 2022; Kirkup, 2015 and Kirkup, 2022). While the effects of errors in maternity care and midwifery specifically leading to trauma for women and families has been noted widely in these reports and inquiries and cannot be overestimated, it is important to consider the experiences of midwives who have made the errors and the implications for maternity services, safety and the support midwives require. Data from 2023 show that although maternity care only receives the third largest number of claims, it has the largest claims value, denoting the seriousness that errors in midwifery clinical practice can lead to (NHS Resolution, 2024). There are also

many highly complex technical procedures within midwifery, in which the inherent risk of error is relatively high simply because of the number of factors at work (DH 2000, p.78). This is coupled with high levels of expectations that pregnancy and birth are normal processes and compared to other areas of healthcare, people are less likely to expect a poor outcome (Shub et al., 2012) and this can impose an extra stressor on the midwifery workforce.

Midwifery is a distinct profession compared to the medicine or nursing. Wu (2000) acknowledged that nurses have less latitude to deal with their errors due to the hospital hierarchy than doctors, however midwives carry an extra burden in addition. Unlike nurses, midwives are autonomous practitioners and carry the additional liability of potentially harming two humans as a result of any errors that are made: the mother and the baby. This context may make a difference to the response to error. The only study focusing on the midwife as a second victim concluded that midwives are especially susceptible and sensitive to the phenomenon in relation to adverse events (Santana-Domínguez, 2022), however it focused on adverse events not errors. The context in which midwives provide care is one where life threatening or traumatic events can occur and can involve situations where it may be expected that an emotional toll may be paid (Cramer and Hunter, 2018). Midwives are placed in positions where uniquely challenging events and circumstances that increase their risk for psychological trauma can occur (Choi et al., 2020; Diamond and Colaianni, 2022; Foli, 2022; Morris et al., 2021 and Vogel and Coffin, 2021) and in terms of occupational trauma the burden of emotion is high due to the emotionally demanding nature of childbirth (Hunter, 2010 and Pezaro et al., 2016). Practitioners in specialties are often exposed to work pressures and are expected to deliver life-changing decisions rapidly which might

negatively impact on their personal wellbeing, a well-known risk factor for errors (Panagioti et al., 2019). Although midwives possibly share some commonalities with other health providers, their relationship with their client base is quite distinctive (Rice and Warland, 2013), they care for women and babies as part of their normal life continuum they are not patients, and they spend a protracted period of time building up a relationship with a woman and family. Midwives are also often the lead carer in partnership with women (Cumberledge, 2016 and DH, 1993). A relationship and bond of trust, being 'with women' is fundamental to their role and can develop over a protracted period of a pregnancy, and a breach of this is catastrophic (Kirkup, 2022 and Ockenden, 2022). Yet, this intimate connection with the woman and baby can have both favourable and unfavourable consequences. A close emotional relationship with a woman can be a source of fulfilment for midwives, but under other circumstances, they may experience distressing births (adverse events) and other potentially traumatic related events, such as errors (Rice and Warland, 2013). Midwives have unique characteristics which demand further enquiry, and this has not been undertaken in the UK or in relation to error experiences.

The nursing and midwifery professions are distinct, not only do they have different positions on the NMC register of qualified professionals, but during the recent deployment and emergency education standards (NMC, 2021), in response to the COVID 19 crisis in the NHS, nursing and midwifery students were treated differently, with midwifery acknowledgement of the additional and differing roles, responsibilities and needs of the midwifery student. Midwifery training was not shortened, registration was not brought forward, and simulation could and still cannot be utilised to replace clinical practice (NMC, 2023a). The distinct nature of the midwife and the need to

ensure proficiency and fitness at the point of registration was recognised and protected reflecting the technicality and increased responsibility associated with midwifery.

Many nursing studies have focused on medication errors, a very specific albeit important type of error, but not the only type of error a midwife may make. Wu et al. (2003) defined mistakes wider than just drug errors when discussing the second victim. An examination of 100 stillbirth claims (Symon, 2010) illustrates midwifery errors are wider, encompassing cardiotocograph interpretation, communication, failures in duty and breaches in standards. More recently the RCOG (2017) highlighted that following 2500 expert assessments of the local reviews into the care of 1136 babies born in the UK in 2015 there were, 126 who were stillborn, 156 who died within the first seven days after birth and 854 babies who met the eligibility criteria for severe brain injury. The reviewers concluded that three quarters of these babies had incidents occurring during term labour and 76% might have had a different outcome with altered care. This report focused on fetal monitoring, human factors, and neonatal care. Although the word error is not explicitly used the undertones of the report are clear; one of errors. It emphasises the seriousness that errors in maternity practice can lead to (NHS Resolution, 2024). Summarising, most studies in midwifery relate emotional distress to traumatic birth. Several papers have been presented that illustrate the distress around the intrapartum period, with a lack of study of errors.

As obstetrics and gynaecology is the third highest risk speciality in term of litigation and disproportionally the highest in terms of financial pay-out in the UK (NHS Resolution, 2024), warrants attention in terms of safety research (Corkhill et al., 2016) and specific action (NHS Resolution, 2024). A freedom of information request relating to the total

cost of litigation and the proportion related to midwifery cases, determined that claims are not coded to allow distinctions of staff groups and therefore midwives (NHS Resolution, 2018), however although maternity receives the third largest number of claims, it has the largest claims value, denoting the seriousness that errors in maternity practice result in (NHS Resolution, 2024). Maternity-related claims rank among the top three specialities by volume, with 1,393 obstetrics claims in 2023–2024, or 12.8% of total clinical negligence claims by volume. Compared to 1,392 in 2022–2023 and 1,245 in 2021–2022, this was an increase. By value received during the year, obstetrics claims made up 56.7% of all clinical claims in 2023–2024. Figures 2.2, 2.3 and 2.4 denote these claims. This underscores the financial burden of maternity indemnification payments as well as the harm to patients, families, and clinicians.

Figure 2.2 Total number of clinical claims by speciality 2023 - 2024

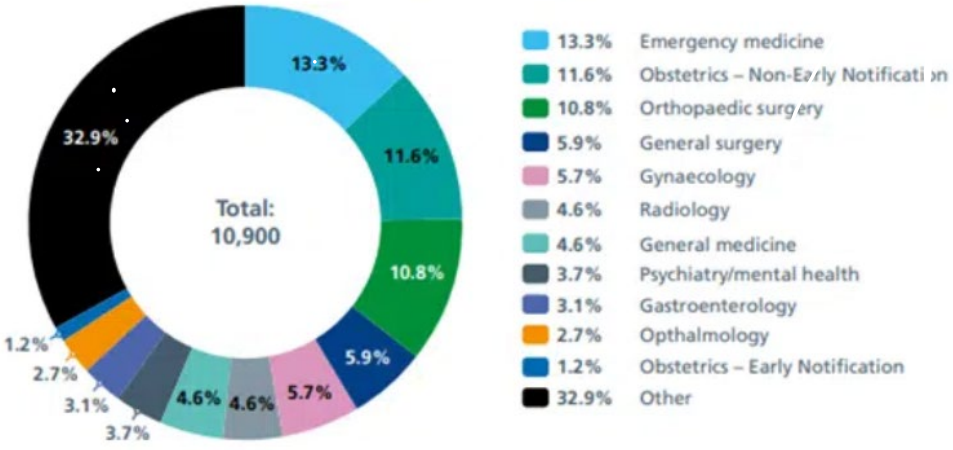
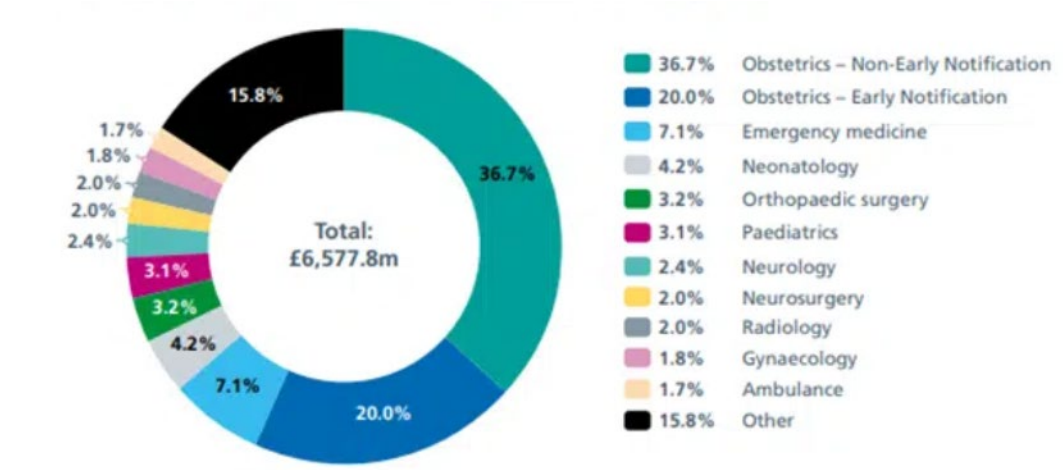


Figure 2.3 Total value of clinical claims by speciality 2023 - 2024



Source: **NHS Annual Report**

Figure 2.4 Overview of the value of clinical maternity claims 2023 - 2024

It was a recommendation of the Safety of Maternity Services in England report (DHSC 2021) that clinicians of all disciplines should receive training before they are qualified in how they should respond to the sorts of error that investigations may uncover. Currently the evidence does not exist about midwives' experiences of errors, and this recommendation cannot be fulfilled. As such health organisation will be unable to respond appropriately to midwifery errors and this is harmful to the mental health of the midwives themselves and also reduces their ability to learn from their errors and this will have a negative effect on maternity safety that is already under great scrutiny (Burns and Benjamin, 2022; Kirkup, 2015; 2022 and Ockenden, 2022). However, NHS Resolution (2024) acknowledges that the NHS cannot repair the harm that has already been done, but it can all do its share to help people impacted by these occurrences and to enhance maternity care going forward. To support the government's maternity safety goal of halving the rates of stillbirths, neonatal deaths, maternal deaths, and brain injuries that occur during or shortly after birth by 2025, NHS Resolution has made working together to improve maternity outcomes a stand-alone priority, again this emphasises the importance of this study.

2.17 What is already known?

In the literature there is a consensus in relation to medical staff that the concept of second victim exists, and this has been established and been used consistently since Wu (1991, 1993, 2003) first used the term. There is discussion in the literature about variations between specialisms in how the second victim phenomenon is experienced (Luu et al., 2012; Harrison et al., 2014; Mira et al., 2015; Walberg et al., 2016 and Van Gerven et al., 2016). Research has established that nurses experience short- and long-

term emotional trauma because of making medicine errors (Crigger, 2004; Mayo and Duncan, 2004; Raisin et al., 2005 and Treiber and Jones, 2010) and they are more prone to second victim symptoms. Preventive or supportive strategies are required according to the research but have not been definitively developed form the evidence base (Sheen, 2015; Ullstrom et al., 2014; Mira et al., 2015; Taifoori and Valiee, 2015; Koehn et al., 2016 and Kerkman et al., 2019).

The literature demonstrates that clinicians who experience the second victim phenomenon may show symptoms like other disorders, for instance PTSD, burnout, compassion fatigue, and STS; there is an overlap in symptomology (McDaniel and Morris, 2020). The midwifery literature has focused on adverse events and tends to refer to STS, rather than the second victim phenomenon. STS is said to occur amongst childbirth professionals who witness death and sorrow in a family who has lost a newborn, particularly if the professional has played a role in the intrapartum period (Winters, 2018). Midwives witness traumatic events and births and may develop post-traumatic stress symptoms and display symptoms akin to the second victim. The research around this has been exclusively focused on adverse events or has not made a distinction between type of adverse event or error. The majority of research on adverse events and the effect of midwives is intrapartum focused (Sheen et al. 2015; Cauldwell et al. 2016; Cohen et al., 2017 and Wahlberg et al. 2016), although Dutch research (Kerkman, 2020) is suggestive that there is variance of experience across work areas in responses to traumatic events, with community midwives more affected. Error research is lacking across the spectrum of midwifery practice.

Examining a phenomenon with a single methodological approach opens the research up to criticism as all methods have inherent biases and limitations (Greene et al. 1989). Greene et al. (1989) proposed that the triangulation that occurs in mixed methods studies is a positive design strategy as the results can corroborate one another and then the validly of findings is enhanced. The only UK midwifery focused study on midwives acknowledged that there is a need for larger generalizable studies in relation to midwives' trauma and only by doing this supportive or preventive strategies could be developed (Sheen et al., 2015). Qualitative research continues to provide richer data about experiences; however, the quantitative studies offer wider generalisability, but at the cost of detail and there is an assumption in using pre-determined responses. This lack of a personalised account of error experience due to using predefined answers related to emotions and feelings limits the research. For the few mixed methods studies, the addition of qualitative extracts form participants in addition to a quantitative perspective enriches the data but still does not increase the knowledge about midwives' experiences of making errors in clinical practice (Han et al. 2017). Further mixed method studies focusing on errors and midwifery are required.

Several studies identified the need for further research (Covell and Richie, 2009; Rinaldi et al., 2016; Sheen et al., 2015; Trieber and Jones, 2018; Delacroix, 2017 and Cohen et al., 2017). In addition to recommending further research on the mental state of workers following medication errors, Rassin et al. (2005) found that some nurses declined to participate as they did not want to talk about the error and Morrudo et al's. (2019) noted the difficulty of engagement in research by nurses (non- response bias) this requires consideration in any further studies.

Twenty-one studies have been identified previously (Carr and Waters, 2023, unpublished) that were exclusively nursing focused, the closest profession to midwifery and were concerned solely with error experience, removing the confusion of adverse event experience. From this systematic review, using thematic synthesis, six themes relating to nurse's experiences following errors were derived with subthemes: Psychological Response, Physical Response, Prejudice against them, Restoration to former life, Coping Mechanisms or Strategies and Learning. However, none of these studies were able to contribute knowledge about midwifery. All nurse – midwife or midwifery research has been conducted on adverse events and may or may not have included errors. The research on doctors is on both errors and adverse events and does not relate to midwifery and obstetric studies are in the minority. The research on mixed healthcare professionals is on both errors and adverse events, and it is often not possible to distinguish which healthcare professional was responsible for which experience. There is a gap in the knowledge base around midwifery, in England and about midwives' experiences of making errors and the specific support they require as a result.

2.18 What the problem is and the research question

In the body of literature on the second victim, there is often little distinction between the second victim research resulting from adverse events or from errors. There is a poor body of literature focusing on midwives and errors. To date, the focus in midwifery has been on the adverse events and any reaction or experience of a midwife to those events. A recent review of the second victim (Coughlan et al., 2017) focusing on maternity care, where it was argued that there is an expectation of perfection,

confirmed the focus has been on adverse events with little distinction between error and adverse event. Guilt, blame, grief, horror, PTSD symptoms and shame can all be experienced following an adverse event such as a maternal death or traumatic birth. The labelling of these experiences has been variable. Despite the acknowledgement that midwives may experience distress form traumatic or adverse events there is no discourse on how errors contribute to this or distinction between adverse events and errors. The midwives' perspective is underrepresented in the body of literature on the second victim.

Schwappach and Boluarte (2008) explicitly call for organisations to take accountability and provide staff with both formal and informal systems of support following errors, mirroring the findings of some of the research presented in other health care professionals since Wu et al.'s formative (2003) research. It is particularly important for individual recovery and patient safety, with West et al. (2006) documenting a reciprocal cycle of error involvement, emotional distress and future errors when appropriate support and recovery were not forthcoming, and Luu et al. (2012) discussing the negative effect of being a second victim on clinical judgements and safety. Healthcare practitioners may consequently lack the ability to manage the situation, have support and make a healthy recovery from the anguish that often accompanies making an error (Crigger, 2004). The recognition that staff can be seriously affected by the role they have played in an error has been a very important step forward in safety knowledge, although programmes for supporting staff are still rare (Vincent and Amalberti, 2016). These experiences might not be appreciated, and yet understanding the impact of such injuries is a prerequisite of providing useful and effective help (Vincent, 2010). Following an error in practice, psychological support is important both for patients and staff and

should be part of a core safety strategy (Vincent and Amalberti, 2016 and NHS Resolution, 2024).

This research will raise key questions in relation to midwifery (chapters 2 and 4) and then answer them (chapters 5, 6 and 7).

2.18.1 How this research will contribute

This research will contribute to the knowledge about midwives' experiences of making an error in clinical practice, an under researched area. Specifically, this research will contribute to the research about errors in England. Some prior studies have taken a qualitative approach whilst others have taken a quantitative approach, demonstrating both approaches can be valid (Farrelly, 2013). However, based on the ontological and epistemological beliefs of the researcher and the existing literature that exposes methodological weaknesses in either a purely quantitative or pure qualitative approach for examining this phenomenon, an alternative mixed methods approach will be undertaken. This research will meet the objectives of determining the experiences midwives have following making an error and determine an evidence-based support strategy.

2.18.2 Strategies to risk manage

Vincent and Amalberti (2016) outline five broad contemporary strategies in relation to risk management and safety governance applicable at all levels of healthcare systems, including maternity care. These five safety strategies are firstly safety as best practice: aspire to standards which are concerned with reducing specific harms and improving clinical processes. The next strategy is improving healthcare processes and the system,

essentially intervening to support individuals and teams, improve working conditions and organisational practices. The first two strategies approaches aim, broadly speaking, to achieve safety by optimising care for the patient. In a sense safety and quality are equated; the aim is to provide care at levels 1 and 2. These approaches are well described in the patient safety literature and correspond to the system approach to errors or error prevention and analysis (Reason, 2008). Risk control is the next strategy involving placing restrictions on performance, demand or working conditions. Improving capacity for monitoring, adaptation and response is the fourth strategy and finally comes mitigation which is concerned with planning for potential harm and recovery. The later area of mitigation is an area that appears to have received less attention in the patient safety literature.

Mitigation is the action of reducing the severity, seriousness, or painfulness of some event. This strategy accepts that patients and indeed staff will sometimes be seriously affected or harmed during their healthcare and, critically, that the organisation concerned then has a responsibility to mitigate that harm. Vincent and Amalberti (2016) believe that organisations need to have effective systems in place to support patients, carers and staff in the aftermath of serious failures and harm. This is perhaps the most neglected aspect of patient safety. Accepting risk in healthcare seems at first glance to either be an admission of defeat or a disregard for patient's welfare (Vincent and Amalberti, 2016). However, this strategy is important at the clinical and organisational level. Because with healthcare comes uncertainty and despite robust clinical governance frameworks to enhance patient safety and quality and the desire to deliver healthcare effectively safely and efficiently, we have to acknowledge that human fallibility occurs regularly, healthcare workers such as midwives are human and

organisations such as the NHS, with its many systems and demands are designed and managed by humans. Error can never be eliminated completely, so the term ‘never event’ (defined by the NHS as a serious incident that is wholly preventable because guidance or strong systemic protective barriers are available and should have been implemented) is a misnomer and a barrier to safety (NHSI, 2018).

Chapter 3 Theoretical Considerations

3.1 Introduction

The previous chapter presented the safety landscape in healthcare, the second victim concept, error and adverse event distinction, and identified the uniqueness of the midwife as a healthcare professional. The gap in the literature was identified and as described, this thesis aimed to explore the experiences of midwives who makes errors and determine what support they require. This chapter addresses methodology, discussing the underpinning philosophical arguments for the current research and establishing the philosophical position of the researcher.

3.2 Underpinning philosophy

3.2.1 Ontology and epistemology; the pragmatist

This research began with a need to answer a question about midwives and error experience that was lacking in the current body of literature. The literature stressed the importance of safety in healthcare and specifically in midwifery, highlighting the variance in experiences following traumatic events, errors and adverse events in other healthcare professionals, but crucially not in midwives following errors in practice. The implications for safety and support needs are unknown for midwives and are addressed by this thesis.

O'Leary (2014 p.5) defines ontology as "the study of what exists, and how things that exist are understood and categorised", what type of things actually exist and what is the belief about reality. Different types of research are based on what one thinks is true and

at polar opposites are realism and relativism. Realists believe that one truth exist and that to discover truth one has to use objective measurements, and once the truth is discovered it can be applied and generalised to other situations. Relativism on the other hand believes instead that there are multiple versions of reality or truth; that reality or truth is context dependant. Multiple versions of truth exist because they depend on the meaning one attaches to truth, and this evolves and changes according to the context. As a consequence, the reality is context bound and cannot be transferred to other situations. Messel (2013) argues that such a traditional dichotomy is unsustainable, particularly in healthcare research. He describes the nature and complexity of nursing and medical practices as drawing upon both qualitative and quantitative data and methods in routine clinical practice, for example by talking to patients, interviewing them, and asking them how they feel, but also by taking measurements and using diagnostic tests. It is the combination of these approaches that generates the whole truth and enables the correct decisions, treatment and courses of action to be taken. The aim of this research established that neither approach was wholly adequate to support the research questions. The researcher acknowledges a third paradigm that of pragmatism and this meets with a personal view of how the truth can be determined, and hence the aim and objectives of the research can be determined.

Pragmatism focuses on what is the truth in relation to the research query being investigated, rejecting the either-or choices associated with the traditional conflicts between the positions of realism and relativism (Teddlie and Tashakkori, 2009), instead sanctioning practical theory (Teddlie and Tashakkori, 2009). The researcher as a midwife and healthcare professional is comfortable with drawing upon qualitative and

quantitative data to determine the truth and knowledge. Pragmatists view knowledge as being both based on the world one experiences and also as being constructed; they endorse pluralism as no single point of view can ever give the entire picture and that there may be multiple realities (Shub et al., 2012); fitting comfortably with the healthcare researcher. Furthermore, Dudovskiy (2017) compares pragmatist researchers to architects. A selection of materials and methods are used by architects to build the building they planned on paper, bricks, wood, cement, glass, metal, plaster and so on. Similarly, pragmatists may use an amalgamation of research approaches necessary to discover solutions to research questions; the scaffolding of the research method to answer the question will be fit for purpose.

Epistemology is concerned with "how we come to have legitimate knowledge of the world; rules for knowing" (O'Leary, 2014, p.5), or in other words, what are the rules for determining what exists and how does one discover new knowledge? The researcher's ontological beliefs dictated epistemological principles and as such what the researcher thoughts about the nature of reality dictated how the study unfolded to support the research questions. To take an etic approach and to collect knowledge in an objective way and keep a distance from the research, taking an outside view would gain knowledge form one perspective. On the other hand to take an emic approach, with a more subjective approach to reality would enable the researcher to get inside the research topic with acknowledgement of the influence of the researcher and it is needed to gain an in-depth understanding of reality; relativism lends itself to this as truth is found in meaning and experiences and in order to understand the experience of midwives' making errors and the context that shaped those experiences, the researcher needed to talk to the participants.

Howe (1988) acknowledged the established proposed incompatibility between the alternative paradigms of the epistemological positions and their corresponding quantitative and qualitative methods. There was an appeal for a pragmatic philosophical perspective and for researcher not to fear moving ahead with what works, especially in practice. This was despite established authors being apprehensive of this approach and thinking the approaches were in compatible (Guba, 1987 and Smith, 1983) and some researchers being made insecure by compatibilism as it blurs methodological and epistemological lines (Howe, 1988). However, Howe (1988) determined that a philosophical stance is only as important as it it's able to shape practice and the quantitative versus the qualitative debate is academic. This research aimed to shape practice by establishing midwives' experiences of making an error in clinical practice and determining an evidence-based support model. Hence, a pragmatic philosophical stance was required.

Moretenson (2009) contends that it is essential to explicitly define the methods used, a rationale for this and report both qualitative and quantitative data in the relevant findings to ensure credibility of mixed methods research along with listing methodological limitations and strengths. Advancing specific research in the best possible manner (Dudovskiy, 2017) is key and the researcher moved forwards with this in mind as the pragmatic philosophical position offered flexibility and the ability to gather the required knowledge (Teddlie and Tashakkori, 2009). The extant literature revealed predominantly either qualitative or quantitative research, either of which hold disadvantages, and none focused adequately on midwifery. The small sample sizes and inability to generalize of qualitative research limited findings, although there was rich data (Mohsenpour et al., 2016; Ajri-Khameslou et al., 2017; Delacroix, 2017; Chan et al.,

2018; Chard and Tovin, 2018; O'Boyle, 2013, Scott et al., 2009 and Ullstrom et al., 2014) and the predetermined responses of quantitative research, exclusion of subsets of healthcare professionals due to small numbers and lack of rich data limited quantitative research (Chard, 2010; Karga et al., 2011; Mira et al.,2015 and Van Gerven et al., 2016). Examination using multiple methods from the pragmatist's viewpoint produces a more robust interpretation in relation to the midwife as a second victim, answering and allowing for greater diversity of findings, than a single method such as phenomenology would (Denzin, 2010) for example. The difficulty of representativeness in qualitative studies may be addressed by combining qualitative and quantitative work to infer findings to a larger population. In addition, metrics in healthcare are valuable but may not, by themselves, yield full insight into a topic. Martin et al. (2015) describe 'soft intelligence' as being data that escapes easy capture or simple quantification illustrated in their study on safety in NHS healthcare where they needed to conduct and analyse in-depth qualitative data in addition to quantitative data to achieve a full picture (Martin et al., 2015).

Research rarely starts with a philosophical set of assumptions, instead it is often conceived, developed, and born from an issue or question about something (Messel 2013). This bottom-up approach necessitated a pragmatic tactic, leading to a variety of methods being chosen to address the question to answer the enquiry (Messel 2013). It is therefore legitimate for the Pragmatist to amalgamate both, positivist and constructivist positions within the scope of a single research project, believing that both observable phenomena and subjective experiences are both capable of generating the truth. Mixed methods provides the researcher with a justification to combine qualitative and quantitative methods and as providers and policy makers

strive to ensure quality and safety for patients and families, researchers can use mixed methods to explore contemporary healthcare trends and practices across increasingly diverse practice settings (Shorten and Smith, 2017). It enables the researcher to get "on with the task of doing their research", which may mirror the reality of everyday life in that "researchers and people test their beliefs and theories through experience and experimenting, checking to sense what works, what solves problems, (and) what answers questions" (Teddlie and Tashakkori ,2009, p.74). Mixed methods originate in the two major research paradigms (Terrell, 2012) and the use of mixed method tactics is often appropriate in health research (Creswell and Plano Clark, 2011). Creswell et al. (2004) and Harvey and Land (2017) contend that researchers should utilise whichever methods are required to achieve the prime results, even if this involves transferring between alternative paradigms, rather than working with either of the alternative opposing epistemological views of post positivism or constructivism (Christ, 2013).

There are methodological issues to be raised with mixed methods in order to justify its use. Mixed methods enable theory generation and verification to occur within a single study (Teddlie and Tashakkori, 2003), mixed methods also allows researchers to address research issue from multiple perspectives to facilitate understanding about multifaceted phenomena (Moretenson, 2009). The experiences of midwives making errors was suspected to be multifaceted based on existing literature, although this was not actually known. What was known was that different perspectives had been gained from qualitative and quantitative research, and the researcher wanted to discover the whole picture. Controversial issues need consideration and integration of the research traditions. Mixed methods involves integration of the data at some stage of the research process. It is not necessary to assign a priority to either domain and they can be made

equal partners (Creswell and Plano Clark, 2011 and Teddlie and Tashakkori, 2009). Incorporation of qualitative and quantitative methods and paradigmatic influences occurred throughout the research process, inclusive of the conceptual framework, questions, data collection, analysis, and discussion. This was at the higher level of integration (Moretenson 2009). Greene et al. (1989) determined five drivers of mixed methods research, which justified its use in this study Table 3.0.

Table 3.0 Drivers of Mixed Methods research. Adapted from Greene et al. (1989).

Driver	Reasoning and application to this thesis
Triangulation (corroboration)	Use of qualitative and quantitative methods so that findings can be mutually corroborated or confirmed whilst investigating the same phenomena and the biases or limitations of either approach can be offset.
Complementarity (elaboration)	Findings of phase two (quantitative) can be used to enhance and elaborate phase one's findings and interpretation (qualitative) and create a wider set of findings. Clarification of the results from phase one can be made with results from phase two of the study.
Development (use of results from one technique to inform the use of the other method)	Phase one results were required to develop the instrument for phase two.
Initiation (exploratory, discovery)	This relates to the seeking of new perspectives of frameworks, such as the midwives' experiences of making an error. Error making midwives' experiences had not been studied, different paradigms and methods were required consideration to determine what the reality is.
Expansion (extends the scope of inquiry)	To maximise the breadth and range of enquiry, mixed methods enable the selection of the two methods that were most appropriate
Illustration (Bryman, 2006)	Quantitative findings were used to illustrate qualitative findings in the same study and vice versa.

The researcher aligns with pragmatism, one of the recommended paradigms for mixed methods research, however it would be neglectful not to have considered others. Critical realism is a perspective that validates and supports both the qualitative and quantitative approaches and is suited for mixed methods research (Creswell and Plano Clark, 2011). It incorporates the idea that there is an independently existing real world that exists despite our perceptions, theories or constructions – the realist ontology, with a constructivist (subjective) epistemology; in other words that the understanding of the world is "inevitably a construction from our own perspectives and standpoint" (Cresswell and Plano Clark, 2011, p.45). However, critical realism suggests using theories to partially explain the processes bringing together several theories for understanding and explaining context-specific phenomena. It also asks for a knowledge of the underlying structures and mechanisms of a phenomenon. Because of this, I believe that explanatory mixed methods or quantitatively driven mixed methods are better fits for critical realism, and this thesis is an exploratory study. I am also not convinced that I can accept that much of reality exists and operates independently of our awareness or knowledge of it or that only this way of understanding can provide the criticality required from research.

Table 3.1 Pragmatist's Assumptions adapted from Teddlie and Tashakkori (2009, p.88)

Assumption	Pragmatism	The researcher's application to the PhD
Ontology: the nature of reality and truth	Diverse viewpoints regarding social realities. Personal value systems should be transparent.	Multiple versions of the truth exist; context is important but there may be similarities / shared values that can be generalised.
Epistemology: the relationship of the researcher to the knowledge	Can be subjective and objective depending on the stage of the study	Both subjective and objective stances will be taken in conducting the research in order to gain knowledge.
Axiology: the role of values in inquiry	Values are important in interpreting the results	Quantitative aspect is value free whilst the qualitative aspect is value laden (Moretenson, 2009).
Methodology: approach to inquiry denoting how research questions should be asked and questioned.	Use the best method to answer the research question, this may be qualitative and /or quantitative.	Both qualitative and quantitative methods are required to fully answer the research question about midwives' experiences and support required.

3.2.2 Methodology

As a pragmatist this research takes the position of neither quantitative nor qualitative methods alone being sufficient to develop a complete analysis, requiring them to be used in amalgamation, so that they can supplement each other (Creswell et al. 2004). The mixed methods design was chosen to complement the researcher's ontological stance. Pragmatism as a philosophical orientation is commonly allied with mixed methods (Teddlie and Tashakkori, 2009) where a combination of a quantitative, deductive approach and a qualitative inductive approach in mixed methods is adopted

in order to give a synergistic effect of merging the qualitative and quantitative perspectives. It can enable the gaining of more insight (Curry and Nunez-Smith, 2015). The value of gathering stories and amalgamating with numbers, has a more complete picture of the problem than by using either quantitative or qualitatively in isolation as neither life nor experiences is just about numbers or pictures (Creswell, 2013a). In relation to midwives' experiences, a quantitative approach using predetermined responses was inappropriate as the knowledge base was not there about midwives' experiences and needs in relations to errors. It would not be possible to ask midwives true questions or statements to respond to. There was sufficient doubt and confusion in the literature to suggest different healthcare professionals experience the second victim phenomenon differently (Wu, 2000; Marmon and Heiss, 2015; Scott et al., 2009; Covell and Richie, 2009; Mira et al., 2015 and Delacroix, 2017). This was further reinforced by the unique nature and context of midwifery in the UK (Cumberledge, 2016 and Rice and Warland, 2013). Certainly, the voice of the midwife who had made an error in clinical practice had not been heard until this research was undertaken. Other professions have been undertaking mixed methods for many years, as explained in the healthcare professions, and research has now caught up (Creswell, 2013b). The research process in safety demands involvement from staff to be considered valid and to have impact. NHSI (2019) focuses on the creation of innovations, in this case an evidence-based support framework, based on science and rooted in reality, context and human factors.

The exploratory sequential design, one of six mixed methods designs (Creswell and Plano Clark (2011) (Table 3.2), which has a pragmatic philosophical underpinning was utilised for this research.

Table 3.2 Six Mixed Methods Design Classification (Creswell and Plano Clark, 2011, p.73)

Design	Description
Convergent design	Concurrent quantitative and qualitative data collection, separate analyses and the merging of the two data sets
Explanatory design	Methods implemented sequentially. Phase 1 quantitative data collection and analysis and phase 2 qualitative data collection and analysis. This builds on phase 1.
Exploratory design	Methods implemented sequentially. Phase 1 qualitative data collection and analysis and phase 2 quantitative data collection and analysis. This builds on phase 1.
Embedded design	Either the concurrent or sequential collection of data with separate data analysis and the use of supporting data before, during, or after the major data collection procedures
Transformative design	Framing the concurrent or sequential collection and analysis of quantitative and qualitative data set within a transformative, theoretical framework that guides the methods decisions
Multiphase design	Combining the concurrent or sequential collection and analysis of quantitative and qualitative data sets over multiple phases of a programme of study

3.2.2.1 Points of Interface

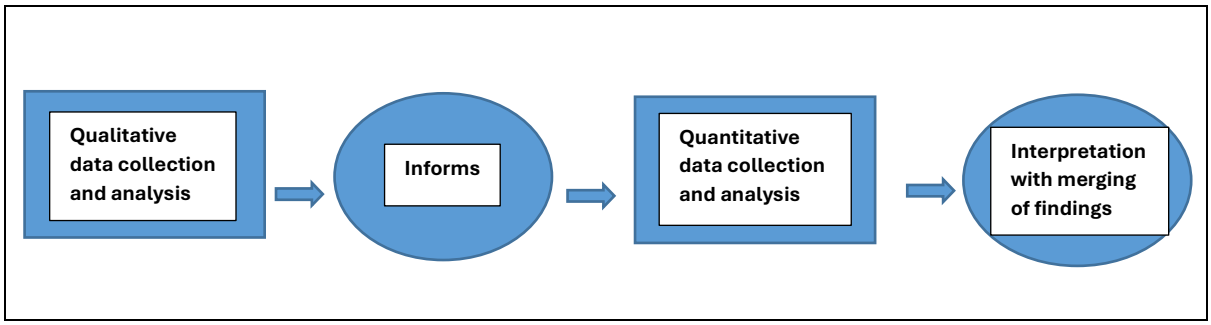
In a mixed methods study, the connection and integration of qualitative and quantitative components may occur at several points, such as conceptualisation, data collecting, data analysis, or after data analysis (Teddlie and Tashakkori, 2009). Using sequential timing, qualitative data were collected in the first phase of the research, a second phase collected quantitative data to generalise and triangulate the findings of

the first phase. The second phase was determined by the findings of the first phase, in a process of connecting (Plano Clark and Ivankova, 2016). It was at the level of data collection that the mixing of findings occurred, as the qualitative analysis informed the formation of the quantitative research questions (Creswell and Plano Clark, 2011). Both phases of the research worked together to answer the same research questions (Figure 3), developing a framework about the midwives' experiences and needs. Greene et al's. (1989) empirical review considers the nature and degree of qualitative and quantitative integration during the data analysis. Few studies achieve integration during analysis, instead either not integrating or doing so at another point. This research integrated the qualitative and quantitative phases explicitly at data analysis too. Upon receipt of quantitative findings, the original qualitative findings were then also revisited. It was important to acknowledge data mismatches and discuss discrepancies with an aim to resolving them (Greene et al. 1989). The combined results were collectively interpreted (Plano Clark and Ivankova, 2016), thus expanding knowledge to address the research questions. Results of the two phases are presented separately in chapters five and six, and integration of the findings are presented in chapter seven.

Alternative mixed methods designs were considered, a multiphase design could be attractive offering the potential for further data collection form differing perspectives, for example the inclusion of families or the testing of a support framework, however the constraints of the PhD process limited the timeframe. The exploratory sequential design was already time consuming without additional phases being added, as the qualitative and quantitative methods were given equal priority and the execution of this type of design can be time consuming (Andrews and Halcombe, 2007). A concurrent design was not appropriate as knowledge about midwives' error experience was not

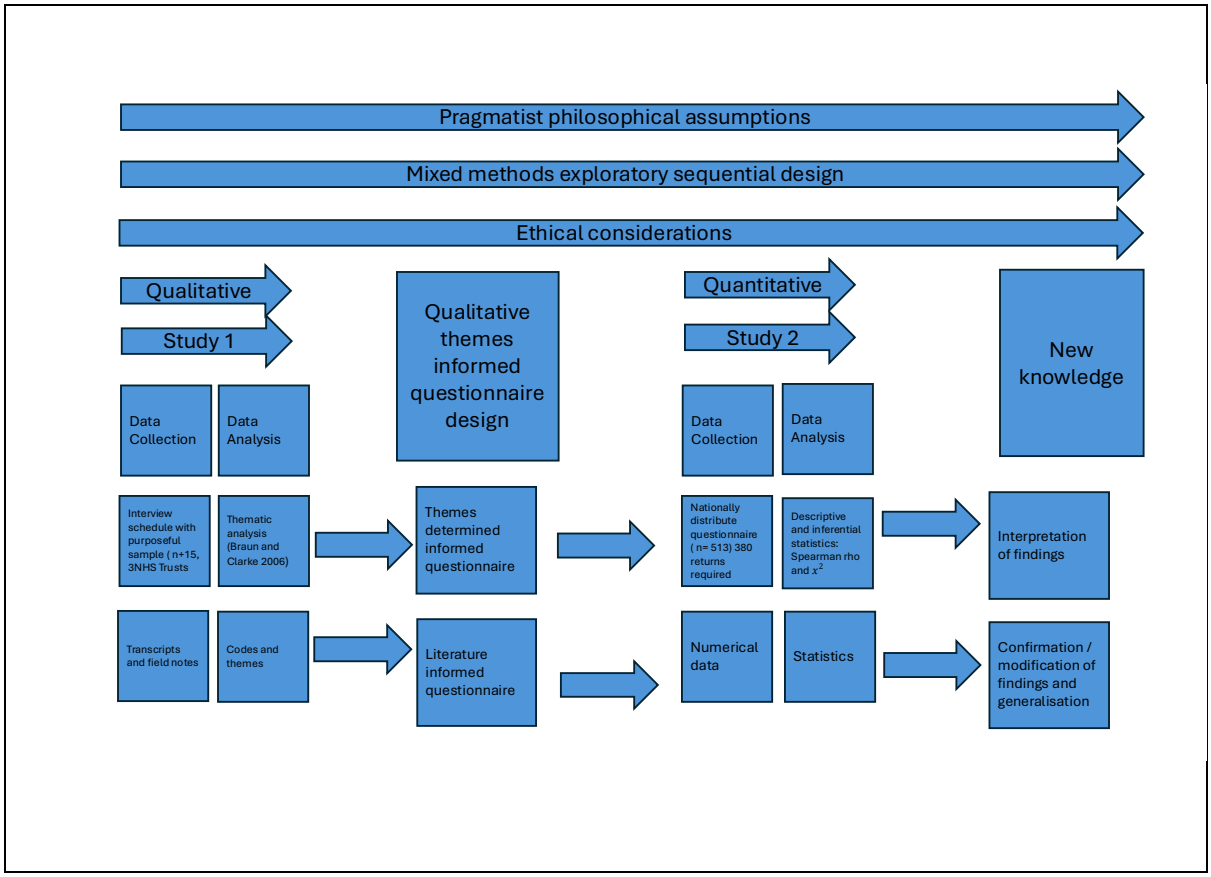
known and needed to be established in one phase of data collection prior to moving to the next informed stage of data collection. There would also have been practical issues as a sole researcher and the aim of the research did not fit with this design; data were not to be compared. Likewise, an explanatory sequential design was not deemed suitable due to the lack knowledge about midwifery error experience and previous criticisms about using quantitative data to determine views about errors; the researcher did not know what she did not know to ask for a quantitative phase to occur first. Similarly, a convergent design would not meet the aims and objectives of the research question, the aim was not the merging of the two data sets at an end point but rather to use one to inform the other with an attempt to generalise qualitative findings of the first phase and build on the knowledge established. Hence, the exploratory sequential design was most appropriate.

Figure 3.0 The Exploratory Sequential Design (Creswell and Plano Clark, 2011, p.69).



A framework of the research design can be seen in figure 3.1.

Figure 3.1 A framework of the research design.



Chapter 4: Research Design and Protocol

4.1 Introduction

The previous chapter set out the theoretical considerations underpinning the thesis and introduced the methodology. This chapter addresses the second part of the methodology. The chapter discusses an appropriate methodology and method to address the research aim of exploring, describing and understanding midwives' experiences after making an error in clinical practice. The protocols for each phase of the study can be seen in Appendices 17 and 18 and were submitted for ethical approval prior to the study being conducted.

4.1.1 Aims and objectives of the research

4.1.2 Aim

•To explore, describe and understand midwives' experiences after making an error in clinical practice.

4.1.3 Objectives

•To describe midwives' experiences following making an error in clinical practice

•To critically evaluate the experiences of midwives

•To make evidence-based recommendations in order to maximise the recovery of midwives following an error in clinical practice which may impact on safety

4.2 Method

Study 1 Qualitative phase: qualitative descriptive study

Exploring the experiences of midwives following making an error in practice

4.2.1 Research design

This thesis's initial study phase was a qualitative investigation that involved one-to-one interviews with midwives. The phenomenon under investigation in this study was the errors made by midwives. The primary research objective and question were intended to be addressed in this part of the study. When studying the stories of persons, qualitative research is the methodological approach of choice (Creswell and Poth, 2016). Instead of creating new theories as in the grounded theory method (Corbin and Strauss, 2008), observing a specific group of midwives in their natural environment as in ethnography (LeCompte and Schensul, 2010), or delving into the philosophical underpinnings of the experiences or decision-making process as in phenomenology (Paley, 1997), the goal was to find new, pertinent concepts.

Furthermore, as opposed to narrative inquiry's focus on the tales of a select few midwives, the goal was to gather the experiences of a variety of midwives from various contexts and service approaches. One advantage of the qualitative descriptive technique is that it is an inductive process, which means that data are not generated nor interpreted using pre-established conceptual frameworks or ideas (Neergaard et al., 2009). When the study's sole goal is to describe a phenomenon, this feature can be seen as advantageous. The analysis remains close to the data and participant opinions in the absence of a theoretical framework (Neergaard et al., 2009). Whilst criticism

remains for qualitative research not least generalisability of findings (Harvey and Land, 2017), applying trustworthy criteria enhanced the study's rigour and data quality. The quality standards (credibility, reliability, confirmability, and transferability) that were applied to this thesis are considered in chapter 4, section 4.9.

4.3 Setting, sample and recruitment

4.3.1 Setting

The locations for phase 1 were NHS maternity Trusts in the West Midlands. These maternity Trusts had inpatient and community services, delivering care to birthing families requiring universal and additional care from broad demographics.

4.3.2 Key stakeholder involvement

In order to ensure that the research methodology was appropriate and that the sensitive topic of errors in practice was approached appropriately, key stakeholder involvement was sought. Key stakeholder events were undertaken at three NHS maternity units in the West Midlands in October and November 2017. Opinions were sought from a total of 10 clinical midwives and one Head of Midwifery. The clinicians currently in practice held clinical bands five - eight. There was no public involvement proposed in this research and so lay opinion was not sought. At the stakeholder events the researcher and / or supervisor one discussed the proposed research project specifically focussing on

- Consent form
- Participation information leaflet

- Letters to participants
- Proposed interview schedule
- Recruitment to the study
- Objections to utilising Trusts as a place to conduct the research
- Sensitive nature of the topic being researched

All recommendations and discussions were considered. The following were adopted into the study:

- The word error was adopted for the study rather than mistake
- Only errors would be considered (as opposed to adverse events)
- A current live investigation became an exclusion criterion for the study
- No additional symptoms were added to the interview guide
- There would be no contacting of potential participants who were identified from investigations into an error
- DATIX reports would not be utilised to generate participants
- A poster inviting participation would be used
- Distribution of the poster would be by physical posters, email and by social media sites
- The stressing of potential benefits of the study in the participation leaflet was adopted

4.3.3 Sampling

A purposeful sample was used to determine participation in phase1. Purposeful sampling, a non-probability form of sampling (Havey and Land, 2017), enables the

researcher to recruit participants who meet the research inclusion criteria, thereby having the knowledge of the subject in question. The sampling frame was based on an assessment of eligibility to participate in the study. All participants met the inclusion criteria. Midwives (particular persons) in clinical practice (particular setting) who had made an error in practice (particular event) were selected as they provided the required data for the study. For clarity and consistency, the terms participants and midwives are used interchangeably as defined by the inclusion and exclusion criteria. Participants were midwives who recognised making a clinical error in England, consistent with the study's inclusion criteria

Inclusion criteria

- Midwives
- Error made in clinical practice
- Midwives who have made an error in practice
- Midwives who perceive that they can recall the details of the event
- Working in England at time of error

Exclusion criteria

- Non midwives
- Midwives who have not made errors in practice
- Errors not made in clinical practice
- Midwives currently undergoing a trust investigation into an error
- Working outside England at time of error

However, it was important that the sample included a range of errors and midwives so that the research did not become too narrowly focused. Midwives who participated were from a variety of workplaces and models of care ensuring the range of experiences contributed to increased transferability of findings. The sample was projected to be small, around 15 to 20 midwives. Convenience sampling was not thought to be appropriate because although the researcher did have some prior knowledge of midwives who had made errors in practice from a former role and these midwives would be the most readily accessible, it was not ethical to target these midwives in her research capacity. They may also not reflect the characteristics of the population (Havey and Land, 2017). All forms of random sampling of the hospital's midwifery populations were discounted as the sample may not have contained any midwives that had made errors in clinical practice, and this would have not met the study's inclusion criteria.

4.3.4 Saturation

In qualitative research, saturation is most frequently used to determine sample size (Guest et al., 2006; Malterud et al., 2016 and Mason, 2010) and discontinuing data collection or analysis occurs (Saunders et al., 2018) when the researcher reaches the point, which is referred to as saturation, when adding more participants will not produce any new data relevant to the research topic as similar instances are seen repeatedly (Glaser and Strauss, 1970). Nonetheless, there are still disagreements over the optimal sample size for qualitative research to reach saturation, and there are few concrete recommendations available (Mason, 2010). For the ideal sample size when collecting data through interviews, Creswell (1998) and Creswell and Creswell (2018)

recommended 10 participants or fewer, while Morse (1994) argued for six participants or more. A conscious decision was made to continue sampling beyond these numbers to seek additional evidence to establish midwives' experiences as they were unknown and to gain an in-depth understanding, possibly beyond saturation point (Saunders et al., 2018). Perhaps suggesting an ambivalent attitude to saturation, for ethical approval a sample size has to be committed to (Saunders et al., 2018 and O'Reilly and Parker 2013), however aligning with the pragmatist view, the researcher did what was needed to be able to gather the data.

4.3.5 Recruitment

Phase 1 was advertised in the designated Trusts providing maternity care by poster (Appendix 3). Invitation to take part was also sent out to midwives via closed Facebook pages or What's App groups where Trusts had this facility (2 Trusts) and by email (Appendix 4) in all Trusts. Figure 4.0 illustrates the message that accompanied the email, Facebook or What's App posting of the poster and participation leaflet.

Figure 4.0 Recruitment information for phase 1

I would like to invite you to take part in a research study about midwives' experiences of making errors in clinical practice. Before you decide you need to understand why the research is being done and what it would involve for you, so I have attached some information to this message. If you agree to take part in this study, I would like to find out about your experiences as a midwife if an error in clinical practice has occurred. All of the information that is collected during the course of the research will be kept strictly confidential.

Please take time to read the attached information carefully. If you feel that you would like more information or would like to take part, please contact:

Natasha Carr: Natasha.carr@bcu.ac.uk

0121 331 6085 / 07425166485

I look forward to hearing from you.

Midwives volunteered to participate in the study by contacting the researcher in response to these adverts about the study. Recruited midwives who contacted the researcher received a letter (Appendix 5) by email. One follow up letter was issued if necessary (Appendix 6).

4.4 Data Collection

Open ended data were collected from midwives via face-to-face interviewing. An interview schedule was used to allow the researcher to remain on track with discussing the experience of making an error. The interview schedule was a modified pre validated schedule used by Scott et al. (2009) (Appendix 7). The essence of the interview schedule remained unchanged with all stem questions being retained. However, it was necessary to focus the questionnaire on the aim and objectives of the qualitative arm of the study, namely on errors rather than adverse patient events and also to ensure that the questionnaire was English centric rather than Americanised. Appendix 7 illustrates the amendments of the interview schedule. The symptom list remained the same in this study as in the original Scott et al. (2009) study. There were no additions in the written list from the stakeholder event. The list of symptoms presented to participants could be

viewed as presenting an artefact (Jones and Worral, 2024). Artefacts can be seen as elicitation devices (Abildgaard, 2018). Visually evoked interviews can have an added advantage over a purely verbal interview, stimulating less talkative participants and accessing participants perspectives after the free response of the open-ended questions (Jones and Worral, 2024).

Participants were presented with the same list at the end of the interview as a written document to check through and were asked if they had experienced any of the symptoms following their error. This resulted in a discussion of experiences. Three midwife participants added to the list that was presented to them with the following symptoms:

- Introverted
- Skewed view on own abilities and other's abilities
- Impaired decision making
- Fear / anxiety
- Affected home relationships

For these participants, their verbatim transcripts report the inclusion of these and where appropriate and relevant these have been used as quotes to support the formation of the themes in the qualitative data.

Permission to use the tool, cite the tool and authors had been granted (Appendix 8). A one-hour face-to-face interview was undertaken in a location convenient to the participant. Midwives were assured anonymity and confidentiality. Prior to the interview

commencing, any questions were answered, and a consent form was reviewed and signed (Appendix 9). All interviews were audio recorded with an encrypted audio recorder. Upon the conclusion of each interview the audio recordings were assigned a participant number to continue to preserve anonymity.

In qualitative descriptive research, semi structured individual and/or focus group interviews and event observation are the most popular techniques for gathering data (Sandelowski, 2000). Given the possibility that midwives may share experiences of errors, unfavourable results, or failures, it was thought that one-to-one interviews would offer the midwives a more private and relaxed setting than a focus group. Additionally, the aim of this study was to determine the short- and long-term experiences of each individual following and error, which could best be accomplished through one-to-one interviews.

4.5 Study duration

The qualitative study commenced with data collection and proceeded with analysis. This phase was undertaken over 9 months following a successful ethics application. However, for each participant this equated to approximately an eight-to-ten-week window, which was inclusive of; initial contacting and correspondence, arrangement of a convenient interview time and location, an hour's interview, transcribing by the researcher, a two-week window of opportunity to comment on the transcript of the interview and any discussion from this including data removal.

4.6 Participant removal

Midwives were prevented from being involved in the study if they fell within the exclusion criteria prior to conducting the study. If adverse feelings in the participants occurred and they need time to recover this was permissible. In the event of an interview needing to be terminated this was also permissible. These events would be documented for completeness of documentation of the study.

4.6.1 Participant withdrawal

Midwives were able to withdraw from the research study at any point as explained in the participant information leaflet (Appendix 15), letter and at the point of consent. Unless the participant explicitly requested their data to be withdrawn, this was retained and utilised within the study. Midwives did not have to disclose a reason for withdrawing from the study.

4.7 Data analysis

The researcher was aiming to understand and provide an accurate portrayal of the meaning of the qualitative data (Robson 2011, p278) and therefore midwives' experiences. This was completed by an iterative process. The researcher reflected on preconceived ideas and how these may impact on the interpretation of the data (Yardley 2008). The intent was that there should be no loss of the "essence of the data or contrasting views" (Harvey and Land, 2017, p279). To aid this, a reflective diary and notes were kept, observing the researcher's actions, thoughts and decisions during data collection and analysis. This facilitated rigour within the study (Harvey and Land, 2017). O'Leary (2014) advocates documenting one's assumptions and preconceived

notions to consciously recognise biases and it will also assist in producing possible themes. It is acknowledged that it is difficult to separate data collection from data analysis (O'Leary, 2014) in qualitative research, as it is impossible to constrain all thinking processes and prior knowledge about the concept of the second victim or experiences following errors by health care professionals. As such data collection and analysis occurred in tandem.

4.7.1 Thematic analysis

Using a staged guide of reflexive thematic analysis described by Braun and Clarke (2006, 2012, 2020), the data generated from this study was analysed as per the protocol plan (Appendix 17). Reflexive thematic analysis as an interpretative approach to qualitative data analysis is easily accessible and theoretically flexible and facilitates the identification and analysis of patterns or themes in the data (Braun and Clarke, 2012). Thematic analysis was chosen for its flexibility as a research tool, potentially providing a rich and thorough, yet multifaceted account of data (Braun and Clarke, 2006, 2012, 2021). Thematic analysis allowed themes to emerge from the data from the interviews (Ross, 2012) and it is a common established way to analyse and explore healthcare (Ross, 2012), for example Luu et al. (2012) and May and Plewws-Ogan's (2012) exploration of doctors as the second victim or Rassin et al's. (2005) or Treiber and Jones' (2010) nurses' experiences of medication errors. Once data were familiarised with, the themes are typically to be understood as being made up of "summaries of what participants said in relation to a particular topic or data collection question" (Braun et al., 2019 p. 5) and that facts were derived by reason and logic from sensory experience, in this case from the midwives' experiences. Reflexive thematic

analysis was suitable in the context of the underlying theoretical and paradigmatic assumptions of this part of the study and would allow the qualitative data to be collected and analysed respectfully, expressing the subjectivity of participants' accounts of their error experiences, whilst also acknowledging and embracing the reflexive influence of the interpretations as the researcher (Bryne, 2022).

Alternatives that could have been utilised were content analysis, constant comparative (Ross, 2012) or template analysis (University of Huddersfield 2025), but this mixed method study was not employing grounded theory, consequently constant comparative was discounted. Content analysis with its focus on data that comes from communication was less relevant as the purpose was to examine the experiences of the midwives via examining text paragraphs, context and motivations rather than singular words (Ross, 2012). Template analysis often starts with some a priori codes or a template which are then refined and modified (University of Huddersfield 2025). These may be modified or removed when the actual data are analysed. It can be used on interview transcripts and data that corresponds to the a priori themes are coded as such, and new codes are also derived. The initial template is finally applied to the whole data set and modified as required until a final version is created. Although it is acknowledged that there are multiple interpretations of the phenomena as per Madill et al. (2000) of midwives' experiences of errors and it may have been feasible to utilise template analysis, it was felt that a largely predetermined framework could bias and constrain the researcher with how codes are interrogated to try to make the data fit preconceived categories and the researcher did not want to do this. The research required the flexibility for unexpected issues to be raised as it was not apparent in the current literature how midwives experienced errors. Similarly, Framework Analysis

enables analysis of a priori and emergent issues arising from qualitative data and can be used to compare participant groups using its five steps of the framework analysis method: familiarisation; framework identification; indexing; charting; mapping and interpretation (Goldsmith, 2021; Ritchie & Spencer, 1994). There is the identification of a thematic framework with emerging themes or issues that are then used to filer and classify the data. Following indexing and charting it involves identifying and moving data to where it corresponds with the emerging themes. There was concern that designing an initial framework would introduce bias and could reflect the researcher assumptions rather than the participant's voices (Ritchie & Spencer, 1994). In addition, the researcher did not want to lose the context of the midwives' experiences and part of the framework analysis involves data being lifted from its original textual context and placed in charts that consist of the headings and subheadings that were drawn during the thematic framework (Srivastava and Thomson, 2009). Although it is possible to rematch this data to the context, it was felt this was an unnecessary risk. Both of these types of analysis are less suitable for an exploratory studies or those that maybe theory generating (Srivastava and Thomson, 2009). Other approaches such as interpretative phenomenological analysis (Smith et al., 2009) is clearly suitable when phenomenology is the philosophical approach taken by the research, however this did not apply to this mixed methods study. Triangulation will assist in assessing the reliability of the qualitative analysis (Madill et al., 2000), as part of the mixed methods design this is inbuilt in the methodology as the sequential quantitative data will test the analysis of the qualitative phase with a large sample of midwives the implication being that convergence of the results provides evidence of accuracy and greater objectivity (Madill et al., 2000).

Stage 1: Immersion

The researcher immersed herself in the data to become conversant and familiar with it, inclusive of manual transcription to facilitate deep immersion (Bryne, 2022) and this was checked against the recordings. Participants were asked to check that the transcripts represented their views about their experiences of making errors in practice and any amendments were made at this stage. Polit and Beck (2014) advocate the checking of coding by participants, however, Harvey and Land (2017) illustrate that qualitative research analysis is based on the possibility of multiple truths, not just one fixed truth and participant checking at the coding phase can lead to confusion rather than useful confirmation and therefore this was avoided. The data were read and reread actively through its entirety prior to coding and searching for meanings and patterns.

Stage 2: Generating Codes

Codes were produced for the data. Codes were understood to represent the researcher's interpretations of patterns of meaning across the data (Byrne, 2022). Coding was undertaken with the assistance of a software program, NVivo (QRS International 2018). It was important in this stage to code for as many potential codes as possible. Coding and later theme development was data driven as opposed to being driven by existing research or knowledge and so data were 'open-coded' rather than coding to suit a pre-existing coding frame to best capture meaning as stated by the participants (Bryne, 2022). Harvey and Land (2017) demonstrate the use of factual codes and interpretive or analytical codes, with Miles et al. (2013) referring to these as descriptive or inferential involving and discussing coding as analysis, deep reflection,

and interpretation of the data's meaning. For example, a factual code may be 'investigation', whereas an interpretive code could be 'fear, or 'isolation'. Initial coding of datasets was reviewed for errors, which resulted in amendments, amalgamations, or separation of codes (Harvey and Land, 2017), until a final coding framework emerged. It is debatably not possible to conduct an exclusively inductive or deductive analysis (Bryne, 2022). However, Braun and Clarke (2012) do clarify that one or the other of the approaches does tend to dominate and will indicate the overall orientation towards either prioritising the research / theory-based meaning or the participant / data derived meaning.

Stage 3: Generating Themes

The researcher organised the codes into potential initial themes where codes had shared meanings. Braun and Clarke (2006) explain that themes are made up of a subset of codes, with some codes forming main themes or sub-themes, although other codes may be discarded (or may be kept as outliers). Theme development is a flexible and organic process, and very often will develop throughout the analytical process (Braun et al., 2019) and new patterns of meaning may develop as the researcher interprets from the data (Bryne, 2022). The evolution of the themes process was tracked and documented in each successive iteration. Using a constructionist epistemology this allows the researcher to adopt not only the recurrence of potentially important information, but the meaningfulness of data will also develop and help interpret the themes (Bryne, 2022). As Bryne (2022, p.1395) comments "what is common is not necessarily meaningful or important to the analysis".

Stage 4: Refining Themes

The researcher then reanalysed the themes several times. Braun and Clarke (2006) illustrate that themes may collapse into other themes, or some themes may need to be broken down into smaller components. The researcher conducted this at two levels, firstly by reviewing the data at the level of the coded data and secondly reviewing at the level of the themes. Braun and Clarke (2019) encourage the researcher to embrace reflexivity, subjectivity, and creativeness as assets in knowledge production (Bryne, 2022). Braun and Clarke (2013) emphasise that what is important is that the pattern of codes and subsequent themes communicate something meaningful and that helps answer the research question. Themes were considered for quality (whether it told the researcher something useful about the data and the research question), the boundaries of the theme, what it included and excluded, were there enough meaningful data to support the theme and were the data too diverse so the theme lacked coherence (Braun and Clarke, 2012).

Stage 5: Naming and defining themes

The researcher at this stage captured the essence of what each theme was about. The creation of a narrative around the themes and the overall data were created and this was related to the research question. A final thematic map was created.

Stage 6: Producing the report

Writing commenced as analysis of data began, as suggested by Braun and Clarke (2006), rather than this being done at the end of the data analysis process. Evidence of themes within the data were provided. Where relevant, analysis was widened, moving from a descriptive to an interpretative level with the inclusion of relevant existing

literature. Braun and Clarke (2006, p.24) succinctly put that the questions the researcher needs to be asking, towards the end phases of the analysis to include: "what does this theme mean?" "What are the assumptions underpinning it?" "What are the implications of this theme?" "What conditions are likely to have given rise to it?" "Why do people talk about this thing in this particular way (as opposed to other ways)?" and "What is the overall story the different themes reveal about the topic?". It is recommend to perform both the synthesising and contextualising of data as and when they are reported in the 'results' chapter (Braun and Clarke, 2013 and Terry et al., 2017).

Adopting Braun and Clark's (2013, 2019) inductive, data driven approach to data analysis is a widely accepted method for identifying, analysing and reporting themes within qualitative data. Its flexibility is in line with a pragmatic approach to data analysis as it is not tied to any particular qualitative framework. Thematic analysis has been chosen as it provides flexibility as a research tool, potentially providing a rich and thorough, yet multifaceted account of data (Braun and Clarke, 2006). In addition, pragmatically it is a well cited and established process with detailed guidance that is replicable for future research. An inductive process was required as existing research on midwifery error experiences was not in existence and as an exploratory study that was discovery orientated the study needed to be open to unanticipated findings rather than trying to fit the data into preconceived codes and themes. However, thematic analysis has a reflexive component which does not forbid the researcher from being informed by the existing literature or concepts such as the second victim that I was aware of from the allied health literature. Therefore, the researcher was able to reflexively consider these but not be bound by them from the outset.

However, it would be remis not to have considered other approaches to data analysis for this phase of the exploratory sequential mixed methods study. For example, template analysis which often starts with some a priori codes or a template which are then refined and modified (University of Huddersfield, 2025). These may be modified or removed when the actual data are analysed. It can be used on interview transcripts and data that corresponds to the a priori themes are coded as such, and new codes are also derived. The initial template is finally applied to the whole data set and modified as required until a final version is created. Although it is acknowledged that there are multiple interpretation) of the phenomena as per Madill et al. (2000) of midwives' experiences of errors and it may have been feasible to utilise template analysis, it was felt that a largely predetermined framework could bias and constrain the researcher and how codes are interrogated to try to make the data fit preconceived categories and the researcher did not want to do this. The research required the flexibility for unexpected issues to be raised as it was not apparent in the current literature how midwives experienced errors. Similarly, Framework Analysis enables analysis of a priori and emergent issues arising from qualitative data and can be used to compare participant groups using its five steps of the framework analysis method: familiarisation; framework identification; indexing; charting; mapping and interpretation (Goldsmith, 2021; Ritchie & Spencer, 1994). There is the identification of a thematic framework with emerging themes or issues that are then used to filer and classify the data. Following indexing and charting involves identifying and moving data to where it corresponds with the emerging themes. There was concern that designing initial framework would introduce bias and could reflect the researcher assumptions rather than the participant's voices (Ritchie & Spencer, 1994). In addition, the researcher did

not want to lose the context of the midwives' experiences and part of the framework analysis involves data being lifted from its original textual context and placed in charts that consist of the headings and subheadings that were drawn during the thematic framework (Srivastava and Thomson, 2009). Although it is possible to rematch this data to the context, it was felt this was an unnecessary risk. Both of these types of analysis are less suitable for an exploratory studies or those that maybe theory generating (Srivastava and Thomson, 2009).

Other approaches such as interpretative phenomenological analysis (Smith et al., 2009) is clearly suitable when phenomenology is the philosophical approach taken by the research, however this did not apply to this mixed methods study. Triangulation will assist in assessing the reliability of the qualitative analysis (Madill et al., 2000), as part of the mixed methods design this inbuilt in the methodology as the sequential quantitative data will test the analysis of the qualitative phase with a large sample of midwives the implication being that convergence of the results provides evidence of accuracy and greater objectivity (Madill et al., 2000).

4.8 Reflexivity

A research diary helped the researcher to be reflexive and identify ethical quandaries and ensured that she has dealt with them appropriately. There was an active process of reflecting on the researcher's own views, context, and biases and how they affected the research process, including data analysis (Carpenter and Suto, 2008, p. 93). Braun and Clarke (2014) define examiner bias as the probability that the researcher distorted the research findings, which must be avoided in quantitative research when impartiality is valued (Galdas, 2017). On the other hand, for researchers in qualitative research, where

values are arbitrary, it might have an impact on the findings (Braun and Clarke, 2014 and Polkinghorne, 2010). Researchers' values and presumptions should be addressed from the start of the research until its conclusion because they bring their identities to the investigations.

Reflexivity is the proper way to address subjectivity in qualitative research (Braun and Clarke ,2014). Functional reflexivity highlights the research process, design, and tools (Braun and Clarke, 2014). The study was organised in a certain way to guarantee functional reflexivity. For instance, open-ended questions were used in the interviews to lessen the likelihood of bias and midwives were asked to ensure the transcripts reflected their experiences. The focus of personal reflexivity is on the researcher's identity within the research. Midwives may have experienced power imbalances; it was noted that a secure and encouraging environment was established to prevent any potential repercussions of power imbalances. To encourage participants to provide candid comments, the study's purpose of determining midwives' experiences of errors and developing a support programme was emphasised, and openness and appreciation were shown.

4.8.1 Critical reflection of positionality

A key component for confirmability is the researcher’s acknowledgement of her position in the research. The researcher has a clinical and academic background as a midwife and supervisor and was currently working in academia. Prior experience with errors and supporting midwives was a trigger to conduct a study about this topic. A reflective journal and regular supervisor meetings assisted with data orientated interpretation rather than personal assumption interpretation. Midwifery knowledge

enabled the researcher to fit in better with the midwives and their environment, sharing thoughts and feeling and connecting with them (Burns et al., 2012). However, the researcher was mindful not to influence, judge or interpret findings using her own lenes. There was consideration of the researcher's interactions with midwives prior to the interview for phase one. This was either by email, face to face or by telephone when a participant had indicated that they wanted to take part in the research. For planned encounters, the researcher was able to carefully consider a response. A formal email or telephone introduction to the researcher, the research, and processes involved if participation was undertaken. The preliminary telephone conversations or emails included introducing the researcher as a PhD Researcher, who was interested in listening to them and in learning about their error in practice, emphasising confidentiality, and meeting at their convenience. The researcher tended not to know these midwives very well. For more ad hoc encounters where the researcher was working in a different capacity (day job) and the midwives sought her out to indicate that they want to take part in the study, a familiarity with the researcher and convenience of being there at the time probably accounted for this. In both cases the researcher emphasised the confidentiality and the distinction between the research and any managerial or hospital process to alleviate any suspicions. For work related encounters it was emphasised that there would be confidentiality on inclusion in the study from work colleagues.

Field notes indicated that in one case, four interactions (1 telephone and 3 in person) were need prior to actually undertaking an interview. Reasons for this were multifaceted; wanting to talk through the research process, busyness of a ward area when data collection was due to happen twice and then discussion of the process and

purpose of the research again prior to data collection. It was important to the researcher than any midwife who has expressed an interest in participating was given the opportunity, and no-one was excluded unless they withdrew. It was also important that all questions were answered that potential participants had so that participants were comfortable with the process given the sensitive nature of the topic under examination. Field notes also demonstrated a range of locations for data collection, all occurring at the midwives' choice of location. Some midwives were very open about participating and talking about their experiences and did not appear to mind other people knowing what they were doing, locations of data collection were inclusive of a cafeteria, private rooms, ward areas, and a car, however a number of midwives at both the organising and data collection point were secretive and did not divulge what they were doing. For example, by meeting off NHS work premises or if disturbed during the interview them becoming silent or changed topics. Holmes (2020) discusses that positioning is essential as it determines the future relationship between the researcher and the midwives. The researcher needed midwives to be fully comfortable and confident with the researcher in order to obtain valuable data. If the researcher had positioned herself inappropriately, for example had been seen as punitive or taking a managerial stance, it is doubtful that midwives would have opened up and shared their experiences; openness and honesty about the research were key values that were employed.

There was a reflection process during and after the interview during transcription and interpretation as the data collection process and the results depend on the researcher's type of involvement (Finlay, 2002). This description illustrates an encounter with reflection 'in action'. One participant's name sounded familiar when the

researcher was setting up the interview, but the name could not be placed. On arrival for the interview at the participant's place of work, recognition was established by both parties. Field notes annotate this; wondering what the researcher was going to say, that it felt awkward and there was consideration of whether it was appropriate to continue. Reflection in action saw the researcher ask the midwife if she was happy to continue and that the researcher understood if she did not want to. The participant decided to continue. In addition, part way through the interview the case the midwife described an error experience that was recognised by the researcher as it had been reported in the press, again reflecting in action, a decision was made to continue as the information that enabled recognition was in the public domain and the researcher used the words stated by the midwife in her transcript, in interpreting and developing codes and themes; the researcher reflected that her knowledge of the case and midwife did not influence the data interpretation as any themes would be derived from the data obtained not from other sources.

Another midwife recounted an error experience that occurred over 20 years ago, but it had stayed with her. Gough (1999) states that reflexive analysis enable the identification of ways in which the researcher conducts oneself and whether there is a gap between any preconceptions and the midwives' reality. The researcher's preconception was that if an event had happened such a long time ago then the midwife would probably have moved on from that event, particularly if she was still working within midwifery. However, the participant cried on recounting the experience and field notes indicated that the researcher offered to terminate the interview and offered comfort, even though valuable data were being obtained. However, the participant wished to carry on and further data were obtained.

4.9 Trustworthy Enhancement

Guba and Lincoln (1994) suggest four criteria for assessing the quality of qualitative research: credibility, transferability, dependability, and confirmability. Trustworthiness was required, so that any findings had the potential to be notable (Lincoln and Guba, 1985). Confirmability was shown using verbatim extracts from transcripts and confirmation of transcripts by participants. Credibility was enhanced using the pre validated data collection tool (Scott et al., 2009) and appropriate sampling (Harvey and Land, 2017). Trochim and Donnelly (2006) and Teddlie and Tashakkori (2009) denote that credibility is achieved if the results can be believed form the participant's perspective. All transcripts were presented back to the midwives so that they could judge if what was transcribed reflected what they experienced in relation to making an error. In addition, the findings from phase 1 were presented back in the questionnaire in phase 2 to a wider sample of midwives.

An indicator of transferability is important but difficult to establish in qualitative research (O'Leary, 2014), to show that the research may be applicable in alternative settings, as distinct from generalisability of any findings powered by adequate a broad representation. Phase 2 aimed to enhance this aspect as part of the mixed methods design. Drawing the same conclusion from more than one data set is powerful and this powerful data doesn't have to be the same or derived at the same time, it can be by different methods (Creswell, 2013a). Corroboration of the qualitative findings with a larger quantitative population assists with transferability of the findings of the whole mixed methods study in its entirety (Creswell, 2013a). Dependability was demonstrated through methodological rigour (Miles et al., 2013), however inherent in qualitative

research is the context, experiences and perspectives of the individual that makes their reality and the authenticity of the deep understanding (Wolcott, 1990). Authenticity was enhanced and demonstrated from the discovery of themes in the data (Miles et al. 2013). Both enhanced confidence in the findings (Creswell, 2013a).

Study 2 Quantitative Phase: Quantitative Study

Exploring and confirming the experiences of midwives following making an error in practice and the support they require

4.10 Research design

This study describes the second part of a mixed methods study. For this phase of the study, quantitative data were collected, as the second phase was aiming to generalise and triangulate the findings of the first qualitative phase. The qualitative analysis had informed the formation of the quantitative research questions (Cresswell and Plano Clark, 2011).

4.11 Setting, sample and recruitment

4.11.1 Setting

The setting was NHS maternity units in England. These maternity units would have inpatient and community services, delivering care to women who require both universal and additional care.

4.11.2 Sampling

Purposeful sampling was employed for study 2, for the reasons stated previously. The midwives had to meet the inclusion criteria. All midwives (particular persons) in clinical practice (particular setting) who have made an error in practice (particular event) were asked to participate in the study as they could potentially provide the required data for the study. For clarity and consistency, the terms participants and midwives are used interchangeably as defined by the inclusion and exclusion criteria. Participants were midwives who recognised making a clinical error in England, consistent with the study's inclusion criteria and the first phase of the study.

Inclusion criteria

Midwives working in England who have:

- worked in clinical practice
- and have made at least one error in clinical practice
- and can recall the details of the error event

Exclusion criteria

- Midwives who are working outside of England
- Midwives who have not made at least one error in clinical practice
- Midwives who cannot recall the details of errors they have made in practice

All midwives in England were targeted by this research in order to aim for full representation of the population under study and enable as many midwives as possible to take part. This gave the maximum number of participants and avoided making assumptions about the wider population that were drawn from a sample. Not all of these midwives would have made errors or would have perceived themselves to have made errors. There is no national database maintained of clinical errors pertaining only to midwives. Nether the less, a large sample of midwives were sought (Cresswell and Plano Clark, 2011) from the target population. The National Reporting and Learning System for the NHS does not log patient safety incidents by profession, only by incident type and generic location (NHSI, 2017). Therefore, it was difficult to determine a size for the population of midwives making errors in the NHS out of the 32,183 on the permanent register to practise in England (NMC, 2021). However, using a sample size calculator (Calculator.net 2025), based on a population of 32,183 midwives on the register (NMC, 2021), then a sample size of 380 was required. This means 380 or more measurements or surveys were needed to have a confidence level of 95% that the real value is within ±5% of the measured/surveyed value. The confidence level is a measure of certainty regarding how accurately a sample reflects the population being studied within the chosen confidence interval. Essentially, sample sizes are used to represent parts of a population chosen for any given survey. Having defined the research question, the population for the study needed to be defined. The researcher was obviously not able to collect data from all cases in the population of midwives in England therefore there was a need to select a sample. The following adapted process was employed, clearly define the target population, select the sampling frame, choose

the sampling technique, determine sampling size and collect the data (Taherdoost, 2016).

Ideally there should be an assessment of response rate too as this indicates better representation and credibility of the research (Fincham, 2008). It enables the evaluation of the study findings with assurance that the sample of respondents reflects elements of the population with breadth and depth, minimising nonresponse bias. In addition, it enables assurances around generalisability of the results to the wider population. However, although it is known how many midwives are on the NMC register in England, it is unknown the number of midwives who have made or perceived to have made an error in clinical practice or the number practising. So, although the target population was all midwives in England who had made errors in clinical practice, they cannot be accessed directly as they are not identifiable. It is known though that the sampling frame is a list of all midwives from which the cases for the research were drawn.

Non- probability or non- random sampling was employed for this study opposed to probability or random sampling in the form of purposeful sampling (Harvey and Land 2017). Participants were determined based on predetermined characteristics, so midwives were deliberately targeted to provide important information that cannot be obtained from other choices, that is they had made errors in clinical practice. To perform any statistical test and attempt to generalise from a sample, a sample size needed to be of an adequate size (Taherdoost, 2016) and this was determined to be at least 380 midwives.

Ethnicity is not defined by profession, but only by registered status, with white being most dominant, followed by black African, Asian Philippian or, Indian, Black Caribbean,

Pakistani and mixed white and Caribbean. Age similarly points to most registrants being between 41 – 50, followed by 31 – 40, then 21 – 30, 51 – 55, 56 – 60, 66 – 70, 71 – 75 and over 75. Age and ethnicity data will be required to comment on the sample. In addition, not everyone on the register will currently be working as a midwife even they are registered (NMC, 2021).

4.11.3 Recruitment

Taking a pragmatic approach, midwives within NHS Trusts and/or using social media could be accessed, but not all of these midwives may have made an error in practice. Response rates can be determined when known quantities of questionnaires are distributed to a known population, usually the greater the response rate the more reassurance the researcher will have about the generalisability of the findings. However, the number of midwife error makers was unknown. Response representativeness was also important, the researcher was looking to achieve a return of questionnaires from midwives experiencing errors, from a variety of differing midwifery units and midwifery practitioners.

Response rates cannot be determined because the researcher will not know what number of people were invited. The researcher won't know the response rate but can estimate representativeness because of knowing the number of midwives registered with the NMC and their demographic makeup. However, this will be an estimate because people might respond who have left the register but had made an error during their career. Commentary is made about this and acknowledgement of any limitations to this effect (Miles et al. 2013). A sample size has however been calculated as described above for guidance.

The Chief Midwife for England at the time, Professor Jacqueline Dunkley-Bent shared the link for the survey with Regional Chief Midwives for cascading to maternity providers (Appendix 10). Professor Jacqueline Dunkley-Bent is both the Chief Midwifery Officer and National Maternity Safety Champion for NHS England and NHS Improvement. Maternity providers were asked to send the study information to all midwives by email and other Trust in house electronic correspondence. In addition, the researcher's own networks such as the Lead Midwives for Education and Professional Midwifery Advocacy networks where midwives maybe working, were utilised, along with social media accounts. Twitter, Facebook and What's App were used to target midwives in the professional arena who may not be accessible via NHS Trusts. Questionnaires were also sent out to midwives via closed Facebook pages or What's App groups where Trusts had this facility. Figure 4.1 illustrates the accompanying message that went out with the email, Facebook or What's App posting of the questionnaire.

Figure 4.1 Phase 2 recruitment information to participants

Are you a midwife? Have you made an error in clinical practice?

Safety in maternity care is very important. I would like to invite you to take part in an anonymous PhD research study about midwives' experiences of making errors in clinical practice entitled: *An exploratory study examining the concept of midwives as the second victim. What experience do midwives have as the second victim after making an error in clinical practice. IRAS number* 312715.

I would like to find out about your experiences as a midwife if you have made an error in clinical practice with a view to establishing an evidence base for this and recommending a specific evidence-based support system for midwives.
All information collected during the research will be **anonymous**.
Completing the questionnaire and returning it indicates consent to the study. You can stop being part of the study at any time, without giving a reason, but we will keep information about you that we already have.

You can find out more about how we use your information
our data protection department available from dataprotection@staffs.ac.uk
our research ethics policy is available here: Research ethics - Staffordshire University (staffs.ac.uk)by asking one of the research team at natasha.carr@bcu.ac.uk
by ringing us on 07425166485

Your data will be processed in accordance with the General Data Protection Regulation 2016 (GDPR). The data controller for this project will be Staffordshire University. The university will process your personal data for the purpose of the research outlined above. You can provide your consent for the use of your personal data in this study by completing the consent form that has been provided to you. You have the right to access information held about you. Your right of access can be exercised in accordance with the GDPR. You also have other rights including rights of correction, erasure, objection, and data portability. Questions, comments and requests about your personal data can also be sent to the Staffordshire University Data Protection Officer. If you wish to lodge a complaint with the Information Commissioner's Office, please visit www.ico.org.uk.

As a thank you for your time in taking part, if you complete a separate link available at the end of the questionnaire, with your name and email address you will be entered into a draw to win a £25 Amazon Voucher. You will be notified by email if you have won.
Thank you for your help. Your views are so important to me, midwives' voices need to be heard. This research is sponsored by Staffordshire University.

4.12 Key stakeholder involvement

To ensure that the research methodology was appropriate, the questionnaire was effective and that the sensitive topic of errors in practice was approached appropriately, key stakeholder involvement was sought. Key stakeholder events were undertaken, and a small sample of midwives completed the questionnaire. There was no public involvement proposed in this research and so lay opinion was not sought. At the stakeholder events the researcher discussed the proposed research project specifically focusing on:

- Consent
- Time taken to complete the questionnaire
- Instructions on questionnaire

- Clarity of questions
- Distribution methods for the questionnaire
- Sensitive nature of the topic being researched
- Ability of the questionnaire to elicit the information required

All recommendations and discussions were considered. The following were adopted into the study:

- Clarification of some questions
- Clarification of instructions
- Quantitative data collection clarified

4.13 Data Collection

Data were collected from midwives via an on – line questionnaire administered using QUALTRICS (Appendix 11). Questionnaires gave the midwives' opportunity to answer in their own time, reach wide geographical coverage, offered confidentiality, although response rate may be low, and there was no opportunity for clarification of questions (O'Leary, 2014). An invitation email containing an embedded link to the questionnaire was used (as per Van Gerven et al., 2016).

Alternatives to questionnaires were limited in their use in this sequential design. Alternatives may have included focus groups, the use of institutional data or using other measures (Swarthmore, 2020). Focus groups could have been structured to provide very useful information from midwives about errors quickly (Ross, 2012) and with a purposeful sample; but are better suited to qualitative research (Ross, 2012) and would not meet the purpose of the part of the study or provide the anonymity that was desired.

It may also have been possible to extrapolate institutional data from the NHS in England related to errors, but this would not have enabled the researcher to ask questions of midwives or test the data generated form the qualitative phase of the mixed methods study.

As explained in the methodology the questionnaire in phase two originated from the phase one findings and was hence unique to this study. With a mixed methods exploratory design as per Creswell and Plano Clarke (2011), it is standard practice to develop a quantitative tool such as a questionnaire after an in-depth qualitative phase. Themes and insights were generated in phase one, then built on with the questionnaire in phase two to see if those findings can be generalised and validated by a larger sample. Hence the development and use of the questionnaire in phase two. The questionnaire was derived from what midwives actually said about making errors in clinical practice, their real stories. Rather than a pre validated 'off the shelf' survey, the questionnaire reflected the experiences of midwives and their errors. As established by the literature review, there was a gap in knowledge about midwives' error experiences and as such a suitable pre validated questionnaire specifically did not exist. No available tool adequately captured the context-specific dimensions revealed in Phase one. Developing a bespoke questionnaire ensured conceptual alignment with the qualitative findings and enhanced the overall coherence of the mixed methods design and this methodological integration between the two phases a hallmark of mixed methods research.

Building on the results of the qualitative phase, the questionnaire was based on the emergent framework about midwives' experiences of making errors, using the

qualitative data that was determined in phase one of the mixed methods study, connecting phase one with phase two of the research (Creswell and Plano Clarke, 2011). This was presented to the midwives in the questionnaire with the aim of gaining generalisation and confirmability, or otherwise of the qualitative findings. Some of the interview data were converted into rating scales or magnitudes (Miles et al., 2013). For example, the degree to which midwives felt the same feelings following errors in practice. This was asked using a five-point scale as this is both easy and reliable (Miles et al., 2013). This worked towards the objective of confirming the experience of midwives following making an error in clinical practice. Descriptive statistics were used to portray the simple features of the data set such as demographics.

4.14 Study duration

The quantitative study commenced with data collection and proceeded with analysis. This phase took 6 months from July 2022 – December 2022 following a successful university and HRA ethics application process (appendix 12). There was a delay in seeking ethical approval and data collection due to the Covid – 19 pandemic. The questionnaire was predicted to take about 20 minutes to complete but the average completion time was 51 minutes and 52 seconds. Midwives were assured about anonymity and confidentiality. This was the third step of the exploratory design.

4.15 Participant removal

Participants were not included in the study if they fell within the exclusion criteria. This was documented for completeness of the study. For example, during data cleansing,

participants who had opened the questionnaire, but who had made no data entries were removed.

4.15.1 Participant withdrawal

Midwives could withdraw from the research study at any point without disclosing a reason or choose not to participate at all. Unless the participant explicitly requested their data to be withdrawn, this was retained and utilised within the study. No midwives contacted the researcher and asked for their data to be removed following submission. Voluntary and informed consent was assumed if participation and submission of the questionnaire took place.

4.16 Data analysis

4.16.1 Analysis descriptive statistics

Analysis was as per the protocol (Appendix 18). The first analysis was a series of descriptive statistics for the key variables to examine what interesting features were apparent. This was a simple statistical analysis where the desire was not to statistically manipulate any results but to illuminate what the data were portraying (Robson, 2011). At this stage, it was important to merely describe, given that so little was known about the midwives' experiences of errors and the lack of focused literature available for guidance. Descriptive statistics summarised the simple features of the data set such as demographics and the characteristic of the sample (O'Leary, 2014). Relevant statistical data were reported in standardised display formats (Miles et al.,2013).

For ordinal data, the distances between numbers are not equal and therefore meaningfully adding them together to create an average was not possible (Rugg, 2007). It accounted for the visual analogue Likert- style scales (Rugg, 2007) that were used for the responses generated from the qualitative phase of the mixed methods study. On a Likert scale, midwives were asked to rate on a scale their agreement to disagreement with a statement related to the qualitative findings in the first phase of the study. Likert scales using a 5-point ordinal scale allow responses to be ranked or rated, even if the distance between responses was not measurable (Sullivan and Artino, 2013); consequently, only statistical judgments and limited statistics could be performed.

4.16.2 Analysis inferential statistics

Secondly, inferential tests were performed to see if any differences could be seen from the descriptive data that were likely to be due to chance alone, or not. Non-parametric tests were used. For pairs of nominal variables, chi-square testing was utilised, for example to determine if there was an association between length of distress and being moved from usual place of work or being blamed for an error (O'Leary, 2014). Most of this data were nominal data and therefore for univariate analysis the Chi-squared test sufficed (O'Leary, 2014). The test of association between different nominal attributes was utilised.

Analytical practices were supported by the type of data that was generated in order to create defensible arguments and concepts. The analysis was conducted in a critical, reflexive, and iterative way that moved between the data and the overarching frameworks of the research (O'Leary, 2014). P value< 0.05 was considered as the level of significance. Analysis was performed with SPSS version 25.0 (IBM Corp, 2021).

4.16.3 Findings of the quantitative study

The outcomes were aligned with the study's aims and objectives and the researcher developed a novel understanding of the concept of the second victim as applied to midwives in the England. A framework was developed to support mitigation of the consequences of the second victim phenomena in midwives. This is explored in chapter 6.

4.17 Ethics, governance, regulation and informed consent

Ethical approval and permission to undertake phase one of the study (qualitative phase) was gained from the Faculty Academic Ethics Committee (FAEC) and Health Research Authority (HRA) (HRA, 2017). The University required standards to be upheld in the conduct of research (BCU, 2017), working to the frameworks developed which ensure that anyone undertaking research should be 'expected to observe the highest standards of integrity, honesty and professionalism and to embed good practice in every aspect of their work' (RCUK, 2013, updated 2017). Ethical approval for phase 2 of the study (quantitative) was gained from the Faculty Ethics Committee (Staffordshire University, 2021) and Health Research Authority (HRA) approval separately (HRA, 2017).

Although this is one mixed methods study, data from phase one (qualitative) was required to create the tool for data collection for study two (quantitative) therefore this data were not available at commencement of the mixed methods study; hence two separate ethics applications. Two university ethics committees were required due to the changing of principle supervisor's place of work and transfer of PhD studies to a different institution. Information to midwives was designed to reflect the ethical

principles of Beauchamp and Childress (2013), autonomy, beneficence, non-maleficence and justice. The research diary assisted the researcher to be reflexive and identify ethical quandaries and ensure that she dealt with them appropriately (Rogers, 2008).

The study was clearly explained to midwives (Terrell, 2012). Consideration of beneficence and autonomy when obtaining informed consent was integral within this concept to ensure that midwives fully understand the research process and any possible costs or benefits (Rogers, 2008). To assist with this, permission to conduct and audio tape the interviews were obtained in writing. However, the researcher was not physically present when the midwives completed the online questionnaire, therefore taking part in the questionnaire indicated that the participant had given consent to participate in this phase of the study. A statement on the questionnaire made this explicit. It was important to the researcher to ensure no midwives were coerced into participating. In respect to autonomy, midwives had the right to withdraw from the research at any time, and this was be explained to them from the outset. Midwives had access to a copy of the results, which is good practice (Terrell, 2012). There was assurance in writing for both phases and additionally verbally for the qualitative phase that all information would be secured confidentially. Anonymity was maintained during data analysis (Terrell, 2012).

In relation to beneficence and non- maleficence, it was acknowledged that the researcher was examining a sensitive topic and for example the process of interviewing could raise adverse feelings in the midwives. Guilleman and Gilman (2004) highlight that the opportunity to talk about a delicate topic can be emotional and that midwives

may need time to recover, change topics or terminate an interview; midwives had these options. It was therefore “imperative that counselling facilities are available should any participant require that support” (Rogers, 2008, p.179). The hospital’s occupational health service or chaplaincy service could be utilised as these were universally available resources. In addition, the Professional Advocate Midwife could be utilised where available (NHS England 2017).

For researchers who hold professional qualifications the decision-making process around ethical considerations has great complexity as they also must abide by their own ethical codes (Rogers, 2008), which for midwifery is the Nursing and Midwifery Council (NMC, 2015). Rogers (2008) demonstrates that professional codes of ethics may supersede research protocols and midwives were made aware of this at the point of consent. If unprofessional or poor practice had been discovered during the research project then the researcher would need to consider that the NMC has a defined process for referring a practitioner (NMC, 2011, updated 2024), however, following a pragmatic approach, the underling philosophical approach of this research, a possible solution, as advocated by Rogers (2008) was to take a case by case approach, have a discussion with the participant involved and encourage self-disclosure with an appropriate person. This was not required during the qualitative phase as no declaration was made that necessitated referral to a professional body.

The principle of justice was considered. All data collected across the mixed methods study complied with the Data Protection Act (UK Government, 2018). De – identified data were used for analysis and data were stored in a password protected laptop. The researcher ensured that the study was conducted in accordance with the relevant

regulations and with Good Clinical Practice. The researcher had undertaken a Good Clinical Practice in Research Course.

4.18 Project timeline

Table 4 Project Timeline

Doctoral research Project	Start date	End date
Literature Review	January 2018	**To the end**
Design Methodology	January 2018	**April 2022**
University ethical application 1	February 2018	**February 2018**
HRA application and approval 1	December 2018	**December 2018**
Sample selection / access	May 2021	**June 2021**
Qualitative data collection	February 2019	**September 2019**
COVID Pandemic (delay)	January 2020	**April 2022**
University ethical application 2	April 2022	**April 2022**
HRA application and approval 2	May 2022	**July 2022**
Quantitative data collection	July 2022	**December 2022**
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Dissemination of findings	September 2022	**Current time**

Chapter 5: Qualitative findings phase 1

5.1 Presentation of the findings and data analysis of the qualitative phase

5.1.1 Introduction

In this chapter, the results from the qualitative phase of the mixed methods study are presented. The experiences of midwives following committing an error in practice are reported and then explained, contributing to addressing the research question of what experiences do midwives have following making an error in practice? The generated themes form a narrative that is consistent with the content of the data. Presentation and discussion of qualitative data will follow, with implications discussed in chapter 7. Qualitative data are expressed in words, through which the reader will be guided. The words and views of midwives in their own voices will demonstrate how conclusions were drawn, and the midwives' views will come alive to the reader (Drisko, 2005). Relating the results to the existing available literature will largely be conducted in the 'discussion' chapter 7.

5.1.2 Context

Qualitative data were collected over a 7-month period from 7/2/2019 to 18/9/2019. All data were collected via one-to-one personal, face to face interviews by the researcher. Qualitative data were collected in the pre-COVID-19 pandemic era from three NHS Trusts in the West Midlands. Midwives voluntarily consented to take part in the study and met the study's inclusion criteria. The same researcher conducted interviews,

asking the same key questions in order to produce consistent information. After the interviews were over, the transcripts were sent back to the midwives for revisions or comments. No midwives altered their transcripts.

5.2 Participants in the qualitative phase

Semi structured interviews were completed with 15 midwives in the qualitative phase of the mixed methods study. Each participant was given a code, Midwife A, Midwife B etc. A total of 26 errors were disclosed and discussed at interview from 15 midwives. There were more errors than participants as some midwives disclosed more than one error at interview over the span of their careers. Table 5.0 demonstrates the errors that were declared by the midwives.

Table 5.0: Types of errors committed by midwives in qualitative phase

Participant	Type of Error	Location of error	Nature of Harm	When occurred
Midwife A	Drug error neonate	Neonatal unit	Death	Night
Midwife B	Drug error maternal	Antenatal	None	Night
Midwife C	Care error - supervision	Postnatal	Brain damaged neonate / child	Day
Midwife C	Care error – scan interpretation	Antenatal	Still birth	Day
Midwife C	Communication error	Antenatal	None	Day
Midwife D	Care error - CTG	Intrapartum	Brain damaged neonate / child	Night
Midwife E	Drug error maternal	Postnatal	None	Night
Midwife F	Care error - fundal height	Antenatal	Still birth	Day
Midwife F	Care error maternal	Postnatal	Death	Day
Midwife F	Documentation error	Antenatal	None	Day

Midwife F	Care error -fundal height	Antenatal	None	Day
Midwife G	Care error - neonatal resuscitation	Intrapartum	Death	Night
Midwife H	Care error - CTG	Intrapartum	NNU admission	Night
Midwife I	Care error - missed infection	Intrapartum	NNU admission, antibiotics	Unknown
Midwife J	Drug error maternal	Antenatal	None	Night
Midwife K	Care error - CTG	Intrapartum	Brain damaged neonate	Unknown
Midwife L	Drug error maternal	Antenatal	Anaphylactic reaction, HDU admission	Night
Midwife L	Drug error maternal	Postnatal	Short term HDU admission	Night
Midwife L	Care error - labour progress	Intrapartum	None	Night
Midwife L	Care error - palpation	Intrapartum	None	Night
Midwife M	Care error - fetal monitoring	Intrapartum	NNU admission	Unknown
Midwife N	Drug error maternal	Postnatal	None	Night
Midwife O	Care error maternal handover	Antenatal	Permanent disability	Day
Midwife O	Drug error	Antenatal	None	Varied times
Midwife O	Documentation error	Antenatal	None	Varied times
Midwife O	Documentation error	Antenatal	None	Unknown

Table 5.1: Gender of the midwives in qualitative phase

Gender	Male	Female
	0	15

Table 5.2: Ethnicity of the midwives in the qualitative phase

Ethnicity	White	Black	Asian
	12	2	1

Table 5.3: Professional registration of the midwives in the qualitative phase

Profession when error/s occurred	Midwife registered with the NMC (or former UKCC)
	15

Table 5.4: Time qualified as a midwife when the error was made

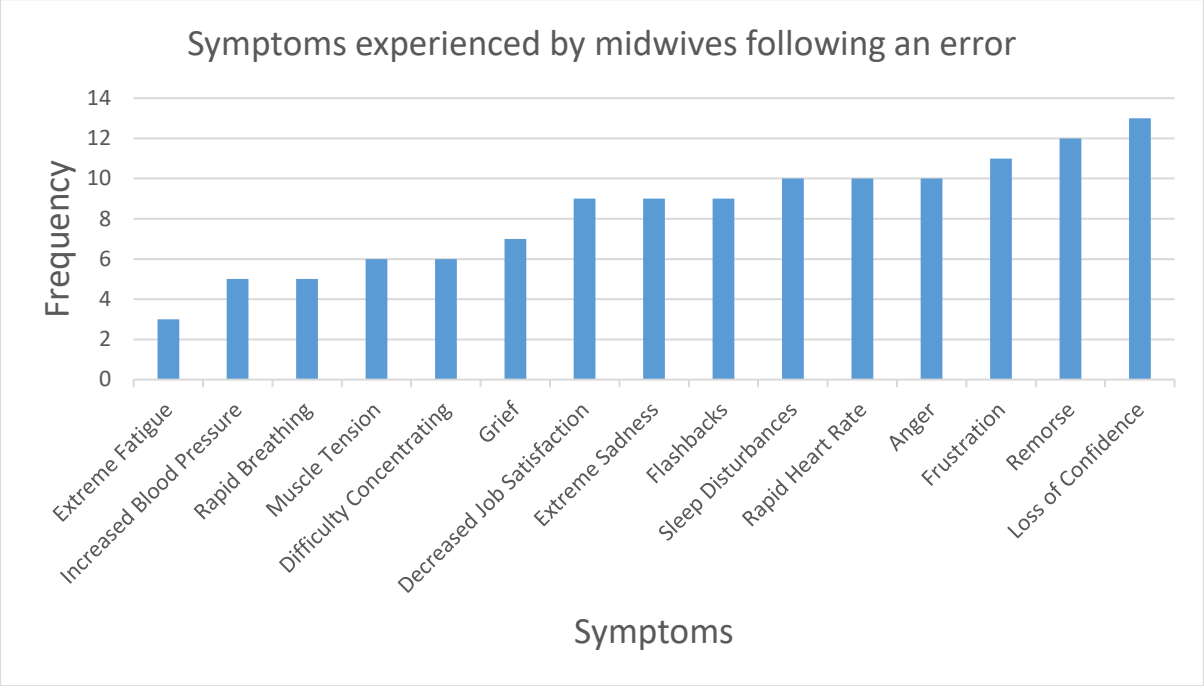
Time qualified when error occurred	Newly qualified	1 – 5 years	6 – 10 years	11 – 15 years	16+ years
	6	9	2	2	2

Table 5.5: Time that had lapsed since the midwives' error had occurred

Time lapsed since error	< 1 year	1 – 5 years	6 – 10 years	11 – 15 years	16+ years
	0	4	7	6	4

At the end of the interview, midwives were given a list of symptoms and asked if they had experienced any of these in relation to the error experiences. Responses are shown in Figure 5.0.

Figure 5.0: List of symptoms experienced by midwives following an error



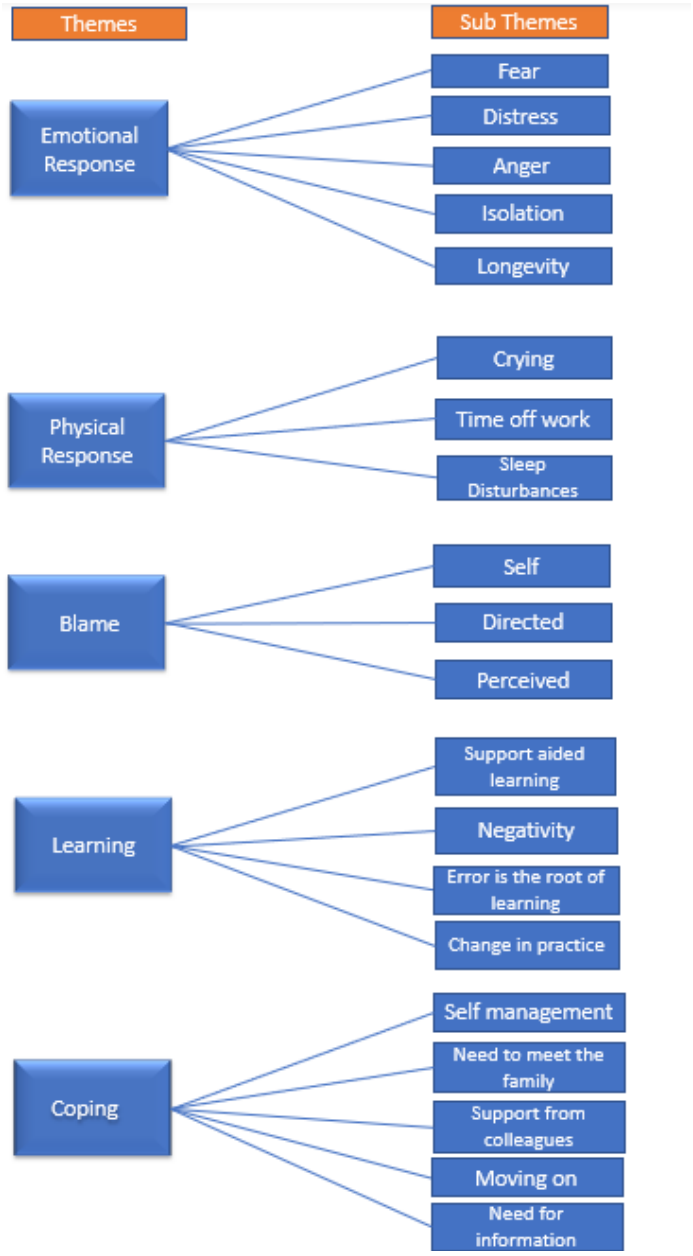
5.3 Interview findings

The data collected by the researcher through the observational notes and the transcripts of the 15 semi structured interviews were analysed using Braun and Clarke's reflexive thematic analysis (2006,2012, 2019, 2021) as per chapter 4. Determination of the themes occurred via an iterative process as the data were revisited repeatedly, and new insights and perspectives were discovered and sculpted from the data**.** Ideas were retained, from portioning up the data into codes and some initial ideas were refined as there was further engagement with the data and exploration of the literature and as the portions of data were re organised and formed into themes. Appendix 13 documents the iterative process which led to the final thematic map demonstrating the five themes with sub themes that emerged as depicted in the thematic map below. These themes were coping, emotional responses, learning,

physical responses, and blame. For clarity the following definitions were adopted for the themes and sub themes.

5.3.1 Thematic map demonstrating 5 themes and associated subthemes:

Figure 5.1 Thematic Map



5.3.2 Definitions: themes and subthemes

Table 5.6 Definitions of themes and sub themes

Theme	Subtheme
Coping Mechanisms	Relates to the process of contending with the error to overcome or work through an error. **Self-management** Finding the self-control and self-mastery to take control of oneself or being reliant on oneself. **Moving on** Going to a different place **Need for information.** To be in want of information about the error or issues surrounding the error **Need to meet the family.** To be in want of seeing or speaking to the family involved in the error. **Support from colleagues** To experience the process of being supported by coworkers.
Emotional Reactions	Emotion relates to complex state of feelings that result in physical and psychological changes that influence thought and behaviour and is inclusive of: **Fear** To be afraid of, an unpleasant often strong emotion caused by anticipation or awareness of danger. Fear is an unpleasant emotion that is caused the threat of danger, pain or harm or is being afraid of something. It is associated with anxiety. **Anger** A strong feeling of displeasure and usually of antagonism.

	Distress Extreme anxiety, sorrow, or pain. Inclusive of stress and upset. A state of suffering. **Isolation** The condition of being isolated or separated from others or being without aid or support. **Longevity** To relive the error or the effect of the error repeatedly over a period of time, especially in the imagination.
Learning	The act or experience of a midwife that learns, inclusive of knowledge or skills acquired by instruction or study or modification of a behavior (making the error) by experience. **Support** To give assistance to **Negativity** The expression of criticism or pessimism about something. **Root of learning** The error was the cause or origin of any learning. **Change** To become different, alter or modify.
Physical Manifestations	Bodily symptoms experienced by the midwife which are attributed to the error experience and that have material or physical existence as perceived by the midwife. **Crying** The shedding of tears or weeping. **Time off work**

	Taking an unplanned period off work due to the error. **Sleep disturbances** Difficulty in initiating and maintaining sleep.
Blame	The act of holding responsible for or finding fault with; to place the responsibility for an error with the midwife. **Self-blame** Is a cognitive process in which an individual attributes the occurrence of the error event to their self. **Directed blame** Language or action that implies (whether intentionally or unintentionally) that a midwife is partially or wholly responsible for an error. **Perceived blame** Midwives may think that others blamed them, however there was nothing in anyone's behaviour or actions that indicated this.

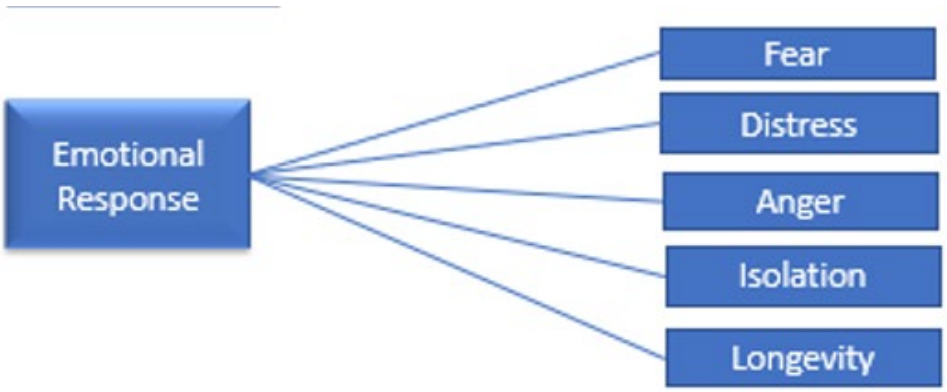
For each of the midwives interviewed it became clear that they had the experience of making an error or errors in their professional lives in clinical practice and that there were some consequences that followed in the wake of the error experience. In the interviews, the analytical process of examining the data revealed the extent of the experiences of midwives following errors in practice for the first time in England.

5.4 Theme: emotional responses

Making a personal error evoked an emotional response in midwives. All midwives in the study described a variety of emotional reactions following making an error. A range of

emotions and reasoning for the emotions were offered by midwives when asked about how an error in practice had affected them personally or professionally, creating the theme emotional response and sub themes fear, distress, anger, isolation and longevity, figure 5.2.

Figure 5.2: Theme of emotional response



5.4.1 Subtheme - Fear

Midwives articulated that they were afraid of others, including other healthcare professionals and family members.

Midwife L, following a drug error, stated in relation to a woman's partner,

"And he was shouting, who gave her the Cyclizine? And I was in the room, and I was too scared to say to him, it was me, nobody said it was me, but I remember."

Following the death of a baby, Midwife G commented about her manager,

"Yeah, whereas I needed her to go into her office and be upset and be tearful about anything um, but I couldn't do that because she was investigating it, and she was the one who made the comment that upset me the most to the point that in the end I was so terrified to go on delivery suite."

Midwives also expressed that they were afraid of the situation that they were in.

Midwife H had made a decision and escalation error in relation to an intrapartum event.

"At the time, yes, I felt I was scared, worried, just scared that you know I'd done something terrible. I had not done what I should've done, yeah, I'm fearful that the mother is going to think I'm awful, think I've caused harm."

In addition, some midwives clearly expressed that the work environment became a source of fear:

Midwife G following the death of a baby commented that**,**

"…so, I used to hate going on holiday, enjoyed it when I was off and the date when I was due back, I was terrified of going back to work. I left and went to work in neonates because I just couldn't (pause), every time I was on a shift with a labouring woman, I was terrified that this child was going to come out and die."

Fear was not just a feeling; it could influence a midwife's practice.

Midwife B following an antenatal drug error commented that**,**

"That fear of making mistakes can really alter your ability to make sound decisions, especially when were in fight and flight. That's not a good place to be – impaired decision making, because of the anxiety. Fear. A phobia of making mistakes, then leads into making more mistakes because you're second guessing yourself."

Fear manifested itself as personal fear as the midwife had made an error, fear of the work area, the fear of people, inclusive of professionals, managers or medical staff and relatives, and fear of the effect on work performance.

5.4.2 Subtheme - Anger

Anger was described by midwives as coming later in their emotional responses following an error.

Midwife G following the death of a baby commented**,**

"After I had almost healed from it and it was anger that I was made to feel the way I was made to feel as opposed to if I had been supported, if I had been helped, if I had been… you know, given the time to heal and understood that this is what you go through and this is normal as opposed to just dealing with it, I would have been a lot better, but it was anger after I was made to feel the way that I had felt but it took a long time to come out, ….."

In addition to coming later in the emotional reactions following an error, anger was provoked by other's actions,

Midwife F following a care error in the postnatal period leading to a maternal death stated,

"And they rang me, and I was off sick, and they rang me and said you need to sign a document, and I said I'm off sick at the moment and I said I'm not up to it, I need to read it and I can't, my Dad's just died, and they said I'm really sorry, and they said no you need to sign it"

Midwife K following an intrapartum error in CTG interpretation, leading to a compromised baby recounted her anger about the working environment,

"And the return to work, anxiety, they moved me off delivery suite and sent me to the postnatal ward and I was really angry about that. I actually ended up saying to the postnatal ward manager at the time… I basically said to her if you think I'm, going to come here for you to be in my face all the time, you can think again."

In addition, whilst dealing with the aftermath of an error there was anger in relation to perceived disparities in treatment following the error.

Midwife M following an error leading to a baby being born in a poor condition commented,

"And I felt in the weeks afterwards, I felt angry because there seemed to be some inconsistency. I had heard that there had been other babies that had gone to, well another baby that had gone to the unit the week after and that midwife didn't seem to be going through the same process as me."

Midwife O expressed that following an error leading to a missed diagnosis that,

"The handover was not very effective and then of course the management then were looking at our records and asking us to write statements. I was cross that I didn't have the knowledge to recognise that, and cross that the person that I felt didn't handover effectively in order to give me the full picture on that patient, cross at circumstances that meant that I just addressed that issue and didn't look at the bigger picture, yes sometimes it's a frustrating day, Yeah, yeah, I was just really cross at the time."

Anger was expressed by midwives as a later emotional response, as being provoked by others, principally other health professionals, although sometimes there was anger at themselves, but also anger because of perceived disparities in treatment following an error.

5.4.3 Subtheme – Distress

Some midwives articulated the stress and anxiety that they experienced in the immediate aftermath of the error that had occurred. Although the error was distressing, it was often associated with concern for the woman or baby.

Midwife O following a missed diagnosis stated that,

"You have this horrible adrenaline rush, almost having that feeling of oh my goodness I've made an error, what? How can I rectify it? Can I rectify it by myself alone or do I need to involve a team in that, not cover it up, but does it need to be shared or is it something that I can rectify and then you have to think of how much of an impact will it have on the patient? She continued, *"I think as a professional we are always trying to do the best for the patient. I don't think generally any midwives want to cause harm to the patient, so that horrible sensation that you have if something hasn't happened, we learn massively from those events really*."

Midwife J following an antenatal drug error that she was informed of,

"I was then woken in the afternoon for the ward manager to tell me that unfortunately that I had done a drug error with the sliding scale, erm, I was mortified, I was inconsolable, I asked if the patient was ok and they said yes because it hadn't commenced, I was actually on a sleep day, erm, but I actually went in to make sure that the patient was ok, and to see what I had done."

Some midwives articulated the effect of stress and anxiety on them and the impact on their work:

Midwife I after missing an infection result in the records stated that,

"I don't take time off work, but I did have anxiety. Yes, second guessing my career – why am I here? I was called out of handover to speak to my supervisor."

And Midwife M following an error in intrapartum care leading to a compromised baby,

“It’s made me a lot more anxious about work, and you know, to the point that, you know, subsequently with ongoing depression/ anxiety I’ve had. Like, CBT before going back to work.”

Midwife A after a drug error (wrongly prescribed drug dose) that resulted in the

death of a newborn baby commented,

“the Coroner’s Court and that was horrible, that was really horrible because the press were invited so erm, so outside the court in fact before we went in the court, there were press there and I remember thinking Oh my God my face is going to be splattered all over the newspaper, this is going to be awful and I am pregnant, and how could I be pregnant, this is awful, how cruel and I, going in there being pregnant when I have killed their baby. This is horrible how can I do this? We came out afterwards and the press were trying to take photographs, and I remember running off down a side street and erm crying my eyes out and thinking oh my God I want to just crawl in a hole and die.”

Anxiety, stress and the impact were commented on in relation to a removal from the

normal place of work to work in an alternative maternity location following the error.

Midwife C following an error that led to the permanent brain damage of a baby stated

that,

“ it was probably 3 months actually and it was to be in all areas under mentorship and having to achieve various things, a bit like being a student again, I felt like I was a student again actually and it was a whole new game because I had not been in the hospital for 10 years and suddenly I had to come into the hospital for a period of time you know and work in areas I had never worked ..... I had to go from doing long days to suddenly doing night shifts and I didn’t cope with that very well and I did have a bit of a breakdown and I felt all the things I used to cope with before I, I couldn’t afterwards, when the pressure was put on, when the doctors were asking to do this, do this for this baby and I literally had a melt down on one of the shifts and ended up going off sick again. “

Corroborating, Midwife M following an error in intrapartum care leading to a

compromised baby also commented about being moved,

*“So, when I went up to the postnatal floor, which I find particularly stressful anyway, sort of, then it's just a cascade that then you don't deal with stresses up there properly actually or they are magnified more than they really are, you know a*nd b*ecause I felt the lag between the event happening and being pulled off intrapartum care a little bit disorientating and upsetting.”*

Midwife G also commented about being moved after a neonatal resuscitation error leading to a neonatal death,

"And it was just horrible at work, every time I went to work, I was in tears, I wasn't allowed to work on delivery suite with a labouring woman while they were investigating."

Some midwives used powerful descriptors to articulate their feelings and the emotional consequences of the error on themselves.

Midwife D following an intrapartum error, leading to a brain damaged baby, articulated her feelings when she talked about her supervisor of midwives,

"In fact, I felt broken by it, and she definitely showed her softer side but in a very supportive way and I think it has altered our relationship, just because we have been through this horrible thing, and I am in no way saying it is as bad for us as the family, but you know that's not why we come to work is it?

Midwife M also following an intrapartum error leading to a compromised baby stated,

"And then when it came to the actual interview, it was fairly traumatic, it was sort of literally minute by minute, why did you do this, why?"

Midwife M continued,

"Yes, and obviously we haven't got supervisors as I know we've got PMAs, but I just felt like nobody, nobody checked in on me to see that I was emotionally ok. Because it is quite a traumatic process and you feel awful, sort of, you feel, you know, the worst midwife in the world at the time and you should be struck off potentially. But what if you are struck off and then that's your whole career down the pan, you know, sort of, there was no one…"

Midwife C following a community practice error leading to the permanent brain damage of the baby expressed that,

"I have never seen a baby like that, when I went you know, round the next day, well, it was shocking and I had no idea of what I was walking into at the time I, you know it was completely shocking. So, yeah, that was, it was erm not a very nice process at all."

Midwife L following a drug error,

"So, I went and got the other midwife, and we had to take her down to HDU and she'd lost all ability to speak, and I remember just feeling awful, I just wanted to cry. I was so

upset and then when her husband came, he was this huge, huge man, he was huge and he was absolutely furious that she'd been given Cyclizine because it was the second time it had happened in the pregnancy, apparently."

Although only one midwife articulated suicidal feelings, it is a grave finding and noteworthy.

Midwife G shared that

"I think you could probably put suicidal on there in terms of mine. Some distress evolved from unresolved issues, a lack of information and not knowing."

For some midwives, distress manifested as embarrassment:

Midwife I talked about the embarrassment related to others knowing about an error and having to talk about it to a non-chosen supervisor,

"I don't know because I didn't speak to anyone about it, but I just felt really embarrassed because she was the risk lead as well, so they probably knew it wasn't supervisory related and more to do with that with an incident and I don't think the risk manager at the time, when I qualified, she was the only supervisor that was free to take me, she wasn't someone that I would have personally chosen, it was just kind of that was the only one available to me, I wouldn't have necessarily chosen her either."

Again**,** Midwife N explicitly noted her embarrassment,

"*I was so tired and I'm not the best on nights I have always struggled with nights, I was tired, and two days and she was fine, the woman, that's the er, … it was embarrassment as well. I was so embarrassed that I had done that, I'd made a mistake, and I don't like making mistakes especially not a drug error*."

In a more serious incident**,** Midwife A after a drug error (wrongly prescribed drug dose) that resulted in the death of a newborn baby stated that,

"it's an incredibly stressful time, and then of course I wouldn't tell family, I don't think I told my mum for years afterwards because I didn't want her to think badly of me."

Distress manifested itself is a variety of ways. Some distress had associations with physical symptoms. There was anxiety associated with committing an error per say, and there was a sense of shame and embarrassment. Distress had a negative effect on professional and home life. A range of severity of distress was articulated from mild

acknowledgement through to suicidal thoughts. Despite distress all midwives had concern for the welfare of their women or babies first.

5.4.4 Sub theme - Isolation

Isolation was described by some midwives following events unfolding in the aftermath of the error.

Midwife G articulated a feeling of isolation related to being moved from the normal place of work,

"And it was just horrible at work, every time I went to work, I was in tears, I wasn't allowed to work on delivery suite with a labouring woman while they were investigating, I had really good support from my supervisor of midwives which I am really quite devastated has gone, because now I don't feel that I have anyone to talk to"

She continued to explain the effects of being moved from the normal workplace,

So that was difficult, so being isolated and not having support was a really big thing for me." "...not to be made to feel whilst they were investigating, isolated because I was moved off the area that I loved at the time, that I worked on, and made to feel very isolated, like they had already decided that it was my fault."

Midwife K also identified the isolation and impact of being moved from the normal place of work following an intrapartum error leading to a brain damaged neonate,

"I felt it was unfair, it was harsh, and there was no support there at all. I think moving me off the labour ward was just a kick in the teeth because it was like, yeah that's your penalty, that's your sentence for doing what you did."

Midwife M also identified the isolation of being moved from a familiar work environment after an intrapartum error led to a compromised baby,

"And I was placed on postnatal ward until the investigation was closed, which isn't a place that I'm particularly comfortable working, so additionally it wasn't very pleasant."

Isolation continued during investigations for some midwives too. Midwife G explained,

"I didn't even go to the route cause analysis because I already felt so isolated, that they had already picked who they were going to blame for it that I just couldn't go, I couldn't bring myself to go at all."

Midwife F following a community error in symphysis fundal height referral leading to a stillbirth also described the isolation during the investigation.

"But I just felt so alone in that room. Nobody could come with me, it was such a busy day, my manager was on holiday, my supervisor could not make it, so I went in there completely by myself and I nearly cried, I didn't cry until I got out of the room, but I did cry afterwards because I was so upset."

Midwife A following a fatal neonatal medication error articulated that the investigation isolated her,

"Yeah, so erm but, erm yeah, but we still see each other, and not that we talk about it, but you don't talk about it and in fact when it first happened, we were not allowed to talk to each other, absolutely no communication whatsoever, do not get in touch with her"

Midwife K further articulated her feelings about the power of isolation following her intrapartum error,

"You know, you're not alone, but that feeling of isolation that you feel is absolutely horrific. It is horrendous because everybody else is getting on with their life. Everybody else is doing their job. Everybody else is functioning and you feel like you're sort of over there looking at all of this going on over here." She continued*, "It's that feeling of isolation. In a way, because of that feeling of isolation, you don't want to talk about it because you feel people are judging you and you feel nobody wants to listen because they've heard it before. Yes, this happened, okay, blah-d-blah-d-blah. But that feeling of isolation is horrific, it really is, it's horrendous. At the end of the day, nobody should feel like that. Nobody should feel like that at all."*

Midwives expressed isolation fundamentally in negative terms. There was the isolation of being moved from the normal place of work, the isolation associated with an ensuing

investigation and the isolation that came with a lack of support. The power of isolation was emphasised, along with the lasting nature of the isolation.

5.4.5 Subtheme - Longevity

The longevity of some midwives' feelings following an error were clearly evident in their discussions.

Midwife H was still holding on to memories and feelings after 23 years,

"It's good to talk about it. It's good to share them because that's a long, long, time ago and I've held on to that a bit."

She went on to examine some of the reasons why she still thought about the error,

"...but sometimes I think I hope that baby was okay even now because you just think don't you, they don't get followed up do they? No, no, no they don't, so I think you know all that sort of, you know those feelings spinning around not sure what happened in there, yeah."

Midwife K articulated that she had never come to terms with her error (occurring 24 years ago),

"So those sorts of things kept me going, but deep down, it's never left me at all.....and I do resent it. When I said there was very lacking support from management structure, yeah. Certainly, my colleagues, and even colleagues now, there's a couple who remember the incident very well, and it's like you just try and put it out of your head, don't you, but you really can't. However, it's a long time ago and I maybe can say partially got over it. I don't think I could say I'll never forget it. It certainly affected me personally, and professionally because I spent a lot of time asking myself, was there something else I could do; did I miss anything? You know, as you do, you just beat yourself up all the time."

Midwife D after an intrapartum error that she had little involvement in following the incident despite being named as the source of the error commented that,

"As far as I knew the RCA had been the end, and that felt really awful , awful to think that everyone's been discussing this case that erm you know has been going on for years and years and years and the chief medical officer and all these people knew all about it, which they would have done, there is no reason why they wouldn't have done, but no one came to me or the other staff involved, there were 3 of us and we all still work here, do you see what I mean – nobody came and said it might go legal. The people involved knew nothing."

Midwife A, in the aftermath of a fatal medication error described a significant event that marked time following the error, also demonstrating the long-lasting nature of the effects of an error and was reduced to tears during the interview process.

"the Coroner was just lovely and he was you know, I stood there and told it as it was and he was just lovely and praised us all for saying it as it was and how it was, was how we had written our statements it was clear to him that this was a complete accident, nobody meant any malice, unfortunately a baby died, it's awful but yeah, it's yeah, but it doesn't stop there … because even now it makes me upset."

Changing the emphasis on longevity, Midwife L articulated the now positive consequences after some medication errors, which were largely 13 years previously, on her current day practices,

"I just learnt a really big lesson from that. So, I always, always, always, even now, years later, always check everybody's wristbands before I give them anything, always."

However, this positivity was not common and for many, including Midwife M, they discussed the longevity of the process following the error and the negative effect on her and her personal life,

"I think there just isn't the support to understand that…how long lasting the effects can be. Yes, and they are still going on today. To a degree. I think I'm just constantly worrying that I'm going to forget something or not do something right. And, you know, I feel like I practice defensively and what not, but yet I'm still trying to optimise normality to the

point where the doctors are like, Midwife M, you over…or, you know, you are going to end up a cropper because you normalise things. I just sometimes feel like I can't win."

Midwife K after an error led to a brain damaged baby perceived that her error had affected her whole career as she was tarnished.

"This episode has tarnished my career because I feel that I worked hard for my G grade. They took it off me and I was never able to get it back or get back its equivalent. You know I resent that I really do. I resent it."

Midwife O discussing a handover of maternal care error that led to a woman suffering a permanent disability, noted how the lack of information and the legal involvement with the case ensured the error had longevity for her, revisiting her in her practice.

"(The error was) probably about eight years ago, I only found out recently. I happened to be at a meeting, and they were talking about litigation, and I recognised the case. So, it wasn't particularly fed back to me no, no., Yes that's it, oh my goodness that's what happened, because otherwise I would've had no idea."

Midwife D after an intrapartum error that resulted in a brain damaged baby also articulated the longevity associated with a legal case,

"Awful, because yeah, yeah, the responsibility had been given to me about what had happened but then to think that for 7 years people had been reviewing it and talking about it but not involving me in any way while I've been carrying this burden rightly or wrongly, you know it is what it is, it is what it is even now they say that the CTG is normal and it doesn't make it any better because that child is still damaged and that's not why I came to work that night."

Midwife G following a neonatal death related to a resuscitation error describes the ongoing and current effects, clearly commenting about the time frame of her error experience. The impact was lasting until the present day, 10 years later,

"So I never got over it until I went back to work after maternity leave which was, it happened in 2009 and I went back off maternity leave in 2015 and every time somebody mentioned it I would be in tears, every time I thought about it I would be in tears, and I just felt guilty and I was terrified on being on delivery suite and I still, I wouldn't go back now." "Yeah, yeah. It was quite traumatic, it impacted on everything, home life, my home life was awful, my work life was awful and you… I could not think about anything else for about 12 months"

Midwife G described the feelings of moving through the stages of grief,

"*So it was, and then you go through the five stages of grief, although I didn't realise that that was what it was at the time, until I had counselling afterwards that you do blame yourself and to be quite honest, I felt suicidal for about 3 – 6 months"*

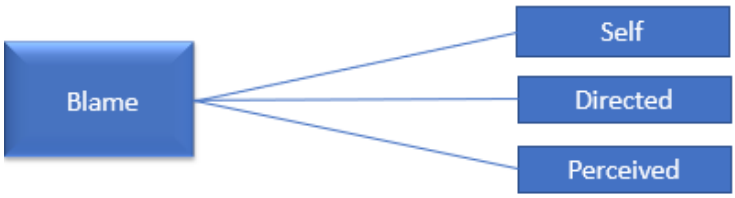
Longevity spanned a multitude of emotional issues connected to other themes, such as learning and coping. Errors had, had an influence on professional careers and personal lives over various time spans following the error. There was the intrusive nature of retaining memories and feelings associated with the error over time, from months to decades. Emotions could be related to events in midwives' careers and personal lives. The Kubler-Ross stages of grief (Ross Rothweiler and Ross, 2019) were evident for some midwives, and this inevitably takes time to process. Non-involvement in investigations, lack of information and legal processes were hinderances to recovery. For some midwives, constant reminders of the error through longevity were not helpful, but for some, this served as a trigger for better practice.

5.5 Theme: blame

Following a personal error midwives described blame. Midwives were judged or criticised by their colleagues, by families and by themselves. This blame was either real

and manifested, or it was perceived or imagined as part of the error experience (figure 5.3).

Figure 5.3: Theme of blame



5.5.1 Subtheme - Perceived Blame

Some midwives perceived that others were blaming them for the error in practice, although there was not any actual evidence of this.

Midwife A discussed her feelings in relation to a colleague after her error led to a baby dying,

"He erm, was a paramedic and she erm she didn't do anything medical, but he was best friends with one of the midwife's I worked with a lot on the unit. So, he had links to the unit and that made it quite difficult coming back to work because I was like - will she not like me anymore? Will she not want to speak to me anymore? I know I've killed her friend's baby. Because that is what I kept thinking, I have killed a baby, I had killed the baby. I gave the drug, I killed it, why didn't I double check the dose …"

Midwife A also highlighted her worries about her employer,

" I was like that's it they will sack me, they will fire me I will never have a job to go back to and I was looking at the paper, Tesco's, Sainsbury's it didn't matter because I was not going to have a career again, I was never going to be a midwife again, I'm never going to work in the healthcare system again because of this awful mistake that I have made."

Midwife C**,** following an antenatal error resulting in a damaged baby, showed that for her a lack of information led to perceived blame,

"Absolutely, but it does go over and over in my head completely and I don't know what the feedback, what, how, what was said from the woman, whether she blamed me, I had no idea."

Midwife K also related the perception of others' views about her to a lack of information about what happened.

"Cause what you get is a lot of Chinese whispers, nobody wants to say anything. You're actually afraid to ask the question even if you're trying to support your colleague because everybody is zipped. And okay, there are things that needs to be zipped, but you need a little bit of input to be able to understand or try to understand what might have happened to your colleague and how best to support her. So, it can't all be, well we can't talk about it."

Midwife D was left feeling the error was her fault through a lack of information,

"So, I was always left with this they say I have done everything wrong but actually I think this and that and the other, it was very much left I felt that the responsibility was all mine, and this terrible thing has happened to the child that you would never wish on anyone, and it is all my fault, but I am not sure it is."

Midwife B articulated her worries about how other colleagues (and higher beings) would perceive her following an antenatal drug error,

"Because I don't want…I would hate to be seen as the untrustworthy midwife. So, there's an element of how would they see me? But I put that down to the good Christian upbringing and what would baby Jesus think".

Midwife A also articulated the thoughts that people generally would not like her because of what she had done (drug error leading to the death of a baby), although she was also able to articulate that this was not actually the case in reality.

“I didn’t engage at all, I wouldn’t go out, I stayed in the house, I wouldn’t go to the shops. If I had to go to the shops I would skulk out and skulk back in again, but I wouldn’t see anybody or engage with anybody because I thought nobody is going to like me anymore because of what I have done. I have to say when I went back to work that was not the case at all. Nobody blamed me and no said ‘She’s the one over there’ (hushed voice). There was never any of that.”

Midwife C talked about her perception of not being able to move jobs due to what

others would think,

“Yes, absolutely, yes. Trying it again, or actually would they consider me even, you know, working in a small unit like this it’s a bit more clicky you know I think maybe I if I went somewhere like Cornwall I don’t think people would remember, but people always remember, they don’t forget, so yeah that’s not me but I have been told I can go back in, I don’t know if that is jumping from the frying pan into the fire”

And Midwife G thought that she was being made an example of,

“But at the time it felt awful, and it did feel like I was being made an example of and not supported, not supported at all by the people that should have supported me.” She continued, “Even though the people I work with have said you are absolutely fantastic, you don’t miss anything, you’re very thorough, I wouldn’t ever go back because of that incident, in case, in case something happens, and I do feel that midwives are victimised, almost victimised, because if something goes wrong, to make an example, it is them and I feel it is made worse now because we haven’t got supervision.”

Midwife F described the family as thinking it was her fault although she had never talked

to the woman,

“And the woman thinks it’s your fault and doesn’t want to talk to you ever again. You can never have that conversation with her either. Or when they pay out on things, you know when they pay out on things, not because there was negligence, like my lady who died, they gave him a big pay out .They are saying it wasn’t negligence, the Coroner said there was not negligence, but it looks better, it’s better PR if I pay out, but it makes it look as if I did do something wrong then”

The multiple examples presented as perceived blame came from different sources and for different reasons.

5.5.2 Subtheme- directed blame

It was evident from some midwives' comments that there had been directed blame from individuals towards the erring midwife contributing to a negative experience. Part of the negative feelings that midwives had following an error were due to the reactions of others to them.

Midwife K felt the blame following her intrapartum error,

"We're not super humans. Nobody wants to make a mistake. Nobody set out to come to work to make a mistake. That's hard to get in your head when you're in the firing line."

Midwife G was actually told that the error was her fault (neonatal resuscitation and baby death),

"There are things you can definitely improve, and you know I am fine with that and if that had come up, you need to develop your confidence, or this could have been done differently, then that would have been fine, but to basically to say everything that went wrong was your fault although I couldn't see it at the time, now I could see that was a bit of an unfair comment."

Midwife G felt that the actions imposed on her following the error made an example of her in addition to directly stating that they (the managers and medical staff) told her that the error was her fault,

"I ended up going on to supervised practice and I feel more that I was made an example of than supported"

Midwife F talked about the blame coming from the investigation after an error related to referral and fundal height measurement in the community,

“But when it when it went to Root Cause Analysis, I was basically lynched by the medical staff, that it was tailing growth and I argued the point and said when I palpated this baby, she felt a good size baby, and I didn’t feel that it didn’t need a scan from what I had learnt, and from what I knew. I had taken a picture of the growth chart and shown it to the community midwives and actually also to my team manager and they had all thought no, nobody would do anything about it.”

Midwife C articulated the blame that resulted in immediate removal form a place of

work, but without information being provided to her,

“I was taken straight out of Day Unit – you can’t work in Day Unit – but nobody told me why, well obviously I knew, but nobody said anything erm just take you out of Day Unit and I thought that was managed quite badly at the time”

Midwife K described the actions again via the disciplinary effects of the blame directed

at her following an intrapartum error,

“Yeah, they took my G grade off me, downgraded me to an F. Well, at first, I was just like…I felt terrible. I didn’t know what I was supposed to feel. Basically, I carried the can for that. Midwife K continued, *“Because I felt it was unfair, and I wanted to appeal. But you see, again, I didn’t know that if you appeal, they couldn’t make the sentence any worse.”*

Midwives also expressed emotional reactions that were related to uncertainty, to not

knowing what was going on, or what to do.

Midwife K went on to describe the blame culture in which she was working,

“I know people say this is not a blame culture. Yes, it is. Yes, it is. It might be very not in your face, but it certainly is. It is. Because the parents want somebody to blame, management want someone to blame, and every time it’s the poor midwife and God help her.”

Midwife C also identified the issue of being singled out in relation to her error in supervision and care that led to a brain damaged baby,

"Yes, it was hard. And then it was blame, blame, blame, blame, you were the person working with her, although she worked with different people."

Colleagues were identified repeatedly as individuals who apportioned blame to midwives following an error. There were judgemental comments and a lack of collegial support. Errors became more traumatising when midwives felt they were judged or criticised by their colleagues. Exposure to the judgemental comments or actions of colleagues had a negative impact on midwives.

Midwife C in relation to another error in a day assessment unit that led to a stillbirth described a doctor who confronted her.

"The consultant came down after she had known about the stillbirth and said look at this, what have you done? erm and very much put the blame on me actually, very blameful towards me saying that you should have done this, you should have called a doctor, and erm said you didn't justify why you sent her home."

Midwife D articulated her experience of the root cause analysis where blame was directed at her,

"So, erm, there was an RCA done after the incident, and the responsibility for the incident was firmly laid absolutely at my door. The erm CTG was the first 18 minutes of it were normal there was erm, I don't know how to describe it, so I felt it was normal, but at the RCA they concluded it wasn't normal it was rupturing, I should have recognised that, not taken it off and if we had done that we would have seen a bradycardia and would have gone to theatre a lot quicker, so it was firmly my fault."

Midwife D further talked about the blame and distress that came from an ensuing legal case,

“I never heard another thing and then one day the Head of Midwifery came and found me and said the lawyers are downstairs and they want to talk to you about this family and do you want to come down, and I had not realised that I was carrying this burden but immediately burst into tears and said I am not talking to them. I can’t go back; I can’t you know. I think she was a bit freaked out by my reaction, but I think that was years of carrying it and no one to talk to, no debrief you know.”

Midwife F in relation to a monitoring error leading to a maternal death described the

criticism and frustration in medical staff,

“They (doctors) make comments, but they don’t seem to see where we come from. They make comments like; well, why didn’t you send her back to triage? Well, triage don’t usually want to see women who you think may have a UTI, they think - what’s the matter with you, why didn’t you send her to the GP? …, it wouldn’t be an appropriate action, so why are you criticising what I do, I wouldn’t criticise what you do because I am not a doctor, so why do you think it is okay to criticise my action?”

Midwife F commenting on actions taken following a maternal death demonstrated the

apportioning of blame along with a lack of involvement and no closure,

“The letter went to the woman without talking to me first and that was really painful, it made it look like it was me to blame and I made the clinical error, I remember at the time I measured her thinking no that’s ok, that’s fine the baby feels fine, she’s going to deliver any day, she’s 40 plus weeks, she’s got postdates in about 3 days’ time and I made a clinical decision and they made me feel as if I had made a mistake, and I still don’t think it was a mistake, I still don’t think that it was wrong.”

Midwife L commented on the blame that came in the immediate aftermath of an error

from a doctor,

“I’d diagnosed a lady as fully and she was pushing and an hour later, still no vertex visible, so he came in and he examined her and felt an anterior rim, which I’d missed. So, he told her, in front of me, that her midwife was incompetent, and he wrote all this in the notes as well.”

Blame about what was done or what could have been done was clearly seen and felt by midwives. The distress in midwives as a result was evident. However, when able to care for women following an error as articulated by Midwife J who worked again with the woman involved in her error this could be positive,

"I looked after her a couple of nights later as she was still on the ward and she couldn't thank me enough I felt yeah, I felt although I was still mortified, I had done it, her words to me were quite encouraging. You know she didn't blame me for anything it was just that."

5.5.3 Subtheme - Self-blame

Some midwives internalised the error or demonstrated the principles of accountability and responsibility for the error that they had made and blamed themselves.

Midwife E took professional accountability for her medication error in her account,

"So, it was my mistake, there was nobody involved in it but me, but I would like to think flag it, red, do something that jumps out, yes, we give it all day every day probably we give that more than any other medication because it's given in labour, it's given antenatally, it's given postnatally, no-one's exempt from having it. But I will never make that particular mistake again."

Midwife B also recognised her medication error and took ownership of it and took responsibility by telling the woman involved, following her duty of candour (NMC and GMC 2015).

"The first thing I… because when I went to the doctor and said oh, I've given her this…because the prescriptions hadn't been written which was the biggest mistake I made, was I made something in response to a bit of knowledge but without knowing the full picture. So, he was like well she's bleeding and I'm like, oh bugger I've given it and she's like right, that's done, we'll just have to monitor her, and I went and told the woman."

Midwife N talked about taking responsibility and making sure the same error did not happen again as the midwives had done above.

"I still feel like I'm dedicated, I was really keen to please and get things right and so I took the fact that I had made an error quite hard to process and I just thought I don't make mistakes, how could I have made that mistake, and thank God X was so lovely, because she managed it is a perfect way, if I had to go on to some sort of, erm, management of the error you know I don't think I'd have come back from that particularly well because it would have just made it even worse, but myself I just thought right this mustn't happen again, get the policy, make sure you follow the policy, and it won't happen again, so."

The effects of self-blame were expressed by midwives.

Midwife G said that she did directly blame herself and articulated a grief process and suicidal feelings because of an error that led to a neonatal death,

"So it was, and then you go through the five stages of grief although I didn't realise that that was what it was at the time, until I had counselling afterwards that you do blame yourself and to be quite honest, I felt suicidal for about 3 – 6 months"

Midwife N also commented about the effect of her blaming herself following a postnatal drug error,

"I don't think everyone would feel like me, I was particularly hard on myself"

However, Midwife N also talked about an empathetic manager who could see the effect on her,

"it was referred to (manager's name) and she .., I had to go and see her and I just told her the truth and as exactly as I've just told you, this is what happened I was really tired, I was trying to help her, I stupidly didn't sign for it, it won't happen again and she said it was fine, I know that you're conscientious, I know how you work, and you will, will learn from this and there is nothing I need to do to discipline you because I think you have already felt the full impact of what you have done, erm, emotionally so it was quite, erm, yeah but I did feel let down that I 'd let down myself"

Some midwives had quite emotive language related to self -blame. Midwife J talked

about beating herself up because of the error,

“I know that I was only newly qualified, erm, but really I did beat myself up a little bit because I just thought I knew what is was and when they asked me what the regime was, I talked them through it and, you know what it is, but I shouldn’t have made my tiredness not to have made that mistake really.”

Midwife F talked of a confession as she took responsibility for one of her errors.

“So, we’ve had mistakes, and I was mortified, somebody from antenatal clinic rang me up and said you’ve put this lady is A positive but she’s O Positive … shit … and when I went to talk to my manager about it, because I went and confessed, I said this is a bit of an issue, she said don’t worry about it I’ve done it as well.”

Midwife B also articulated the responsibility that is acknowledged following an error,

“I find that whenever I've made a mistake…it doesn't happen for very long, but I do wish the ground would swallow me up and I don't want to be in that situation anymore. But with age and experience comes maturity and you just think right, take it on the chin, take responsibility, take the consequences, but make sure the woman's okay. Because it's not about me, it's about the person that I've done it with, I've done it to.”

Midwife A articulated her guilt associated with the error that she made that

resulted in the death of a baby following a drug error.

“I didn’t want to go out with her (referring to her own baby), I didn’t want anyone to see me with her because I was still sure that they would, people would point at me – that’s her there even though it was months later, oh that’s her there, you just got that feeling that people know, but people don’t know, you just have that feeling because you feel so guilty about it, it affects your everyday life almost because it just clouds you. It clouds your judgment over everything, clouds how you feel about yourself, erm so but yeah, but yeah”

In addition, there was a focus on all midwives having the ability to make an error and that due to midwives being human, errors will occur; there was an inevitability.

Midwife F stated,

"I do think that people don't say that they do errors. I do think people do, do errors whether they are big ones, small ones, but we all do errors you know, erm, and it's that where we do learn from those errors and as long as we know that we are all human and there is room for mistakes"

Midwife B also illustrated the error made, but emphasised that a mistake can occur, midwives are human, but it should only happen once, implicit and explicit is learning to ensure it does not occur again,

"You don't…it wasn't ever done deliberately to put somebody at harm, so from that point of view I'd never want to be neglectful, but you don't…just if you expect yourself never to make a mistake, we're human. So, it's about giving yourself some permission to make mistakes, but not to keep making the same one."

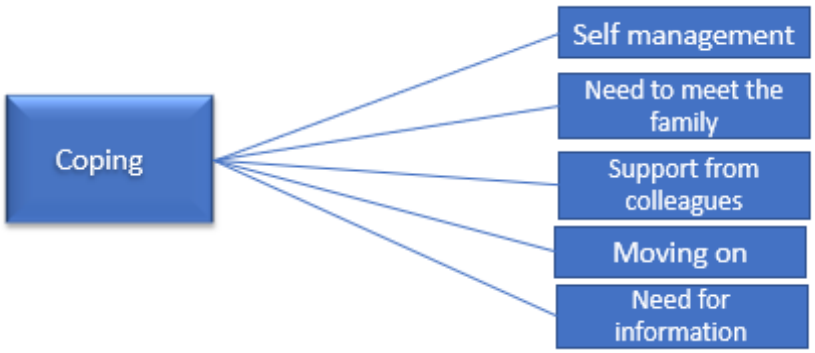
Blame with the maternity healthcare environment following an error was apparent. Midwives showed that they followed their duty of candour (NMC and GMC, 2015) and acted professionally to bring errors to the attention of the woman or family and relevant healthcare professionals. Self-blame associated itself with elements of learning and professionalism as midwives took responsibility and accountability to right the wrong done. Some midwives perceived that others were blaming them for the error in practice, although there was not any actual evidence of this. However, real or imagined this type of blame had a negative effect on them. Directed blame came from other healthcare professionals that made up part of the midwives' multidisciplinary team, notably medical staff at the time of the error or following the error and less often from

managers. Two midwives identified the directed blame as indicative of a blame culture. There was blame associated with actions such as disciplinary processes, removal from normal areas of work or a demotion. Some midwives felt that they were singled out by others blaming them, rather than other healthcare professionals. Midwives used powerful language around the notion of blame, such as “lynching”, “firing line” and “roasting” and repeated the descriptions of blame in the interviews. Repetition of a word or phrase emphasises the point, to help to make sure, it was fully understood. The impression was that the theme of blame was noteworthy to midwives and was a strong element of their error experience.

5.6 Theme: coping mechanisms

Following a personal error midwives articulated how they coped. The theme coping mechanisms and its sub themes was developed (figure 5.4).

Figure 5.4: Theme of coping mechanisms



5.6.1 Sub theme - support from colleagues

Midwives commonly conveyed that midwifery colleagues were a source of support. Colleagues could alleviate distress after an error and were needed by midwives.

Midwife K after an intrapartum error involving a CTG,

"A couple of my colleagues were very supportive, on and off duty. One of them still works for the trust now. Very supportive. Yeah, so they were two of my colleagues and they were both very...both midwives, they were very supportive."

Midwife L after a drug error talked about a midwife on duty when the error happened,

"I think after, once I'd realised, they were made, afterwards, I needed support. I think it would have been better with both of them on the night shift, if I'd been able to have a bit of a debrief before I'd gone home because the one that happened in the daytime, almost seeing that midwife in the coffee room, that was more like a bit of a debrief really and I didn't have that with the other two."

Some midwives articulated the need for support, but not specifically where it came

from.

Midwife L following a drug error commented,

"So, a drug error always feels really heavy burden. But yes, it was just the support that you need, I think, not to be blamed, not to be made to feel incompetent."

Midwife B following a drug error and with the benefit of time passing commented**,**

"Immediately at the time I probably felt terrible, and I was probably very self-negative. But over the course of time, I've sought support and guidance so that I can be more self-sufficient and self-reliant."

Some midwives took a period of sick time off work, but highlighted the lack of support

during this time.

Midwife C, after a neonate was left with brain damage.

"But the whole process did take over 7 months and in that time I was advised to go off sick, which I think I got to that point that I was that awfully stressed, erm it was pretty horrendous thinking you were part of all of that, so I was advised to go off sick by my

manager, so I did, and I was off for 6 months at this time, erm, I had the odd letter through and phone call and had to go in for interviews but apart from that not a lot else."

However, some midwives received structured programmes or professional support to varying degrees of usefulness.

Midwife C received support from a structured programme at a different time.

"I did find that, I did go on a couple of days for people that had been through all sorts of stresses and things that was quite good, what was it called? It was over at X, 'Ways of Coping with Stress' and that was quite useful, so I have had support here and there, it's not like I haven't had any, it sounds really bad, yeah, it's just follow-up on the incident really."

Midwife F identified that it was counselling that supported her.

"I needed a lot of counselling, a lot of counselling but I think I was going into the menopause at the same time, so bad timing."

Midwife G following a neonatal resuscitation error,

"I never wanted to go through that again. I mean thanks to some fantastic support, especially one of the tutors here, I've never not felt confident in neonatal resuscitation ever again"

Midwife F following an error that contributed to a maternal death also described the time and support that followed her error and had looked to counselling for help.

"I had to have counselling for a year, I had in house counselling for nearly a year and when I went to Coroner's Court, she did me three lots of counselling around when I went. I was that freaked by the whole thing."

However, whilst some methods of support helped midwives, it was apparent that colleagues were not always a source of support when midwives needed it, and this had consequences for midwives.

Midwife C described her experiences of supervised practice and being supported.

"One of my mentors was excellent and one was a bit of a Hitler I have to say she made me cry on many occasions, it wasn't very nice"

Midwife K reported,

"Without the added pressure of that and the added guilt that you feel and have to ask yourself, am I responsible for this? There's not really anybody to talk to."

Midwife G also reported that following the death of a baby she felt unsupported.

"After I had almost healed from it and it was anger that I was made to feel the way I was made to feel as opposed to if I had been supported, if I had been helped, if I had been... you know, given the time to heal and understood that this is what you go through"

Midwife L after her intrapartum error and the doctor's reaction to her commented about a senior midwife,

"But I told the shift leader, and she came read what he'd written, and she said to me, well that's not very nice but she didn't actually support me and say anything to him."

There appears to be a desire for support by midwives and midwives are feeling the absence of support when it is not offered. The key support people are the midwife's colleagues and supervisors (who are midwives), but not all midwives did this well. However, the option to access other support persons such as counsellors seems valuable.

5.6.2 Sub theme – Need to talk to the family

In the aftermath of a clinical error midwives indicated that sometimes a dialogue or contact with the family involved was sought from the midwife's perspective, however sometimes it was not appropriate. Interviewed midwives made positive and negative references in relation to speaking to families.

Midwife K after an error in CTG Interpretation in the intrapartum period commented that,

"In the end, I thought to myself, well it's too late now, but what I really, really didn't want is for that lady to think that I'm responsible for what happened to her baby. It was only because I know that there was nothing, I could do to tell her this was not my fault. If I could have done that, I would have felt better."

Some midwives had family contact, and midwives was able to say sorry or talk to the parents or woman as illustrated by Midwife A following the death of a baby after a drug error.

"The parents were obviously both there, and I did say I am really, really sorry and at that point, you know and at that point I felt that I needed to say that I was sorry, you know for their loss."

Midwife J following a maternal drug error commented,

"I looked after her a couple of nights later as she was still on the ward and she couldn't thank me enough I felt yeah, I felt although I was still mortified, I had done it, her words to me were quite encouraging. You know she didn't blame me for anything it was just that."

Another midwife identified that due to circumstances of one error, familial contact was not appropriate, however for another error it was appropriate.

Midwife L following a drug error she declined to contact the woman but did for an intrapartum error.

"I definitely didn't want to talk to the twin lady. I did go back and speak to the breech lady the next day and she was absolutely fine about it, but everything was fine, so if it had been a different outcome, she might not have been, and I might not have wanted to go and see her if it had been a different outcome."

5.6.3 Sub theme- Need for Information

Midwives identified that they had a need for information and experienced uncertainty following making an error in practice, as well as highlighting that information was often absent, believing that this would have helped them cope following the error.

Midwife M following her intrapartum error leading to a NNU admission commented that,

"I felt very unsure about what was going to happen, what the implications would be for me. Nobody really, nobody explained through the whole thing that potentially they are looking for negligence, you know, nobody really explained that."

Midwife K following an intrapartum error leading to a brain damaged baby,

"But I think there is most certainly a place for when things go a little bit pear-shaped for information and most certainly support."

Midwife C following a postnatal error that led to a brain damaged baby explained that,

"I was taken straight out of Day Unit – you can't work in Day Unit – but nobody told me why, well obviously I knew, but nobody said anything erm just take you out of Day Unit and I thought that was managed quite badly at the time because nobody sat me down and told me why properly, I was just told on the phone by another manager from X."

5.6.4 Sub theme - Self-management

Some midwives turned their own internal resources in a variety of ways in order to help them cope with making an error in clinical practice. Other midwives continued to struggle to cope.

Midwife B emphasised the need for her to sort out her own problems,

“I’m going to be a bit negative and a bit wobbly, well that's nobody else's problem but mine to sort out really, because when everybody's busy I just had to be careful not to…avoid situations where I needed to be effective. So not to withdraw, not to say, oh I don't want to work in triage. Yeah, I want to go into wherever. But actually, face my fears and do them anyway.”

Midwife K after her intrapartum error,

“I did a lot of soul searching of my own, thinking, right… ’Cause at the time, I could actually, remember what time the lady started pushing, what time she delivered and all the rest of it. So, I did a lot of that and, you know, did I actually miss something, or was I so taken up with delivering this baby that I didn’t notice that perhaps deceleration was long?”

Midwife B following an antenatal drug error took a very practical approach,

“I did the Datix myself and referred myself to my…you know, the first thing I did was write some things down in case I needed to do a statement, because I thought…this was before duty of candour was a thing, but that's always been our way of approaching mistakes. If you start hiding them then that's wrong.”

Midwife B reflecting back on previous practice talked about the use of humour to cope,

“I think sometimes humour's an appropriate way of…not always deflecting, sometimes it's a way of coping, because you deal with some heavy stuff as a midwife, some very emotional…you know, you take some emotional burdens on, so sometimes having that graveyard humour and be able…and that wasn't said in isolation, it was said as a group and it was in a humorous context and it left you feeling kind of lighter, so you weren't taking stuff home. So, it is graveyard humour.”

Midwife K in the aftermath of an intrapartum error coped by avoidance and exercise.

“I couldn’t avoid patient care here because of the nature of the job that we do. So yeah, definitely. Now, I used to run quite a lot then and I just used to run a lot more because I felt it would help me to relax.”

However, some midwives found that they did not have the personal resources to call upon to help them cope.

Midwife G described her difficulties.

"I should have gone to my GP and been on antidepressants and I know that I should, mainly because I had postnatal depression after having my son which was the same exactly, not the same triggers, but the same way I coped"

Midwife M expressed how she didn't cope following her intrapartum error.

"I think as well though I was younger and being junior, I probably, I probably just didn't stand up for myself in saying to managers I'm not coping. I might have felt even more of a failure, or they would see that I was, they would think I was running away from it."

Similarly, Midwife C discussed how she was unable to cope following her error that led to a brain damaged baby.

"It is funny because all the things you do to cope with beforehand, I find I have less, you would think it would make you stronger, but I don't feel it always has. Erm, so that was a pretty biggy."

5.6.5 Sub theme - Moving on (including not moving on)

Some midwives indicated that they had not entirely been able to move on since the error in practice.

Midwife K commented that,

"Nobody gave me a chance; they just destroyed my career……but deep down, it's never left me at all… …and I do resent it, and it's like you just try and put it out of your head, don't you, but you really can't. It's sort of a grieving process really."

Midwife C commented that her lack of confidence following an error that led to a brain damaged baby, was stopping her moving on.

"I think the whole, all of this completely undermines your confidence, you do feel, my confidence is not as it ever was, erm, I always thought, could I apply for another job in community ever again? You know, I've got a complete fear factor of doing any of that because of what's happened so you feel, the only way I can describe it, you feel a bit more stuck in a rut because you can't, don't feel you can go anywhere else or do anything because of all the things that have happened."

Inability to have closure was identified by midwives too.

Midwife L following an antenatal referral error expressed her inability to close this

episode in her practice.

"And that is the biggest frustration when something happens because I would like to challenge it, but I don't know who to challenge it with because I don't know who made the decision, that is very frustrating and I think if you can't close it, so I made a mistake, but I can't close it."

Likewise, Midwife C also commented about the episode following an antenatal error

not being concluded.

"Yeah. It might be that my notes have been picked up and looked at and I haven't been told yet, everyone is happy, they have seen me working they are happy with you, and you can go back into Day Unit now, but I feel that boxes are sometimes ticked but things aren't always addressed properly …"

Further to this, Midwife L illustrated some of the underlying reasons why she had not

been able to gain closure following her error and move on,

"But the ones where you've got this well, I don't know what the answer is, those are the ones that just go on niggling and niggling and niggling until or the unfairness of it and you don't get to have your say, and the woman thinks it's your fault and doesn't want to talk to you ever again. You can never have that conversation with her either. Or when they pay out on things, you know when they pay out on things, not because there was negligence, like my lady who died, they gave him a big pay out .They are saying it wasn't negligence, the Coroner said there was not negligence, but it looks better, it's better PR if I pay out, but it makes it look as if I did do something wrong then."

For some midwives the error event was so traumatic and unresolved that they moved their professional practice elsewhere.

Midwife G articulates this,

"I never wanted to go through that again-it's sad that I did walk away from midwifery for 4 years before I came back and even then, I came back to postnatal care on the ward, I didn't do delivery ever again."

Similarly, Midwife C felt she could not go back to her area of practice, nor could she consider moving her practice elsewhere.

"My confidence is not as it ever was, erm, I always thought, could I apply for another job in community ever again? You know, I've got a complete fear factor of doing any of that because of what's happened so you feel, the only way I can describe it, you feel a bit more stuck in a rut because you can't, don't feel you can go anywhere else or do anything because of all the things that have happened."

Midwife A commented about the healing process of having her own child following an error that resulted in the death of a baby, but only with hindsight,

"I have to say having her I suppose in a way I don't remember it at the time, but hindsight maybe having a baby healed some of it, healed some of those wounds, that rawness that you've got there, you know being able to feed her myself, being, it was an achievement that you'd been able to do."

Midwife C commented that a lack of choice made her move on following her error in terms of coming back to work and not leaving midwifery.

"I kept my job luckily, but it was an horrendous time, because I did question whether I wanted to continue midwifery at the time, but I had no choice at that time, I thought I had to come back, see it through and I did, I didn't have such good support when I was off for those 6 months but when I came back, I had to work closely with somebody for a period of about.. it felt like it must have been about 6 months."

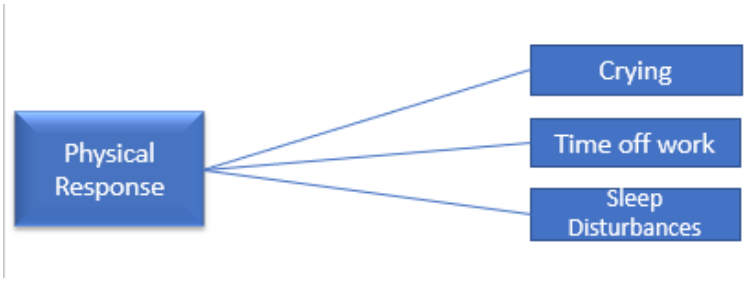
Midwives were able to articulate what support had helped them following an error in practice as part of being able to cope. Midwives identified a range of support people could be helpful; midwives were commonly identified. Some midwives had been able to move on since the error, however there were those that had not moved on and were still

struggling with different aspects of the error experience including not being able to work in the same area in which they made the error. The need to meet the family is contentious and although articulated by midwives as often a positive encounter, it was not a dominant notion and for some was associated with negative feelings. Information and support were key to assisting midwives move on following an error.

5. 7 Theme: physical manifestations

Some midwives experienced physical manifestations following making an error (figure 5.5), with the subthemes of crying, time off work and sleep disturbances.

Figure 5.5: Theme of physical manifestations



5.7.1 Sub theme - Time off from work

Midwives articulated that because of making an error, they had time off work from their midwifery role or should have taken time off.

Midwife A following a fatal neonatal drug error was initially suspended form work and suffered ill health.

"And erm, so erm, and so I was suspended for, yeah, I didn't go back to work, I don't think I went back to work before I went on maternity leave, and I had a terrible pregnancy, I was in and out of hospital with pain and threatened preterm labour, which was obviously just stress, you know, you know just stress related …and that was horrible because I kept thinking well that is Karma really, this is Karma"

Midwife C also had a period of sick time following an error which led to a brain damaged child.

"But the whole process did take over 7 months and in that time I was advised to go off sick, which I think I got to that point that I was that awfully stressed, erm it was pretty horrendous thinking you were part of all of that, so I was advised to go off sick by my manager, so I did, and I was off for 6 months at this time"

Midwife C also described a further period of sick time after been moved to a different work area and struggling with that area,

"I did find the postnatal ward very overwhelming, I wasn't used to it, it was short staffed, it was a bit manic, and I had to do all sorts of shifts in a week, you know, I had to go from doing long days to suddenly doing nights shifts and I didn't cope with that very well and I did have a bit of a breakdown."

Midwife M reflecting on the period following her intrapartum error thinks she should have taken a period of sick leave and describes physical symptoms that she experienced and the effect on her practice.

"In hindsight potentially, I should have gone off sick, because I wasn't concentrating, you know. I wasn't eating, I wasn't sleeping well and really, I wasn't really capable of coming to the conclusion that I was, perhaps in the circumstance, wasn't at my best to carry on practicing until it had finished."

5.7.2 Sub theme - sleep disturbances

Midwives identified that following making an error in practice that their sleep was disturbed.

Midwife M after her intrapartum error described how she felt during the investigation,

“She (supervisor) came to the interview with me, but she didn't really, sort of, checkup on me on any sort of personal level. And sort of, I was feeling fairly unwell through it, I wasn't sleeping, I wasn't eating very well.”

Midwife A and Midwife J both described sleep disturbance close to the error event.

Midwife A,

“At the time definitely sleep disturbances”

Midwife J after an antenatal drug error also described disturbed sleep amongst other physical symptoms,

“Definitely sleep disturbance for about a week.”

5.7.3 Sub theme - crying

Midwives also described the shedding of tears at varying stages in response to their errors.

Midwife F during the root cause analysis into the antenatal symphysis fundal height referral error that had been made stated that,

“But I just felt so alone in that room. Nobody could come with me, it was such a busy day, my manager was on holiday, my supervisor could not make it, so I went in there completely by myself and I nearly cried, I didn’t cry until I got out of the room, but I did cry afterwards because I was so upset, I just thought you’re not being very fair, you’re not listening to where we are coming from, do you realise that if we send every slight deviation, you are going to have pregnant women everywhere all waiting for scans.”

Midwife L also expressed the want to cry following her drug error,

“So, I went and got the other midwife, and we had to take her down to HDU and she’d lost all ability to speak, and I remember just feeling awful, I just wanted to cry. I was so upset.”

Following intrapartum errors though Midwife L did cry,

"So, this woman had a vaginal delivery and again, I felt absolutely awful, the baby was fine, and mum was fine, it was a nine – pound baby, it was big, but they were both fine and I felt really awful, and I was crying in the coffee room and one of the other midwives came in the coffee room and asked me what was wrong." In addition, Midwife L commented "So, when he left the room, I said that I was going to the toilet and I cried my eyes out in the toilet and I remember thinking, she's going to know I've been crying when I go back in because my eyes are just going to be so red."

Midwife A after a fatal neonatal drug error that occurred over 20 years previously was crying during the research interview.

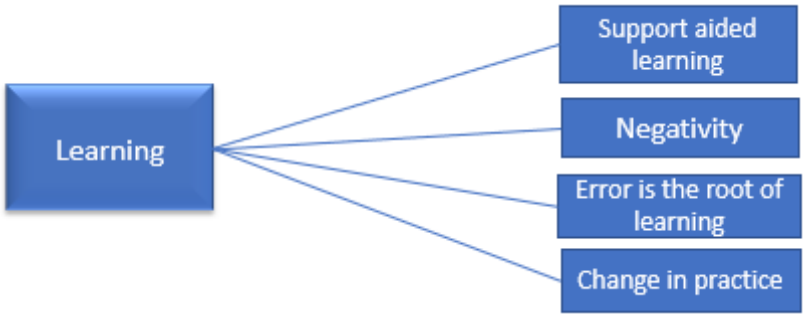
"Between the SHO and the registrar and myself we cardiac massaged this baby in the back of an ambulance all the way from X to Y to keep it alive and erm, when we got there went straight into ICU, they tried to put a pacing wire in, they did everything, absolutely everything … (pause, crying, upset) and then it died (talking whilst crying)."

Physical manifestations following an error were evident, some midwives took time off sick from their place of work, one midwife with hindsight recognised that she should have taken sick time. Midwives physically cried following making an error and various distances form the initial error event, inclusive of the present day of the interview or wanted to cry. Sleep disturbances were described by three midwives alongside the sleep disturbances listed in figure 5. Physical manifestations were intertwined with emotional symptoms.

5.8 Theme: learning

Learning was derived from the midwives' transcripts as a theme, with 4 associated subthemes (figure 5.6).

Figure 5.6: Theme of learning



5.8.1 Sub theme – error at the root of learning

Multiple midwives found that the error itself was at the root of their subsequent learning, and there was often an acknowledgement of regret about the error and a positivity in practice moving forwards. Learning was repeatedly described as an element of the error experience.

Midwife L reflected on her errors focusing on learning form the error and not doing it again,

"I think that's the whole thing, not that it's okay to make mistakes, if you make a mistake, as long as you learn from it, then it's hopefully not that bad."

The learning curve that came after the error was highlighted by midwives too for example,

Midwife J spoke about a learning curve,

"I always think that we don't really learn from our success, but we do learn from our mistakes as such so from that you know it was a real learning curve."

As did Midwife O who articulated,

“I think as a professional we are always trying to do the best for the patient. I don’t think generally any midwives want to cause harm to the patient, so that horrible sensation that you have if something hasn’t happened, we learn massively from those events really.”

Midwife F identified using the errors she had made to teach others,

“I talk to some of my students about the mistakes I have made, this is a really good learning point, be careful with your documentation, be careful with this because it can come back with serious consequences.”

Midwife B identified that the error made her realise her lack of knowledge and what to

do about not knowing everything in her field of practice.

“Sometimes realising that actually you don't know everything and actually it's okay to say to somebody else, okay you want me to do this, or you're asking me to do this, I've got this to do, can you wait?”

Midwives N and E highlighted the positive driver of the error in that mistakes would not

happen again,

Midwife N explained “And so, I just, I mean it keeps you on your toes. In a way it was good – not good, but good things have come out of it. I feel really, erm, like I always want to go through the correct protocol now because that is there for a reason and if you have that system in your head of checking drugs then you’re not going to make a mistake”

Midwife E said,

“So, it was my mistake, there was nobody involved in it but me, but I would like to think flag it red do something that jumps out, yes, we give it all day every day probably we give that more than any other medication because it’s given in labour, it’s given antenatally, it’s given postnatally, no-one’s exempt from having it. But I will never make that particular mistake again.”

The midwives in this study clearly articulated the learning that stemmed from the error

itself.

5.8.2 Sub theme - Support aiding learning

Some midwives identified that facilitation via what they described as appropriate support enabled learning to take place. Some even articulated that it spurred them on to act in relation to errors or any risks that they could see.

Midwife L explained,

"We went through it, and you could see along the way there had been errors where we should have done things differently, she should have had a red wristband on, we should have consented for the cyclizine, but it wasn't a blame, it's more like you learn from it, not to do it again."

Participant Midwife N praised a supportive manager and supervisor who was compassionate towards her.

"Thank God X was so lovely, because she managed it in a perfect way, if I had to go on to some sort of, erm, management of the error you know I don't think I'd have come back from that particularly well because it would have just made it even worse."

Midwife E made a comment from the perspective of both a midwife and a mother about the need for support,

"When our children make mistakes, we don't throw them outside do we, we teach them. Perhaps a lesson can be learnt from parenting in midwifery where support is not conducive or forthcoming."

5.8.3 Sub theme - changing practice

Learning went on to enable midwives to make changes in their practice following making an error. Some of this learning enabled positive or constructive changes to practice, however some midwives did highlight negative or defensive changes to their practice.

Midwife L stated that a change in practice as a result of her drug error which would prevent future errors:

"So, I said to her, are you asthmatic? She said yes and she also ended up in HDU because she had a full-on asthma attack. So, again I didn't think to ask her, I'd asked her if she'd got any allergies, because of that, everybody used to joke that my name was, hello I'm X, I'm looking after you today, do you have any allergies, because you don't want to make the same mistake again."

Midwife C described an increased vigilance in practice as a result of the error that led to a brain damaged baby and the processes that followed.

"Erm … yeah, just to be a lot more vigilant in everything and communicating with whoever's mentored her before you know, because I had to do the mentorship course again just to have recap with everything."

Revisiting her feelings about the longevity of her feelings following the error, Midwife N reflected on solutions arising from the error,

"It made me, not me better, just how you would feel if you made a mistake that's why you have just got to be on the case all the time with your job and recognise when you are tired. Recognise you just need to say to someone I am going to have to take five minutes, I just need to go and have a drink and something to eat, because you will come back then, and you will be back to normal and it's not a sign of weakness to do that and it's not."

Midwife J's learning spurred on a sense of confidence to challenge and be very detailed about her practice.

"So now you know, – a fine-tooth comb about everything I do. Documentation, erm, if I had to have drugs here, if there is something erm I don't agree with following those events, erm, I'd looked after ladies before, obstetricians, consultants have put a care pathways in place, if I haven't agreed with it I've obviously acted as advocate for that woman and, erm, got them to change it or discussed it with them and said we should be doing this with them according to such and such policy."

Midwife B identified a clear point to learn and improve practice her practice following her antenatal drug error.

"But my big learning from that was, you don't rush in. Because yes, she was pre-term labour but in the scheme of things it wasn't going to work straightaway, so waiting that extra couple of minutes, communicating as part of the team…because I was trying to assist the team but actually I made things worse by creating more work for us and a woman who was already in a very stressful situation, threatened pre-term labour and bleeding, had that additional worry that the midwife hadn't done the right thing and it was kind of how that might impact on her relationship with other midwives."

Midwife B further added how she has changed her practice and that a midwife can only make a particular error once.

"it's like, okay I know what to do, but actually on that occasion I learnt I didn't. I learnt that…you know, I'd never given Nifedipine to anybody with threatened pre-term labour who was bleeding. It's kind of like if you're going to make a mistake, only make it once and don't do it again."

Midwife J illustrated that she now shares her learning following her antenatal drug error illustrating her practices with students

"I am very much always mindful of going over things, rechecking and when I am teaching students as well I tell them to always go through things even if they are documenting visits or from clinic, I always get them to reread what they have written, erm, or if they are discussing things with a woman I always get them to yes talk about their antenatal checks or postnatal checks and then get the woman to review what we have gone through – do you understand and that is always about reviewing the situation. I think because I am so mindful of doing that then I then get the students or new band 5s to do exactly the same."

Midwife M described an example of her new confidence following her intrapartum error.

"In one case I wasn't happy with the care pathway and I said to the consultant I am not happy to carry on with this care pathway because it is my pin on the line and obviously I am looking out for this woman and then that care pathway was then changed, so I feel like from that incident, from now I always think that we don't really learn from our success, but we do learn from our mistakes as such so from that you know it was a real learning curve "

In contrast to these positive practice changes, the following extracts from some midwives however show defensive or negative changes in practice following errors in practice. Midwife G illustrated that midwives had learned to be more defensive in their practice and some also talked about a lack of confidence.

"It has made my practice more defensive, much more defensive, it's definitely …, things before that I would have been quite confident about maybe I would get a second opinion from colleagues, even if I had got the slightest doubt about it. I am not as confident as I have been, although I am getting better with time."

Midwife O talked about the error influencing her practice by taking more on in her own practice.

"it does skew your practice in some way because I think I must do that, because I don't ever want that to happen to me, or …. I'll do that myself; I'll get that drug because if I do, I know it will be done properly. I only want to do it myself because I know that it will be done correctly."

Midwife F also discussed what she described as defensive practice and the uncomfortable feelings that this brought her.

"Yes, it has altered. It has made it a bit more defensive; that I don't like. And it is and because people are becoming more defensive, so I would send a woman for a scan whereas before I wouldn't, because it feels a good size, there are good movements. It does affect the way you practice, and I think it is wrong because we should be able to make and justify our clinical decisions and they should be respected."

Midwife M likewise stated the effect of her error experience on her practice in negative terms.

"Having such a negative experience has made me much more defensive in practice."

Midwife J questioned her confidence following an antenatal drug error but also talked of a hypervigilance and extra working.

"You do feel like you're not good enough I've made this error and your confidence has dropped however I felt like I needed to then go into overdrive looking after my patients and to make sure everything was correct and I do feel that I was a bit of a you know whirling dervish going round making sure that everything was precise documentation was there, so sort of leading on from that, a few weeks on from that, I would come in earlier, I would leave later just to make sure everything was ok with the patient and looked after, documentation was as it should be and it did take a few weeks not to be so intense with always working, so I sort of went the extreme really … because of the way it made me feel and I didn't want to feel I was doing anything wrong."

Midwife C also articulated that her confidence had been damaged by the error.

"I felt like I was a complete student again, it does knock your confidence, it does make you feel that big (hand gesture small size) all that training and I was being treated like I didn't know anything again I was a complete novice, but then I was in a new area, so I was a novice to everything"

Midwife C's error had involved supervision of a student and a subsequent brain damaged baby, and she clearly identified that the error would affect her future practice with students.

"I think looking back is having much more control over that student, I don't know that I would let a student out of my eyesight in that clinic you know, to leave a student to do visits on her own would be very hard for me…. Because of the experience that I have had. I would feel really uncomfortable with it."

Many midwives were keen to pass their learning and experiences on to others, ranging from students to other midwives or the wider health team. This ranged from generic teaching about things that they had learnt following the error to explicit sharing of the error experience. They actively sought to promote learning.

Concurring with the sentiments expressed above, Midwife E**,** stressed that action in relation to learning following the error is so important. The learning can go wider than the individual who has made the error.

"you have to flag it and report it because then they will look at charts and if it happens to more than one person on the incident form and they look at the statistics then maybe we need to look at this and it wasn't on the chart in the special indications / precautions, it was just next to the actual drug, so if you look at, flag it, and it goes on an incident form it's not to blame it's a case of statistics that keeps happening we need to look at our charts"

Several midwives actively shared learning from errors with their students, for example Midwife M stated,

"I am very much always mindful of going over things, and when I am teaching students as well, I tell them to always go through things"

Formal education opportunities were acknowledged, but with mixed outcomes. Interestingly the fear of a formal education process for one midwife had negative connotations.

Midwife G had a positive outcome form a formal education opportunity.

"I never wanted to go through that again. I mean thanks to some fantastic support, especially one of the tutors here, I've never not felt confident in neonatal resuscitation ever again"

Midwife C however, had a mixed response to a formal education opportunity**.**

"One of my mentors was excellent and one was a bit of a Hitler I have to say she made me cry on many occasions it wasn't very nice."

Midwife M had a negative experience related to education following her error,

"Well, she hadn't, she hadn't given very… Well, first of all they hadn't given me, sort of, like clear learning objectives of what they wanted me to cover. I felt I had covered every

element I could, and I had put a lot of effort in. And I kind of almost wanted to, it to, sort of, show that I was dedicated to not making the same mistake again and, sort of, righting a wrong. So, when it (a teaching PowerPoint) was changed so much without a great deal of feedback…I think we only, she only offered one email in the process of, you know, suggestions and changes. So, I was quite shocked when I saw it and I kind of felt what was the point of that? And in retrospect it probably, it probably would have been, you know, as effective to just say, you know, well write us a reflection but to include, you know, evidence of you researching, you know."

For two midwives, learning was still an ongoing process or incomplete despite the error and any investigation process being completed. Midwife F discussed that she still did not know the right thing that she should be doing in relation to scans or Gestation Related Optimal Weight (GROW) interpretation; the lack of defined learning and a defined answer was not helpful to her present or future practice, there was confusion over the correct practice still.

"So, I am still confused. Was I negligent, did I make a mistake, or didn't I because I and my colleagues are saying no, I wouldn't do anything different, but the doctors were saying you should have sent her for a scan? Even though the doctor who looked at it said it was fine. And was it just in retrospect that because this poor lady's baby died and lots of growth has tailed since and that one's tailing more than that one, I had, and nobody had done anything about it and looked at the Assessment Unit and they've said it's fine, they don't even scan them. So, it left me very upset, unsupported, and confused, as I am still not sure, so sometimes I send a lady in, and they say it is fine, and I am thinking what am I supposed to be doing?"

Midwife G following a neonatal death still had doubt about her abilities,

"You can have a million and one people saying you are a great midwife, and you are really good at your job, until you get your own head around it you won't … and there is all that, always that niggling bit of doubt always, and I think there always will be."

An error experience could be the reason that learning took place for some midwives.

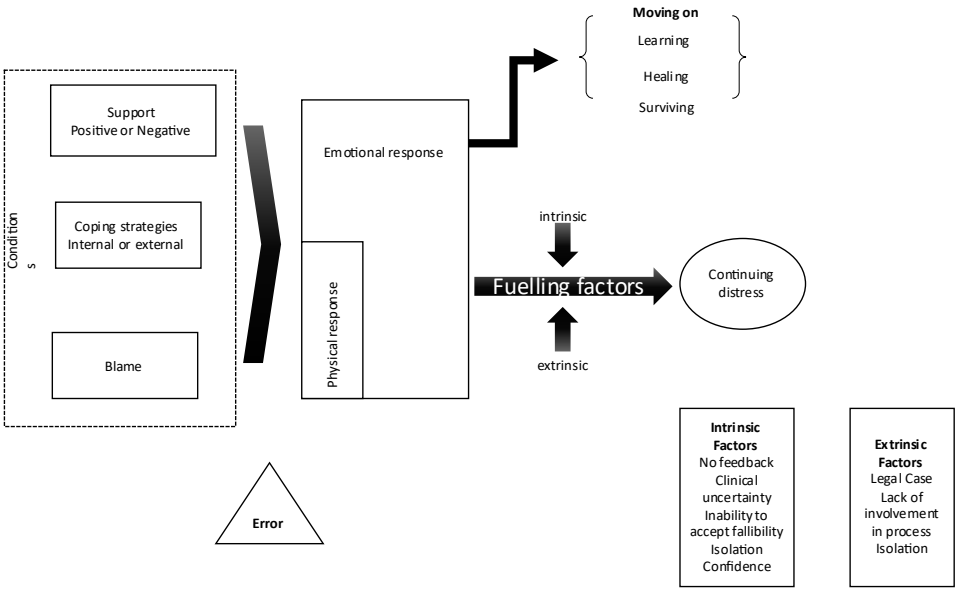
There were both positive and negative changes to midwifery practices that were

possible following an error in practice. Some midwives following an error, indicated continuing uncertainty of the right practices to undertake at the time of the research.

5.9 Midwife's experiences following an error; provisional conceptual model

Based on the qualitative data from interviews with 15 midwives who had made errors in clinical practice, a provisional conceptual model was generated depicting the experiences that they underwent following making an error in practice (figure 5.7).

Figure 5.7: Midwives provisional experiences following making an error in practice



Following the realisation of discovery of a clinical error, the qualitative evidence located the midwife error maker experience as identifiable within the concept of the second

victim. Examining the current midwifery qualitative findings through the lens of the second victim, the specific midwifery response to an error is tentatively described below. Full discussion is presented in chapter 7 following completed data collection from both phases of the study.

When an error is made by a midwife in clinical practice an emotional response is invoked: this may be a long-term, immediate, or short-term. To a lesser degree there is a physical response too. Emotional and physical responses can be connected, for example distress and taking time off sick. The emotional response that is raised in midwives can be categorised as fear, anger and distress and is inclusive of stress, embarrassment, and anxiety too. There are three conditions that mediated these emotional and physical responses: coping strategies, blame and positive or negative support.

In relation to blame, blame is considered by midwives as either perceived, directed from another individual or it is self-blame. Blame has been defined as "a judgement about a deficiency or fault by a person or people" (Cooper et al., 2017, p.457). Blame from another may stem from the English legal system, where in litigation fault or blame has to be determined, or from an innate human reaction that when things go wrong one assigns blame as part of the attribution theory (Weiner, 2010), and potentially demands justice, seeking assurance that the error will not occur (Runciman et al., 2003). Tangney and Dearing (2004) reflect that when faced with an error one will turn towards evaluating the self and rendering a judgement; the result being shame or guilt and self-blame. Perceived blame occurs when nobody is really blaming the midwife; however,

he or she conceives that people must be blaming him or her, but this is not a reality. The effect of this on the midwife is very real though.

In relation to coping, coping following an error event is facilitated by support from colleagues, sometimes the need or want to talk to the family involved in their error event, the need for information and an array of self-management coping strategies. Nurturing the emotional responses of midwives and the physical responses of midwives following an error in clinical practice are the conditions of support which could be positive or negative and coping strategies invoked by the midwife which may be internal or external. As a result of the conditions mediating the emotional and physical responses, some midwives can move on from their error experience. Moving on involves processes around learning, healing and surviving. The error may have been at the root of the learning or there may have been a change in practice for example.

Surviving, similarly as identified by Scott et al. (2009) in the sixth stage of moving on, was an outcome of a midwife's experience which means that the midwife was now carrying out her midwifery role at the expected level and was 'doing okay' but continued to be afflicted by the error event. In relation to healing, some midwives describe that they eventually become healed following their error event and this may have involved a change in how they practised; similar to the thriving in the six stages of Scott et al.'s (2009) trajectory who identified that some of their mixed healthcare participants had made something good come from the negative experiences. Although no midwives in the qualitative study had left the profession, a subset of midwives continued to be distressed, displaying longevity of distress. There are some intrinsic and extrinsic factors that seemed to fuel continued distress in midwives. These intrinsic and extrinsic

factors that fuelled continuing distress were multi factorial and were inclusive of a lack of involvement in the investigatory processes, a lack of feedback following the clinical error and uncertainty following the error, the error leading to a legal case, inability to accept fallibility, isolation which stemmed from being removed from the usual place of work or being suspended or going off sick and a lack of confidence.

This provisional model of error experience derived from the qualitative data were the utilised to form the quantitative questionnaire for phase 2 of the study.

5.10 Provisional model of support following an error experience

Based on the qualitative data from interviews with 15 midwives who had made errors in clinical practice, a provisional conceptual model was generated depicting how midwives would like to be helped and cared for following an error event to aid recovery (figure 5.8).

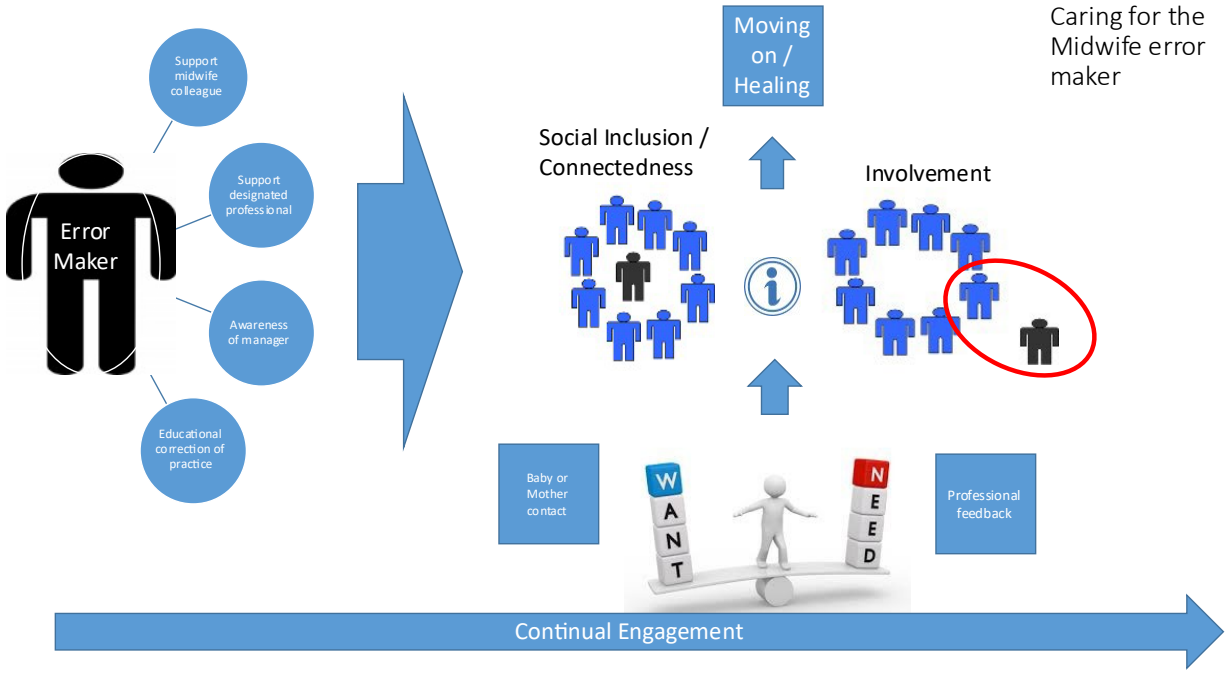
Following an error in clinical practice, the midwife as the error maker, wants the awareness of her manager and she acts professionally to bring the error to the attention of a relevant healthcare professional on recognition that an error has occurred. Midwives require support from a supportive midwifery colleague or a designated professional. The midwife should avoid social isolation and retain connectedness to the clinical area in which she normally works. Removal from the normal work area should be avoided and the midwife should be facilitated to stay in the normal work environment.

Midwives are open to learning from an error individually or as part of a wider unit. The midwife needs constructive professional feedback about the error and the processes

that are occurring because of making an error. The midwife may want to have contact with the baby, woman or family involved in the error event, but due to the sensitive nature of this, this will be dependent on the wishes of the family but should be an option. Throughout the whole error event process, continual and ongoing engagement with the midwife is required from management and supportive persons.

A Just Culture, with the absence of blame (directed, perceived or self-blame), where the midwife is working, is an essential component of the process. Moving on, learning, healing, and surviving will be facilitated by the above processes. Conversely, removal from the normal work area, social isolation, a lack of involvement in the processes, attribution of blame and a disconnect with persons available for support and restoration following an error event will hinder the recovery process and harm the midwife.

Figure 5.8: A provisional model of support for midwives making errors based on the qualitative data



This provisional model of support derived from the qualitative data were the utilised to form the quantitative questionnaire for phase 2 of the study.

Summary

In this chapter, the collected qualitative data were arranged and categorised into themes inductively using the framework of Braun and Clarke (2006, 2012, 2019). The findings were supported by quotes from midwives. Provisional conceptual models of midwives' experiences following an error and the support required following an error were devised based on the interpretation of the data. The qualitative phase enabled the development of the questionnaire for the quantitative phase (study 2) of the mixed methods study. The questionnaire tested on a wider sample of midwives whether this

experience and model of support was recognised as being required following their own errors. Further refining of the conceptual model then occurred. The analysis of the qualitative and quantitative data are discussed in relation to the research objectives in chapter 7.

Chapter 6: Quantitative findings study 2

Chapter 6

6.1 Findings of study 2 quantitative study

6.1.1 Introduction

This chapter presents the findings of phase 2, the quantitative survey to midwives in England. The context of data collection will be set, with demographic data preceding symptom data and inferential statistics. Data are presented using text narrative, supported by tables, graphs, and charts. Discussion of the findings is presented in chapter 7. Key data that pertains to the aims and objectives of the study are presented in this chapter. Potential issues are highlighted, and an explanation of data accuracy, cleansing data and missing data are offered.

6.1.2 Data accuracy, missing data, and cleansing

The goal of the quantitative data collection in phase 2 was to determine if the findings of the qualitative phase, could be confirmed, elaborated upon, disputed, or required adjustment. Numeric values were automatically exported into the Statistical Package for the Social Sciences (SSPS) (IBM Corp, 2021), a statistical software program, from the Qualtrics survey for assumption, checking and statistical analysis. As preliminary information, numeric values from demographic survey were exported into the SPSS (IBM Corp, 2021). As previously noted, (chapter 4), a power analysis was undertaken to have a statistically appropriate sample size for the quantitative phase resulting in the

minimum sample size of 380 participants. The anonymised data presented are based on a sample of 513 participants following cleaning of the data.

There were 560 returned questionnaire, however, 47 participants had opened the questionnaire and then not provide any responses at all, therefore there was no data entered for these participants. These participants were therefore removed as they would not contribute to the findings in any meaningful way. For transparency, Appendix 16 documents the removed questionnaires, but there also needed to be consideration in relation to missing variables. Those participants who had answered no questions at all were erased from the data table as it was easier to spot an entire blank line that in it to see a row of 1s and make sure there are no exceptions as described above.

Technically anything left blank in SPSS is treated as a missing value by default and will be omitted for analysis. Missing values were expected due to skip logic and participants not answering questions. As there was a large data set, coding of the missing values was undertaken to ensure I knew it is supposed to be missing (as opposed to accidental deletion of values). An automated procedure was undertaken to avoid mistakes that may occur if this was undertaken by hand. A value, -1 was chosen that was not possible in the real data set. Using the Transform menu on SPSS, I recoded the missing values as a code –1 using the old / new values and recoded system missing values options (i.e. blank values). Missing values were now replaced by -1, -1 was then defined in the variable view, as a discrete missing value, so it is not counted by SPSS and was omitted from any analysis of the data set. A process of double checking the coding ensured it was all to my satisfaction and as expected.

Upon receipt of the data, review of the data and 214, two data quality issues were identified: one relating to inconsistent data (6.13.4). The gender identified by participants differed to the expected proportions. This is discussed above and continued below. The other was related to absent data, which is to be expected in all real-world data sets and when undertaking research with human beings (Pallant, 2020). Some participants did not answer all questions accounting for different completion rates for some questions and some missing data. This was due to questions either being ignored (i.e., 'unexpected' missing data) or questions being irrelevant to some participants, and they could bypass them as per the questionnaire design of 'skip logic' (i.e., 'expected' missing data). The extent of this is noted in the relevant findings' sections. Data inaccuracies can reduce the reliability of the findings and create limitations on any interpretations made (Barchard and Pace, 2011) and can affect the usability and purposefulness of a study. However, it is common to have omissions and the large number of overall responses that did survive, improved the validity and reliability of the findings. To minimise limitations, it is deemed effective to design a human–computer interaction that will result in few data entry errors in the first place as in this study (Barchard and Pace, 2011). The Shapiro–Wilk statistical test was utilised to determine whether the dataset was normally distributed. The following convention was taken; W ranges between 0 and 1. If the data are close to what was expected from a normal distribution, the test statistic will be high (close to 1). If they deviate from normality, the statistic will be lower. Data are shown in appendix 19. In addition, much of the data collected are categorical or binary and categorical or binary variables cannot be normally distributed in the first place, since normality applies only to continuous numerical data.

For each Spearman calculation, each table was inspected to ensure the number of cases was correct and missing data were excluded (Pallant, 2020). Secondly the direction of the relationship between variables was considered, with cross checking on the wording of the questions (Pallant, 2020). Thirdly the strength of the relationship between variables was considered using Cohen (1988). The confidence levels are also presented as these are particularly important for health research and publishing (Pallant, 2020). Study limitations are discussed in chapter 7.

Descriptive statics have been used to describe the characteristics of the study sample. These descriptive statistics include mean, range of the data, skewness or kurtosis of data, the latter two descriptives being useful for making assumptions about inferential statistics (Pallant, 2020). Data assumptions were considered when choosing the appropriate statistical test such as level of measurements to ensure the correct test was performed. Normal distribution was not established so only non-parametric tests could be used (Pallant, 2020). As this was a study involving human subjects, it was useful to include information on midwives in the sample and the number or percentage of midwives in each of the relevant variables in addition to demographic variables (Pallant, 2020).

For the inferential statistics, nonparametric (χ^2) and Spearman rho were used to analyse the numerical data because they are nonparametric tests which are appropriate with nominal and ordinal data respectively, but do not assume a normal distribution (Pallant, 2010, 2020). It is acknowledged that there is a concern that nonparametric tests have a lower probability of detecting an effect that actually exists (de Winter and Dodou, 2010). There were correlation coefficients that were significant,

so statistically significant findings. However, the practical significance of any findings will be discussed in chapter 7. Causality cannot be claimed in this study, correlations provided an indication that there was a relationship between two variables only and there was always a possibility that there was a third unknown variable had influenced the outcome of data analysis too (Pallant, 2020). The strength and the direction of the relationship was examined between variables of interest. Spearman rho was particularly useful, as the data does not meet the criteria for parametric testing (Pallant, 2020) (see appendix 19). Other published research, if available, will be considered to interpret the strength of correlation coefficients in this topic area (Pallant, 2020).

6.1.3 Sample demographics

Demographic information was reviewed, examining information across all midwives. Using descriptive statistics, the characteristics of participants were explained. Visualisation (e.g., bar graphs and tables) of the data were also created for descriptive purposes.

6.13.1 Age of the midwife participants

There were 488 midwives that responded to this question, 25 did not answer the question. Table 6.0 shows participants compared to NMC midwifery registrants (NMC 2023b). It is relatively common for midwives to retire at 55 as this has historically been an option in the NHS (NHSBSA, 2021), most midwives being 21 – 40 years of age.

Table 6.0: Age of the midwives in the quantitative phase

Age range	NMC data for UK midwives 31.3.21	NMC Midwives %	Survey participants frequency	Survey participants %
Under 21	No data	0%	1	2%
21 – 30	8509	21.8%	164	32%
31 – 40	10807	27.7%	215	41.9%
41 – 50	8739	22.4%	62	12.1%
51 – 60	8903	22.8%	38	7.4%
61 plus	2112	7.4%	8	1.6%
Total	**39070**	**100%**	**488**	**100%**

6.13. 3 Ethnicity of the midwife participants

Table 6.1 denotes the ethnic range of the participants and also shows the ethnicity recorded by the NMC for all registrants (NMC 2023b). There were 487 midwives that responded to this question, 26 did not answer the question. Ethnicity data are only publicly available from the NMC for all registrants rather than specifically for midwives and there is no reason to assume ethnicities are equally spread in nursing and midwifery.

Table 6.1: Ethnicity of midwifery participants in the quantitative phase

Ethnicity	NMC data for UK 30/09/2022	NMC data % 30/09/2022	Survey participants frequency	Survey participants %
Asian	104017	13.48%	33	6.4%
Black	80661	10.46%	21	4.1%
Mixed race	7569	0.98%	6	1.2%
White	546203	70.80%	424	83%
Other	8620	1.12%	0	0%
Prefer not to say	19902	2.58%	1	.2%
Did not declare	4473	0.58%	26	5.1%
Total	**771445**	**100%**	**487**	**100%**

White midwives accounted for most of the sample (83%). Asian midwives were the next most frequent group (6.4%), followed by black midwives (4.1%). Mixed race midwives accounted for 1.2%. One midwife declined to state their ethnicity, and 26 midwives did not answer the question (5.1%).

6.13.4 Gender of the midwife participants

Midwives identifying as female accounted for 68.5% of the participants and those identifying as males accounted for 26.3%. Participants preferring to self-describe accounted for 1.4%. Table 6.2 depicts this information along with NMC current registrants.

Table 6.2: Gender of the midwife participants in the quantitative phase of the study

Gender	UK midwives 31/03/2021	NMC data %	Survey participants frequency	Survey participants %
Female	38964	99.7%	352	68.5%
Male	105	0.3%	128	26.3%
Prefer to self-describe	<5	< .1%	7	1.4%

The intended sampling strategy involved selecting a subset of the population of midwives from which characteristics of the entire population could be estimated (ONS, 2021), including gender. There is the potential of a non-sampling error occurring with the sample. It is possible that respondents are different from those that did not respond (a non-response, non-sampling error). Interestingly, because the relevant data for the complete population is not measured in studies, it is typically impossible to quantify the degree of sampling error (Qualtrics, 2023). This has been addressed in the methodology of the mixed methods. The qualitative respondents in the first phase of the study were self-selecting and the data that was generated from them was tested in the wider quantitative phase. A non-sampling error such as a selection error could also have occurred, in that only those interested in responding to the survey responded, but only respondents interested and involved in clinical errors as midwives were required to respond to the questionnaire, self-selection to participate was part of the methodology. However, caution should be taken as although it is known how many midwives are currently on the NMC register (NMC 2023b), it is unknown how many midwives have

made errors or the culminative total of registered midwives over time who have made errors (midwives would have been registered when the error was made, but may not be not currently registered) and it is also unknown how many midwives would be likely to respond to the questionnaire. The questionnaire had the potential through the distribution methods to reach all midwives on the register, and some who had lapsed registration if present on social media, but not all of these may have chosen to take part.

Non-sampling errors in research such as midwives being unreachable, declining to respond or giving inaccurate answers would be present in the statistics even if the entire population had been surveyed. But a possible explanation for the gender differentiation from the known NMC statistics of the population of midwives, could be that due to sensitive nature of research, midwives were searching for absolute anonymity and answered male rather than female, data entry error by the participant or dissatisfaction with the gender question. In addition, the research did not stipulate that the midwife has to be on the register at present, just when the error occurred, so more men may have met the inclusion criteria than are currently registered midwives, however data related to current employment status would not suggest this. Additionally, more men are subject to fitness to practice hearings at the NMC (4.6%) than women (0.48%) (NMC, 2019), although this applies to nursing and midwifery rather than midwifery alone and is historical as now the gender split is no longer publicised (NMC, 2023c). These types of error are usually very difficult to quantify and to do so would require additional and specific research (ONS, 2021).

Nonetheless, sample, processing or analysis errors have been avoided by a robust methodology with a large enough sample size, meticulous attention to detail and seeking expert advice and guidance form a statistician to ensure accuracy. The correct population was targeted, although a frame error is theoretically possible in a national questionnaire despite clear instructions about who should be participating. Respondents from outside the population of interest could have been incorrectly included, although all midwives claimed to be midwives. Limitations of analysis related to gender have been noted and no claims have been made in the discussion in relation to gender consequently. There were 487 midwives that responded to this question, 26 did not answer the question.

6.13.5 Time qualified as a midwife

Table 6.3 shows the time qualified as a midwife for the respondents to the questionnaire. NMC data are presented alongside for comparison, however NMC groupings (below) have an overlap of time frames making comparisons difficult and accuracy of the NMC data questionable. Midwifery specific data on time since qualification is not publicly available from the NMC, the NMC data presented is for all registrants.

Table 6.3: Length of time since qualification as a midwife in the quantitative phase

Years Since Initial Registration	All NMC registrants 30/09/22	All NMC registrants %	Year qualified as a midwife in the research data	Survey participants frequency	Survey participants %
Less than 1 Year	48,827	6.3	Less than 1 year	62	12.7%
Between 1 - 5 Years	131,530	17	1 – 5 Years	112	23%
Between 5 - 10 Years	118,880	15.1	6 – 10 Years	194	39.8%
Between 10 / 11 - 15 Years	96,861	12.6	11 – 15 Years	59	12.1%
Between 15 - 20 Years	111,112	14.4	16 – 15 Years	23	4.7%
20 plus Years	264,094	34.2	21 plus Years	38	7.8%
Unknown	141	0.01			
Total	771,445				100%

There were a range of midwives who had been qualified, from newly qualified to being qualified for over 21 years in the sample. Most midwives in the sample had been qualified from between 6 – 10 years (39.8%, n = 194) and 1 – 5 years (23%, n = 112). Newly qualified midwives accounted for 12.7% (n = 62) of the sample and those qualified for between 11 -15 years accounted for a further 12.1% (n = 59)of the sample. There were 488 midwives that responded to this question, 25 did not answer the question.

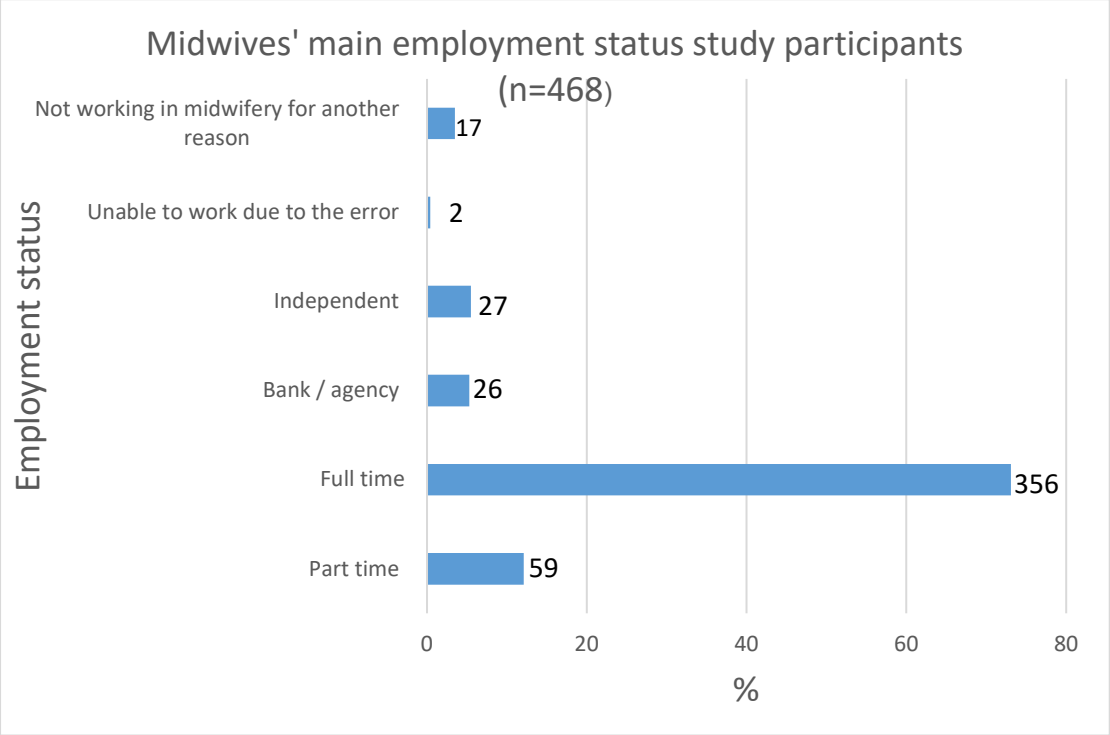
6.13.6 Grade band of participants

There were 487 midwives who responded to this question and there were 26 missing values. There were 192 (39.4%) band 6 midwives, 126 (25.9%) band 7 midwives, 50 (10.3%) band 5 midwives and 36 (7.4%) band 8 midwives. Independent midwives accounted for 54 (11.1%) of responses and 29 (6%) fell into the other category. There is no single register of independent midwives in England, although all midwives must be registered with the NMC when currently practicing. Independent midwives associate and work with a variety of organisations including the NHS. The inclusion criteria did not limit participant midwives to NHS employed midwives or to any particular organisational settings. The 'other' category may cover midwifery occupations such as education, practice development, research, retired, lapsed or managerial posts which also have clinical components to them. Inclusion of these midwives reflects the diversity of midwives in England.

6.13.7 Employment Status

Most midwives who responded to the survey were in current employment as midwives (96%, n=468). Two midwives (0.4%) were unable to work due to errors made, and a further 17 (3.5%) were no longer working in midwifery. There were 487 midwives who responded to this question and there were 26 missing values.

Figure 6.0: Employment status of midwives in the quantitative phase



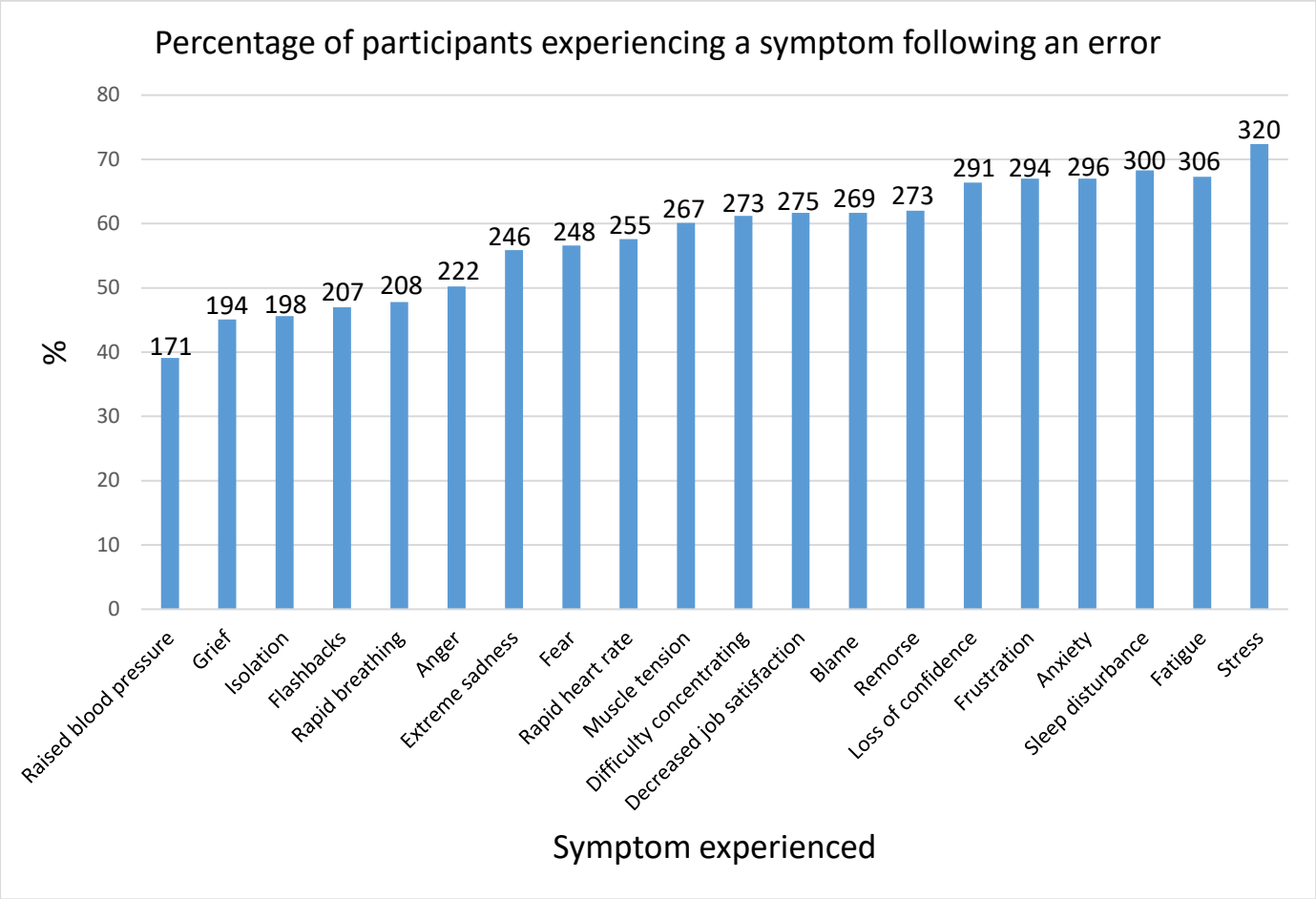
6.14 Symptom experience

The quantitative phase of the research enabled the researcher to examine associations related to the symptoms experienced by midwives, allowing some conclusions to be drawn about English midwives. As cautioned by Pallant (2010) and in line with a pragmatist philosophy, although there may be statistical significance, the practical significance for midwifery of the correlation is what this research is interested in. In interpreting the strength of the findings, an account of other research that has been conducted has been considered and correlation coefficients will be compared if available (Pallant 2010).

Midwives were asked whether they had any symptoms following an error experience, these being synonymous with those of a second victim. Midwives could respond to

more than one symptom. Figure 6.1 shows symptoms that midwives stated that they had following an error.

Figure 6.1: Symptoms that midwives experienced following an error in practice



The most common symptom following an error was general stress (72.4%, n =320), with anxiety affecting 296 (58%) midwives and sleep disturbances affecting 68.3% (n = 300) of midwives, followed by fatigue affecting 67.3% (n =306) of midwives. Over 60% of respondents experienced difficulty concentrating (n = 273), decreased job satisfaction (n = 275), blame (n = 269), remorse (n = 273), loss of confidence (n = 291), frustration (n = 294) and anxiety (n = 296), following an error.

The symptoms midwives experienced following making an error were examined for associations / correlations using the non-parametric Spearman's rho, particularly the most common symptoms as described by midwives and those that would have practical relevance and impact on practice. The correlations are shown in Table 6.4 using Cohen's (1988, p.79-81) criteria of .1 for small effect, .3 for medium effect and .5 for large effect.

Spearman's rho of the Spearman rank-order correlation coefficient is a non-parametric test to identify relationships between 2 variables of interest (Grove, 2007). As an adaptation of the parametric Pearson Product-Moment Correlation, Spearman is used when the assumptions of Pearson cannot be met (Grove, 2007). Although nonparametric statistics have disadvantages, tending to be less sensitive that parametric statistics and possibly may fail to detect differences between groups that may actually be there, they are ideal for nominal or ordinal data (Pallant, 2010), or when the data, as in this case, do not meet the assumptions required for parametric test such as normal distribution or are skewed. Calculation of Spearman rho is based on the difference scores on the ranking between the first and second variable scores. With values ranking from -1 (indicating a negative relationship) to +1 (indicating a positive relationship). The strength of the relationship is also indicated as per Cohen's (1988, p.79-81) criteria above.

Table 6.4: Symptom correlations using Spearman rho and strength of associations

Variable 1	Variable2	Association using the Spearman rho. Preliminary analyses were performed to	Strength of association	Conclusion

		ensure no violations of assumptions		
sleep disturbances	fatigue	r = .262, n = 331, p <0.01	small positive correlation	sleep disturbances and fatigue being positively associated
loss of confidence	fatigue	r = .194, n = 329, p <0.01	small positive correlation	loss of confidence and fatigue being positively associated
stress	fatigue	r = .202, n = 328, p <0.01	small positive correlation	stress and fatigue being positively associated
anxiety	fatigue	r = .235, n = 329, p <0.01	small positive correlation	anxiety and fatigue being positively associated
sleep disturbances	decreased job satisfaction	r = .319, n = 332, p <0.01	small positive correlation	sleep disturbances and decreased job satisfaction being positively associated
sleep disturbances	difficulty concentrating	r = .292, n = 330, p <0.01	small positive correlation	sleep disturbances and difficulty concentrating being positively associated
sleep disturbances	loss of confidence	r = .309, n = 330, p <0.01	moderate positive correlation	sleep disturbances and loss of confidence being positively associated
sleep disturbances	stress	r = .258, n = 330, p <0.01	small positive correlation	sleep disturbances and stress being positively associated
sleep disturbances	anxiety	r = .294, n = 331, p <0.01	small positive correlation	sleep disturbances and anxiety being positively associated
stress	decreased job satisfaction	r = .314, n = 331, p <0.01	moderate positive correlation	stress and decreased job satisfaction being positively associated
stress	difficulty in concentrating	r = .212, n = 331, p <0.01	small positive correlation	stress and difficulty in concentrating being positively associated
anxiety	decreased job satisfaction	r = .212, n = 331, p <0.01	small positive correlation	anxiety and decreased job satisfaction being positively associated
anxiety	difficulty concentrating	r = .329, n = 329, p <0.01	moderate positive correlation	anxiety and difficulty concentrating being positively associated

anxiety	loss of confidence	r = .398, n = 331, p <0.01	moderate positive correlation	anxiety and loss of confidence being positively associated
anxiety	stress	r = .411, n = 331, p <0.01	moderate positive correlation	anxiety and stress being positively associated
loss of confidence	decreased job satisfaction	r = .288, n = 332, p <0.01	small positive correlation	loss of confidence and decreased job satisfaction being positively associated
decreased job satisfaction	stress	r= .314, n=, 331 p<0.01	moderate positive correlation	decreased job satisfaction being associated positively with stress
decreased job satisfaction	blame	r= .332, n=, 329 p<0.01	moderate positive correlation	decreased job satisfaction being positively associated with experiencing blame

There were no negative correlations evident in the data.

6.15 Continued Distress

There were 45 missing values and 468 responses to this question, with 53.6% (n = 251) of midwives experiencing continued distress following their error, whilst 46.4% of midwives (n = 217) did not have continued distress following their error. Table 6.5 shows whether midwives experienced continued distress or not.

Table 6.5: Percentage of midwives experiencing continued distress following an error

Did midwives experience continued distress following their error?	Study participants
Yes	53.6% (251)
No	46.4% (217)

6.15.1 Length of distress following an error event

Of the 251 respondents who indicated that they experienced continued distress, 236 of the respondents completed the additional questions on this topic. Continued distress was defined by the midwives as it was a subjective experience and only the participant could decide what was appropriate and felt right for them. There were 277 values missing in the data set as this was an optional question. Data are presented in Table 6.6.

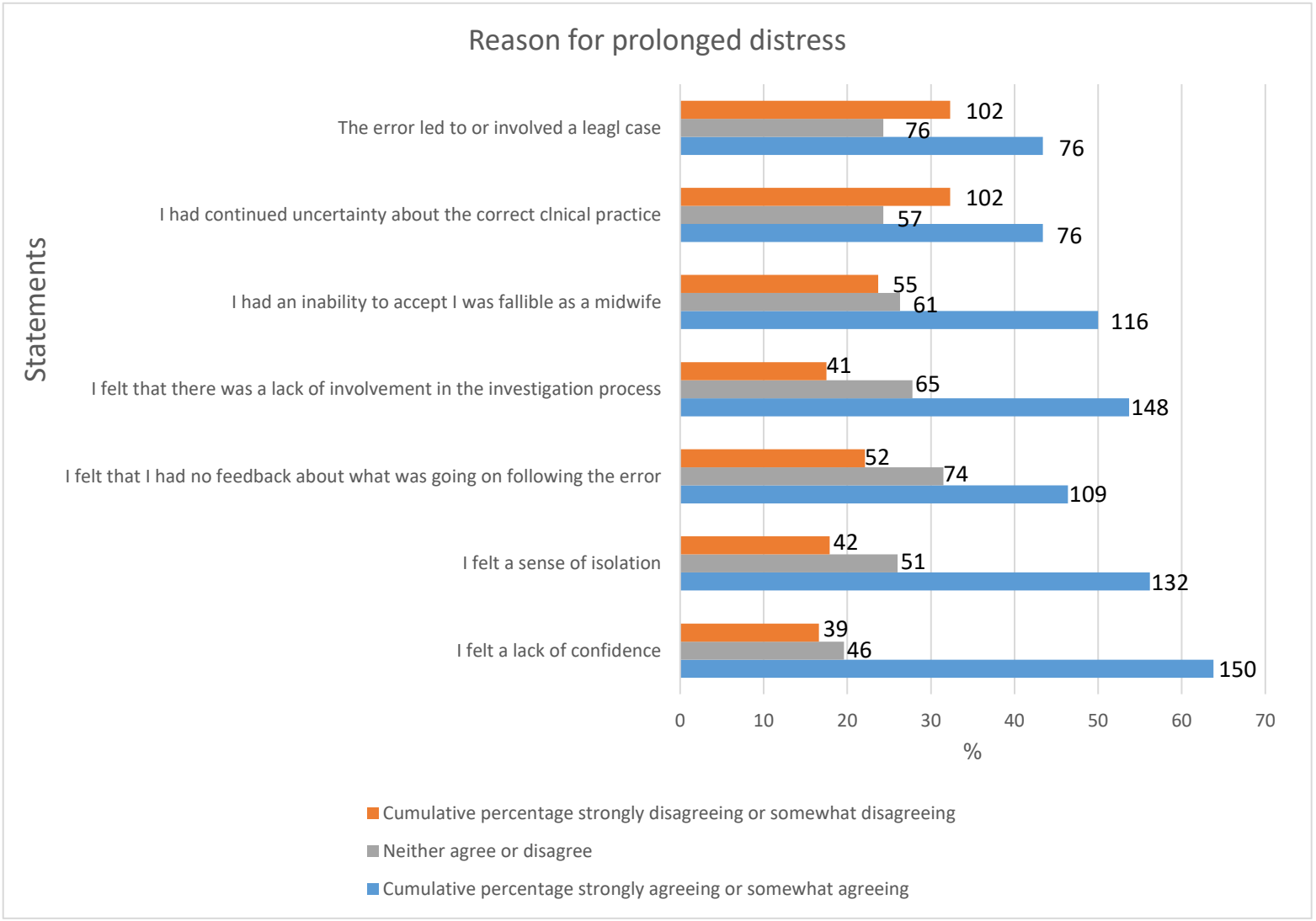
Table 6.6 Duration of Distress Experienced by Midwives After an Error

Duration of Distress	Percentage (%)	Participants (n)
3 months or less	53.4	126
1 year or less	77.5	183
Over 1 year	22.5	52
4–6 years	1.7	15
7–10 years	3.8	9

6.15.2 Reasons for continued distress

If midwives indicated that they experienced continued distress, they were asked about the reasons for their continued distress. Data were aggregated to make comparisons. Figure 6.2 shows the reasons for prolonged distress that midwives gave.

Figure 6.2: Reasons for prolonged distress in midwives following an error



Midwives were able to record multiple reasons for prolonged distress. Of the participant's that responded to this question, lack of confidence was the most popular reason for prolonged distress with 63.8%(n = 150) of respondents strongly agreeing or somewhat agreeing with this statement, only 16.6% n = 46) strongly disagreed / somewhat disagreed. Feeling a sense of isolation as a reason for prolonged distress following an error was strongly agreed to or somewhat agreed to by 56.2% (n = 76) of respondents. A lack of feedback found 46.4% (n = 109) of respondents strongly agreeing or somewhat agreeing that this prolonged their distress and 53.7% (n = 128) strongly

agreed to or somewhat agreed that they felt that there was a lack of involvement in the investigation process, and this prolonged their distress. Inability to accept fallibility (50%, n = 116) continued uncertainty about the correct practice (43.4%, n = 102)) and involvement in a legal case (43.4%, n = 102) were strongly agreed to or somewhat agreed by midwives as prolonging distress.

6.16 Moved from the usual work area following an error

Midwives indicated if they were moved from their usual place of work following the error that they had made. Table 6.7 demonstrates the responses of midwives. More midwives remained in their usual work areas (62%, n= 305) than were moved, of those that were moved, they then indicated if this was a personal choice or whether they were forcibly moved, 33.3% (n = 104) of midwives indicated that they were forcibly moved.

Table 6.7: Percentage of midwives moved from their usual workplace following an error

Were midwives moved from their usual work area following their error?	Study participants
Yes	38% (n =187)
No	62% (n = 305)

Table 6.8: Percentage of midwives forcibly moved from their usual workplace following an error

Were midwives forcibly moved from the usual work area?	Study participants
Yes	33.3% (n = 104)
No	66.7% (n = 52)

Chi squared (χ^2) analyses were conducted to determine whether there was a significant association between being moved from the normal place of work following an error and feeling blame following their error. A Chi-squared test for independence (with Yates Continuity Correction) indicated a significant association. Chi-squared as an inferential statistical test examines the differences among groups with nominal data (Groves, 2027), comparing the frequencies observed with those that were expected. The χ^2 calculations are compared in a χ^2 table to determine if significant differences exist (Groves, 2007). Yates Continuity Correction is recommended for a 2x2 contingency table and when one has expected values 10 or below. Having calculated the observed and expected values, the values are entered into the calculation (automatically done on SPSS) for each cell on the table which are then added to give the Yates Continuity Correction. The effect of Yates's correction is to prevent overestimation of statistical significance for small data, and this study has relatively small data numbers. Chi squared (χ^2) analyses were conducted to determine whether there was also a significant association between being forcibly moved from the normal place of work following an error and feeling blame. A Chi-squared test for independence (with Yates Continuity Correction) indicated no association. The results are an actual reflection of reality and not due to a random sampling error (Groves, 2007). However, there was a moderate but statistically significant association between midwives feeling blamed following an error in clinical practice and midwives experiencing continued distress.

Table 6.9: Associations between blame, continued distress and moving work areas

Variable 1	Variable 2	χ^2 value (with Yates Continuity Correction)	Strength of association	Conclusion
Midwives being moved from their usual work area	Midwives feeling blamed	χ^2 (1, n = 478) = p = <.001, phi = .308	Moderate	A significant association between midwives being moved from their usual work area following an error in clinical practice and midwives feeling blamed
Midwives feeling blamed	Midwives being forcibly moved	χ^2 (1, n = 156) = .467, p = .274, phi = -.088	Negative association	eak Negative association but p<0.05 therefore not significant and no meaningful association
Midwives feeling blamed following an error in clinical practice	Midwives experiencing continued distress	χ^2 (1, n = 466) = 42.437, p = <.001, phi = .307	Moderate	A significant association between midwives feeling blamed following an error in clinical practice and midwives experiencing continued distress.

Midwives were able to indicate how they felt in the new work area. Table 6.10 indicates midwives' responses.

Table 6.10 Experiences of Midwives in a New Work Area

Experience / Statement	Percentage (%)	Participants (n)
Agreed/strongly agreed they Suffered ill health after moving to new work area	53.9	90
Agreed/strongly agreed they Lost support of colleagues in new work area	57.7	97
Agreed/strongly agreed they Not comfortable in the new work area	54.3	89
Agreed/strongly agreed they Found work meaningful in the new workplace	56.9	95
Agreed/strongly agreed they Had a positive manager in the new work area	47.3	95
Agreed/strongly agreed they Felt accepted in the new work area	62.0	101
Agreed/strongly agreed they Felt respected in the new work area	58.0	95
Agreed/strongly agreed they felt judged by others	48.0	79
Agreed/strongly agreed they could make decisions	56.4	94
Agreed/strongly agreed they felt a sense of belonging	51.8	95

Agreed/strongly agreed they had autonomy	47.3	78
Disagreed/strongly disagreed they had autonomy	27.9	46

Examining in further detail midwives' responses about how they felt when moved to a new work area following an error, correlation analysis was used to describe the strength and direction of the linear relationship between variables. The Spearman Rank Order Correlation (rho) was used again due to a non-parametric test being required (Table 6.11).

Table 6.11: Midwives' experiences of moving to a new workplace following an error and associations between variables (experiences)

Variable 1	Variable2	Association using the Spearman rho. Preliminary analyses were performed to ensure no violations of assumptions	Strength of association	Conclusion
suffering ill health	not being comfortable in the new work area	r = .334, n = 164, p <0.01,	moderate positive correlation	not being comfortable in the new work area is positively associated with suffering ill health
suffering ill health	loss of support of colleagues	r = .401, n = 167, p <0.01	moderate positive correlation	with loss of support of work colleagues being positively associated with suffering ill health

suffering ill health	feeling isolated in the new work area	r = .464, n = 165, p <0.01	moderate positive correlation	feeling isolated in the new work area being positively associated with suffering ill health
suffering ill health	feeling judged by others in the new work area	r = .373, n = 165, p <0.01	moderate positive correlation	feeling judged by others in the new work area being positively associated with suffering ill health
loss of support of colleagues	not being comfortable in the new work area	r = .382, n = 164, p <0.01	moderate positive correlation	loss of support in the new area being positively associated with not being comfortable in the new area.
loss of support of colleagues	the error being reinforced	r = .371, n = 166, p <0.01	moderate positive correlation	loss of support in the new area being positively associated with the error being reinforced.
loss of support of colleagues	feeling isolated in the new area	r = .290, n = 166, p <0.01	small positive correlation	loss of support in the new area being positively associated with feeling isolated in the new area.
not being comfortable in the new work area	the error being reinforced	r = .313, n = 163, p <0.01,	moderate positive correlation	not being comfortable in the new work area being positively associated with the error being reinforced.
not being comfortable in the new work area	the feeling of being judged by others in the new work area	r = .313, n = 163, p <0.01	moderate positive correlation	not being comfortable in the new work area being positively associated with the error being reinforced.
error reinforced in the new work area	the feeling of isolation	r = .298, n = 166, p <0.01	small positive correlation	the error reinforced in the new work area being positively associated with the feeling of isolation in the new work area.

the error reinforced in the new work area	judged in the new work area	r = .347, n = 164, p <0.01	small positive correlation	the error reinforced in the new work area being positively associated with the feeling of isolation in the new work area.
the feeling of isolation	feeling of being judged in the new work area	r = .543, n = 164, p <0.01	strong positive correlation	feeling isolated in the new work area being positively associated with the feeling of being judged in the new work area.
working in a cooperative team	having a positive manager in the new work area	r = .466, n = 164, p <0.01,	moderate positive correlation	having a positive manager in the new work area being positively associated with working in a cooperative team in the new work area.
having the error reinforced in the new work area	and the feeling of being judged	r = .459, n = 163, p <0.01	moderate positive correlation	not being comfortable in the new work area being positively associated feeling isolated in the new area.
not being comfortable in the new work area	the feeling of being judged by others	r = .459, n = 163, p <0.01	moderate correlation	not being comfortable in the new work area being positively associated feeling isolated in the new area.
not being comfortable in the new work area	being with associated feeling isolated in the new area.	r = .403, n = 163, p <0.01	moderate correlation	not being comfortable in the new work area being positively associated with the feeling of being isolated in the new work area.
having the error reinforced in the new work area	the feeling of being judged in the new work	r = .347, n = 164, p <0.01	moderate positive correlation	the error reinforced in the new work area being positively associated with the feeling of being judged in the new work area.

having meaningfulness in the new work area	and having a positive manager in the new work area	r = .337, n = 164, p <0.01	moderate positive correlation	having meaningfulness in the new work area being positively associated with having a positive manager in the new work area
meaningfulness in the new work	area and feeling accepted in the new work area	r = .322, n = 162, p <0.01	moderate positive correlation	having meaningfulness in the new work area being positively associated with feeling accepted in the new work area.
having meaningfulness in the new work area and	feeling respected in the new work area	r = .278, n = 163, p <0.01	small positive correlation	having meaningfulness in the new work area being positively associated with feeling respected in the new work area.
meaningfulness in the new work area	job satisfaction	r = .442, n = 165, p <0.01,	moderate positive correlation	having meaningfulness in the new work area being positively associated with job satisfaction
positive manager in the new work area	feeling accepted	r = .476, n = 165, p <0.01	moderate positive correlation	having a positive manager in the new work area being positively associated with feeling accepted in the new work area.
having a positive manager in the new work area and	feeling respected in the new work area	r = .428, n = 162, p <0.01	moderate positive correlation	having a positive manager in the new work area being positively associated with feeling respected in the new work area.
positive manager in the new work area	job satisfaction	r = .429, n = 165, p <0.01	moderate positive correlation	having a positive manager in the new work area being positively associated with job satisfaction

having a positive manager in the new work area	working in a cooperative team	r = .466, n = 164, p <0.01	moderate positive correlation	being respected in the new work area being positively associated with job satisfaction.
positive manager in the new work area	decisions in the new work area	r = .416, n = 164, p <0.01	moderate positive correlation	having a positive manager in the new work area being positively associated with the ability to make decisions in the new work area
positive manager in the new work area	autonomy in the new work area	r = .362, n = 164, p <0.01	moderate positive correlation	having a positive manager in the new work area being positively associated with autonomy in the new work area.
feeling accepted in the new work area	being respected in the new work area	r = .548, n = 160, p <0.01	strong positive correlation	feeling accepted in the new work area being positively associated with being respected in the new work area
feeling accepted in the new work area	working in a cooperative team in the new work area	r = .516, n = 162, p <0.01	strong positive correlation	feeling accepted in the new work area being positively associated with working in a cooperative team in the new work area.
feeling accepted in the new work area	job satisfaction	r = .453, n = 163, p <0.01	moderate positive correlation	feeling accepted in the new work area being positively associated with job satisfaction
feeling accepted in the new work area	ability to make decisions in the new workplace	r = .300, n = 162, p <0.01	moderate positive correlation	having a positive feeling accepted in the new work area being positively associated with the ability to make decisions in the new workplace
feeling accepted in the new work area	a sense of belongingness	r = .425, n = 161, p <0.01	moderate positive correlation	having a feeling accepted in the new work area being

	in the new workplace			positively associated with a sense of belongingness in the new workplace
feeling accepted in the new work area	having autonomy in the new area	r = .276, n = 162, p <0.01	small positive correlation	feeling accepted in the new work area being positively associated with having autonomy in the new area.
being respected in the new work area	working in a cooperative team in the new area	r = .603, n = 163, p <0.01	strong positive correlation	being respected in the new work area being positively associated with working in a cooperative team in the new area
being respected in the new work area	job satisfaction	r = .385, n = 163, p <0.01	moderate positive correlation	being respected in the new work area being positively associated with job satisfaction
being respected in the new work area	having the ability to make decisions	r = .416, n = 163, p <0.01	moderate positive correlation	being respected in the new work area being positively associated with having the ability to make decisions.
being respected in the new work area	having a sense of belongingness in the new work area	r = .352, n = 161, p <0.01	moderate positive correlation	being respected in the new work area being positively associated with having a sense of belongingness in the new work area.
being respected in the new work area	having autonomy in the new work area	r = .306, n = 162, p <0.01	moderate positive correlation	being respected in the new work area being positively associated with having autonomy in the new work area
working in a cooperative team in the new work area	job satisfaction in the new work area	r = .505, n = 165, p <0.01	strong positive correlation	working in a cooperative team in the new work area being positively associated with job satisfaction.

working in a cooperative team in the new work area	the ability to make decisions in the new work area	r = .351, n = 164, p <0.01	moderate positive correlation	working in a cooperative team in the new work area being positively associated with the ability to make decisions in the new work area
working in a cooperative team in the new work area	having autonomy in the new work area	r = .336, n = 164, p <0.01	moderate positive correlation	working in a cooperative team in the new work area being positively associated with having autonomy in the new work area
job satisfaction	ability to make decisions	r = .348, n = 165, p <0.01	moderate positive correlation	job satisfaction being positively associated with the ability to make decisions in the new workplace.
job satisfaction	a sense of belongingness	r = .484, n = 164, p <0.01	moderate positive correlation	job satisfaction being positively associated with a sense of belongingness in the new workplace
job satisfaction	having autonomy in the new workplace	r = .453, n = 165, p <0.01	moderate positive correlation	with job satisfaction being positively associated with having autonomy in the new workplace
ability to make decisions in the new workplace	a sense of belongingness in the new workplace	r = .501, n = 163, p <0.01	strong positive correlation	with the ability to make decisions in the new workplace being positively associated with a sense of belongingness in the new workplace
the ability to make decisions in the new workplace	autonomy in the new workplace	r = .622, n = 163, p <0.01	strong positive correlation	with the ability to make decisions in the new workplace being positively associated with autonomy in the new workplace

6.17 Coping

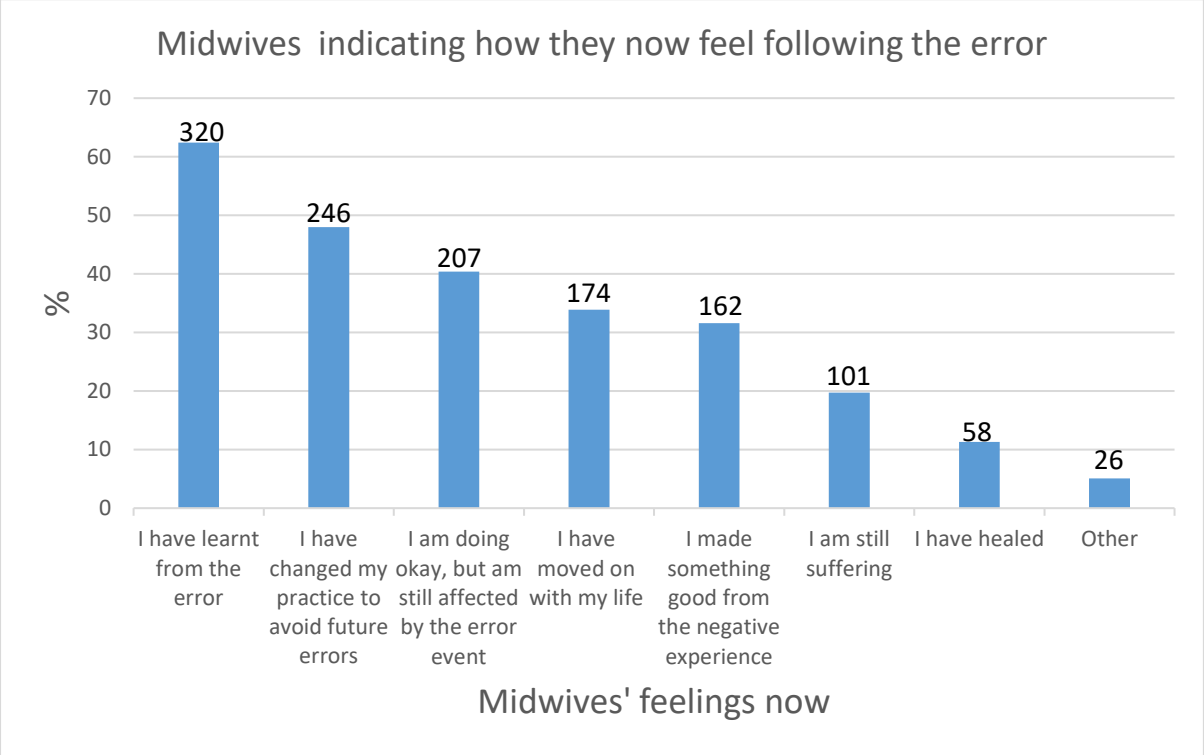
Midwives described the strategies used to cope following an error experience.

Support from colleagues (79.9%, n = 391), internal reflection (71.5%, n = 341), having feedback about the error (71.3%, n = 333), being honest with the women and education were felt to be helpful or somewhat help by over 70% of midwives. Furthermore, 65.1% (n = 306)% of midwives agreed that getting back to the usual area of work, standing up for themselves (64.9%, n = 307), following the investigation process (64.3%, n = 203), exercise (64.1%, n = 304), talking to the women involved (62.98%, n = 298) and mindfulness (66.7%, n = 290) were also helpful or somewhat helpful. Although all strategies did have some midwives agreeing they were helpful or somewhat helpful, the least helpful strategies were avoiding the work area (53.8%, n = 254), with 37.7% (n = 178) of midwives choosing this as somewhat or very unhelpful, becoming defensive in their work (54.9%, n = 258, with 34.5% (n = 162) of midwives choosing this as somewhat or very unhelpful avoiding the family involved (40%, n = 254), with 21.6% (n =102) of midwives choosing this as with somewhat or very unhelpful and taking sick leave 52.7%, n = 247, with 22,2% (n = 104) of midwives choosing this as with somewhat or very unhelpful Self-reliance as a coping strategy was also less helpful (47.3%, n = 224) with 22.4% (n =106) of midwives choosing this as with somewhat or very unhelpful.

6.18 Participant's feelings now

Midwives were asked following the error experience, how they felt now. They were able to choose more than one response. Figure 6.3 shows the data for their responses.

Figure 6.3: How midwives felt now following the error in clinical practice



Midwives indicated that they were currently functioning in their professional capacity but were still affected by the error event (40.4%) and 19.7% declared this as suffering. Of the midwives, 62.4% stated they had learnt form the error, with 48.8% of midwives making a practice change following the error to avoid future errors and 31.6% making something good from the negative experience of making an error. Midwives had the option to free text for this question too. The free text comments were analysed qualitatively, creating, themes using the framework of Braun and Clarke (2006, 2012, 2019), previously described in chapter 4. From the qualitative comments, mental ill health, physical ill health, improved health, and status were identified as themes emerging from the data (Table 6.12).

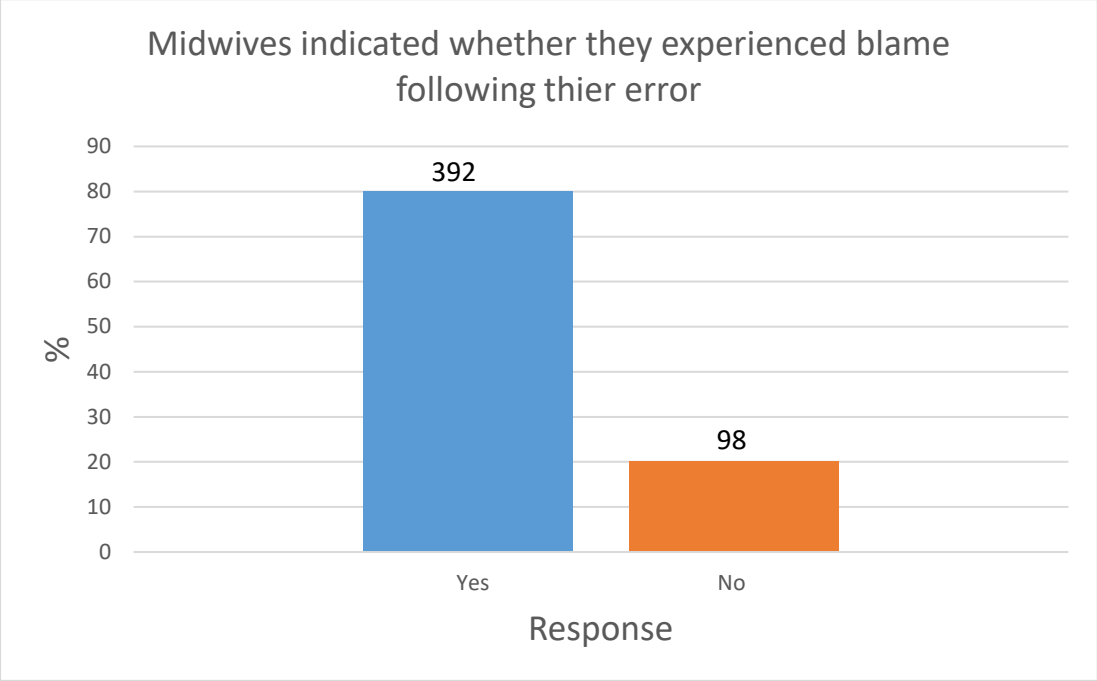
Table 6.12: Themes about feelings 'now' following an error event

Theme	Selective Examples
Poor mental health	"Poor mental health on medication" "Couldn't shake the blame". "Anxiety, stress, unhappiness" "Devastated, I felt isolated". "My MH has been phenomenally affected. The management in my previous area of work have let me down and my trust in the system is broken which in turn has left me broken." "Poor mental health especially mental health. Alcohol and drugs used as a coping strategy"
Physical ill health	"Physically I feeling sick". "Physical exhaustion" "Poor physical health"
Heath improved	"Healthy" "Physical health improved" "Very good spirits" "Good health, sound mind and body, no maladaptive"
Status	"Being judged for it". "Humiliated". "Loss of confidence plus autonomy" "Blame myself" "I will continue to work hard and actively". "I will refuel to adjust my physical and mental state and strive to appear in a new position in the best condition." "Ashamed"

6.19 Blame

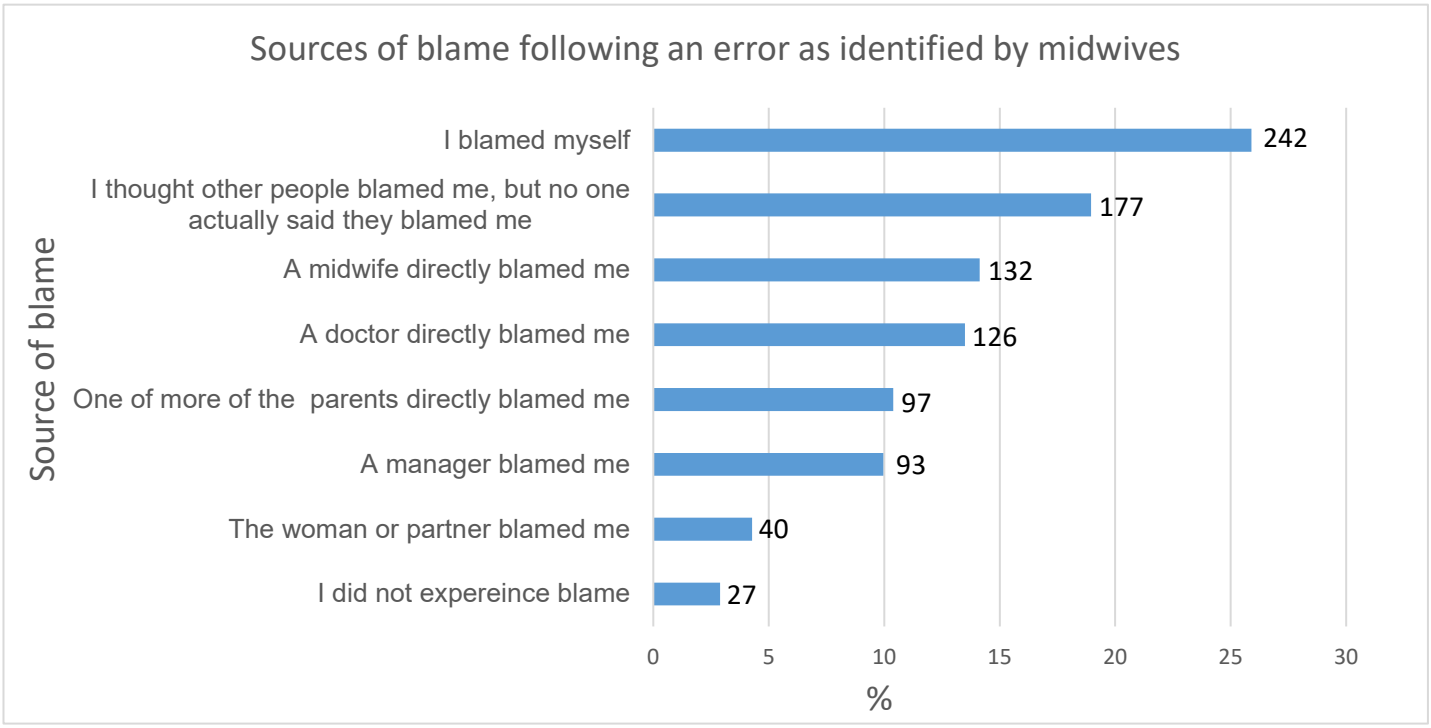
There were 490 valid responses and 23 missing responses with 79.8% (n = 392) of midwives feeling blamed following an error and 20% (n = 98) feeling no blame.(figure 6.4).

Figure 6.4: Percentage of midwives experiencing blamed following their error



Midwives were asked about the source of any blame they felt. Figure 6.5 denotes sources of blame as indicated by midwives.

Figure 6.5: Sources of blame following an error as identified by midwives



Midwives were directly blamed by someone in 52.25% of cases. Midwives blamed themselves in 25.9% of responses, however 18.95% was perceived blame, with no one actually saying they blamed them. Midwives were blamed by fellow healthcare professionals in 27.62 % of cases (14.13% blamed by midwives, 13.49% blamed by doctors) and a further 9.96% were blamed by managers, 37.58% in total. Parents in the case of an error involving a baby, or the woman or partner blaming the midwife accounted for 14.67% of responses.

Midwives were further asked about the blame culture in their organisation. Table 6.13 denotes the midwives' responses:

Table 6.13: Midwives' opinions about the blame culture around errors

Statement	Strongly / Somewhat Agree n / (%)	Neither Agree nor Disagree n / (%)	Strongly / Somewhat Disagree n / (%)
Being blamed does not affect the experience of making an error	158 (34.6%)	105 (23.0%)	193 (42.3%)
It is a reality that the NHS is a blame-free environment	140 (53.9%)	107 (23.4%)	211 (42.3%)
Being blamed hampered me moving on after an error	165 (57.6%)	121 (26.3%)	74 (16.1%)
Being blamed for an error in practice is distressing	320 (69.9%)	86 (18.8%)	52 (11.4%)
A blame-free environment is necessary to help with an error experience	327 (70.9%)	88 (19.1%)	56 (9.9%)
There is a blame response when an error is made in midwifery practice	333 (72.4%)	88 (19.1%)	39 (8.5%)

The findings indicate that blame culture remains an issue for midwives. Many midwives do not perceive the NHS as a blame free environment.

6.20 Support

Midwives were asked about the support they received following an error**.** Over 70% (71.3%, n = 320)) of midwives did feel adequately supported to return to their normal level of work following an error although 23.8% (n = 107) did not feel adequately supported (Table 6.14).

Table 6.14: Midwives' responses about whether they felt supported to return to practice at their usual professional level following an error.

Did midwives feel adequately supported to return to midwifery practice to perform at their usual professional level?	Study participants
Yes	71.3% (n = 320)
No	23.8% (n = 107)
Other	4.9% (n = 22)

Midwives then indicated to whom they went to for support following an error.

A midwifery colleague was sought by 262 of the midwives for support following an error, alternatively 34.5% (n = 177) of midwives went to a designated support professional in their organisation, similarly 33.9(n = 174) of midwives went to their line manager. Only 17.2% (n = 88) of midwives went to an educationalist and 12.5% (n = 64) midwives went to no one. A chaplain was sought by 9.4% (n = 48) of midwives and a union representative by only 3.9% (n = 20).

Midwives were asked to indicate what would maximise recovery following an error.

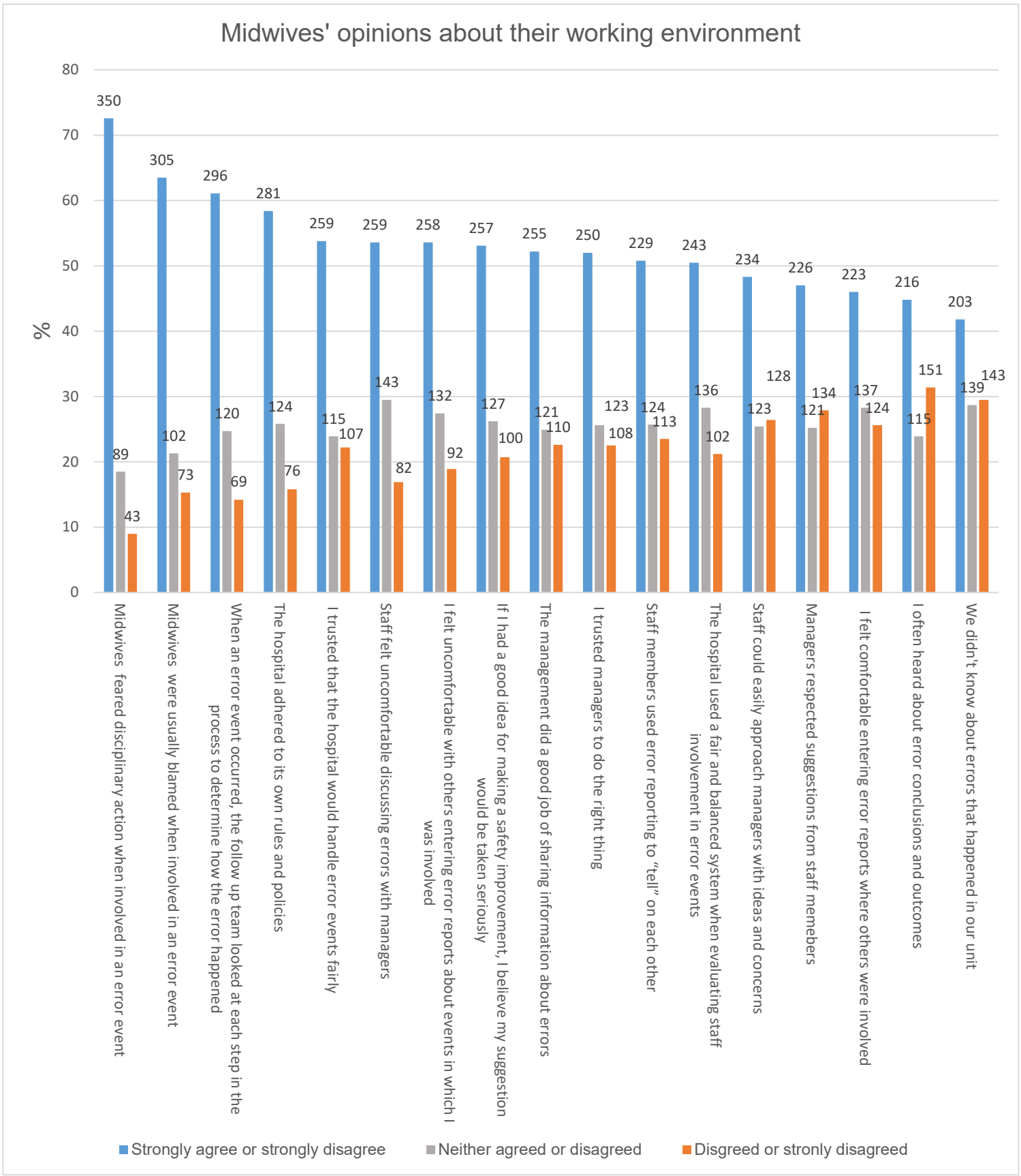
Midwives were able to indicate more than one response, and midwives indicated multiple sources to maximise recovery. Support form midwifery colleagues was the most popular choice (43.5%, n = 223) with constructive professional feedback (38.2%, n = 196), the absence of blame (32.2%, n = 165) and involvement in any investigation process (31.4%, n = 161)) also being popular responses. Continual engagement with any ongoing investigation (22%, n =113), to remain in the same work area (22.2%, n = 114) and to have a Just Culture in my workplace (23%, n = 118) were requested by midwives. Information and contact with the woman / family was desired by 19.1% (n =

98) of midwives and the option of a designated support professional was required by some (14.4%, n = 74) to maximise recovery.

6.21 Midwifery working environment and learning

Midwives were asked questions about their working environment to provide context to the discussion about midwifery errors, their experiences and support required. Their responses are shown in figure 6.6.

Figure 6.6: Midwives' opinions about their working environment



It can be seen that midwives fear disciplinary action when involved in an error (72.6%, n = 350) strongly agreeing or agreeing, with only 9% (n = 43) disagreeing or strongly disagreeing) and feel they are usually blamed when an error occurs (63.5%, n =305) strongly agreeing or agreeing, with only 15.3% (n = 73) disagreeing or strongly disagreeing) and some midwives felt uncomfortable discussing errors with managers (53.6%, n = 260 strongly agreeing or agreeing with only 16.9%, n = 82 disagreeing or strongly disagreeing). However, it was felt that when an error event occurred, the follow up team looked at each step in the process to determine how the error happened (61.7%, n = 296) and the hospital adhered to its rules and policies (58.4%, n = 243). Just over 50 % of midwives trusted that the hospital would handle error events fairly (53.8%, n = 250). In terms of safety contribution, 53.1% (n = 257) of midwives strongly agreed or agreed that if they had a good idea for making a safety improvement, they believed their suggestion would be taken seriously, however, 26.2% (n = 127) of midwives remained neutral on this question and 20.7% (n = 100) disagreed or strongly disagreed.

In terms of closure or learning from errors, only 44.8% (n = 216) of midwives often heard about error conclusions and outcomes with 31.4% (n = 115) strongly disagreeing or disagreeing with this statement and 41.8% (n = 203) strongly agreed or agreed that they didn't know about errors that happened in their unit, with 29.5% (n = 143) strongly disagreeing or disagreeing with this statement. Midwives felt that the management did a good job of sharing information about errors, with 52.2% (n = 255) agreeing or strongly agreeing, although 24.9% (n = 121) remained neutral and 22.6% (n = 143) disagreed or strongly disagreed with this statement.

Specifically asking about any learning associated with the error, midwives gave the following responses shown in table 6.15.

Table 6.15: Midwives' opinions about learning following their error

Participants thoughts about learning following an error	Participants agreeing / strongly agreeing % / (n)	Participant's neither agreeing nor disagreeing % / (n)	Participants disagreeing/ strongly disagreeing % / (n)
Experience of the error enabled me to learn from it	65.1% (209)	18.4% (59)	15% (48)
The error enabled me to learn and improve my practice	63.8% (204)	19.1% (61)	16.6% (50)
Learning enabled me to change my practice positively	57.3% (183)	24.1% (77)	17% (44)
The error stimulated my learning	57.1% (181)	23% (73)	18.3% (58)
I have passed my learning on to others since making my error	56.2% (179)	20.7% (66)	21.7% (69)
Support helped my learning	48.8% (155)	28.6% (91)	21.9% (67)
I was made to feel like a complete novice again	41.8% (133)	21.4% (68)	35.2% (112)
Informal education opportunities helped remedy the error	39% (125)	29,2% (93)	30.2% (96)
A formal education programme helped remedy my knowledge about the error	35% (111)	34.7% (110)	28.8% (91)
Despite investigations and processes being complete my learning associated with the error is still incomplete	27.2% (86)	23.4% (74)	48.8% (153)
Learning caused me to change my practice negatively	23.6% (75)	26.1% (83)	48.8% (155)
A formal education programme hindered recovery from the error	22.2% (71)	41.3% (132)	35% (112)

I still do not know the right practice following the error	21.7% (69)	16.9% (54)	59.9% (191)

Midwives (321 responded to this question) were asked about any learning that occurred following the error. There was evidence that midwives learned from an error with 65.1% (n = 209) of midwives agreeing or strongly agreeing that the experience of the error enabled them to learn from it. Only 15% (n= 48) of midwives disagreed or strongly disagreed with this statement. An error enabling learning and improvement in practice found 63.8% (n= 204) of midwives agreeing or strongly agreeing with only 16.6 % (n = 50) disagreeing or strongly disagreeing. Learning was also resulting in largely positive changes in practice, with 57.3% (n = 183) midwives agreeing or strongly agreeing that learning enabled them to change their practice positively. Only 17% (n = 54) of midwives disagreed or strongly disagreed that learning enabled them to change their practice positively. Its negatively paired statement of learning caused me to change my practice negatively elicited 23.6% (n = 75) of midwives agreeing or strongly agreeing and 48.8% (n = 155) of midwives disagreeing or strongly disagreeing. This is suggestive that participant's responses are reliable and consistent across these statements.

Support helped learning for 48.8% (n = 155) of midwives agreeing or strongly agreeing, with 28.6% being neutral about this statement. There were 21.9% (n = 67) of midwives that disagreed or strongly disagreed that support helped learning.

A formal education programme helped remedy midwives' knowledge about the error with 35% (n = 122) agreeing or strongly agreeing with this statement, 34.7% (n=110) were neutral about it and 28.8% (n=91) disagreed or strongly disagreed. It's negatively framed partner statement of a formal education programme hindered recovery from the

error elicited 22.2% (n = 71) agreeing or strongly agreeing, 41.3% (n = 132) being neutral and 35% (n = 122) disagreeing or strongly disagreeing, also suggestive that participant's responses are reliable and consistent.

A larger percentage of midwives disagreed or strongly disagreed that they still did not know the right practice following the error (59.9%, n = 191) than agreed that they still did not know the right practice following the error (21.7%, n = 69). Some erring midwives still did not know the correct practice following their error, supported by the statement despite investigations and processes being complete my learning associated with the error is still incomplete, where 48.8% (n = 151) of midwives disagreed or strongly disagreed with the statement, but 27.7% (n = 86) agreed or strongly agreed with the statement. There is evidence that between about fifth and a quarter of midwives may have incomplete learning around their error.

6.22 Knowledge about specific support from hospitals

Midwives were asked if their hospital had a specific support system for midwives who had made an error. There were 459 midwives who answered this question with 54 responses missing. Table 6.16 indicates the midwives' responses.

Table 6.16: Specific support systems for midwives in hospitals following an error

Does your hospital have a specific support programme for midwives	Study Participants
Yes	37.3% (n = 171)
No	28.1% (n = 129)
Not sure	34.6% (n = 159)

Most midwives either did not have a specific support system or did not know about a specific support system available to them following making an error).

6.23 Conclusion

Phase 2 of the mixed methods study have been presented. Descriptive statistics show the midwifery population in the study compared to the NMC register of midwives. Inferential statistics have shown some positive correlations between variables with practical significance that can be used to develop and test the conceptual frameworks developed from the qualitative phase of the mixed methods research and make recommendations for practice. The inferential tests and their p-values support the original qualitative generated frameworks and will be used in the ensuing discussion to further refine these conceptual models.

Observations can be drawn about the environment in which midwives are working in the England. Midwives indicated they had symptoms synonymous with those of the second victim and displayed multiple symptoms of the second victim. These symptoms could have implications on practice. Positive associations around sleep disturbances, fatigue, decreased job satisfaction, difficulty concentrating, loss of confidence, stress and anxiety need specific consideration. Anxiety with loss of confidence, stress and decreased job satisfaction were also positively correlated. There was decreased job satisfaction positively associated with experiencing blame. However, very few midwives were unable to work due to an error made (0.4% n=2).

Over half of midwives described themselves as having continued distress following an error and they were able to indicate what multiple factors prolonged their distress. Midwives were able to indicate if they were moved from the normal work areas

following an error and whether this was by choice or not. There were significant statistical and practical associations between being moved from the normal place of work following an error and feeling blame following their error and an association between being blamed and experiencing continued distress. Over half of all respondents in their new work area suffered ill health, lost the support of their colleagues and were not comfortable in the new work area. Further consideration of the implications of moving clinical areas post error is required.

Blame has emerged as a key issue with 80% of midwives experiencing blame following an error. Blame can arise from different sources and has been found to be associated with certain variables. This is explored in the discussion (chapter 7) as midwives' experiences of blame in the quantitative finding have confirmed the qualitative findings.

There is evidence that learning occurs following an error and this can result in positive changes in midwives' practice. However, there is also evidence that between about fifth and a quarter of midwives may have incomplete learning around their error. Known specific support programmes in the NHS and England for midwives following an error are in the minority.

Many midwives felt supported to return to midwifery practice and to perform at their usual professional level, however some (40.4%) were still affected by the error event and 53.6% of midwives experience continued distress. Poor mental health, physical ill health, improved health, and status were identified as themes in free responses that midwives made about their experiences and how they felt now. Midwives have articulated what would maximise their recovery following an error.

Following an error, 38% of midwives were moved from their usual work area. A subset of these midwives were forcibly moved from their usual work area. If midwives did move to a new work area, midwives' responses about how they felt when moved to a new work area were established and showed associations with variables that could enhance or diminish experiences and health.

The discussion in chapter 7 merges together the qualitative and quantitative findings. Having used qualitative and quantitative methods to examine and validate different aspects of the overall research question, data have been collected and analysed separately for each component part to produce 2 sets of findings thus far, although the quantitative design was contingent on the qualitative findings. The discussion will now triangulate the findings of both parts, with the meaning of triangulation being to describe corroboration between the two sets of findings and to describe a process of studying a problem, in this case the midwife as the second victim using different methods to gain a more complete picture (O'Cathai, 2010).

Chapter 7

7.1 Mixed methods discussion

7.1.1 Introduction

This chapter discusses the mixed methods exploratory sequential study, synthesizing and critically appraising the findings in the context of the current literature. The aim of the study was to explore and describe midwives' experiences after making an error in clinical practice. Errors were distinguished from adverse events, which are not exclusively errors and incorporate a multitude of other incidents and outcomes too. The study had the objectives of describing midwives' experiences following making an error in clinical practice and critically evaluating the experiences of midwives to make evidence-based recommendations to maximise the recovery of midwives following an error in clinical practice. Limitations, strengths and implications for practice are discussed.

Analysis of data produced in this study has produced key contributions to knowledge for discussion in this chapter, namely:

1. The experiences that midwives go through following the event of making an error in practice is that of the second victim.

2. The first conceptual model to describe the second victim experience of midwives following making an error in England.

3. A framework outlining options for support to enable midwives to recover from being a second victim effectively.

4. Recommendations for organisations in the adoption of the learning from this work.

7.2 Midwives' experiences following making an error in clinical practice.

This research is novel by exclusively studying the English midwives' experiences as an error maker. This research has established for the first time that following an error in practice, the midwife in England can become a second victim as seminally coined by Wu in medics (1991, 2000). There are similarities and differences to other healthcare professionals in the experience of being a second victim, which will be explored. The symptoms associated with being a second victim, were recognised by the midwifery sample in this research, with midwives clearly articulating both their error experience vividly and other's reactions to them, to create the reality of being a second victim. Many of the findings in this research are consistent with, and are supported by the existing literature (Scott et al., 2009; Waterman et al., 2007; Harrison et al., 2014; Han et al., 2017; Mira et al., 2015; Meurier et al., 1997; Chan et al., 2018 and Busch et al., 2020) that focus on the second victim in non-midwifery healthcare professionals, confirming that midwives involved in errors are highly affected by a wide range of psychological symptoms as are other clinicians who have made errors.

Although the concept of the second victim has been established and has increasingly been in the literature since 1991, it is not until recently, and particularly when used in relation to midwives that it has provoked extreme response to its use. Recognised and

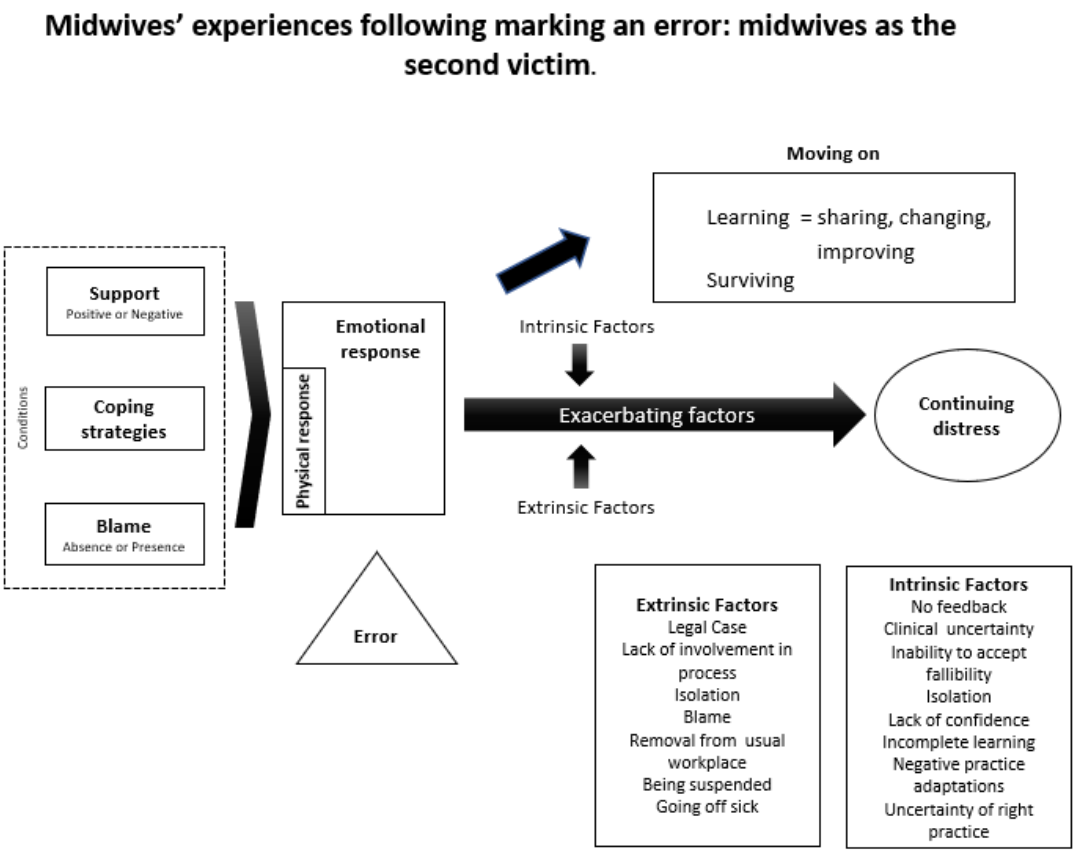
accepted by all midwives and professional audiences to this research, a minority of individuals have taken extreme exception to the use of the term second victim in relation to midwives that has not been seen before. A debate about the term has been undertaken but determined that it is currently the best fit for the description of symptoms suffered by healthcare professionals, following research and international experts, including patients and clinicians coming to a consensus (Tumelty, 2018; Clarkson et al., 2019; Wu et al., 2020 and NHSE, 2022). Disquiet from patient advocates may stem from a fear around the absolving of the practitioner's accountability and the removal of the focus from the patient or it could give the impression that medical personnel are self-centred and solely concerned with themselves (Tumelty, 2018), rather than the intended usage of identifying clinicians who are suffering and ensuring they are helped (Clarkson et al., 2019) for themselves and to mitigate the effect on safety. Moreover, the additional hostility that has arisen from the term applied to midwives may arise from the greater devastating consequences for families, parents, and babies of errors in childbirth, that is potentially avoidable harm and strengthens the rationale for this research as the consequences for midwives and birthing people are powerful and can be overwhelming. This is supported by the analogous research body on midwifery and adverse events (Kerkman et al., 2019; Leinweber et al., 2017; Beck et al., 2015 and Cohen et al.,2017). The argument against the use of the term second victim might also be embedded in a blame culture, where families of patient groups do not want midwives to be considered victims because they are to blame for their loved one's harm. Clarkson (2019) has suggested that the word victim encourages passivity and lack of action in relation to patient safety rather than proactivity which is required in the culture of patient safety.

However, this research does not highlight the fears expressed by Clarkson (2019) in this debate, midwives did not defend that they were victims, nor did they show passivity and lack of ensuing responsibility. They took responsibility for safety and were quick to alert errors to appropriate professionals. However, for the first time in England midwives can be acknowledged as being second victims and the consequences of what this recognition will bring to midwifery practice and the safety discussion can be considered. However, contrary to these personal feelings, in a just operating system, in a systems perspective on safety, the term second victim, as in a victim of a poor system, or indeed in its seminal sense of someone who also suffers following an error, might be appropriate and for now the use of the term second victim is continuing and has been adopted in this research.

7.2.1 Midwives' experiences following an error: a conceptual model

Sequential evolution of the model of midwives' experience through consideration of the wider data set enabled the final conceptual model depicting the experiences that midwives have when they make an error in practice and locates the experience in the second victim literature (figure 7.0). The immediate responses such as the physical and emotional responses are explored first because essentially this is the actualisation of the second victim response. Then the contributing factors and conditions are explored as a means to better understanding the impact of being a second victim and how midwives may move through their experience. Finally based on the midwives' experiences of being a second victim, an evidence-based support framework is presented to maximise recovery (figure 7.1).

Figure 7.0: A conceptual model demonstrating midwives experiences following an error in practice



7.2.2 Midwives experience - emotional and physical responses

When midwives have a response to an error as part of the second victim phenomena, it may affect their wellbeing. It matters because there is a wealth of evidence already showing that organisational performance is critically dependent on the wellbeing of the staff (Sizmur and Raleigh, 2018). Midwives experienced a range of responses following

making an error from anger, anxiety and distress to sleep disturbances and associated fatigue and these will be discussed in turn.

7.2.2.1 Anger, anxiety and distress as experiences for midwives

The anxiety, distress, and anger that midwives can experience following an error in practice is not without consequences at both the personal and professional level. The power of the midwives' testimonies in response to their errors and to the reactions of those around them, showed the strength of the emotions that they experienced as did the frequency of the symptoms they described. Intrusions of the emotional experiences came through into midwives' private lives and exhibited in the workplace.

Anger is a common symptom of the second victim across all health professionals (Busch et al., 2020). In corroboration with this study's findings, nurses in particular (Taifoori and Valiee, 2015; Chan et al., 2018; Rassin et al., 2005; Chard and Tovin, 2018 and Meurier et al., 1997) share self-anger and directed anger. Anger is an emotion that, if left unrestrained, tends to foster defensive attitudes (Cramer, 1991), which were evident in some of the testimonies of midwives in this study. It can also have a negative impact on interpersonal relationships (Han, 2015) and the effectiveness of communication in the workplace (Booth et al., 2023). It is established that anger, whether it be towards oneself or others, is a characteristic of unhealthy coping mechanisms and is associated with an increased risk of burnout (Muscatello et al., 2006).

Anxiety and distress have been documented as commonly experienced in second victim health professionals in two thirds of cases (Busch et al., 2020). Confirming now that midwives commonly experience these psychological symptoms too, this study

found just over two thirds of midwives expressed anxiety following an error, making midwives comparable to other healthcare professionals in the literature on second victims in relation to anxiety. However, it has also been noted that some midwives such as those working alone in the community without peer support compared to hospital-based midwives with available colleagues in their teams can also be particularly susceptible to anxiety (Van den Heuvel, 2023) and some of the distressing testimonials following an error in this research come from community midwives. Anxiety can impair cognitive functioning, which can lead to problems with working memory, concentration, attentional lapses and intrusive thoughts (Robinson et al., 2013), concurring with this research. Midwives' practice is not separate from their emotions; fearful and anxious midwives are less likely to provide compassionate care to women (Beaumont et al., 2016). Additionally, anxiety is frequently connected to sleep disturbances. According to epidemiological research, over 50% of people with anxiety experience sleep difficulties and not getting enough sleep can either cause or worsen anxiety (Chellappa and Aeschbach, 2022; Johnson et al., 2006 and Seo et al. 2021). It was not unexpected then to see midwives describing sleep disturbances following an error as part of the second victim experience, but it should be now acknowledged that this could prevent risk management being effective and result in further errors in healthcare (Joesten et al., 2015; Wu et al., 1991 and Meurier et al., 1997).

7.2.2.2 Sleep disturbances as an experience for midwives

Clarifying that midwives can be second victims and are affected following an error specifically is crucial as midwives are particularly susceptible to sleep disruption and stress following an error as shown in this study, most like the findings in doctors

(Waterman et al., 2007 and Harrison and Han, 2017). Santana-Dominguez et al. (2022) suggested in agreement with this research that midwives could be especially susceptible and sensitive to the second victim phenomenon, but did not specifically focus on errors, as had Schoeder et al. (2019) who found increased sleep disorders and stress in midwives following traumatic childbirth events. It is now known that errors specifically provoke disrupted sleep and stress, and midwives seem to be susceptible following both errors and adverse events. The generic stress feelings in 72.4% of midwives is comparable in this research to previous findings (Busch et al., 2020), however sleep disturbances affected 68.3% of midwives in this study in comparison to the background rate of 35% in a recent systematic metanalysis (Busch et al., 2020) of multi professionals experiencing the second victim phenomenon.

Midwifery is a profession that requires skilled and knowledgeable care for all birthing people. Midwives are accountable as lead professionals (as doctors are in their fields) for these people and make a vital contribution to the quality and safety of maternity care (NMC, 2019), anticipating and recognising any changes that may lead to complications and additional care needs. It is the midwife's responsibility to identify issues, respond immediately, manage, and escalate as part of safe and efficient midwifery practise (NMC, 2019). However, multiple inquiries and recent criticisms of midwifery are suggesting that midwives are often not doing this (Ockenden, 2022; Kirkup, 2015, 2022 and APPG, 2024).

This study has shown, as a consequence of error, many midwives are affected by sleep disturbances as part of the second victim phenomenon, and midwives' ability to work effectively and perform their professional duties after the error may impact future

safety. Insufficient sleep can affect cognitive ability, memory, and create performance deficits (Medic et al., 2017 and Wootten et al. 2023). The association between mental health and sleep has been established previously, with abundant reviews affirming to a strong link between them (Baglioni and Nanovska 2016; Benca et al., 1992; Baglioni et al., 2011; Kobayashi et al., 2007; Nota, 2015; Lovato and Gradisar, 2014 and Reeve et al., 2015). These implications are meaningful for midwives making errors. As second victims they have sleep disturbances, and associated fatigue, but are usually continuing to work as midwives and this may affect quality of care and safety.

Evidence shows there is an association between sleep disturbances and safety in healthcare (Olaoye, 2017 and Thumm and Flynn, 2018) therefore following an error midwives could be prone to further errors and safety will be compromised. Staff fatigue has been highlighted in several Healthcare Safety Investigation Branch (HSIB / HSSIB) reports (Pickup, 2023; HSSIB, 2022; HSSIB, 2024; HSSIB, 2019a and HSSIB, 2019b), and there is a developed evidence base that describes its effects on safety critical industries including healthcare, rail and air (Greig and Snow, 2017; Rajaratnam and Jones, 2004; Folkard and Lombardi, 2006 and Landrigan et al., 2004). However, there are a lack of studies conducted on midwives**,** nor any studies conducted in the UK with the literature being fragmented and lacking cohesion. Further research is required in this area as it is an area that has been highlighted as a feature of the second victim midwife and one that has implications for safety. Examining how the erring midwife who reports sleep disturbances and fatigue in practice performs, in terms of further safety incidents in the aftermath of her error, should be investigated and healthcare organisations should start to manage fatigue as a risk.

7.2.2.3 Fear

Following an error many midwives were afraid, principally of other healthcare professionals. There was fear of the hierarchy in the organisation, the supervisor or the manager and what was going to happen to them with fear of disciplinary action against them being prominent. Experiencing fear adds to confirmation of being a second victim. Consequences of revealing errors has been reported previously (Delacroix, 2017 and Ajri-Khameslou et al., 2017). In addition, the work environment was frightening following an error, midwives were relating this to the behaviour of others towards them and the seriousness of what had happened. Harrison et al. (2014) in their cross-continental work inclusive of the UK also noted the fear of the consequences of revealing errors. Crigger and Meek (2007) and De Freitas et al. (2011) also support these notions of punitive responses following an error. In midwives of concern was the impact described of being frightened, the fear could alter the ability to make sound decisions which may impact on safety. A lack of confidence in the system around them as per Evans et al. (2006), Kingston et al. (2004) and Rowin et al. (2008) seems to be continuing in healthcare despite significant shifts in safety policy over time and a supposed 'Just Culture', with studies on fear among midwives showing that high levels of fear are correlated to reduced confidence in midwives in being able to support birthing people (Offerhaus et al., 2015 and Barlow, 2005).

Outside healthcare, it has been demonstrated that optimistic decisions about the future are more likely to be made when one is in a good mood, while pessimistic ones are more likely to be made when one is in a bad mood or feels afraid (Keltner and Lerner, 2010). One explanation would be that fear can make people perceive risks more

strongly (Lerner and Keltner, 2000). Decisions are typically made in clinical settings using either analytical or intuitive methods, or a mix of the two (Croskerry, Singhal and Mamede, 2013; Ashforth and Kitson-Reynolds, 2018 and Kahneman, 2011). According to Croskerry et al. (2010), emotions and past experiences, both positive and negative, are essential components of intuition and research indicates that clinicians' emotions and moods influence their clinical judgements (Kozlowski et al., 2017). The impact of the care-providers' feelings on clinical practice may be to an extent that such feelings even influence patient safety (Heyhoe et al., 2016). Given childbirth is an emotionally laden experience for midwives and making an error will add to this, it is important to identify how birth-related errors may affect clinical decisions. Answering this question can help midwives firstly, to be aware of the potential impact, and secondly, to have better control over their emotions while making decisions post error to minimise the risk of emotions overcoming future clinical judgement.

7. 2.2.4 Continued distress as an experience for midwives

Seminally this research specifically demonstrates that there is continued distress and symptoms such as those highlighted above, for more than half of midwives who have made errors, with some midwives still distressed over 10 years after the errors occurred. Unresolved symptoms of a second victim in midwives following errors develops the existing evidence following midwifery traumatic events (Cauldwell et al., 2016), showing midwives to be susceptible to harm following errors too. Specifically in an error context, it is further supported by nursing observations of the continuing nature of error experiences over time (Koehn et al., 2016; Mohsenpour et al., 2016; Ullstrom; 2014., Wolf, 2000 and Rassin et al., 2005) and of other healthcare professionals

(Ullstrom, 2014; Scott et al., 2009; Luu, 2012 and Han, 2017). It was notable the ability of the midwives to detail and to recall their error events demonstrating the intensity of the event on their lives. The research is supported by the wider second victim literature as it is known that unwanted upsetting memories and flashbacks are common after other healthcare professional's traumatic experiences (Busch et al., 2020). It adds to the literature on midwives' susceptibility to harm in their practice, but it is not possible to conclude in this research whether midwives have a lesser or greater longevity experience than other second victims. However, it is now noted that if midwives continue to experience the second victim phenomenon they need to be supported at the time of the error and throughout the experience.

It can be concluded that continued distress has significant associations with many symptoms of being a second victim and is part of many midwives' second victim experience. Specifically for midwives and not noted previously in the literature, removal from the normal work area, social isolation, lack of involvement in the processes following an error, attribution of blame and a disconnect with persons available for support and restoration following an error event can hinder the recovery process and harm the midwife. Continuing distress is not desirable in the midwifery population with all its connotations as these midwives largely continue to work and care for birthing families. Although this research suggests that midwives are not very likely to leave the profession because of an error, they may be affected by the error and sometimes for a protracted period of time. This research was only advertised in midwifery spaces and social media where midwives were likely to access, so may not have captured midwives who had left the profession and were not engaging with midwifery spaces or social media. The potential impact of this for support and safety needs consideration,

as no previous studies exist specifically examining midwives, or sought to ask what support midwives needed to help them recover. Longevity as part of the midwives' experience leaves the midwife at risk of protracted physical and emotional ill health, with many midwives who remain distressed and symptomatic in employment with a chronic condition of distress. The NHS Patient Safety Strategy (NHSI, 2019) emphasises the importance of recovering from errors as quickly as possible, currently for midwives this is not always the case. The proposed midwifery specific support should assist with this recovery.

7.3 Trajectory of experience: moving on

The result of a midwife making an error in practice is varied, nonetheless second victim midwives are not likely to leave their profession specifically for this reason, contrary to previous research on other healthcare professionals (Scott et al. 2009, Wu and Steckelberg 2012; Kirch et al. 2012). It has been suggested in the past that midwifery supervision enabled midwives to be resilient (Dunkley-Bent, 2016 and Halperin et al. 2011), midwifery supervision continues but in a different format currently (NHSE, 2017), therefore this may continue to be a protective factor. Representing the new way of thinking about safety, Safety II has a focus on resilience and adaptability to manage varying conditions. However, recent results show that wellbeing and quality of working life scores for midwives were slightly lower throughout the covid pandemic (Gillen, 2022) and the WHELM study (Work, Health and Emotional Lives of Midwives Study) found UK midwives to exceed the population norms for personal and work related burnout, stress, anxiety and depression compared to other countries (Hunter et al. 2019), suggesting that their ability for positive adaptation in the face adversity may have

been damaged and not as good as was thought (Foerster and Duchek, 2018). The WHELM study that examined the connection between midwives' working environments and emotional well-being, is a well-known study conducted globally in this area (Hunter et al., 2019). Australia was the study's origins, but it included collaborators in the UK, Norway, Sweden, Canada, and New Zealand. The study's findings have validated a high degree of burnout, stress, anxiety, and depression in midwifery staff. In addition, sickness rates for midwives are now the second highest and above the average in the NHS at 5.2%, just behind ambulance staff (NHS Digital, 2024). The overwhelming reason for this sickness is anxiety, stress, depression and other psychiatric illness, some of the key characteristics that midwives are showing as a second victim. Furthermore, previous reports had highlighted midwives, considering leaving, with more than eight out of 10 being concerned about staffing levels and two-thirds were not satisfied with the quality of care they were currently able to deliver (RCM, 2021). If this is the background in which midwives are working, when they become second victims the impact could be extreme and something to monitor in the future. This does however emphasise the need to an effective support programme for midwives. Currently though, although potentially hanging in the balance, because of the conditions mediating the emotional and physical responses, many midwives are able to move on from their error experience through processes around learning and surviving.

7.3.1 Learning

In contrast to the immediate negative emotional responses experienced by midwives following an error, the evidence suggests that most midwives do have some learning following the error and a change in practice was made. In support of this, errors had

previously been found to be valuable learning opportunities (Wong and Lim, 2021) and in much of the nursing literature on errors, a positive outcome of the error was personal learning (Delacroix, 2017; Rassin et al., 2005; Koehn et al., 2016; Mohsenpour et al., 2016); Ajri-Khameslou et al. 2017), or shared learning (Chan et al., 2018; Ajri-Khameslou et al., 2017; Morrudo et al., 2019; Schelbred and Nord, 2007; Covell and Richie, 2009) and this has been the forefront of a Safety 1 approach. Therefore, midwives might pay attention to, consider, retain, and learn from failure in the same way that they would from success, if not more so. Midwives' pathway following an error is not limited to negative outcomes such as defensive changes in practice and may potentially assist them to cope more effectively and move on. Nevertheless, for a minority of midwives this was not true, which is concerning for continued safe practice.

Learning from errors in healthcare services is vitally important for advancing patient safety and care quality (DH, 2021). Plans for safety management and support should combine the knowledge of "what goes wrong" (Safety I) and the understanding of "what happens when things go right" (Safety II). This strategy's implication is that there should be a midwifery second victim support program that should seek to create new tools to foster resilience in addition to assisting midwives in quickly recovering and minimising the negative effects of being involved in an error. This research has shown what can go right following an error and implemented this into a support framework as seen below.

However, defaulting to education per say implies that the person making the error only needed education and the problem is resolved, potentially ignoring the complexity of other issues surrounding the error. Error prevention is more complicated than education alone (Ebright and Rapala, 2003). Midwives' testimonies saw them singled

out and put on training programmes and made to relearn areas of practice reducing them to feel like novices in some instances. Although focused on learning, with some positive actions, it has long been established (Reason, 1997) that proponents of a system approach work towards a comprehensive management program aimed at several targets, including the person, the team, the task, the workplace, and the institution as a whole, however, those who support the person approach focus the majority of their management resources on trying to make individuals less fallible or wayward, but this ignores of the complexities around errors and the path to prevention and a safer system. It has been a key recommendation for many years that the NHS should embrace an ethic of learning rather than one of blame and singling practitioners out (Berwick, 2013). Currently it appears in midwifery that some organisations are separating erring behaviours from the context of their system by concentrating on the unique sources of errors and this individual blame reaction could move attention away from systems improvements and thwart the development of safer healthcare as noted by Wu (2000).

A midwife who receives adequate support can recover from stressful events more quickly, assist birthing families who were impacted by a negative experience, and assist in determining what needs to be done to prevent the same error from happening again. Consequently, the majority of significant national and international organisations recognise providing adequate support to second victims as a crucial safety standard and strategy (e.g., Strategy 4.4 of the Global Patient Safety Action Plan 2021–2030 of the WHO (2020) mentions, “Ensure that patients, families, and health care staff (the “second victims”) are given ongoing psychological and other support in the aftermath of a serious patient safety incident” [13], p. 39). However, this research revealed that

midwives are largely unaware of specific support systems following errors or they just do not exist and as such they may not be receiving adequate support.

Agreeing with this current research on errors, equivalent studies have found midwives want to talk about adverse events (Kershaw, 2007; Ullstrom; 2014 and West et al., 2006) and midwives need information and support to aid their learning as part of the recovery process. Learning can be stimulated by a mental state of disequilibrium in solving issues as a result of inaccurate or insufficient information, this is resolved by assimilating new knowledge or accommodating conflicting information (Piaget, 1952). Hence the importance of having information available to the erring midwife. Equally, alternative educational theory illustrates that when an individual becomes aware of a deficiency, they become motivated to resolve the impasse, updating knowledge and improving learning (Van Lehn, 1988), so with appropriate support midwifery errors can stimulate new learning as demonstrated in this research. This has not always been found in previous second victim research with May and Plewws-Ogan's (2012) study of doctors finding silence from colleagues and reluctance to engage from medical colleagues (Schelbred and Nord, 2007), but nursing research finds talking more desirable (Chard and Tovin, 2018; Schelbred and Nord, 2007 and Treiber and Jones, 2018). However, if talking was desired as seen in a minority of doctors, it was beneficial (May and Plewws-Ogan, 2012), however some nurses declined to talk as a coping strategy (Raisin et al. 2005). In addition, midwives need information and support to aid their learning as part of the recovery process, like the nurses in Ajri-Khameslou et al's (2017) study.

It should be cautioned that although midwives felt they did learn from errors, targeting individuals is counter to the idea of system learning. Whilst acknowledging and welcoming the individual responses and claims of learning and moving practice positively forwards, the absence of system learning being talked about in testimonies is problematic. There is a need to move from these positive individual responses to positive organisational and system responses.

The error as being at the root of the learning or the change of practice is supported by previous nursing literature (Delacroix, 2017; Rassin et al., 2005; Koehn et al., 2016; Mohsenpour et al., 2016 and Ajri-Khameslou et al. 2017), as is the wish to share learning (Chan et al., 2018; Ajri-Khameslou et al., 2017; Morrudo et al., 2019; Schelbred and Nord, 2007 and Covell and Richie, 2009). A growth mindset sees ability as something that is acquired via effort, experience, and learning from failures. An error, whilst experienced as upsetting and emotional, is probably motivating for a growth mindset midwife, serving as an incentive to address the circumstances and processes that may have contributed to its occurrence; hence the error is at the root of learning. This study shows that midwives are open to learning from an error, in contrast to recent maternity inquiry findings on safety (Kirkup, 2015, 2022 and Ockenden, 2022), where maternity systems failed to learn from safety incidents. Perhaps the individual is willing, but the system is currently not, pointing to the systemic failings identified within Kirkup (2022).

Currently in midwifery, there seems to be a discrepancy between the perceived importance of patient safety culture with the psychological safety of talking and sharing information and an incomplete implementation into everyday work. It is established in

the health and safety arena that key human factor barriers to organisational learning include a culture of individual 'error' rather than one that takes a systems approach and 'scapegoating' rather than addressing deep-rooted organisational problems (HSE nd).

The midwife needs constructive professional feedback about the error and the processes that are occurring because of making an error. Midwives' similarities to nurses' errors may stem from the professions being predominantly female in orientation in the established patriarchal system of modern healthcare. Even though English midwives are autonomous by law and regulation, unlike their nursing colleagues, most midwives work in a patriarchal paradigm (Newnham et al., 2017 and Jenkinson et al., 2017), where they are often constrained by medical systems and regulatory requirements. This perhaps may make midwives disempowered and more similar to nurses than would be expected given their professional differences. Agreeing with these thoughts, Elliot-Mainwaring's (2022) exploration into English midwifery and safety notes the lack of healthcare management's willingness to learn to improve, specifically focusing on the effects of power and hierarchy on staff safety and the legacy of harm that can result. Midwives have more autonomy and authority in theory than some other healthcare professionals but appear to be constrained in a system in which people are arranged according to their importance.

In contrast to the positive changes in practice, there were some negative changes in practice. The adoption of defensive practice is a response to mitigate objections and avoid complaints or other threats (Eftekhari et al., 2023) and has been identified in midwives who are anxious about their work and influences decision making (Van den Heuvel et al., 2023). Negative practice changes such as defensive practice and over

referrals found in the research are not only costly to the NHS but are potentially encouraging over treatment and mismanagement of birthing families and can run counter to ethical standards in care (Eftekhari et al., 2023). It is unsatisfactory for midwives who should be able to exercise their autonomy and professional skills without fear to have their decision-making affected. Research in non-midwives is supportive of the concept of over checking and defensive care in response to experiencing the effects of being a second victim (Karga et al. 2011; Cramer, 2012; Bourne et al., 2015 and O'Dowd, 2015). The worry and the fear of making mistakes in the future identified in this study may lead to overly controlling behaviours (such as frequent double-checking), which can compromise clinical effectiveness and make midwives more prone to errors as supported by Cramer (2012), which further exacerbates the risk to patients.

It is clear it is not just midwives who need to alter their behaviour if the problem of defensive practice is to be resolved. For optimal working and safety, psychological safety must be optimised, this is acknowledged by the NHS Patient Safety Strategy (NHSI, 2019) but is not a reality for all midwives in this study. Midwives may fear disciplinary action when involved in an error and may see the manager as threatening and has been seen similarly in obstetricians (Corkhill et al., 2016). Recent maternity inquiries where management handling of errors or substandard care was not adequate (Kirkup 2022, Ockenden, 2022) support this finding too. Healthcare workers need to be treated with respect and have the encouragement from managers to share what they know from safety lapses and to be confident that managers will work with them not against them (Patient Safety Learning, 2019). The culture, support, and management of midwifery needs to change to prevent midwives practising defensively. Over

intervention is not better than standard care. As soon as patients consult an additional healthcare professional inappropriately, they are more likely to receive some kind of intervention. This is partly due to a growing consumerist attitude towards healthcare but also because there is a pervasive bias in medicine to act and intervene (Rammya, 2023) and a risk of further over medicalisation of childbirth as a consequence.

Engaging with healthcare can be harmful. Preventable patient harm occurs in 6% or 1 in 20 of patients across medical care settings (Panagioti et al., 2019), with 12% of harm causing death or permanent disability. Just examining six selected types of preventable patient harms in English hospitals resulted in 934 extra bed days per 100 000 population, which is equivalent to over 3500 nurses (or midwives) each year (Hauck et al. 2017). Over treatment and referral through being defensive because of making an error may be impactful for the NHS and the individual patient if exposed to unnecessary episodes of care. Women cared for in maternity units only produce 12.8% of all negligence claims, however the degree of harm can be significant, and they represent the largest areas of payments taking 56.7% of the total value (NHS Resolution, 2024). These numbers illustrate why it is so important to mitigate against unnecessary care being provide by over treating.

Midwives did raise the issues of a lack of involvement, feedback and clear answers, similarly supported by a recent NHS staff survey (NHS, 2022), and midwifery research on adverse events (Ullstrom, 2014). National reports (Ockenden, 2022 and NHS Resolution, 2019) state the importance of engaging with staff appropriately after a patient safety incident and involving them in any subsequent investigation. This now explicitly applies to midwifery errors too. Midwives need information on process

outcomes following errors and should have a check in to ensure they know the right processes following an error. Midwives wanted to share their learning and error experience with others. It demonstrates that midwives are altruistic and are willing to share their learning with others even if it identifies themselves, however the system is not necessarily facilitating this. The present results offer a confirming perspective on how learning from errors can occur, but for the first time this is aligned to a midwifery specific context. It requires learning following making an error in practice to be repositioned in error management and supported through intentional focused design of a support system for midwives.

7.3.2 Surviving

Midwives' experiences following an error have no consistent trajectory contrary to previous research in non-midwives (Scott et al.'s 2009 and Luu et al. 2012). However, as with Rinaldi et al. (2016), the sequence of experiences following adverse events was not defined, perhaps reflecting profession specific variations in experience. Luu et al. (2012) had a sense of chaos which seems to be absent in midwives. Luu et al. (2012) also described a progression through 4 stages which again was not seen in midwives, they were not so linear. However, they did have elements of the emergent phases particularly around overcompensation for the error in the future and the prolonged effects. Examining the elements of the midwives' experience, moving on and learning is like the thriving in the sixth stage of Scott et al.'s (2009) trajectory who identified that some of their non-midwives had made something good come from the negative experiences. Surviving, similarly as Scott et al.'s (2009) moving on, was an outcome of a midwife's experience which meant that the midwife was now carrying out her midwifery

role at the expected professional level and was ‘doing okay’ but continued to be affected by the error. Midwives do have commonalities with other healthcare professionals in these respects but not necessarily in the sequential order previously described.

Furthermore, Beck and Gable’s (2012) maternity focused research on adverse events, discovered a recovery trajectory element around a shaken belief in the birth process impacting midwifery practice, this has negative connotations and, in this research, whilst some midwives did show negative adaptations of practice such as defensive working, positive changes were also shown. This new model specifically for midwives and errors is broader in its interpretation of the experience of the error on the midwife acknowledging that changes can be both positive and negative. The positive changes are very important as these should improve future midwifery practice and safety, but appropriate support is required to foster positive changes. Adding detail and concluding in relation to the nurturing of the emotional and physical responses of midwives following an error in clinical practice, this research offers an explanation about the conditions of support which could be positive or negative, blame and internal or external coping strategies evoked by the midwife.

7.4 Conditions – support

NHSE (2022) acknowledges that health professionals may need support following patient safety incidents (which includes errors), however, they do not consider how this can be done. This omission is met by this research. The perception of an error is differently experienced by different midwives and may lead to either positive or negative pathways. As a result, exploring the experiences of midwives as second victims and the

effect of being a second victim on the midwife and having a support system that acknowledges this is essential. Midwives felt peer support was essential to cope with an error. There was a strong sense of need and was perhaps indicative of the single specialised profession represented in this study rather than in previous research on mixed professional or in most nurse research (Wolf et al. 2000; Chan et al. 2018; Quillivan et al. 2016; White et al. 2015;Covell and Richie, 2009 and Delacroix, 2007), although some nursing research did emphasise peer support in nursing was stronger than in other health care professionals (Treiber and Jones, 2018 and Schelbred and Nord, 2007). This is also consistent with Roji and Jooste (2020), who showed that the participants felt that support within their team made staff members stronger and more resilient which could assist with midwives being unlikely to leave their profession following an error.

Midwives require support in the immediate aftermath of an error, and this extends throughout the period of error experience and beyond. This length of time for support is individualised and sometimes protracted. The solidarity of wanting peer support is sympathetic to the findings that midwives wanted their peers as a source of support following an error and positions midwives with obstetricians and midwives following traumatic adverse events (Schroder, 2019 and Ullstrom, 2014), thus adding to the body of literature with a midwifery focus.

The ability to support midwives who have become second victims, inherently lies within the population of midwives themselves. There is prior research on the efficacy of this kind of clinician peer support in obstetrics (Rivera-Chiauzzi et al., 2020 and White et al., 2015). The creation of appropriate and differentiated support systems according to

profession had been called for, specifically with some recommendations for support systems tailored specifically for midwives (Christoffersen et al., 2020). The current study's findings strongly favour a system specifically for midwives. The modern system of midwifery supervision is the A-EQUIP (Advocating for Quality Improvement in Practice (NHSE, 2017) and is administered by professional midwifery advocates, who are specially trained and qualified midwives and would be one source ideally placed to provide this peer professional support. Some midwives identified reflection, specific support people, educationalists and line mangers as support people but to a lesser degree, again variation existed in what midwives needed following an error. Support programs' common objectives (such as encouraging coping mechanisms and building personal resilience) align with Safety II and could strengthen system resilience. Maternity organisations must embrace a systematic approach to safety and work towards a just culture, prioritising funding second victim support systems (Busch et al. 2021).

Liberati et al.'s (2020) discussion of the features of safe maternity units emphasises that the challenge is to find and share the practices already used, what good looks like, and that could benefit more midwives (Bradley et al., 2009.; O'Hara et al., 2018., and Bradley et al., 2006). The Patient Safety Incident Response Framework recognises the importance of learning from what goes well. Recognising the needs of those affected, which now includes midwives as second victims, remains essential to improving safety. Midwives have now identified their own experiences with errors and the transparency and support that they require to move on positively in their practice, a key component of a safety framework (NHSI, 2019, p.23) and this support model.

7.4.1 Conditions - Coping strategies

Some midwives do not cope well following an error and this is supported by previous health professional studies, because formal professional assistance and support fell short (Ullstrom 2014, McLennan et al., 2015; Mishra et al., 2010 and Scott et al., 2009). This research showed, self-management worked for many midwives, but for some this was not always to good effect, suggesting that a 'menu' of coping aids should be offered to midwives post error as part of professional assistance. In further agreement with this research, previous studies on non-midwives have found the second victims' preference to talk to other professional colleagues rather than untrained family and friends (Engel et al. 2006; Kaldjian et al. 2008 and Schelbred and Nord 2007). Midwives do not identify their own family members as a useful source of support but did prefer supportive colleagues as other healthcare professionals do.

When a midwifery error in practice occurs it appears that here are two further conversations that may occur: a duty of candour conversation and a family conversation. The CQC and NMC have put in place a requirement for healthcare providers to be open with patients and apologise when things go wrong (NMC / GMC 2015 and NHS Resolution, 2019) and sometimes midwives may want a conversation with the birthing family who is the first victim following an error. Due to the sensitive nature of this, this must be dependent on the wishes of the family. Supporting this, open communiqué with patients is the recognised optimal practice after an error (Dhawale et al., 2019. and NMC / GMC, 2015) as disclosing errors is the right thing to do and may aid the healing of harmed families (Robertson and Long, 2018) and health professionals including midwives. A supportive environment and good communication

will assist in this process (Robertson and Long, 2018) and is what midwives have described in this study as desirable to help them.

In contrast, non-midwifery studies suggest that family interaction following an error was not a main coping mechanism (Harrison et al. 2015; Hobgood et al. 2005; Mankaka et al. 2014). However, in midwifery, families have expressed a strong desire to be heard following errors or poor practice (Kirkup 2015, 2022; Ockenden 2022 and Moore et al., 2017). Birthing families also may want emotional support from the erring professional, including an apology, compassion, and honesty. Childbirth is a very emotive time with the midwife – woman relationship particularly special, but always it is imperative to ensure that the birthing family is in control of whether an encounter occurs or not. A model of support would have communication with the family as a desire, to be led by the wishes of the family. The acknowledgment that midwives are second victims opens the opportunity for formal pathways of support with options within it.

Midwives act professionally to bring an error to appropriate attention and want honesty with birthing families. When someone is accountable, they are responsible for systems and processes that assure safety (HSSIB, 2023). Midwives in this study were accountable, they took responsibility for their actions, playing their part in assurance of safety at the point an error had occurred. The objective following a medical error, according to Berlinger and Wu (2005), is to facilitate patients' forgivingness. Considering this, they advise clinicians to assume "prospective" accountability, participate in talks that focus on the future, make improvements, and disclose rather than assign blame. Midwives may self-blame as part of the taking responsibility and accountability process, as identified in this study. Retaining notions of regret and

responsibility have a role to play in disclosure of errors to birthing families and acknowledges that a families' interest plays a greater part on framing any safety strategy as advocated also by Tigard (2019) and Sorenson et al., (2009). However, as noted by Schrøder et al. (2017) this blame, and guilt does contrast with a blame free patient safety culture objective and may not translate across into action from the organisation which is required for a safe culture.

7.4.2 Midwives' errors and neuroscience

The SCARF Model (Rock, 2008), grounded in neuroscience, relates to five key "domains" that influence behaviour, these being status, certainty, autonomy, relatedness and fairness. The brain responds to threat and reward in the same ways that are necessary for the midwives' physical survival.

When a midwife feels threatened (perhaps through blame or lack of information or involvement following an error, all identified in this research) the release of cortisol reduces her ability to solve problems, and this increases the feeling of being threatened, affecting her status. Consequently, midwives will find it more difficult to communicate with others and work together. Loss of confidence (experienced by 66.4% of midwives) is a kind of uncertainty and may create anxiety (experienced by 67% of midwives) and the correlation between loss of confidence and fatigue, sleep disturbances, loss of confidence and anxiety has been established. Having a supportive manager, having meaningfulness, feeling accepted, feeling respected and having autonomy in the new work area, are all dopamine releasing and rewarding events and should therefore be encouraged in the support framework. When midwives feel rewarded the midwives' brain releases dopamine, so the midwife

responds positively to this and will be likely to seek out ways to be rewarded again, she will feel self-confident and be empowered (Rock, 2008). Midwives should be facilitated to stay in the normal work environment. However, if moved choice should feature, the midwife should retain support as loss of support of work colleagues is associated with suffering ill health. If moved, midwives should have a positive manager as supported by Ullstrom (2014). Avoidance of social isolation and retention of connectedness to the clinical area in which she normally works is important in recovery. Having a supportive manager and providing feedback, with opportunities to develop will minimize a threat to status and maximize rewards. If midwives do move work areas following an error in practice these dynamics need to be considered.

There are individual differences in intolerance of uncertainty and physiological responses to uncertainty. Some individuals who are high in intolerance of uncertainty will not be able to endure the absence of adequate, relevant, or key information. Continued perception of uncertainty can be linked to anxiety, altered decision making and impaired decision making (Morris, 2019 and Tanovic, 2018). Minimising uncertainty for midwives will assist in reducing any sense of feeling threatened and consequential loss of focus. Provision of information following errors will minimise the uncertainty for midwives as a second victim. Confirmation of the need for continual and ongoing engagement and involvement following an error by management and supportive persons has been established by this research. Inadequacy in engagement and involvement has previously been shown to prolong the error's impact on second victims and supports this research (Ullstrom et al. 2014). Inadequate institutional support (Harrison et al. 2014; McLennan et al. 2015) and

deficiencies in support are pervasive in this research and the allied literature is supportive of this.

Midwives' autonomy is not promoted following an error in practice, particularly on moving to a new work area. Midwives' status is affected by a loss of autonomy. However, a positive manager can improve this, along with feeling accepted and respected in the new work environment. Supported by the underpinning neuroscience theory of Rock (2008), threats to autonomy through micromanagement and the loss of the ability to make decisions is a threat, and instead the reward focus of the positive manager should be enhanced whereby midwives who have made errors can use their judgment and are facilitated to practice autonomously.

Effective mentoring, support arrangements and checking in regularly with continual engagement with vulnerable midwives who had made errors is important. This will also minimise the threat felt from perceiving that actions following an error were unfair. Connectedness with others releases the hormone oxytocin. The more oxytocin that is released, the more connected a midwife will feel.

7.4.3 Conditions – Blame as an experience for midwives

This study has demonstrated that the blame culture in midwifery is unmistakable; midwives both work in a blame environment and experience blame frequently when they make errors in practice. Midwives as second victims fear of the repercussions of errors noted in this study are well founded when blame is also considered.

Blame towards erring midwives was seen as self-blame, blame form others and perceived blame. Actual blame from another person was striking. Multidisciplinary tensions were evident in midwives' experiences of making errors with sadly fellow healthcare professionals turning on the erring midwife. This has been documented previously in medics (May and Plewws-Ogan's 2012, Delacroix 2007, Corkhill et al. 2016) and particularly nurses (Covell and Richie, 2009; Treiber and Jones, 2018; Mohsenpur et al., 2016) and often related to their mangers (Corkhill et al.2016, Morrudo et al., 2019; Schelbred and Nord, 2007). This research revisits the victim blaming of midwives, bringing it up to date, by the hospital establishment, with midwives unfairly blamed for failings (Hawke, 2021), but in an English context. It adds to the body of second victim literature around blame. It is critical to move healthcare away from the approach of blame and judgement as it impacts safety (Reis et al., 2018, Radhakrishna, 2015, NHS, 2018 and NHSI, 2019), however blame and fear of blame remain entrenched as a reality for midwives.

This work intersects the work around the workplace violence, which is poorly researched in midwifery, by locating the action of blame from fellow healthcare professionals and managers following an error here. Workplace violence is concerned with negative behaviours against those of equivalent or less important power (Zhang and Wright, 2018). Beech (2009) discusses the institutional bullying that can occur in midwifery with the conflict between social and medical models of birth and the hierarchies that exist and are embedded in the NHS. Complementing the findings of this research, workplace violence research (Capper et al., 2022) identifies, fellow midwifery colleagues, managers, and doctors are the instigators of workplace violence and workplace incivility has been found to be an antecedent of labour and delivery

nurses' psychological trauma (Foli, 2022). Health organisations, such as the NHS, with established historical hierarchical arrangements have inherent staff power imbalances as a result and are places where workplace violence can flourish (LaGuardia and Oelke, 2021, Kirkup, 2022) and victim blaming can be utilised to absolve the system of its failings, placing the responsibility on the midwives caring for birthing families (Hawke, 2021). The traditional hierarchy of the NHS and therefore most maternity care environments, exposes midwives to international research findings supportive of this research that have established that staff within such organisations, can experience bullying or uncivil behaviour through power struggles (Witzel, 2019 and Hawke, 2021). The hierarchy gradient or perceived difference in authority between staff is often responsible for lack of communication in safety (AMRC, 2022). Incivility by blame may be a one off, or may persist as exampled in this research, but it can be intimidating with an ambiguous intent to cause harm, in this case the midwife as the second victim following an error. Teams that exhibit strong bonds, mutual respect, and cohesiveness are substantially more likely to continuously deliver high-quality treatment with fewer unfavourable incidents (Pronovost et al., 2011 and Pronovost and Freischlag, 2010). There is a need for mutuality and respect of colleagues working in maternity care to run a safe service (Sinni et al., 2014).

The consequences of this research are that maternity environments and midwives continue to be thrown into a safety debates yet again, as the wider literature has already established an association between workplace features inclusive of, stressful work environments, poor working relationships, and adverse patient outcomes (Sizmur and Raleigh, 2018), as have maternity inquiries (Ockenden, 2022 and Kirkup, 2022) that demonstrated the poor environments and the hierarchy disconnect in which midwives

work, supporting this research. This research has demonstrated that these factors occur following an error, within the second victim concept and environments in within midwives work and therefore the potential for harm to birthing families is evident. It emphasises the poor environments and the hierarchy disconnect from an additional angle of when a midwife makes an error in practice, potentially compounding the effect of an already poor culture of work for midwives. The cumulative effect of psychological trauma on healthcare professionals has been conjectured to contribute to attrition and the desire to leave health professions (Scott et al., 2009, Runyon et al. 2024), however this was not corroborated by this research.

The reality is that professionals and families blame midwives, even if there is a need for a system approach (NHSI, 2019) to improve safety, as unsafe acts through errors cannot be isolated from the system context with its active failures and latent systemic conditions (Reason, 2008). A culture of blame was suggested in the investigations of UK maternity provision (Kirkup, 2015, 2022 and Ockenden, 2022) and confirmed in this research, however the current NHS Patient Safety Strategy (NHSE, 2019) and HSIBB (2023) recognises that the individual approach does not prevent future errors and improve safety. Blaming individual midwives will not improve safety. The need not to blame has been highlighted throughout the patient safety literature since Kohn et al's. (1999) work. Although other industries such as Aviation have made the safety shift away from individual blame (Marx, 1997), blame is significantly associated with midwives experiencing continued distress despite patient safety incidents being acknowledged as complex and multifactorial (HC / DH 2021). Midwives know that a blame free environment is necessary to help with error experience, but there is a clear

contradiction between the reality of policy and thoughts and reality of practice for midwives.

Supported by the NHS Staff Survey (NHS, 2023), and adding weight to this research, not all staff are reporting that their organisation treats staff who are involved in an error fairly and sometimes a manager is at the root of the blame. The manager, with a punitive approach when things go wrong or inadequate management handling of errors has also been identified in recent maternity inquiries, supporting this research (Kirkup, 2022, Ockenden, 2022). This could have continued implications for safety as raised by the House of Commons (HC, 2021), with a culture of blame continuing to prevent staff admitting errors. Consequently, it is not surprising that the safety of maternity services in England has not improved quickly enough (HC, 2021). The William's Review (Department of Health and Social Care, (DHSC), 2018) in agreement with this research, further stated that to encourage the reporting of safety incidents and learning from errors, inadvertent human error, freely admitted, should be not submitted to sanctions, these being the reserve of deliberate misconduct. Chan et al. (2017) however noted a managerial punitive stance in nursing as did, De Freitas et al. (2011), Quillivan et al. (2016), Morrudo et al., 2019 and Schelbred and Nord, (2007). Tackling inappropriate blame with a systems approach is part of the consideration is creating a safety culture and support for midwives. Managers are not the midwives' first choice of support person following an error, although some midwives will choose a manager for support. Similarly to nursing colleagues who are second victims, midwives need positive and not punitive managerial support to recover. This research spotlights the decisions managers make in response to a midwife's error in practice, around moving a midwife

from their usual place of work and the type of midwifery manager that a midwife requires it they are moved to a new work area which is not documented elsewhere.

There is a need to promote a culture in which errors are not ascribed to individuals through directed blame and is therefore one that is perceived as less punishing. Blame from another may stem from an innate human reaction that when things go wrong where one assigns blame as part of the attribution theory (Weiner, 2010) and potentially demands justice, seeking assurance that the error will not occur again. However, it is essential to break the blame cycle to improve safety and error management (Gorini et al., 2012; Reason, 2000 and Kohn et al. 1999). A just culture will hold midwives accountable, if necessary, when an error is made. In a just culture, staff can differentiate between acceptable and unacceptable acts (Reason, 1997; Ferguson and Fakelmann, 2005; Dekker 2007).

Taking accountability and responsibility for actions aligns itself with the notion of self-blame that emerges from this research. Evaluating the self and rendering a judgement (Tangney and Dearing, 2004) following an error can lead to one outcome, being self-blaming and incorporating shame or guilt. However, despite the emotional responses evoked from an error event, midwives' professionalism was evident. Professionalism, and the need to take care of the birthing family first and alert the wider medical team to the error, took president over the midwife's needs. Contrasting with the previous intrapartum nurse research of Beck and Gable (2012), who although found protecting the patient was part of the framework, the midwives in this study did not show the same powerlessness, helplessness or 'wreaking of havoc' that was noted in their study. This is possibly explained by the error focus in this research that was lacking in previous

research. An error, unlike an adverse event, involves an action or inaction at the point of the error by the midwife and the self-blame that comes with this encompassing responsibility and accountability with concern for the birthing family was evident in this research. It has also been suggested in previous non midwifery studies that a self-critical attitude did not consider the patient and was described as a provocative finding warranting further study (Busch et al. 2020). This study found that most midwives were concerned about their patient's welfare, and their reactions towards them. This is possibly reflective of the close personal relationships that midwives share as care givers and of the potential impact an error can have on a mother and baby.

This research provides robust evidence and the momentum to reclaim the agenda on responses to errors by midwives. Reactions that result from apportioning blame are ultimately destructive and do nothing to further midwives' wellbeing and the underlying causes and explanations for errors is lost with blame (person versus system approach to safety). It does not promote a safety or just culture in health systems (Berwik 2013, NHSI, 2019). Simplifying errors to the point of apportioning blame limits the ability and opportunities to learn and prevent reoccurrences in the future because if errors are assumed to be the responsibility of one person, the erring midwife, then any investigation or view of events may not look further than the individual. The development and promotion of a culture that encourages learning from errors has been advocated since the role of error in healthcare became a focus (Kohn et al., 1999) and the report "To Err is Human" that illustrated that the idea that it is systems rather than individuals that are responsible for most unintentional errors. However, for midwives, there is blame from colleagues, and this is supported by affiliated obstetric second victim research (Cooper et al., 2017). Directed blame prevents victims and those in a

position addressing antecedent causes and it may hurt midwives. Blaming and penalising well-meaning midwives for errors they make drives the issue of iatrogenic harm underground and alienates those who are best suited to stop similar issues from occurring in the future. Directed blame should not be an automated reaction to a midwifery practice error that has occurred.

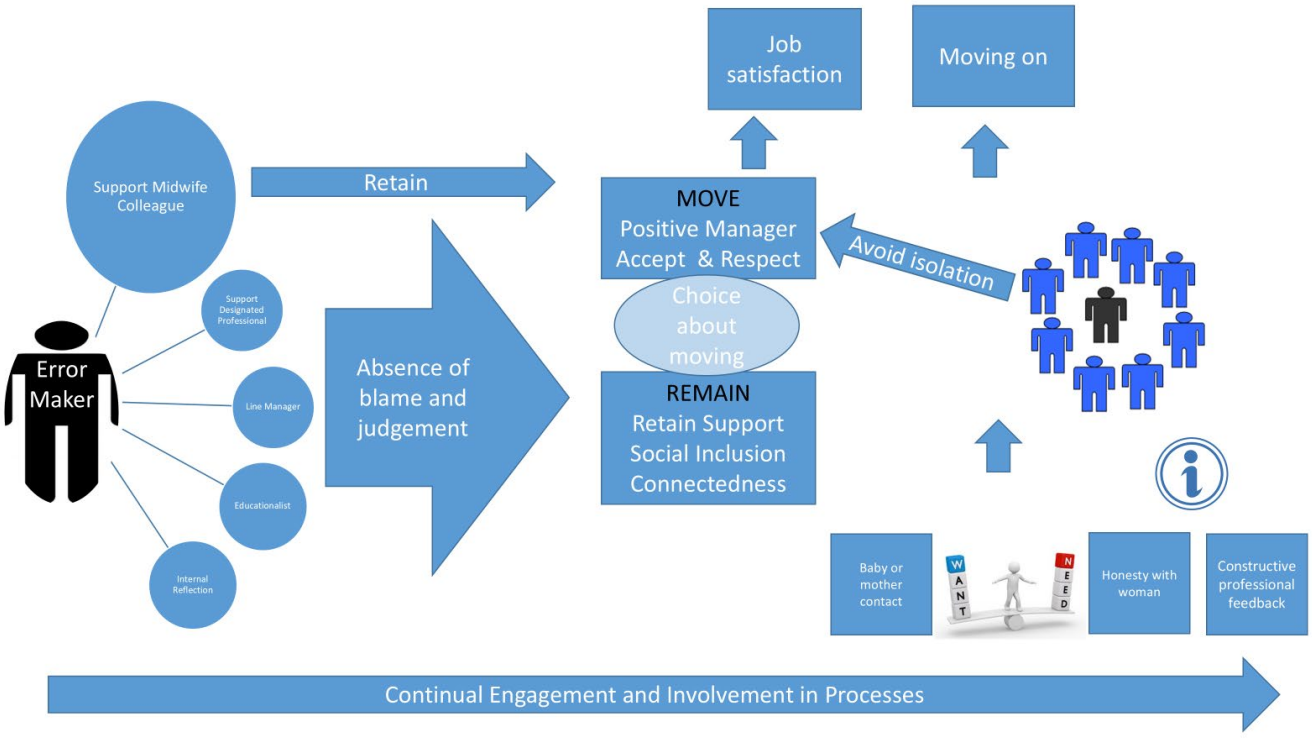
7.5 Final conceptual model of support following an error experience

It is established that the experiences and engagement of healthcare staff and the support they receive within and by the organisation they work in predicts the quality of care that is delivered (Dawson, 2014). Dixon-Woods et al. (2014) demonstrated that good support and management was fundamental to safety, however the reality was that support was inconsistent and needed to be nurtured, which is supportive of this research. Acknowledging most cross-sectional research doesn't always demonstrate causality, the findings about the health and wellbeing of staff is a critical factor in ensuring high quality care for patients and is important (Sizmur and Raleigh, 2018). It therefore follows that second victim support is required for midwives who have made errors in practice as midwives' health wellbeing has been demonstrated to be affected after making an error through being a second victim and subsequent reactions to them.

This research offers an evidence-based model of support specifically for midwives. Neither on the individual or organisational level have midwives been recognised as needing a specific framework of support following an error in practice previously and midwives are unable in the main to locate a specific support programme in their current organisations, despite the established need to support healthcare staff's wellbeing (Dawson, 2014). HSSIB (2023) reported that the NHS lacks coordination activity

between stakeholders in relation to safety mechanisms “instead this is done on a reactive, case-by-case basis” (2.1.12). Kirkup (2022) focuses this on the midwifery environment in his inquiry, as does this research further locating this in midwifery. This is not an acceptable position for midwives to be put in and proactive safety activities need to be coordinated for midwives. Midwives are a unique profession; they have spoken as a profession and determined that they require individualised specific professional support. The knowledge from this study has enabled the formation of a support framework. Sequential evolution of the model of support occurred through mixed methods enquiry. A final conceptual model was generated depicting the support that midwives need when they make an error in practice (figure 7.1).

Figure 7.1 Model of support for midwives following an error



Midwives who had made errors in clinical practice, articulated the specific required support following an error to aid recovery. The supportive midwifery colleague is key to

the model as discussed above, but a menu of support should be available, and midwives need to be aware of this as it is currently lacking.

Previous frameworks of distress and recovery have been relatively brief and non-specific on the support required for the second victim and absent for midwifery. Scott et al. (2009) is generic, leaving open where emotional first aid could come from and how acceptance and social structure of work will assist the practitioner. In addition, Beck and Gable's (2012) notions of support are also generic suggesting it just takes a team to support. The contribution of this research is more specific as the midwifery model of support considers these factors from the perspective of what midwives felt they needed, what had worked for them or had hindered them in their recovery. With continuing poor emotional and sometimes physical health leaving midwives broken with maladaptive coping strategies and adding to the body of research findings that health care professionals struggle to find support after an error (Gallagher et al., 2006; Scott et al., 2009; Waterman et al., 2007, Han et al. 2017), midwives too found accessing appropriate support difficult, further emphasising the requirement for a new model of support.

Existing guidance around support after an error or adverse event in the NHS maternity areas is not actualised for midwives. The Just Culture Guide (NHSE and NHSI, 2018) states that singling out individuals is not appropriate as safety issues have greater causes and require broader action; however, this research has identified multiple times that midwives were blamed and singled out following an error. A systems approach to safety underpins the NHS Patient Safety Strategy (NHS and NHSI, 2019), inclusive of the new patient safety response framework (PSIRF) and the Just Culture (NHSE and NHSI,

2018), however this research indicates that midwives' experiences often reflect a person-centred approach to errors. Tackling this inappropriate blame must be considered in the model for support for midwives. The PSIRF proposals explore transparency and support for those affected by an incident, inclusive of an error, acknowledging that staff are part of the people affected by patient safety incidents and require support (NHS and NHSI, 2019). This supports the need for an explicit midwifery support model that responds to the second victim, to fill this gap as part of a comprehensive process for responding to errors. In a contemporary safety culture, setting up a peer support system for second victims is crucial, even though few such initiatives have been put into place.

7.6 Limitations

The study has some limitations:

I did my best to create a safe environment so the midwives could provide honest, unfiltered opinions about the professional development program while being cautious about the possible effects of power differences. However, it was unclear that this study overcame the Hawthorne effect where the participants are aware of the researcher's desired outcomes and respond in a preferred way (McCambridge et al., 2014). The mixed methodology should go some way to addressing this, but to overcome the possible distortions due to who I am in this study, replica studies may be undertaken.

The midwives in this research will not have benefited from the recent expansion of patient safety education available to both patient safety specialists and the wider healthcare workforce such as the National Patient Safety Syllabus and the PSIRF. It would be hoped that these could make a difference to the way midwives experience

errors and the support they receive and the culture in organisations that they work in. This is very much welcomed, however as unique professionals, midwives need consideration and the conceptual framework and noting that they can become second victims are important parts of any framework of safety improvement.

Future studies should include more midwives as this was an exploratory study. Data collection depended on a self-report questionnaire and important data may have been missed from non-respondents. In addition, using a non-validated questionnaire in research can introduce several limitations that could affect the quality, reliability, and credibility of the findings. However, its use was justified as the research took a mixed methods approach and the data form phase one, the qualitative phase needed to feed into the development of the phase 2 study. This was done by the generation of the questionnaire from the qualitative data. As per mixed methods methodology this was one point of interface (Teddlie and Tashakkori, 2009), see chapter 3, point 3.2.2.1. A pre-validated questionnaire would not have been able to do this as this is an under researched area, there is not a tool specifically looking at what support midwives in England need or what their experiences look like following making an error, therefore the second phase was determined by the findings of the first phase in the process of connecting (Plano Clark and Ivankova, 2016).

A validated questionnaire has undergone testing to ensure it produces consistent results under consistent conditions. Without validation, the tool used in this study may yield inconsistent data. Therefore, I cannot be confident that repeated use of the instrument would yield the same results (DeVellis, 2016). In addition, a non-validated questionnaire may not accurately measure what it claims to measure. Therefore,

results derived from such tools may be invalid, misleading, or unrelated to the actual research questions (Boateng et al. 2018). However, this was a mixed methods study and the unvalidated questionnaire results were indeed consistent and confirmatory with the qualitative phase findings and related to and contributed to the research aims and objectives. Furthermore, without a validated tool, it becomes difficult to compare the results of this study with other studies that used standardized instruments (Mokkink et al.2010).

It was not asked in the survey whether harm resulted from the error so the impact associated with errors that result in harm, and those that do not cannot be reported.

Multiple testing was undertaken without correction giving the potential for multiple significant results. The questionnaire did not ask when the error occurred so it cannot be determined how long distress lasts, beyond stating that for some it had a prolonged impact. For quantitative analysis, no factor analysis or clustering of individual variables took place beyond the base correlations reported. Participants disclosed a variety of errors as part of the quantitative study. The errors disclosed in the study were not interrogated for different types of errors. It may be possible in a further study to further interrogate the data. Data generated were dependent on the midwives being truthful and fulfilling the criteria to participate, although this is always an issue with any research.

7.7 Strengths

This study includes many strengths:

Firstly, I chose mixed-methods research for pragmatic reasons. The sequential explanatory design allowed me to explain and validate the qualitative findings with the quantitative findings. Indeed, the interview data were an excellent addition to understanding and refining the complete picture.

This study addresses an important area that is unrepresented by previous research.

The mixed-method design also allowed me to access the possibilities to understand the results in different ways. For example, in the interviews, I was able to ask questions about the interviewee's responses allowing depth of exploration. The quantitative phase supported and strengthened the existing findings.

7.8 Implications for Practice

The study results demonstrate the importance of recognising the significant distress experienced by midwives as second victims and addressing those needs in practice, education, and policy. The recognition, prediction and control of unnecessary harm are essential for creating safe environments for midwives and birthing families, laying the ground for the need for a standard of second victim support. This represents a required shift in responsibility where midwives' errors and subsequent harm as a second victim is seen as a systemic issue rather than an individual failing that receives blame.

7.8.1 Recommendations from this study

The priority is to publicly recognise and accept the second victim phenomenon in midwives following making an error.

The second priority is to support midwives in practice. It is significant to midwives because it will enhance understanding of the risk for second victim harm in the uniquely traumatic environment within which midwives provide care. It will be useful for informing practice interventions for midwives in appreciation of the challenges in the specialty area of midwifery.

Policymakers should require health care organisations to make the support available to midwives and monitor its implementation and use it to "try to create the conditions that will allow a positive safety culture to develop" (HSSIB, 2023 1.1.7)

Peer support programmes should consider the conclusions of this research, which indicate that it is preferable to address errors and their consequences honestly and with support, specifically managers should provide positive support to erring midwives.

These findings confirm that professionals may be affected in two ways after an error: first, by the error itself, and second, by the way the error is handled. The results suggest that organisations like the NHS require a specialised support system that aids midwives and increases safety. A system is expected to positively influence the establishment of an organisational culture of safety by concurrently attending to the handling of individual demands and improving safety. "A safety culture cannot be imposed by regulation, however through a safety management system, industries can try to create the conditions that will allow a positive safety culture to develop" (HSSIB, 2023 1.1.7).

Broad education can provide a foundation for a more supportive health care environment and prepare for the future. Incorporating education about the second victim phenomenon in midwives is imperative. It is important for student midwives to know what this is and the support that they may need following an error in practice and

how to access that help. For midwives that have not experienced the phenomenon it is important to know about it so that they can effectively support their peers who want and will be turning to them for support.

The role of the Professional Midwifery Advocate requires exploration in relation to supporting the second victim. As a supportive peer it likely that the role could be developed alongside or as part of the support system for midwives.

There is a need to facilitate further research to identify gaps in current knowledge. Information is needed about how many midwives are currently affected by the second victim phenomenon following error, whether the support concept is effective at mitigating their trauma, and if there is an association between midwifery second victimhood and care outcomes, including morbidity and mortality.

7.9 Conclusion

A sequential mixed methods design was utilised to generate a new contribution to midwifery knowledge. The conclusions based on the results of the first qualitative phase led to the formulation of the of the design of the second quantitative phase. The final inferences of the study were based both phases of the study and the second quantitative phase both confirmed and enhanced the qualitative findings. The qualitative interviews were based on the allied literature available at the time, although not specific to midwifery found 15 midwives sharing their experiences through in-depth semi-structured following a personal error in practice. Thematic analysis of data from the qualitative phase enabled the formation of tentative conceptual models of experience and support and determined the quantitative questionnaire design as the development of the questionnaire was grounded in the results of this phase. In the

second quantitative phase, descriptive and inferential statistics were used to confirm and expand factors that emerged from the first phase. The quantitative data and its analysis secured the needed generalisation of midwives' experiences to the wider population and ability to strengthen the conceptual models. Quantitative and qualitative phases were connected during data collection and then again at interpretation of the findings when both phases of the study were brought together to answer the research questions more fully than either one could alone, thus a justification for using a mixed methods exploratory sequential design. Inference quality is a phrase that has been proposed as a mixed methods term to incorporate the quantitative concept of internal validity and the qualitative terms trustworthiness and credibility. The discussion was augmented with the referral to related literature, reflecting mixed methodologies published on the same or similar subject.

This thesis identified a gap in the existing knowledge and as such will contribute to midwifery knowledge. The midwife as a second victim was established and an evidence-based support mechanism for midwives was generated. The findings of this study provide essential insights into midwives' experiences following errors in clinical practice, with implications for clinicians, providers, managers, and policy makers to improve safety in healthcare in England. There are consequences for safety following midwives making errors and becoming second victims. Midwives require specific support following errors in practice.

In particular:

It has been demonstrated that the blame culture in midwifery exists; midwives both work in a blame environment and experience blame frequently when they make errors

in practice. As second victims midwives have key symptoms impacting their practice and / or safety such as sleep disturbances and emotional reactions such as anger, distress, anxiety and fear. Distress can be long lasting and impactful on health, professional practice and given childbirth is an emotionally laden experience for healthcare professionals it may affect clinical decisions. Continued distress has significant associations with many symptoms of being a second victim and is part of many midwives' second victim experience. Specifically for midwives and not noted previously in the literature, removal from the normal work area, social isolation, lack of involvement in the processes following an error, attribution of blame and a disconnect with persons available for support and restoration following an error event can hinder the recovery process and harm the midwife. Longevity as part of the midwives' experience leaves the midwife at risk of protracted physical and emotional ill health, with midwives remaining distressed and symptomatic in employment with a chronic condition of distress. Recovering from errors as quickly as possible (NHSI, 2019), is not a reality for midwives. It is the midwife's responsibility to identify issues, respond immediately, manage, and escalate as part of safe and efficient midwifery practise (NMC, 2019). However, multiple inquiries and recent criticisms of midwifery are suggesting that midwives are often not doing this (Ockenden, 2022; Kirkup 2015, 2022 and APPG, 2024). This study has shown, as a consequence of error, midwives' ability to work effectively and perform their professional duties after the error can be affected and may impact future safety.

Midwives require support following an error and this study has enabled the development of an evidence-based support model that should be implemented. The reality was that support was inconsistent and needs to be nurtured. This research offers

an original evidence-based model of support specifically for midwives. Neither on the individual or organisational level have midwives been recognised as needing a specific framework of support following an error in practice previously and midwives are unable in the main to locate a specific support programme in their current organisations, despite the established need to support healthcare staff's wellbeing.

7.10 Future steps

The proposed conceptual model of support for midwives who have made errors needs to be implemented and evaluated. A further interventional piece of research will be required. These findings provide a useful agenda of priority areas for midwifery practice. The expectation is the delivery of high-quality maternity care, however the fallibility of midwives as humans must be acknowledged and accounted for in designing support for erring midwives. Although beyond the scope of this research, it would be interesting to compare the implementation for the support model in one maternity unit and compare it to another unit where it was not implemented to establish the effectiveness of the model in practice.

Another finding presented in this current study is that most of the errors described by midwives were of a serious nature or could have had serious consequences. There is scope for a further study on the type and nature of midwifery errors given the high scrutiny that midwives are under (Ockenden, 2022; Kirkup, 2022 and Kirkup, 2015) and the inability to access this data in current statistical sources.

The role of the PMA as the midwifery peer support person requires development and monitoring.

There needs to be consideration of the overlap and language around the second victim phenomenon and the literature on the secondary trauma. The term second victim can be provocative. It is the current term in use but may be modified in the future. The underlying suffering of midwives have been shown to exist though by this research and must be recognised and acted upon with appropriate support through the experience of being a second victim.

7.11 Publications and conference attendance

Conferences attended to present findings (appendix 14):

- National PMA Conference, online, October 2023
- International Confederation of Midwives Conference, Bali, June 2023
- National Patient Safety Conference, Baby Lifeline, Birmingham, September 2022

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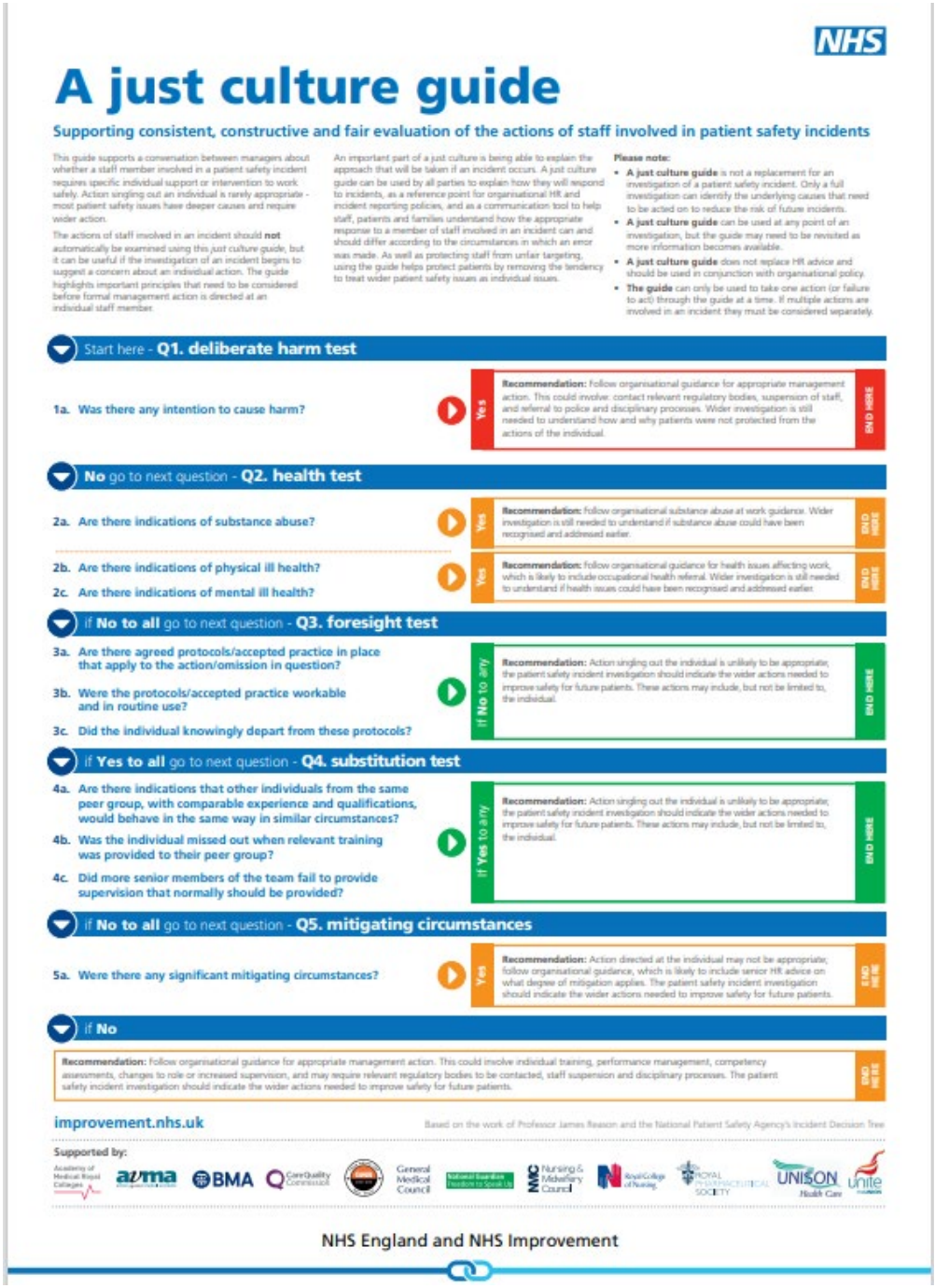
Appendix 1

A Just Culture Guide

NHS_0932_JC_Guide_A3



NHS

A just culture guide

Supporting consistent, constructive and fair evaluation of the actions of staff involved in patient safety incidents

This guide supports a conversation between managers about whether a staff member involved in a patient safety incident requires specific individual support or intervention to work safely. Action singling out an individual is rarely appropriate - most patient safety issues have deeper causes and require wider action.

The actions of staff involved in an incident should **not** automatically be examined using this just culture guide, but it can be useful if the investigation of an incident begins to suggest a concern about an individual action. The guide highlights important principles that need to be considered before formal management action is directed at an individual staff member.

An important part of a just culture is being able to explain the approach that will be taken if an incident occurs. A just culture guide can be used by all parties to explain how they will respond to incidents, as a reference point for organisational HR and incident reporting policies, and as a communication tool to help staff, patients and families understand how the appropriate response to a member of staff involved in an incident can and should differ according to the circumstances in which an error was made. As well as protecting staff from unfair targeting, using the guide helps protect patients by removing the tendency to treat wider patient safety issues as individual issues.

Please note:

- **A just culture guide** is not a replacement for an investigation of a patient safety incident. Only a full investigation can identify the underlying causes that need to be acted on to reduce the risk of future incidents.
- **A just culture guide** can be used at any point of an investigation, but the guide may need to be revisited as more information becomes available.
- **A just culture guide** does not replace HR advice and should be used in conjunction with organisational policy.
- **The guide** can only be used to take one action (or failure to act) through the guide at a time. If multiple actions are involved in an incident they must be considered separately.

Start here - Q1. deliberate harm test

1a. **Was there any intention to cause harm?**

Yes → **Recommendation:** Follow organisational guidance for appropriate management action. This could involve: contact relevant regulatory bodies, suspension of staff, and referral to police and disciplinary processes. Wider investigation is still needed to understand how and why patients were not protected from the actions of the individual. → END HERE

No go to next question - Q2. health test

2a. **Are there indications of substance abuse?**

Yes → **Recommendation:** Follow organisational substance abuse at work guidance. Wider investigation is still needed to understand if substance abuse could have been recognised and addressed earlier. → END HERE

2b. **Are there indications of physical ill health?**

2c. **Are there indications of mental ill health?**

Yes → **Recommendation:** Follow organisational guidance for health issues affecting work, which is likely to include occupational health referral. Wider investigation is still needed to understand if health issues could have been recognised and addressed earlier. → END HERE

if No to all go to next question - Q3. foresight test

3a. **Are there agreed protocols/accepted practice in place that apply to the action/omission in question?**

3b. **Were the protocols/accepted practice workable and in routine use?**

3c. **Did the individual knowingly depart from these protocols?**

If No to any → **Recommendation:** Action singling out the individual is unlikely to be appropriate; the patient safety incident investigation should indicate the wider actions needed to improve safety for future patients. These actions may include, but not be limited to, the individual. → END HERE

if Yes to all go to next question - Q4. substitution test

4a. **Are there indications that other individuals from the same peer group, with comparable experience and qualifications, would behave in the same way in similar circumstances?**

4b. **Was the individual missed out when relevant training was provided to their peer group?**

4c. **Did more senior members of the team fail to provide supervision that normally should be provided?**

If Yes to any → **Recommendation:** Action singling out the individual is unlikely to be appropriate; the patient safety incident investigation should indicate the wider actions needed to improve safety for future patients. These actions may include, but not be limited to, the individual. → END HERE

if No to all go to next question - Q5. mitigating circumstances

5a. **Were there any significant mitigating circumstances?**

Yes → **Recommendation:** Action directed at the individual may not be appropriate; follow organisational guidance, which is likely to include senior HR advice on what degree of mitigation applies. The patient safety incident investigation should indicate the wider actions needed to improve safety for future patients. → END HERE

if No

Recommendation: Follow organisational guidance for appropriate management action. This could involve individual training, performance management, competency assessments, changes to role or increased supervision, and may require relevant regulatory bodies to be contacted, staff suspension and disciplinary processes. The patient safety incident investigation should indicate the wider actions needed to improve safety for future patients. → END HERE

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Based on the work of Professor James Reason and the National Patient Safety Agency's Incident Decision Tree

Supported by:

NHS England and NHS Improvement

Appendix 2

Systematic Review

A systematic review of nurses' and midwives' experiences and responses following an error in the clinical environment.

Authors

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Keywords:

Systematic review, nurses, midwives, experiences, responses, clinical error.

INTRODUCTION

Wu (2000) introduced the concept of the second victim into the academic literature in relation to doctors, examining the significant emotional reactions and long-lasting distress experienced by the clinician in the aftermath of an error (Hassen, 2017). In his theoretical proposition of the second victim, Wu (2000) identified feelings of being "singled out and exposed", questioning of competence, and "fear of being discovered" following an error in care. In addition, making an error had the potential to attract judgements of incompetence by an "incredulous jury of peers" (Wu, 2000 p 726). He postulated that other healthcare professionals could also become second victims. Further supporting the legitimacy of the concept of the second victim occurring in other healthcare professionals, research suggests that the second victim phenomenon occurs when a health care professional makes an error in practice and becomes traumatised by the event (Scott et al., 2009).

The potential scale of error is not insignificant. From July to September 2018, 488,242 incidents were voluntarily reported to the National Reporting and Learning System (NRLS) from England, for the purpose of learning. The number of incidents reported reflects the reporting culture of participating organisations and is not necessarily reflective of the actual number of incidents occurring, however the number of incidents reported continues to increase over time (NHS Improvement, 2019a). The majority (73.7%) of reported incidents take place in the acute and general hospital sector (NHS Improvement 2019a). Patient safety incidents are defined as any unintended or unexpected incidents that could have or did lead to harm for one or more patients receiving NHS care (NPSA, 2011), and are inclusive of harm causing, minimal harm causing events and near misses. These incidents may be inclusive of errors in practice or may be adverse events. It is important to distinguish between the terms errors and adverse events. Reason (1990 p.9/64) defines errors as "the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim without the intervention of an unforeseen event", whereas adverse event have been defined as "an incident which results in harm to a consumer" (Health Quality and Safety Commission, 2013 p.4). In error events the healthcare professional is instrumental to the outcome, whereas adverse events can be an unwanted consequence of treatment such as a drug reaction and may not be as a consequence of healthcare professionals' intervention or wrongdoing. Nationally, most incidents are reported as causing no or low harm, however, 0.3% (n=5526) result in severe harm and death occurs in 0.2 % of cases (n=4717) (NHS Improvement, 2019a). However, a recent systematic review quantified the prevalence, severity, and nature of preventable patient harm. Across a range of medical settings globally, inclusive of obstetrics, it was found that 12% (95% CI 9% to 15%; 20 studies) of preventable patient harm was classed as severe causing permanent disability or patient death, 49% was classed as mild and 36% as moderate (Panagioti et al., 2019).

The challenges of patient safety are not a new concept; there have been many historical enquiries into patient safety with many of the key events significantly predating publication of any official reports. The Bristol Heart Inquiry uncovered key national safety concerns in the UK for the first time, creating the bedrock for future scrutiny (Kennedy, 2001), although the USA had ignited the debate and created ripples worldwide earlier (Kohn et al., 1999). Successive scandals and reports have continued to fuel the debate on patient safety, for example An Organisation with a Memory (Donaldson, 2000), the Francis Report on Mid-Staffordshire NHS Foundation Trust (Francis, 2013), the Kirkup Report on Morecambe Bay (Kirkup, 2015) and the Blood Inquiry (Hansard, 2018).

Vincent and Amalberti (2016) and Hassen (2017) place emphasis on the treatment and remediation of physical problems when a patient has suffered harm as a result of an error in practice, as the patient must be the first priority in alignment with the codes of practice of all healthcare professionals (NMC, 2015a; GMC, 2013; HCPC, 2016). The impact of errors on health care professionals has gained far less attention in the public debate (Schwappach and Boluarte, 2008) and has not featured in a recent patient safety consultation on a Green Paper (Patient Safety Learning, 2018), that will be used to develop a White Paper, which proposes actions to be relevant to wherever healthcare is practiced around the world and to all healthcare settings. Currently, a national framework to support and contribute to crucial patient safety related activities is lacking in the UK (Patient Safety Learning, 2018) and a culture of blame can prevail (Cohen, 2017).

Nevertheless, in the recent NHS Safety Strategy (NHS Improvement, 2019b), there is some acknowledgement towards psychological safety for staff and the workforce being the best opportunity to deliver safe care. The strategy talks of staff being treated fairly and compassionately if things go wrong. Its aspiration is that staff do not feel the need to behave defensively in order to protect themselves but instead have space in which they can learn. It also lists staff under those who may require support following patient safety incidents as part of The Patient Safety Incident Response Framework. The detail however of this support is not forthcoming. It is argued that a transparent NHS safety culture will only be achieved if the second victim phenomenon is recognised and addressed (Edrees and Federico, 2015). Safety "is about teaching everyone in healthcare that error is normal and what the right approaches are to reduce risk and maximise the chances of things going well" (NHS Improvements 2019b, p.38).

There is a body of research related to the second victim, and it is claimed understanding the impact of such injuries is a prerequisite of providing useful and effective help (Vincent, 2010; Edrees and Federico, 2015). Many studies or reviews pertain to, or combine different healthcare professions, for example, research pertains predominantly to medics (Marmon and Heiss, 2015; Luu et al., 2012; McCay and Wu, 2013 and Waterman et al., 2007) or nurses or midwives in combination with others (Wolf et al., 2000; Mayo and Duncan, 2004; Quillivan et al., 2016; Van Gerven et al., 2016; Seys et al., 2013; Scott et al., 2009 and Lewis et al., 2013). Clarity is required in relation to specific professional groups, nurses and midwives are very closely aligned; sharing professional registers in some countries e.g. the UK, USA, Australia and New Zealand, and in many countries the nurses and midwives role are indistinguishable e.g. USA and China.

Finally, many studies have not distinguished between errors and adverse outcomes, grouping the data and discussions about the concept of the second victim to incorporate both issues (Kable et al., 2018; Seys et al., 2013 and Ferrus et al., 2016). These are in fact two separate concerns which should be considered separately to understand if they have different effects on the concept of the second victim. The review addresses these issues and aims to bring the literature up to date.

THE REVIEW

Aims

This systematic review aims to synthesise the literature associated with the experiences and responses of nurses and midwives who had made an error in a healthcare setting. The research questions are:

What are the experiences and responses of nurses and midwives who have made an error in the clinical environment?

Are there commonalities or differences amongst the experiences and responses of nurses and midwives who have made an error in clinical practice?

Design

A convergent qualitative approach was utilised for this mixed method study review (Pluye and Hong, 2014). The systematic review protocol was developed and registered with PROSPERO (CRD42018103011).

Search methods

A systematic search process was undertaken in April 2019 using the following bibliographical databases: MEDLINE, Cumulative Index of Nursing and Allied Health Literature (CINAHL), PsycINFO, Cochrane Library, Science Direct, Scopus, Web of Science, EBSCOhost and the Allied and Complementary Medicine Database (AMED). Search terms and Medical Subject Headings (MeSH) terms were identified by reviewing existing literature. See Table 2 for the specific search strategy for each database. Eligible literature was also sourced through hand-searching reference lists of studies identified through initial database searches.

The final search strategy included the following terms (and synonyms) See Table 2:

nurse*, midwife*, midwives, healthcare practitioner*, healthcare professional*, health professional*, health practitioner*.

AND

Error*, mistake*, incident*, adverse event* RCA Root cause analysis*; safety*

AND

Second victim*, experience*, response*, psychological, emotion*, trauma*

Details regarding the data bases being searched can be found in Table 1.

Table 1: Database utilisation

Database Title	Description
MEDLINE	PubMed comprises of more than 23 million citations for biomedical literature from MEDLINE, life science journals, and online books.
Cumulative Index of Nursing and Allied Health Literature (CINAHL)	Full-text journal articles, nursing and allied health disciplines
PsycINFO	Scholarly and scientific articles in psychology from the American Psychological Association (APA).

Cochrane Library	Reviews of clinical evidence. For people providing and receiving care, and those responsible for research, teaching, funding and administration at all levels.
ScienceDirect	Summaries of journal articles, and full text for selected journals. Access to over 2000 full text scientific, technical and medical (STM) journals published since 1 January 1995.
Scopus	Scopus is one of the largest databases of abstracts and citations of journals, books and conference proceedings from more than 5000 publishers, with coverage including science, technology, medicine, social sciences, arts and humanities research.
Web of Science	Multidisciplinary; covers the Social Sciences Citation Index (1981-), Arts & Humanities Citation Index, and The Index to Scientific and Technical Proceedings (1990-).
EBSCOhost	Growing collection of electronic books ordered to cover all subjects.
Allied and Complementary Medicine Database (AMED)	This alternative medicine database is designed for physicians, therapists, medical researchers and clinicians looking to learn more about alternative treatments.

Table 2: Search Strategy

Search	Search Terms	Search Options
Search 1	nurse*OR midwife* OR midwives OR healthcare practitioner* OR healthcare professional* OR health professional* OR health practitioner*	**Limiters** – hidden Net Library Holdings **Expanders** – Apply related words **Search Modes** – Boolean / Phrase
Search 2	Error* OR mistake* OR incident* OR adverse event* OR RCA OR Root cause analysis*OR safety*	**Limiters** – hidden Net Library Holdings **Expanders** – Apply related words **Search Modes** – Boolean / Phrase
Search 3	Second victim* OR experience* OR response* OR psychological OR emotion* OR trauma*	**Limiters** – hidden Net Library Holdings **Expanders** – Apply related words **Search Modes** – Boolean / Phrase

The inclusion criteria included a sample population of nurses or midwives who had made an error in practice. Key exclusion criteria were other healthcare professionals, or nurses and midwives not working in the clinical environment or who had not made an error. In addition, studies that had mixed participants of healthcare professionals were also excluded, as it was not possible to determine exactly to whom the experiences of errors were attributed. All study designs were included and all papers published in languages other than English were excluded due to lack of translation services.

Search outcome

Two members of the study team (NC and DW) independently screened all titles and the abstracts of those that passed title screening, excluding those that were deemed irrelevant. Following this, full text copies of the remaining papers were retrieved by NC and DW, who undertook further screening and application of the inclusion and exclusion criteria. The search, screening, eligibility and inclusion process is illustrated as a PRISMA flowchart in Figure 1.

Quality appraisal

All papers were quality appraised for risk of bias by NC and DW. A third reviewer (SJ) was available in the event of disputes, however not required. The Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018) was used to appraise all studies and has been shown to be a reliable tool (Pace et al., 2012). Details of the appraisal results are summarised in Table 3.

Table 3

Mixed Methods Appraisal Tool (MMAT), version 2018

Study																					
Methodology	Qualitative	Qualitative	Qualitative	Qualitative	Qualitative	Quantitative non-randomized	Quantitative non-randomized	Quantitative non-randomized	Quantitative non-randomized	Quantitative descriptive studies	Quantitative descriptive studies	Quantitative descriptive studies	Quantitative descriptive studies	Quantitative descriptive studies	Mixed methods studies	Mixed methods studies	Mixed methods studies	Mixed methods studies	Mixed methods studies	Mixed methods studies	Mixed methods studies
Appraisal Questions	1.1. Is the qualitative approach appropriate to answer the research	1.2. Are the qualitative data collection methods adequate to address	1.3. Are the findings adequately derived from the data?	1.4. Is the interpretation of results sufficiently substantiated by data?	1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?	3.1. Are the participants' representative of the target	3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?	3.3. Are there complete outcome data?	3.4. Are the confounders accounted for in the design and analysis?	3.5 During the study period, is the intervention administered (or exposure	4.1. Is the sampling strategy relevant to address the research question?	4.2. Is the sample representative of the target population?	4.3. Are the measurements appropriate?	4.4. Is the risk of nonresponse bias low?	4.5. Is the statistical analysis appropriate to answer the research	5.1. Is there an adequate rationale for using a mixed methods design to	5.2. Are the different components of the study effectively integrated to answer the research question?	5.3. Are the outputs of the integration of qualitative and quantitative components adequately	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the
Ajri-Khameslou, M., Abbaszadeh A. and Borhani, F. (2017)	Y	Y	Y	Y	X																
Arndt, M. (1994). Arndt, M. (1994)	Y	Y	X	X	X																
Chan et al. (2017)	Y	Y	Y	Y	Y																

Chard and Tovin (2018) 107	Y	Y	Y	Y	Y															
Crigger and Meek (2007)	Y	Y	Y	Y	Y															
De FREITAS, et al.(2011)	Y	Y	Y	Y	X															
Delacroix (2017)	Y	Y	Y	Y	X															
Koehn et al.(2016)	Y	Y	Y	Y	Y															
Mohsenpour, et al. (2016)	y	y	y	y	y															
Morrudo et al. (2019)	Y	Y	Y	Y	N															
Rassin et al. (2005)	Y	Y	Y	Y	Y															
Schelbred, and Nord (2007)	Y	Y	Y	Y	Y															
Treiber and Jones (2010) Jones and Treiber (2016)	Y	Y	Y	x	Y															
Treiber and Jones (2018) Jones and Treiber (2018)																N	Y	Y	X	Y
Abusalem, and Coty, (2011)											Y	Y	Y	x	Y					
Chard R (2010)											Y	Y	Y	Y	Y					

Covel CL and Richie JA (2009)																N	Y	Y	Y	Y
Karga M Kiekkasn P Aretha D (2011)											Y	Y	Y	X	Y					
Lewis et al.(2014)											Y	Y	Y	x	Y					
Meurier et al.(1997)											Y	Y	Y	x	Y					
Taifoori L; Valiee S (2015)											Y	x	Y	Y	Y					
Mok et al. 2020											y	y	y	y	y					

Yes = Y No = N X = cannot tell

yes
no
Cannot tell

There were no randomised control trials, so this section of questions has been removed.

Hong QN, Pluye P, Fàbregues S, Bartlett G, Boardman F, Cargo M, Dagenais P, Gagnon M-P, Griffiths F, Nicolau B, O'Cathain A, Rousseau M-C, Vedel I. Mixed Methods Appraisal Tool (MMAT), version 2018. Registration of Copyright (#1148552), Canadian Intellectual Property Office, Industry Canada.

Data abstraction

A standardised data extraction form was designed and piloted for all papers. Content of the form included bibliographic information, sample population, the research design, outcomes measures and findings (Table 4). Two reviewers (NC and DW) simultaneously data extracted, and quality assessed all papers, with any appraisal disputes being resolved through group discussion with a further member of the study team (SJ).

Table 4 data extraction table

Study Citation	Study design	Setting / Country	Participants / Sampling	Findings in relation to experiences and responses
Ajri-Khameslou, M., Abbaszadeh A. and Borhani, F. (2017) Emergency Nurses as Second Victims of Error: A Qualitative Study. Advanced Emergency Nursing Journal. 39(1) 68-76.	Qualitative Semi structured interview Content analysis	Emergency Department Tehran	Purposeful sample 18 nurses	• Psychological reactions to the errors • Learning from errors • Avoiding reactions
Arndt, M. (1994) Nurses' medication errors. Journal of Advanced Nursing 19 519 – 526. Arndt, M. (1994) Medication errors. Research in practice: how drug mistakes affect self-esteem. Nursing Times 90(15) 26 – 31.	Qualitative Interviews Group discussions Self - reports Discourse analysis Same study reported in 2 different locations	Scotland, England and Germany	14 nurses	3 key issues evolved: • Identification and change • Guilt and shame reconciliation with human precariousness • Learning from mistakes
Chan, Shi Teng; Khong, Betty Peck Chui; Pei Lin Tan, Lynnette; He, Hong-Gu; Wang, Wenru (2018) Experiences of Singapore nurses as second victims: A qualitative study. Nursing & Health Sciences 20 (2) 165	Qualitative Interview Thematic analysis	Acute Hospital Singapore	Purposive sample 8 nurses	7 themes identified • Responding psychologically after the event • Feeling other's prejudice • Having intrusive thoughts • Drawing valuable lessons from the event • Coping to recover after the event • Taking responsibility for the mistakes made • Finding self -identity
Chard R., Tovin M. The Meaning of Intraoperative Errors: Perioperative Nurse Perspectives. AORN Journal (2018) 107 (2) 225	Qualitative Phenomenology Focus group interviews Thematic analysis	Intraoperative America	Purposive sampling 10 nurses	Nurses experienced a range of emotions including devastation, horror, anger, sadness and self – doubt. Themes speaks of need to feel safe in talking about errors with colleagues, reducing feelings of isolation and sharing error strategies
Covel CL and Richie JA (2009) Nurses' responses to medication errors suggestions for the development of organizational strategies to improve reporting. Journal of Nursing Care Quality 24 (4) 287 - 297	Concurrent mixed methods Semi structured interviews and questionnaires Inductive theme development	Hospital (5 sites) Canada	Convenience sample 50 nurses	Identified: • Negative consequences of revealing errors • Positive consequences of revealing errors • Respect
Crigger NJ and Meek VL (2007) Towards a theory of self - reconciliation following mistakes in nursing practice. Journal of Nursing Scholarship. 39 (2) 177 - 183	Qualitative Grounded Theory	Hospital America	Theoretical Sampling 10 nurses	Identified a process after making mistakes in hospital practice. Four distinct phases of self-reconciliation: • Reality hitting • Weighing • Acting • Reconciling of self, personally and professionally
De FREITAS, Genival Fernandes; Hoga, Luiza Akiko Komura; Fernandes, MARIA de FÁTIMA PRADO; GonzÁLez, JosÉ Siles; Ruiz, MarÍA Carmen Solano; Bonini, BÁRbara Barrionuevo (2011) Brazilian registered nurses' perceptions and attitudes towards adverse events in nursing care: a phenomenological study. Journal of Nursing Management 19 (3) 331 -	Qualitative Phenomenology Interview	Intensive care Brazil	Not stated 9 nurses saturation not researched	Descriptive findings: The occurrence of adverse events is inherent to the human condition but provokes a feeling of insecurity, discomfort, guilt and distress. Professionals' attitudes towards adverse events should be permeated by ethical principles. Decisions regarding the communication of adverse events were determined by the severity of the error.

Delacroix R (2017) Exploring the experience of nurse practitioners who have committed medical errors: a phenomenological approach. Journal of the American Association of Nurse Practitioners 29 403 – 409.	Qualitative Phenomenology Thematic analysis	Nurse Practitioners America	Convenience sample 10 nurses	Themes: • The paradox of error victimisation • The primary of responsibility and mindfulness • Yearning for forgiveness and a supportive other • Coping with a new reality is context dependent
Jones JH and Treiber LA (2010) When the 5 rights go wrong medication errors from the nursing perspective . Journal of Nurse Care quality 25 (3) 240 – 247. Jones JH and Treiber LA (2010) Devastatingly human: an analysis of registered nurses' medication error accounts. Qualitative Health Research 20 (10) 1327 – 1342.	Mixed Methods Survey Descriptive Design Interpretative analysis using Benner's Interpretive Model same study reported in 2 different locations	America Multiple site recent graduates	Random sample 2472 158 / 202 completed the qualitative part nurses RR: 8.2%	Themes developed: • Concerns about patient harm • Violation of patient trust • Culpability, shame and self-blame • Loss of self-esteem and professional self- image • System failed them
Koehn, Amy R.; Ebright, Patricia R.; Draucker, Claire Burke (2016) Nurses' experiences with errors in nursing. Nursing Outlook. 64 (6) 566 –	Qualitative Grounded theory	Adult Intensive care USA	Convenience sample 30 nurses	5 stages identified following experiences of participants errors: • Being off kilter • Living the error • Reporting / telling about the error • Living the aftermath • Lurking in your mind
Mohsenpour, Mohaddeseh; Hosseini, Mohammad Ali; Abbaszadeh, Abbas; Shahboulaghi, Farahnaz Mohammadi; Khankeh, Hamid Reza Iranian nurses' experience of "being a wrongdoer": A phenomenological study. Nursing Ethics 25 (5) 1 – 12.	Qualitative Phenomenology Semi structured interviews Van Manen's thematic analysis	Private and Government Hospitals Tehran Iran	Purposive sampling 8 nurses	Identified 5 themes: • Wandering in unpleasant feelings • Wandering in the conscience court • Being arrested in time • Time for change • Spiritual exercise
Morrudo EQ, Figueiredo PP, Silveira RS, Barlem JGT, Oliveira SG, Ramos FC. Erros na terapia medicamentosa e as consequências para a enfermagem. Errors in medicinal theory and the consequences for nursing. Rev Fun Care Online. 2019 jan/mar; 11(1):88-96. DOI: http://dx.doi.org/10.9789/2175-5361.2019.v11i1.88-96	Qualitative descriptive exploratory Semi structured interviews Baradin Content analysis	Medical Clinic Unit of a University Hospital Brazil	26 nursing staff	Identified: • Emotional consequences • Judgement, defamation and accusation
Rassin, M. Kanti, T. Silner, D. (2005) Chronology of Medication Errors by Nurses: Accumulation of Stresses and PTSD Symptoms. Issues in Mental Health Nursing 26 (8) 873 – 886.	Qualitative In depth semi structured interviews Content analysis	National Medical Centre Israel	Convenience sample 20 nurses	Themes developed: • Responsibility • The double fear, the anger and shame. • The first month after the error (might get fired, he who works errs, waiting for the enquiry) • Months later (absurdly it got worse with time, learning the lesson) • Reminiscent of PTSD symptoms
Schelbred AB and Nord R (2007) Nurses' experiences of drug administration errors. Journal of Advanced Nursing 60 (3) 317 -	Qualitative Explorative descriptive design In depth Interviews Phenomenology	Norway	Convenience Sample 10 nurses	Themes: • Immediate reactions (shock dread panic reduce ham, report error) • Emotional responses (devastation personally and professionally traumatic) • Reactions from colleagues and managers (silence, help, talking to own health care professionals preferable to family, support) • Impacts on practice – understanding, tolerance to other's mistakes, improved routines, vigilance, and devastation on personal and professional life.

Treiber LA and Jones JH (2018) After medication error: recent nursing graduate's reflections on adequacy of education. Journal of Nursing Education 57 (5) 275 – 280. Jones JH and Treiber LA (2018) More than 1 million potential second victims. How many could nursing education prevent? Nurse Educator 43 (3) 154 – 157.	Mixed methods Descriptive survey	Nursing graduates America	Convenience sample 168 / 842 nurses RR: 17%	Themes developed: Emotions and feelings evident: • Visceral reactions • Descriptors • Concern for patient well being • Fear for themselves • How nurse had been treated

Qualitative Studies

12 qualitative studies (plus the qualitative arms (n=3 of the mixed methods research – 3 mixed methods)

15 in total

Quantitative Studies

7 quantitative plus 1 mixed methods

Study citation	Study design	Setting / Country	Participants / Sampling	Findings in relation to experiences and responses
Abusalem, S.K. and Coty, M.B. (2011) Home health nurses coping with practice care errors. Journal of Research in Nursing 18 (4) 1 – 13	Quantitative Cross sectional survey	Home Community USA	Convenience sample 192/388 nurses Response rate 49%	Nurses coped with making care errors by immediately using 'planful' problem solving at the time the error occurred Changes to practice reported. Nurses experienced emotional distress.
Chard R (2010) How perioperative nurses define, attribute causes of, and react to intraoperative nursing errors. AORN Journal 91 (1) 132 - 145	Quantitative Descriptive Correlational	Perioperative America	Random sample 272 / 700 nurses 39% response rate	Nurses experienced emotional distress Coping with the error and changes in practice were identified Strategies of accepting responsibility and using self-control are significant predictors of emotional distress. Seeking support and 'planful' problem solving emerged as significant predictors of constructive changes in practice. Most predictive of defensive changes was the strategy of escape / avoidance.

Karga M Kiekkasn P Aretha D and Lemonidou C (2011) Changes in nursing practice associated with responses to and coping with errors. Journal of Clinical Nursing 20 3246 – 3255.	Quantitative Correlational structured questionnaire	Multi - centre public hospitals (5) Greece	Purposive sample 536 / 989 nurses response rate 56.7%	• Internal emotional responses positively associated with both constructive changes in practice and defensive changes in practices • External responses positively associated with defensive changes • Errors promote constructive changes in clinical practice when encouraged to use adaptive error coping strategies in a supportive non blaming culture
Lewis EJ; Baernholdt MB; Yan G Guterbock TG (2014) Relationship of adverse events and support to RN burnout. Journal of Nursing Care Quality xxxxxxx 1 - 9	Quantitative Cross sectional survey	Hospital America	289 / 1155 nurses 218 completed survey fully Response rate 25%	Found a relationship between nurse involvement in preventable adverse events and the two domains of burnout: emotional exhaustion (P = .009) and depersonalization (P = .030). Support to RNs involved in preventable adverse events was inversely related to RN emotional exhaustion (P < .001) and depersonalization (P = .003) and positively related to personal accomplishment (P = .002).
Meurier CE Vincent CA and Parmar DG (1997) Learning from errors in nursing practice. Journal of Advanced Nursing. 26, 111–119.	Quantitative Questionnaire Modified Wu (1991)	United Kingdom NHS Hospital	Convenience sample 145/ 175 nurses Response rate 83%, with 74% having made a definite error	Nurses experienced emotional distress in response to their errors (majority) There was a need to discuss errors (majority) Responses of support were mixed. Nurses reported changes in practice (80%) Nurses used positive and negative coping strategies
				Accepting responsibility and planful problem-solving were found to lead to positive changes in practice, whereas distancing and self-controlling strategies were associated with defensive changes, particularly with a tendency not to divulge the error. The findings also showed that errors had the potential to effect learning.
Taifoori L; Valiee S (2015) Understanding or nurses' reactions to errors and using this understanding to improve patient safety. ORNAC Journal 33(3) 13 – 22	Quantitative Cross sectional Descriptive Questionnaire	Operating rooms University of Kurdistan Teaching Hospitals Iran	Convenience sample 153 / 170 90% response rate nurses	Gathered information from 3 perspectives – emotional reactions, coping with error and the result of reactions towards the error: 85.6% emotional reactions around harming the patient 83.7% experienced guilt 69.3% experienced self- anger 67.3% experienced embarrassment 97.2% deciding to do better next time 79.9% apologising 98.5% paying more attention to detail 95.4% Listening to patients more carefully 94.1% following guidelines and procedures more accurately 93.5% keeping better patient records 92.8% better monitoring of patients
Treiber LA and Jones JH (2018) After medication error: recent nursing graduate's reflections on adequacy of education. Journal of	Mixed methods Descriptive survey	Nursing graduates America	Convenience sample 168 / 842 nurses Response rate 17%	Identified supportive and punitive work environments Majority of nurses received fair treatment (85%) Majority of nurses received understanding (85%) 61% of nurses had received support

Nursing Education 57 (5) 275 – 280. Jones JH and Treiber LA (2018) More than 1 million potential second victims. How many could nursing education prevent? Nurse Educator 43 (3) 154 – 157.				62% of nurses were treated with compassion
Mok WQ, Chin GFC, Yap SF and Wang W (2020) A cross-sectional survey on nurses' second victim experience and quality of support resources in Singapore. Journal of Nursing Management. 28, 286 – 293.	Quantitative Cross Sectional Descriptive Questionnaire	Acute Hospital Nurses Singapore	1163 / 1800 Convenience Sample Response rate 73.6%	Nurses experienced second victim-related physical, psychological and professional distress. 31.8% of the participants had intentions to leave, while 9.3% had absenteeism following an error. Nurses who were younger and less experienced were more likely to experience a greater second victim response.

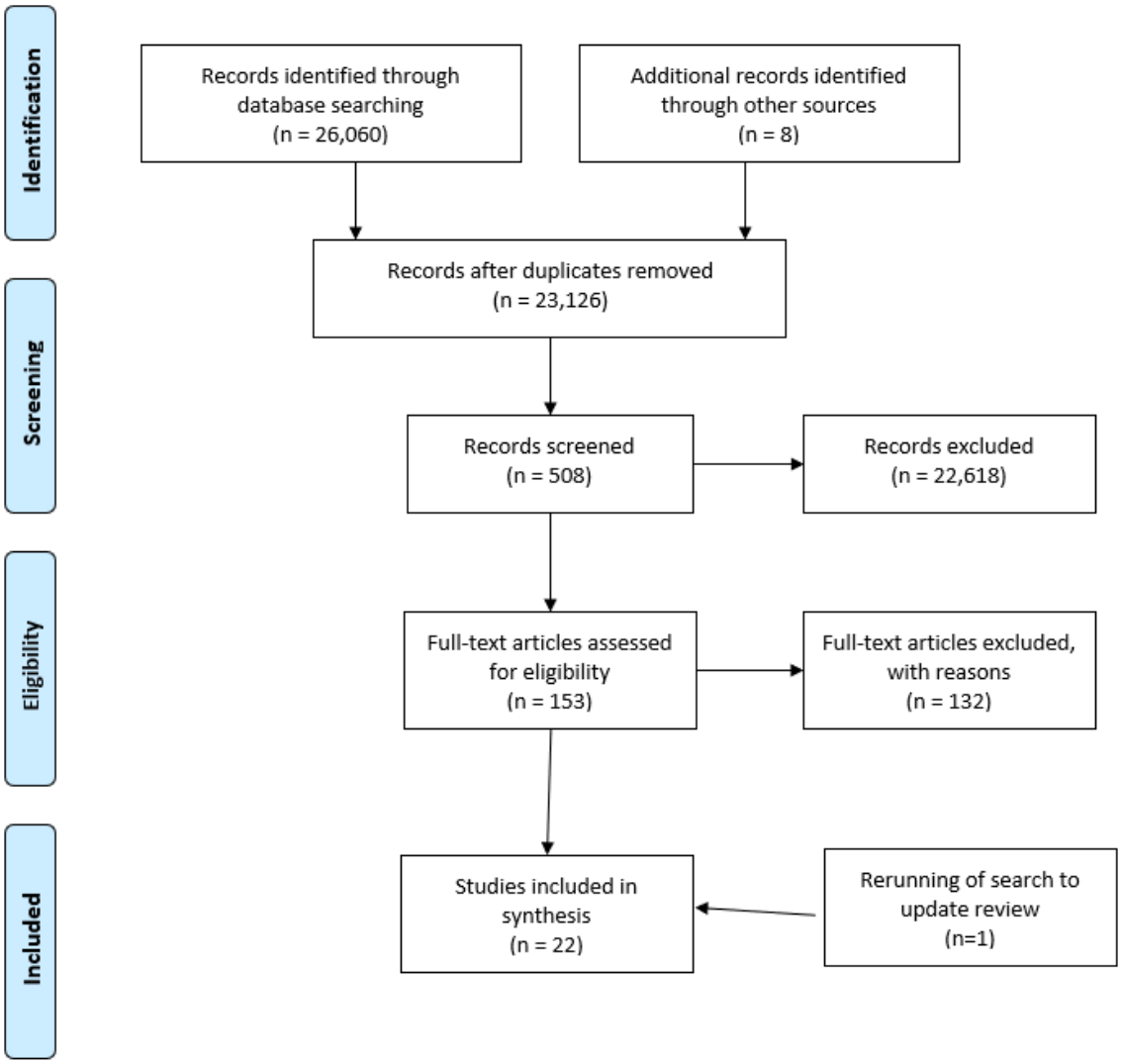
Synthesis

Data synthesis followed a convergent qualitative approach for mixed-methods systematic reviews (Pluye and Hong, 2014). The first phase of data synthesis involved thematic synthesis of qualitative papers (n=15) using QSR's NVivo (11.0 version) software (QRS International 2018). Two reviewers (NC and DW) independently coded the data, then came together to debrief and agree on a codebook. Following development of a finalised codebook, coding was then repeated (Miles et al., 2014). Main themes and supporting quotes were then identified by summarising data from each code.

The second phase of data synthesis focused on the quantitative papers (n=7). Due to heterogeneity of outcome measures and study design, a meta-analysis could not be undertaken. Consequently, a narrative summary of this data were conducted to establish a summary of their findings and to establish any relationships amongst the papers. Finally, the themes derived from phases one (qualitative) and two (quantitative) were synthesised and explored collectively and reported.

RESULTS

The Prisma Flow diagram depicts the search results (Figure 1).



Study Characteristics

In total, 21 studies were included in the review: 6 quantitative studies, 12 qualitative studies and 3 mixed methods studies. Mixed methods studies were separated into their components parts for analysis. These studies were conducted in various countries including America (n=9), Iran (n=3), Greece (n=1), UK (n=1), Norway (n=1), Singapore (n=1), Canada (n=1), Brazil (n=2) and Israel (n=1) and multi centred UK and Germany (n=1).

A variety of clinical settings were noted in the review. These included Emergency Department (n=1), Perioperative (n=3), Critical Care (n=2), Acute Care (n=1), Hospital (n=8), home care (1) and unspecified (n=6).

Of the 21 studies, the sample populations were exclusively nursing focused. No midwifery studies were identified for review. It is acknowledged that there were seven papers that looked at nurses working in specialist clinical roles or environments (Ajri-Khameslou et al., 2017 [Emergency Department]; Chard, 2010; Chard and Tovin, 2018 and Taifoori and Valiee, 2015 [Operating Department]; de Freitas et al., 2011 [Intensive care]; Delacroix, 2017 [Nurse practitioners]; Koehn et al., 2016 [Adult intensive care]).

Ten studies examined experiences of errors exclusively (Arndt, 1994; Abusalem and Coty, 2011; de Freitas et al., 2011; Covell and Ritchie, 2009; Chan et al., 2018; Mohsenpour et al., 2016; Crigger and Meek, 2007; Delacroix, 2017; Koehn et al., 2016; Rassin et al., 2005), whilst nine studies combined

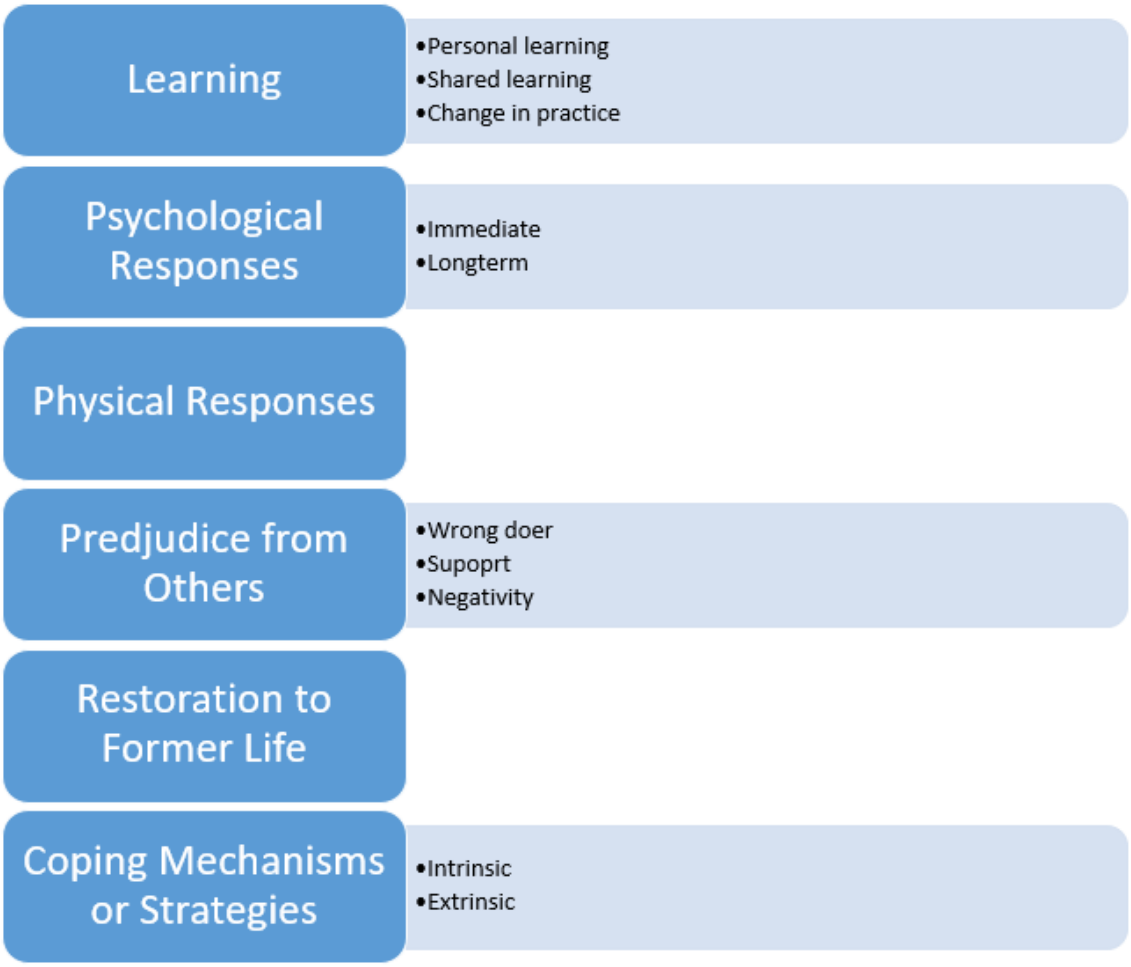
experiences of errors with other research questions, e.g. , causes of errors or support (Ajri-Khameslou et al., 2017; Chard and Tovin, 2018; Treiber and Jones, 2010; Treiber and Jones, 2016; Meurier et al., 1997; Karga et al., 2011; Schelbred and Nord, 2007 and Taifoori and Valiee, 2015) and education preparation for dealing with errors (Treiber and Jones, 2018). The reviewers only examined the experience of errors for these studies.

Synthesis narrative of qualitative papers and quantitative papers

Six themes were derived with subthemes from the thematic synthesis: Learning, Psychological Response, Physical Response, Prejudice against them, Restoration to former life, Coping Mechanisms or strategies and Learning (Figure 2).

None of the quantitative studies (n=7) were directly comparable due to their heterogeneity. No two studies used the same samples, settings, methodologies or data collection tools. Thus, a meta-analysis was not feasible. To address the systematic review question, results from studies that included quantitative data were integrated into qualitative findings, in accordance with Pluye and Hong (2014) guidance on convergent synthesis.

Figure 2 Themes and Subthemes



1. Theme: Learning

A common theme of the studies reviewed is the lived experience of learning by the error maker. An individual's experience of an error allowed personal learning to take place, and this was either about the nurse and the discrete task that the error related to, the enablement of shared learning from the error or the manifestation of a change in practice from the error.

1.1 Personal learning

Nurses described how they searched for information and sought consultation (Ajri-Khameslou et al., 2017) or that the error was the impetus for acquiring new knowledge and enhancing clinical competence (Delacroix, 2017; Rassin et al., 2005; Koehn et al., 2016; Mohsenpour et al., 2016). Ajri-Khameslou et al. (2017) discusses a participant who asked questions to colleagues or supervisors in order to prevent harm following an error. Delacroix (2017) similarly illustrates a participant who now reads up on medications and research topics, although they also acknowledge they are more cautious in their practice; the key issue is summed up as "I think that mistake was an educational moment" (Delacroix 2017, p.407).

1.2 Shared Learning

The literature reviewed revealed a subtheme of shared learning following an error (Chan et al., 2018; Ajri-Khameslou et al., 2017; Morrudo et al., 2019; Schelbred and Nord, 2007; Covell and Richie, 2009). For example, in Chan et al. (2018) some participants actively took it upon themselves to share their learning with other health care professionals. The purpose of this was to prevent error reoccurrence similar to their own error. It was presented as one of the solutions to prevent errors (Ajri-Khameslou et al., 2017), with the majority of nurses wanting to share their error experiences. Participants in the Schelbred and Nord (2007) study described instances of sharing their past error related experiences with colleagues who had just made an error. Chan et al. (2018) emphasised that there was a degree of courage displayed by participants who would share their experiences.

Shared learning was not always an option for some nurses as identified by Rassin et al. (2005), who uncovered elements of fear and isolation. Morrudo et al. (2019) reported nurses not wanting to expose an individual error to the whole nursing team, although they did recognise that talking to others may result in more attention in the preparation and administration of medication.

1.3 Change in Practice

A notable change in clinical practice at a personal or organisational level was evident from multiple research studies reviewed. This usually resulted in a positive change in practice: (Koehn et al., 2016; Covell and Richie, 2009; Chard, 2010; Karga et al., 2011; Abusalem and Coty, 2011 and Taifoori and Valiee, 2015). Sometimes negative connotations occurred (Koehn et al., 2016; Meurier et al., 1997).

Following an error, Abusalem and Coty (2011) found that all nurses reported some changes in their practice, 73% paid more attention to detail, 62.5% personally confirmed data and 62.5% had changed the organisation of data. This was reinforced by Koehn et al. (2016) who noted that nurses became dedicated to avoiding actions that could result in any harm to a patient. Similarly, Taifoori and Valiee (2015 p.15) reported outcomes, in reaction to errors and learning, and noted that; "Paying more attention to detail" (98%), "listening to patients more carefully" (95.4 %),"following guidelines and procedures more accurately" (94.1%), "keeping better patient records" (93.5%), and "better monitoring of patients" (92.8%) were the main changes noted. Chard (2010) also found a high percentage of nurses agreed strongly that they now pay more attention to detail when caring for their patients, mirroring the finding of the studies above. However, there was a strong relationship between accepting responsibility and defensive changes. These can be interpreted as, defensive changes being concerned with keeping errors to themselves, avoidance of similar patients or families, less confidence or fear of making further errors, ordering more tests or changes in relationships. Constructive changes on the other hand centred on

asking colleagues for advice, asking what colleagues would have done in similar situations, learning and making changes to reduce errors, increasing education and improving documentation (Seys et al. 2013).

Koehn et al's (2016) nurse participants claimed that having been through an error made them pay closer attention when they were in a similar situation. Similarly, Rassin et al. (2005) found nurses stated that they had learned their lesson following an error and this had changed their practice, for example by making them check and double check work, slow down or avoidance of multi-tasking. In contrast, Koehn et al. (2016) also illustrated that although personal (and often painful) lessons may have been learned following an error, sometimes this learning did not go any further. Further explanation of this is not undertaken, but Meurier et al. (1997) also concur with this.

2. Theme: Psychological Response

Nurses described strong psychological responses to making an error in all studies. Immediate or long-term responses were identifiable, and these were predominantly related to psychological suffering and negative emotions in the qualitative literature (Chan et al., 2018; Koehn et al., 2016). Abusalem and Coty (2011), Chard (2010), Karga et al. (2011), Meurier (1997), Taifoori and Valiee (2015) and Lewis et al. (2014) all identified psychological responses in the quantitative literature; however, these were not classified or themed into long- or short-term responses.

2.2 Immediate psychological responses

Immediate responses in relation to error making were both positive and negative. Nurses experienced an initial sense of distress on discovering that they had made an error. Nurses' emotional vulnerability following an error was evident in all of the studies. Many used emotive language, describing anguish, discomfort, insecurity, guilt and distress (Schelbred and Nord, 2007 Koehn et al., 2016, De Freitas et al. 2011).

Shock was described as a primary response to the realisation of making an error (Crigger and Meek 2009; Morrudo et al., 2019), often followed by remorse for the error (Crigger and Meek, 2009; Mohsenspour et al., 2016; Ajri-Khameslou et al., 2017). Continuing with immediate or early responses, Chan et al. (2018) summaries that overwhelming feelings of sadness, stress, guilt, low self- esteem with a loss of confidence were experienced and were distressful. Similarly, Rassin (2005) identified guilt and loss of confidence, with anger and shame appearing too. This shame, guilt and anger was correspondingly identified by Morrudo et al. (2019), and Chard and Tovin (2018) reported guilt and anger. "Devastation" and "horror" described in Chard and Tovin's study (2018 p.230), alongside the despair described by participants in Morrudo et al's. (2019) study emphases actual and potential impacts on nurses of making an error.

Numerous studies (Chard, 2010; Taifoori and Valiee, 2015; Karga et al., 2011 and Meurier et al., 1997) noted that that nurses commonly experienced negative emotions which included self-anger, anger at others, guilt, and embarrassment.

Abusalem and Coty (2011) identified that nurses experienced negative emotional distress. Emotional distress positively correlated with emotional self-control (0.50), escape avoidance (0.48) and seeking social support (0.37) ($p<05$). However, Cronbach alpha values were below .70 on a number of scales in this study.

Fear was obvious in nurses from reviewing the studies (Delacroix, 2017; Morrudo et al., 2019; Treiber and Jones, 2018), specifically fear of repeating the error (Chan et al., 2018; Schelbred and Nord, 2007) or fear or emotions related to or for the patient's welfare (Jones and Treiber, 2010; Rassin et al., 2005; Morrudo et al., 2019; Schelbred and Nord, 2007 and Jones and Treiber, 2018) or fear for the professional's future (Delacroix, 2017; Ajri-Khameslou et al., 2017). Fear was also provoked when encountering a similar clinical situation to the one that occurred (Chan et al., 2018). Although many studies commented about

the sense of relief experienced when the patient was unharmed by an error or harm was minimal. There was discussion of gratitude (Jones and Treiber, 2018 p.278), relief and thankfulness (Chan et al., 2018).

2.3 Longer term psychological responses

Some errors had occurred many years before the study was conducted, but the emotional responses associated with it had been retained. Lurking, haunting, sticking, reoccurring or a continuation of the psychological impact was a commonality in research (Koehn et al., 2016; Schelbred and Nord, 2007; Chan et al., 2018; Covell and Richie, 2009 and Crigger and Meek, 2007 and Jones and Treiber, 2010). Koehn et al. (2016) for example illustrated that memories of the error haunted participants and that participants were convinced that these memories would stay with them throughout their career. Intrusive and invasive thoughts (Chan et al., 2018) were noted to persist in some nurses following making an error. Symptoms reminiscent of Post-Traumatic Stress Disorder (PTSD) were identified by Rassin et al. (2005) and Schelbred and Nord (2007). Schelbred and Nord (2007) also highlighted nurses' inability to handle stress caused by a medication error at a distance from the incident.

Ajri-Khameslou et al. (2017) described a nurse who became obsessive and confused over her error. She was restless and had an inability to handle everyday home tasks or undertake childcare. Lewis et al. (2014) examined burnout. They demonstrated that emotional exhaustion (p=.001) and depersonalisation scores (p=.012) worsened following involvement in an error, although being a more experienced nurse (in late career rather than mid - career) was associated with less depersonalisation (p.003). However, being early in the nurses' career was rated higher and associated with higher personal accompaniment, as was higher nurses support scores (p=.002). Delacroix (2017) recounted 6 participants' accounts of what they describe as cognitive impairments of the rumination, hyper-vigilance, worrying and flashbacks and Schelbred and Nord (2007) highlighted the potential in nurses for serious escalation of psychological responses: inclusive of suicide in two cases. Significant ill health was identified across several studies, and the reoccurring nature of the psychological effect was evident in the literature (Chan et al., 2018; Rassin et al., 2005; Schelbred and Nord, 2007; Delacroix, 2017).

Disruption of sleep was commonly identified by nurses as a response to making an error (Schelbred and Nord, 2007; Chan et al., 2018; Covell and Richie, 2009 and Crigger and Meek, 2007). Chan et al. (2018) illustrates that nurses' sleep disturbances were due to recurring thoughts about the incident, the patient or their own competence. Covell and Richie (2009) relate inability to sleep to anxiety and depression, whilst Crigger and Meek (2007) describe dreams about the error and harming patients. Concurring with this, Schelbred and Nord (2007) discusses insomnia and nightmares, and nurses reliving the error incident repeatedly in their minds. Respondents commented: "I couldn't sleep. I mean I couldn't sleep. I had bad insomnia and then if I did manage to fall asleep, I had nightmares about it, where oh it's my subconscious telling me, you've screwed up girl, you should've not done this" (Delacroix et al., 2017, p406). This could be prolonged; "[One year after the error] Time went by and it still lingers on. For a few months I was very nervous, I had difficulties falling asleep, because most of the time my mind kept busy thinking about it (Rassin et al., 2005, p882).

Nurses also displayed psychological concerns that spiralled from the initial error. They were concerned not only about the patient, but also about career implications and even criminal prosecution. Some of these feelings ultimately altered their self-image, personally and professionally (Jones and Treiber, 2010; Chan et al., 2018; Ajri-Khameslou et al., 2017; Crigger and Meek, 2009; Schelbred and Nord, 2007). Jones and Treiber (2010) highlighted nurses that had stopped wanting to practise nursing, although the research did not identify whether they did or not. Similarly, Chan et al. (2018) identified fears of criminal indictment and career-related repercussions inclusive of dismissal.

Self-esteem was also affected by making error (Crigger and Meek, 2009). Mohsenspour et al. (2016) reported that nurses were "immersed in unpleasant emotions", berating themselves and questioning their abilities as nurses (p.5). Schelbred and Nord (2007) discusses nurses who were struggling to accept their human fallibility. The incidents that nurses were involved in represented both a personal and professional threat and deeply affected nurses' self-image.

Some study findings also showed that nurses experienced uncertainty in relation to investigations (Chan et al., 2018), or anxiety about what would happen to them (Mohsenpour et al., 2016). Rassin et al. (2005) reported concerns about job security and uncertainty about what to expect, which led to thinking the worst.

3. Theme: Physical responses

Nurses across the studies reported a number of physical responses associated with their error events. Often the nurse's initial responses following an error event were visceral and accompanied by feelings of shock (Crigger and Meek, 2007; Delacroix et al., 2017; Koehn et al., 2016; Mohsenpour et al., 2016; Rassin et al., 2005), for example, "It just hit me. I could have passed out. I mean honestly I was so sick to my stomach" (Koehn et al., 2016, p569), "[I felt] hit back a sack of concrete", "my chin hit the floor" (Crigger and Meek, 2007, p180) and "I had a heart-attack that moment. I was shocked and shaking all over" (Rassin et al., 2005, p877). Nausea and sickness was commonly reported response (Koehn et al., 2016; Delacroix et al., 2017), whereas some participants described intense shaking or trembling following an error event (Morrudo et al., 2019; Rassin et al., 2005) and others described feelings of paralysis (Delacroix et al., 2017).

Symptoms were often reported as being widespread, systemic and effecting the nurse's whole body, for example, ''It seemed that I was dead at the same time as the patient. My whole body was numb. I was pale and confounded" (Mohsenpour et al., 2016, p5). Respondents also described profound physiological changes, these include feeling flushed, raised heart rate or an increase in respiration rate (Delacroix et al., 2017; Mohsenpour et al., 2016; Rassin et al., 2005). A nurse from the Rassin et al. (2005) study correctly attributes these symptoms to the 'flight or fight response'.

Feelings of exhaustion were reported (Mohsenpour et al., 2016; Rassin et al., 2005), for example, "For a week or two it was very difficult for me to cope. I was exhausted, worn, and tearful. It kept ringing in my head—how do you get out of it (Rassin et al., 2005, p880). Interestingly respondents also acknowledged sleeping disturbances and insomnia (Chan et al., 2017; Covell and Ritchie, 2009; Delacroix et al., 2017; Rassin et al., 2005). There is a clear interrelationship with the psychological responses reported above.

4. Theme: Prejudice from Others

A further theme was associated with the negative responses error makers received from others following an error event. Some respondents experienced feelings of prejudice and social discrimination within the workplace.

Nurses who had made errors reported feeling labelled by colleagues, as a 'wrong doer' or being guilty of some misconduct (Chan et al., 2017; Mohsenpur et al., 2016). Respondents in the Chan et al. (2017) study also highlight the potential for nursing colleagues to gossip about the error event, which may further escalate any feeling of prejudice experienced by the error maker. Criticism of nursing error makers, by their nursing colleagues was noted in some studies (Covell and Richie, 2009; Treiber and Jones, 2018; Mohsenpur et al., 2016), an illustration being "Everyone makes them (mistakes); I feel like nurses are criticized when they make them. Instead of supporting each other, we criticize them" (Treiber and Jones, 2018, p161).

However, in contrast, other studies noted that nurses who had made errors were not subject to any criticism or prejudice from nursing colleagues, who instead offered support and reassurance (Schelbred and Nord, 2007; Treiber and Jones, 2018). Noticeably these studies also reported higher negative

responses and blame from medical colleagues, for example, “Once again, I feel intimidated to tell the physician about an error. Generally, they respond very well … but the next time they write an order for one of your patients, they’ll come up to you and explain the prescription to you very carefully and slowly, making certain you have understood” (Covell and Ritchie, 2009, p291) or ‘‘The doctor said to me: ‘you get your punishment when you see the patient’’’ (Schelbred and Nord, 2007, p320).

Responses from the nurse manager towards the error-maker were often negative, with reports of managers publicly denouncing the nurse, or changing workload allocations, which was sometimes interpreted as punishment by the error-maker (Morrudo et al., 2019; Schelbred and Nord, 2007). Respondents also expressed a fear of reprisals from their line manager, specifically being ‘black marked’, for example “There will definitely be a fear like saying my nurse manager will maybe black mark me … or will not like me because I made a mistake. There will be like this … nagging worry (Chan et al., 2017, p167).

5.Theme: Restoration to former life

A less common theme that emerged from the literature is that of restoration or reinstatement to the former self or former professional, and how this was facilitated (Mosenpour et al., 2016; Schelbred and Nord, 2007; Ardnt, 1994; Rassin et al., 2005; Crigger and Meek, 2007).

Healing was raised by some nurses (Ardnt, 1994; Schelbred and Nord, 2017; Rassin et al., 2005 and Crigger and Meek, 2007). Ardnt (1994) reported the cathartic function that talking about a medication error, whilst acknowledging the difficulties of negative feeling such as shame, talking enabled reconciliation with “human precariousness” (Ardnt, 1994 p. 525), whilst returning to work quickly helped the healing process for some (Schelbred and Nord, 2017). For some participants, the healing was facilitated by apologising to the patient for the error, conscientiousness and honesty towards the patient enabled a sense of calmness (Rassin et al., 2005). In addition, the ability of participants to evaluate the harm that had or had not been done to a patient was required, in order to move on (Crigger and Meek, 2007). Some participants in Ardnt’s (1994) and Mosenpour et al. (2016 p.6) studies articulated that the disciplinary process or punishment facilitated restoration with one participant describing the disciplinary process as a ritual for forgiveness (Ardnt, 1994).

6. Theme. Coping mechanisms or strategies:

Nurses employed a variety of coping mechanisms or strategies to assist them following making an error, these were either intrinsic (internal to the nurse) or extrinsic (external in origin). Some intrinsic coping strategies were instigated by the nurse and were conducted in isolation, for example praying or seeking forgiveness from God (Delacroix et al., 2007; Mohenspour et al., 2016; Chan et al., 2018) or mentally reviewing the error to make sense or come to accept the events (Rassin et al., 2005; Delacroix et al., 2007; Chan et al., 2018). A further intrinsic coping strategy included nurses physically distancing themselves from the clinical environment or from similar situations to the error event (Schelbred and Nord, 2007; Chan et al., 2018), however in contrast, Abusalem and Coty (2011) in their quantitative study of 192 homecare nurses, noted that very few participants avoided caring for similar patients (5.9%).

Extrinsic coping strategies often included accessing support from family members who often provided a welcome opportunity for the nurse to discuss the error event (Schelbred and Nord, 2007; Mohsenpour et al., 2016; Rassin et al., 2005; Chard, 2010; Abusalem and Coty, 2011; Treiber and Jones, 2018), however some nurses felt that family members failed to understand the scope of the error situation (Schelbred and Nord, 2007; Delacroix et al., 2007), so instead preferred to access support from colleagues. They expressed sentiments such as “I did not feel that my husband understood what I was going through. I do not think he saw how painful this was for me” (Schelbred and Nord, 2007 p.321) or “I talked about it [medical error] with colleagues because no one in my family is medical and probably wouldn’t

understand any of the things I was saying, but colleagues would understand, so I did talk about it with colleagues, and it alleviated a lot of the anxiety that I was feeling" (Delacroix et al., 2007 p.406).

In contrast, the support provision from managers appeared less favourable, with nurses rarely accessing support from managers and for those that did want support, unfortunately this was rarely provided (Delacroix et al., 2007; Chan et al., 2018). Criticism was often levelled towards available support services or structures made available following error events (Chan et al., 2018; Delacroix et al., 2007; Rassin et al., 2005).

DISCUSSION

Patient Safety Learning (2018 p.23) calls for researchers to "find bodies of information about investigations, incidents, strategies, tools or solutions". This study was the first attempt to undertake a mixed methods systematic review of the experiences of nurses and midwives following an error event. However, no midwifery literature was found during the literature search, so all studies included within this review are explicitly focused on nurses' experiences following error events. The lack of midwifery specific literature highlights the need for focused research exploring error experiences within this profession.

An integrative review of the literature on nurses' experiences making errors in practice has been previously undertaken (Lewis et al., 2013) and aimed to assess the evidence relevant to nurses' experiences of medical errors and to create an evidence-based model of the concept of nurses' experiences. However, whilst methodologically sound, and inclusive of some of the studies included in this systematic review, the authors included mixed healthcare professional studies, rather than just participants that were nurses, hence the conceptual model derived from the review may not purely reflect the experiences of nurses. This review presents a pure view of nurses' (and midwives) experiences of errors in practice.

In keeping with Lewis et al's. (2013) integrative review, this systematic review concurs that nurses have expressed the desire to disclose errors to patients, and this review has demonstrated that this can have a restorative effect on the nurse. In line with the professional duty of candour developed by the General Medical Council (GMC) and the Nursing and Midwifery Council (NMC) (NMC, 2015b), and in keeping with the sentiments of the American Association of Nurses (2015), the guidance sets out the standards expected of healthcare professionals. Under the guidance, nurses and midwives should, amongst other advice, speak to a patient, or those close to them, as soon as possible after they realise something has gone wrong with their care, such as an error. This is reemphasised in professional nursing codes (NMC, 2015a; AAN, 2015), although absent in some for example the Canadian Code for Nurses (CNA, 2017). However, in all it is stressed that nurses should report errors at an early stage so that lessons can be learned quickly, and patients are protected from harm in the future (NMC, 2015a; AAN, 2015; CNA, 2017). This second aspect supports the findings of this review in that nurses often are wanting to share their personal learning with the wider team, although it has to be acknowledged that the reviewed literature shows that this may be difficult for some nurses due to fear and isolation following an error.

In relation to nurses' professional guidance, nurses or midwives are mandated to put the interests of people using or needing nursing or midwifery services first and to be accountable for the safety of their

patients (NMC, 2015a; ANA, 2015; CNA, 2017), it is evident from the systematic review that this is happening. Nurses have concern for the welfare of their patients following an error.

Learning as a theme was identified, in particular learning going beyond the nurse making the error; learning was shared (Chan et al., 2018; Ajri-Khameslou et al., 2017; Morrudo et al., 2019; Schelbred and Nord, 2007; Covell and Richie, 2009). NHS Improvement's (2019b) safety strategy aims to teach healthcare practitioners that error is normal, the strategy further states that the right approaches to reduce risk and maximise the chances of things going well are essential, although it is not explicitly stated that the sharing of error encounters and the learning from them is important, this systematic review points to this. For both the nurses' welfare and for the wider safety agenda errors can lead to changes in practice (Koehn et al., 2016; Covell and Richie, 2009; Chard, 201; Karga et al., 2011; Abusalem and Coty 2011; and Taifoori and Valiee, 2015). Patient Safety Learning (2018), in their future vison on safety, desire healthcare organisations to share the 'what' and the 'how' with others in relation to new patient safety strategies. The recent NHS Staff survey illustrates that only 62.7% of staff feel that that they have feedback on changes made in response to errors, near misses or incidents (NHS Employers, 2021). This review would support this strategy in that nurses are largely, with a few exceptions, willing to share their learning about errors to help others and prevent errors in the future.

It is perhaps inevitable that the systematic review identified both physical and psychological responses were experienced by nurses. The flight and fight response, also known as a stress response, is a physiological nonspecific response that automatically happens as part of a sympathetic nervous system in response to a perceived harmful event, in this case an error in clinical practice, and will affect the clinician in varying degrees (Marieb and Katja 2018). However, whilst these can be seen as physiological responses and on the spectrum of normality to a certain degree, the systematic review also clearly identified that some nurses displayed dysfunctional psychological responses that were extreme and warranted attention. A recent integrative review supports this finding (Werthman et al. 2021).

Haulet (2019) stresses that data published by NHS Digital reveals mental health is now a main cause of health-related absences among health service staff in England. The latest NHS annual staff survey demonstrated that 44% of staff were unwell due to work related stress increasing from 38 per cent and a rise from 36 per cent in 2016. (NHS Employers, 2021, 2019). Stress alone is believed to be costing the health service £300-400 million per year (NHS Employers, 2019). Haulet (2019) emphasises that complacency cannot be the appropriate response to such a shocking fact. NHS Employers (2019) have developed generic tools to help combat stress and mental health problems and make positive improvements to emotional wellbeing in the workplace, as have some specific hospitals e.g. the Implementation of RISE: A Second Victim Support Structure at Johns Hopkins in the USA (Edrees et al., 2016). There is consensus in the literature that second victims need support in order to cope; organisational coping mechanism are required (Kappes et al. 2021). The supposition that nurses are able to recognise their own stress and care for themselves, implementing appropriate strategies due to the fact that they are carers and care for others has been challenged (Nolan and Smojkis, 2003), therefore such support schemes would seem to be essential. One potential solution to supporting nurses who expressed the need for support or because it was beneficial for some, is the adoption of the A-EQUIP model of clinical supervision from midwifery to nursing (NHSE, 2017) using the midwifery and nursing professional advocate to operationalise it. A-EQUIP is an acronym that for Advocating for Education and Quality Improvement and was inspired by Proctor's model of clinical supervision (Proctor, 1986) and Hawkins and Shohet's (2012) adaptation of this model. Of particular note is the restorative function of the model which has been shown to; have a positive impact on the immediate wellbeing of staff, help staff to feel 'valued' their employers for investing in them and their wellbeing, influence a significant reduction in stress, influence a significant reduction in levels of burnout, improve the compassion and

job satisfaction of staff and improve the retention of staff (Pettit and Stephen, 2015). This may counter experiences identified in the literature that could emerge in nurses as a result of an error in practice.

The lack of organisational or line manager support was highlighted across numerous studies reviewed (Chan et al., 2018; Delacroix et al., 2007; Rassin et al., 2005). Participants highlighted that managers rarely provided the emotional and practical support that they required. The study participants also highlighted their own intrinsic coping strategies, i.e. prayer or reflection, but also how they had utilised extrinsic coping strategies, which were mainly associated with talking to family members or work colleagues. Participants were often critical of the support offered by their place of work or employer, preferring instead to utilise family members to talk through events. Inadequate organisational and managerial support following error events was also noted in an earlier literature and systematic review and more contemporary ones (Sirriyeh et al. 2010, Kappes et al.2021, Werthman et al. 2021) that support within the workplace was frequently insufficient and often detrimental to the well-being of the error maker. The importance and value of organisational support was nicely summarised in an earlier literature review undertaken by Lewis et al. (2013), who concluded that nurses who received sufficient support from their organisation and managers were more likely to experience greater well-being, personal restoration and make constructive changes to their practice. This conclusion is further echoed by the influential 'second victim' work undertaken by Dekker (2013), who highlights that this type of support is a central influencing factor in how the error maker copes following an error event. To address these inadequacies, Dekker (2013) proposes that support for error makers needs to become integrated and institutionalised within an organisation, with appropriate infrastructure, training, and interventions in place. This review further supports this perspective, especially with regards the need for greater organisational awareness and training for managers concerning the support needs and potential interventions for error makers, such as psychological first aid training. Patient Safety Learning (2018) calls for everyone involved to be supported and treated with respect and fairness when patient safety lapses occur.

Participants in this review commonly reported unfavourable, negative responses from colleagues following their error event (Chan et al., 2017; Covell and Richie, 2009; Treiber and Jones, 2018; Mohsenpur and Hosseini, 2016), with some feeling gossiped about, treated differently with workload allocations, labelled or publicly chastised. These negative responses from workplace co-workers are consistent with earlier literature reviews (Lewis et al., 2013; Sirriyeh et al., 2016) who also acknowledge this unfavourable aspect of post-error experience. To address this, a greater provision of workforce education on matters associated with error is also warranted to assist with a culture shift in attitude around blame. In their systematic review conclude similarly that it is an imperative that organisation provide support with in a no blame environment (White and Delacroix 2020).

No studies within the review were theoretically grounded, however several studies presented models to illustrate the experiences of a nurse following an error event (Covell and Ritchie, 2009; Crigger and Meek, 2007; Koehn et al., 2016). Each of these focused on different concepts and, or errors; conceptualisation of nurses' response to medication errors (Covell and Ritchie, 2009); a self – reconciliation model following making mistakes (Crigger and Meek, 2007) and theoretical model around learning lessons from an error (Koehn et al., 2016). Each model has his own merits, being grounded in the data generated form the individual studies, however it is not possible to amalgamate their findings or conclusions. Further research is required in all of these areas to corroborate the conceptual models.

Limitations of this review

Several potential limitations of this review should be noted. Only literature written in English was selected, this may have introduced a language bias and also potentially limited the range of literature. In addition, the quantitative studies that were included were significantly heterogeneous in their design and data collection methods, which consequently prevented any meaningful meta-analysis (Gutiérrez-Pizarraya et al., 2017). Many of the studies included relied on subjects recalling error events retrospectively, which could in turn introduce recall bias which is an inherent limitation of studies that use self-report data (El-Masri, 2013) and influence the narrative of the review. However, the nature of errors is that they can only be studied in retrospect. Individual limitations of any one study could also

have an impact on the credibility and validity of the narrative of the review. Each study however has been critically appraised, and the results summarised in tabular format for scrutiny. Exclusion of nurses' experiences that are contained within combined studies with other healthcare professionals may have removed some valuable data, however the risk of contaminated data from other's views outweighed the inclusion of this literature. Limitations of mixed methodologies in a review have been levied; the combination and complexity of incorporating diverse methodologies can contribute to lack of rigor, inaccuracy, and bias, methods of analysis, synthesis, and conclusion-drawing remain poorly formulated, and issues related to combining empirical and theoretical reports (Whittemore and Knafl, 2005).

Implications for future research

The absence of research associated with midwives experiences following error events provides some justification for research in this area. It is imperative that healthcare organisations acknowledge the effects of the second victim concept in all health professionals. Only one study (Abusalem and Coty, 2011) was conducted in a community or home-care setting, with all of the others being undertaken in hospitals. With changes to health care provision and a greater focus on care in the community, further research that explores errors in this setting could also be warranted. The majority of research within this review has not been undertaken in the United Kingdom, or in the context of tax funded systems of health provision. Further research is essential to examine the experiences of nurses' and midwives' in the UK and these systems of care when they make an error in clinical practice. It is particularly important for individual recovery and patient safety as a whole, as West et al. (2006) documented a reciprocal cycle of error involvement, emotional distress and future errors when appropriate support and recovery was not forthcoming, and Luu et al. (2012) discussed the negative effect of being a second victim on clinical judgements and safety.

CONCLUSION

Error events occur in all healthcare settings in the UK where nurses and midwives are working and patient safety is at the forefront of public concern. The nurse or midwife as a healthcare professional is the most valuable resource that an organisation has.

It is clear that nurses may experience significant physical and psychological responses following making an error in clinical practice. Responses can be acute, or longer-term and are often associated with negative symptoms. Nurses however also express a desire to 'move on', learn from the event and contribute to service improvements. This systematic review has also clearly identified the lack of research that includes midwives in any location. Midwifery research focuses on adverse events not errors. As such there is a clear need for robust research examining midwives' experiences following error occurrence in clinical practice.

Nurses value support following an error in practice; however, organisations differ in their response to supporting nurses. Mechanisms could be utilised such as A-EQUIP to provide this support in the UK. Specifically designed second victim support programmes could also be further developed at an organisational level to assist nurses to cope with the second victim phenomenon.

This systematic review contributes to the body of evidence about second victim and errors. A transparent NHS safety culture will only be achieved if the second victim occurrence is accepted and addressed (Edrees and Federico, 2016). The profile of the second victim concept in nursing and potentially midwifery in relation to error making needs to be raised.

ANONYMISED CONFLICT OF INTEREST STATEMENT

There are no conflicts of interest declared by the authors.

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Appendix 3

Poster Advert qualitative phase

BIRMINGHAM CITY
Faculty of Health, Education and Life Sciences

Now Recruiting Midwives for *a Qualitative Research Study*

Would you like to participate in research?

- What has been the impact of errors on you?
- The voice of the midwife is not present in the existing literature.
- The study is examining the experience of midwives like yourself who have the understanding around making an error in practice.
- What was your experience following an error in practice?
- Would you be happy to share your experiences in confidence?
- This research will give midwives a voice.

Please contact: **Natasha Carr** at **natasha.carr@bcu.ac.uk**

Natasha Carr 0121 331 6085 or 07425166485 natasha.carr@bcu.ac.uk

Appendix 4

Email advert Qualitative phase

I would like to invite you to take part in a research study about midwives' experiences of making errors in clinical practice. Before you decide you need to understand why the research is being done and what it would involve for you, so I have attached some information to this message. If you agree to take part in this study, I would like to find out about your experiences as a midwife if an error in clinical practice has occurred. All of the information that is collected during the course of the research will be kept strictly confidential.

Please take time to read the attached information carefully. If you feel that you would like more information or would like to take part, please contact:

Natasha Carr: Natasha.carr@bcu.ac.uk

0121 331 6085 / 07425166485

I look forward to hearing from you.

Appendix 5

Letters to participants

BIRMINGHAM CITY University

Research Participant Information Leaflet
Midwives' Experiences of Making Errors in Clinical Practice

I would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. Ask questions if anything you read is not clear or you would like more information. Take time to decide whether or not to take part on the research.

Why have I been invited to join the study?
You have been invited to join because you made an error in clinical practice and therefore have a valuable contribution to make on your experiences of this error.

Is this research related to the investigation or DATIX process?
No. There is no relationship between the research and any managerial or Trust processes. The research and Trust are independent of each other.

Do I have to take part?
No, it is up to you to decide if you want to take part or not. If you do decide to take part, you will be given this information sheet to keep and you will be asked to sign a consent form. You are still free to stop taking part in the study at any time without giving a reason. A decision to stop at any time, or a decision not to take part, will not affect you in any way.

What will happen to me if I take part?
If you agree to take part in this study, I would like to find out about your experiences as a midwife if an error in clinical practice has occurred.
I will collect information about your thoughts, opinions, feelings, perceptions, interpretation, views and insights related to the error or mistake in practice.
I will also collect routine demographic information about you, for example place of work, grade band and time qualified.
I will collect this information in a face to face interview, this should take about 1 hour and will be at a time and location that is convenient to you.
The study will involve audio recording the interviews and you will be offered the opportunity to check the transcript of the interview and remove or confirm data up to two weeks after receiving the transcript.
If you have indicated you have wanted to be included in the study and then change your mind, this is fine. Should I not hear from you, I will write one reminder letter. Any data pertaining to you that had been collected so far would be destroyed.

What are the possible advantages or disadvantages of taking part?
Some people do find it helpful to talk about their experiences related to errors in practice, it can be quite a cathartic process. The research will certainly give you, the midwife a voice, but in a confidential environment. I cannot promise the study will help you individually, but generically the information gained from the study will help to increase the understanding of midwives' experiences of making errors in clinical practice in England. The research is aiming to recommend a support system based on what midwives like yourself say that they need.

Version 3 29.11.17

Will my taking part in the study be kept confidential?
All of the information that is collected about you during the course of the research will be kept strictly confidential. The only potential breaches of confidentiality will be for those practises suggesting a fitness to practise issues or safeguarding in line with professional obligations. In order to be able to contact you will have given this information to the researcher running the study and it will be held at the Birmingham City University. These details will be kept securely and only seen by those involved in the research.

You will not be named, nor will it be possible to identify individuals in any study publications. I am following the Government's strict rules about how to keep information like this and I will store it securely, for at least 5 years.

- A master list identifying participants to the research codes data will be held on a password protected computer accessed only by the research team.
- Hard paper/recorded data will be stored in a locked cabinet, within a locked office. The cabinet will only be accessed by the research team.
- Electronic data will be stored on a password protected computer, the details of which will be known only by research team.

We would like your permission to store your data and use it in future studies. If you agree, your data will only be used in studies that have separate ethical approval.

Who has approved the study?
This study have been reviewed by the University's Faculty Academic Ethics Committee and been granted a favourable opinion. The Trust's Research and Development team have also provided approval for the conduct of the study.

What if I want to make a complaint?
Any complaint about the way you have been dealt with during the study will be addressed. If you are dissatisfied with the conduct of the research please contact the researcher who will do their best to answer your questions and to resolve the matter. Alternatively there is a complaints procedure. If you do not wish to discuss your complaint with the researcher, you are directed to the researcher's supervisor in the first instance, Dr Sarahjane Jones at sarahjane.jones@bcu.ac.uk or Professor Maxine Lintern at Maxine.lintern@bcu.ac.uk or to Alexandra.kendall@bcu.ac.uk, the Associate Dean for Research at Birmingham City University. In the event of a complaint relating to the NHS Trust, you should contact your line manager or your Trust's Research and Development Department.

Where and when can I find the results of the study?
The preliminary results of the study will be available in about 2019 and they will be published in peer reviewed journals. I will also send out a summary of the findings to all participants, if you would like them. You will not be identified in any report or publication.

Further information and contact details:
The researcher can be contacted at:
Natasha Carr: Natasha.carr@bcu.ac.uk
0121 331 6085 / 07425166485

Appendix 6

Follow up letter

Natasha Carr

PhD Student

Birmingham City University

Seacole 429

Seacole Building

Westbourne Road

Edgbaston

Birmingham

B15 3TN

Date

Dear (insert midwife's name)

Thank you for taking the time to read this letter. I would like to further invite you to take part in a research study that is being undertaken at Birmingham City University. Just to remind you, the study is examining the experience of midwives like yourself who have experienced an error in practice with an ultimate aim of providing the best appropriate support as identified by midwives themselves. I would really value your important contribution. It is important that midwives have a voice.

If you agree to take part in this study, I would like to find out about your experiences as a midwife following making an error in clinical practice. I will collect information about your thoughts, opinions, feelings, perceptions, interpretation, views and insights related to the error. I will also collect routine demographic information about you, for example place of work, grade band and time qualified.

I would like to further reassure you that there is no relationship between this research and any managerial or Trust processes that may have occurred. The research and Trust are independent of each other.

All of the information that is collected about you during the course of the research will be kept strictly confidential. In order to be able to contact you, your name and contact details will only be made available to the research team running the study and will be held at Birmingham City University. These details will be kept securely and only seen by those involved in the research.

I have enclosed another participant information leaflet for you to read so that you can see some more details of the study.

Please contact me on 07425 166485 or 01221 331 6085 or email me at natasha.carr@bcu.ac.uk if you do want to be involved in the study or you would like to just discuss the study in more detail. All discussions will be confidential.

Yours sincerely

Natasha Carr

Midwife

PhD Student

Appendix 7

Qualitative Interview Schedule; original version and modified version

Original second victim interview guide (Scott et al., 2009)

Participant demographics (can be determined before interview)
1. Sex
2. Professional degree (attending physician, resident physician, registered nurse, department manager, physician assistant, medical student, respiratory therapist, physical therapist, scrub technician, social worker)
3. Years of experience

Event details
4. Think about a clinical event from your past that impacted you both professionally and/or personally. Please share what you remember as specifically as possible from the moment that it was discovered that something was wrong. How did you respond to this event? How did it impact you?

Interviewer: If not forthcoming by this participant's recollection, and as appropriate, determine:
5. How long ago did this event occur
6. Type of event (medical error versus unexpected medical outcome)
7. Describe your specific role in the event
8. The patient outcome (no harm, temporary harm, permanent harm, death)
9. Event occurrence at this facility versus other facility

Professional and personal impact from this experience
10. Thank you for sharing the event details with me. Now I would like to focus on what needs you experienced immediately after this event both personally and professionally.
11. What needs were addressed?
12. How were these needs addressed?
13. What needs did you have that were not addressed?
14. What would you recommend for having these needs addressed?

Participant experiences with, or normal reactions to, stress
15. When you are concerned or stressed about something happening at work, how do you typically manage those types of situations?
16. Who do you typically turn to when you need advice or reassurance or support about a work-related issue?
17. In your professional training, how did you learn to respond to adverse patient events on a professional and/or personal basis?
18. Where do you believe is the best place or approach for faculty and staff to learn about how to handle adverse events?

Support structures
19. Based on your experience, what would you do differently if you were supporting a peer or colleague going through the same thing you went through?

20. How would you describe the environment at University of Missouri Health System in terms of being supportive/helpful versus non-supportive/not helpful after an event that has an emotional impact on a team member?
21. What is your advice to us as we plan design for a ‘‘perfect world’’ where the best support/guidance possible is provided when a team member(s) is emotionally impacted following an unexpected outcome or adverse event?
22. What else would you like to share about your experience?
23. Please review this list of symptoms that some staff have reported. If you experienced any of these, please tell me how that symptom impacted you both personally and professionally.
24. Are there any symptoms not on this list that you think should be included on this list? 25. Are there any additional comments you would like to make regarding your experience?

Symptom List:
Extreme fatigue
Frustration
Sleep disturbances
Decreased job satisfaction
Rapid heart rate
Anger
Increased blood pressure
Extreme sadness
Muscle tension
Difficulty concentrating
Rapid breathing
Flashbacks
Loss of confidence
Grief
Remorse
Depression
Repetitive/intrusive memories
Self-doubt
Return to work anxiety
Second guessing career
Fear of reputation damage
Excessive excitability
Avoidance of patient care area

Modified data collection schedule

Second victim interview guide (Adapted from Scott, S. D. et al. (2009) The natural history of recovery for the health care provider ‘‘second victim’’ after adverse patient events. Quality and Safety in Health Care 8:325–330" and changes shown by highlighted areas).

Participant demographics (can be determined before interview)

1. Sex

2. Professional qualification (language more England centric and pragmatically only one profession of midwifery was being focused on)

3. Years of experience

Event details (focused on the aim and objective of this study)

4. Think about a clinical error from your past that impacted you both professionally and/or personally. Please share what you remember as specifically as possible from the moment that it was discovered that something was wrong. How did you respond to this event? How did it impact you? (Wording changed from event to error. Focused on the aim and objective of this study to examine errors rather than generic events)

Interviewer: If not forthcoming by this participant’s recollection, and as appropriate, determine:

5. How long ago did this event occur?

6. Type of event (confirmation of medical error)

7. Describe your specific role in the event (Confirmation of error rather than classifying as error or other type of event to retain the focus of the study)

8. The patient outcome (no harm, temporary harm, permanent harm, death)

9. Event occurrence at this Trust versus other Trust (use of English rather than American language - Trust rather than Facility used)

Professional and personal impact from this experience

10. Thank you for sharing the event details with me. Now I would like to focus on what needs you experienced immediately after this event both personally and professionally.

11. What needs were addressed?

12. How were these needs addressed?

13. What needs did you have that were not addressed?

14. What would you recommend for having these needs addressed?

Participant experiences with, or normal reactions to, stress

15. When you are concerned or stressed about something happening at work, how do you typically manage those types of situations?

16. Who do you typically turn to when you need advice or reassurance or support about a work-related issue?

17. In your professional training, how did you learn to respond to errors on a professional and/or personal basis? (words changed from adverse patient events to error to focus on the aim and objectives of this study)

18. Where do you believe is the best place or approach for staff to learn about how to handle errors in practice? (words changed from adverse events to error to focus on the aim and objectives of this study)

Support structures

19. Based on your experience, what would you do differently if you were supporting a peer or colleague going through the same thing you went through?

20. How would you describe the environment at this Trust in terms of being supportive/helpful versus non-supportive/not helpful after an event that has an emotional impact on a team member? (Specific name of the American healthcare facility substituted for generic Trust to make the tool compatible for use in England and this study.)

21. What is your advice to us as we plan design for a ‘‘perfect world’’ where the best support/guidance possible is provided when a team member(s) is emotionally impacted following an error in practice? (words changed from adverse events to error to focus on the aim and objectives of this study)

22. What else would you like to share about your experience?

23. Please review this list of symptoms that some staff have reported. If you experienced any of these, please tell me how that symptom impacted you both personally and professionally.

24. Are there any symptoms not on this list that you think should be included on this list?

25. Are there any additional comments you would like to make regarding your experience?

List of symptoms

Extreme fatigue

Sleep disturbances

Rapid heart rate

Increased blood pressure

Muscle tension

Rapid breathing

Frustration

Decreased job satisfaction

Anger

Extreme sadness

Difficulty concentration

Flashbacks

Loss of confidence

Grief

Remorse

Depression

Repetitive / intrusive moments

Self-doubt

Return to work anxiety

Second guessing career

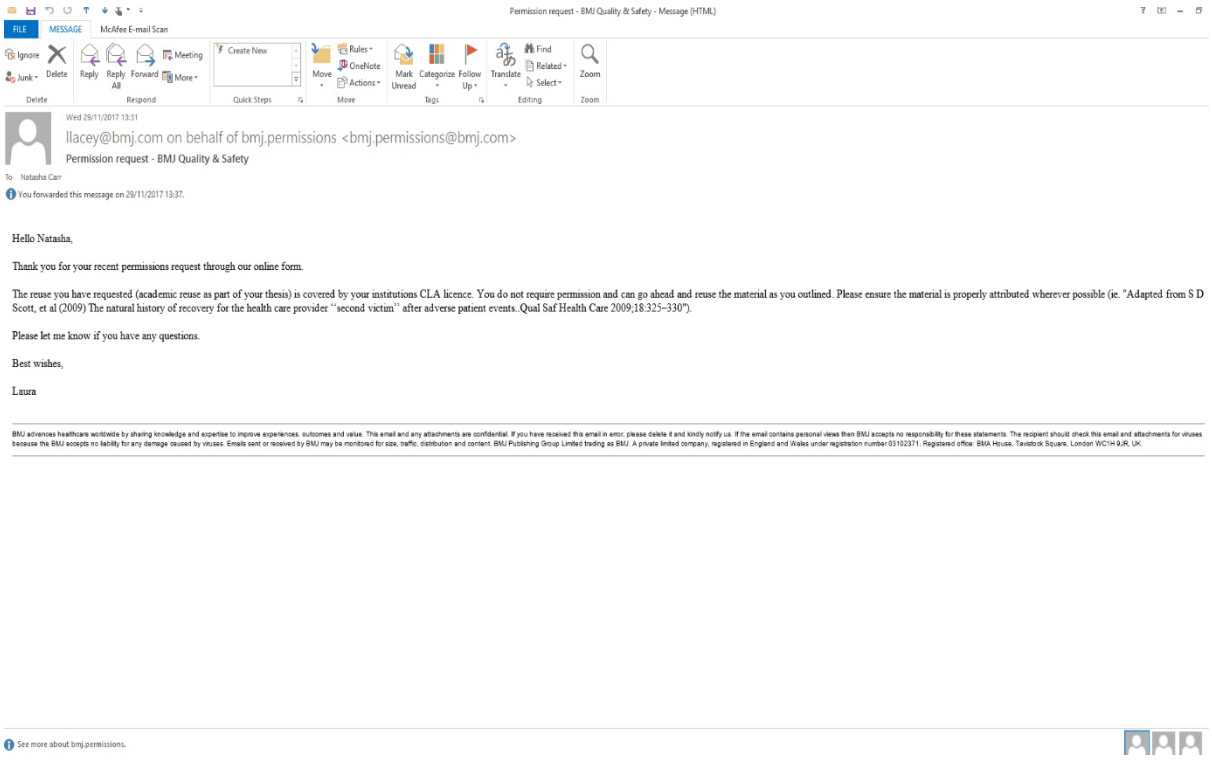
Fear of reputation damage

Excessive excitability

Avoidance of patient care areas

Appendix 8

Permission to use interview schedule



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Wed 29/11/2017 13:31

llacey@bmj.com on behalf of bmj.permissions <bmj.permissions@bmj.com>

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To Natasha Carr

You forwarded this message on 29/11/2017 13:37.

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Please let me know if you have any questions.

Best wishes,

Laura

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Appendix 9

Consent Form Qualitative Phase

BIRMINGHAM CITY University

Version 2, 17.10.17

IRAS ID: **IRAS 244704**

Centre Number:

Study Number:

Participant Identification Number for this study:

CONSENT FORM

Title of Project: The Experience of Midwives Following Errors in Clinical Practice

Name of Researcher: Natasha Jayne Carr

Please **initial** box

1. I confirm that I have read the information sheet dated..... (version.....) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. ☐
3. I give permission that the information collected about me can be used to support other research in the future, and may be shared anonymously with other researchers and for publications. ☐
4. I understand that my professional Code of Ethics (NMC 2015) may supersede research protocols if unprofessional or poor practice is disclosed during the research. ☐
5. I agree to have my interview audio recorded ☐
6. I agree to the use of anonymised quotes in publications I understand that while information gained during the study may be published, I will not be identified, and my personal results will remain confidential. ☐
7. I agree to take part in the above study. ☐

Name of Participant	Date	Signature
Name of Person	Date	Signature

[Type here]

When completed: 1 for participant; 1 for researcher site file

Appendix 10

Distribution of questionnaire

Confirmatory email trail about distribution of questionnaires to Regional Chief midwives to cascade to maternity providers

Thankyou Natasha, unfortunately I do not have a distribution network. I am however more than happy to share the link to the survey with Regional Chief Midwives for cascade to maternity providers. Alternatively, you could contact the RCM.

Kind regards,

Professor Jacqueline Dunkley-Bent OBE

Chief Midwifery Officer

National Maternity Safety Champion

NHS England and NHS Improvement

Email: jacqueline.dunkley-bent@nhs.net

Mobile: +447814228955

 @dunkleybent

I work flexibly which means I sometimes send emails out of usual working hours. I don't expect you to read or respond to this email outside of your working hours.

PA - Ali Tribe

07730 381385 / ali.tribe@nhs.net

Business Manager – Gemma Bullen

07702 154926 / gemma.bullen@nhs.net

www.england.nhs.uk and www.improvement.nhs.uk

From: Natasha Carr <Natasha.Carr@bcu.ac.uk>
Sent: 06 June 2021 16:06
To: DUNKLEY-BENT, Jacqueline (NHS ENGLAND & NHS IMPROVEMENT - X24) <jacqueline.dunkley-bent@nhs.net>

Cc: JONES Sarahjane <sarahjane.jones@staffs.ac.uk>
Subject: RE: midwifery network and PhD research

Dear Professor Dunkley-Bent,

Thank you so much for expressing an interest in helping me with my research, following an email from Mark Radford.

I am currently undertaking my PhD in health, whilst working full time as a senior midwifery lecturer at Birmingham, City University. My PhD specifically examines the experience of midwives following making an error in clinical practice. There are many errors occurring in the National Health Service every year, many made by us as midwives. One stratum of a layered approach to risk management and safety governance is to examine mitigation and this has received little attention in the literature. Mitigation is the action of reducing the severity, seriousness, or painfulness of some event and includes the impact of errors on the healthcare professional: the second victim. The existing literature is lacking in the United Kingdom and currently does not relate to midwives at all. There has also been a call for organisations to take accountability and provide staff with formal and informal support following errors. My research is a mixed methods study; an exploratory sequential design, which has a pragmatic philosophical underpinning. Mixed methods originates in the two major research paradigms. The use of mixed method tactics is often appropriate in health research It is contend that researchers should utilise whichever methods are required to achieve the prime results, even if this involves transferring between alternative paradigms, rather than working with either of the alternative opposing epistemological views of post positivism or constructivism.

I have completed the first arm of the study which was a qualitative study which has established for the first time that a midwife may suffer emotionally, physically and professionally following a personal error in practice, distinct from adverse events, and I have presented a concept analysis for both error experience and support required. There were some harrowing accounts from midwives who had made errors many years ago, but who were still affected today. This work is being prepared for conference and publication, however, there has been a delay due to COVID. I am now producing an online questionnaire that is based on the data generated form the qualitative arm of the mixed methods study, this is currently being done and will be sent for ethical approval shortly.

My difficulty is the distribution of the questionnaire. I am aiming for the questionnaire to potentially reach all midwives in England and as I stated, it will be in an online format.

I am wondering if you would be able to introduce myself and my PhD supervisor – Dr Sarahjane Jones to an appropriate distribution network, or perhaps be involved in the distribution? Obviously, I need as much coverage as possible to enable the findings to be relevant and representative of midwives as a whole. I am really passionate about making this research work for midwives, giving us a voice and ultimately making the National health Service and midwifery practice after for everyone involved.

I am really happy to provide more information for you or to have a conversation about my research.

I look forwards to hearing from you.

Best Wishes

Natasha

Natasha Carr

Senior Lecturer in Midwifery

Professional Midwifery Advocate

Course Lead- Midwifery Long BSc (Hons) and MSci

BN (Hons), BSc (Hons), MA, PGCE, RN, RM, FHEA.

SCT370 Seacole Building

Birmingham City University

Westbourne Road

Edgbaston

B15 3TN

07415166485 (Personal Mobile)

07702817142 (Team on call mobile 9 – 5 Monday to Friday)

natasha.carr@bcu.ac.uk

From: DUNKLEY-BENT, Jacqueline (NHS ENGLAND & NHS IMPROVEMENT - X24) <jacqueline.dunkley-bent@nhs.net>
Sent: 20 May 2021 18:37
To: Mark Radford <Mark.Radford@hee.nhs.uk>; JONES Sarahjane <sarahjane.jones@staffs.ac.uk>
Cc: Natasha Carr <Natasha.Carr@bcu.ac.uk>
Subject: RE: midwifery network

Thanks Mark.

Dear Sarahjane, very happy to assist and look forward to receiving further information

Kind regards,

Professor Jacqueline Dunkley-Bent OBE

Chief Midwifery Officer

National Maternity Safety Champion

NHS England and NHS Improvement

Email: jacqueline.dunkley-bent@nhs.net

Mobile: +447814228955

 @dunkleybent

I work flexibly which means I sometimes send emails out of usual working hours. I don't expect you to read or respond to this email outside of your working hours.

PA - Ali Tribe

07730 381385 / ali.tribe@nhs.net

Business Manager – Gemma Bullen

07702 154926 / gemma.bullen@nhs.net

www.england.nhs.uk and www.improvement.nhs.uk

From: Mark Radford <Mark.Radford@hee.nhs.uk>
Sent: 20 May 2021 12:15
To: JONES Sarahjane <sarahjane.jones@staffs.ac.uk>
Cc: Natasha Carr <natasha.carr@bcu.ac.uk>; DUNKLEY-BENT, Jacqueline (NHS ENGLAND & NHS IMPROVEMENT - X24) <jacqueline.dunkley-bent@nhs.net>
Subject: RE: midwifery network

That's ok ! There is a very strong and vibrant education and research network led by our Chief Midwife!

I have linked in Jacquie to the email to connect

Mark

From: JONES Sarahjane <sarahjane.jones@staffs.ac.uk>
Sent: 19 May 2021 10:09
To: Mark Radford <Mark.Radford@hee.nhs.uk>
Cc: Natasha Carr <natasha.carr@bcu.ac.uk>
Subject: midwifery network

Hi Mark,

I am hoping you can help me. Natasha is part our of PhD student cohort, based at BCU but having transferred to Staffs for her PhD like Rachel and David.

She wants to send out a survey to midwives across the country. I know that there are DoN networks and wondered if there was an equivalent for midwives that you would kindly introduce us to?

Natasha's work is exploring the 2nd victim concept in midwives. She has undertaken a qualitative study already and has been able to build a conceptual model of the recovery (or failure to recover) process. She wants to seek access to a bigger sample for a quant study to explore father some of the key findings from the qualitative study.

Sadly she is unable to join us this Friday so won't be able to tap you up then ☺

Kind regards

Sarahjane

Dr Sarahjane Jones PhD SFHEA

Associate Professor in Patient Safety

School of Health and Social Care

T: 01785 353822

E: Sarahjane.jones@staffs.ac.uk

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Centre of Excellence in Healthcare Education

Room BL132

Black Heath Lane

Stafford

ST18 OYB

Appendix 11

Data collection tool quantitative phase

The overall aim of this research is to understand midwives' experiences after making an error in clinical practice in England. I would like to find out about your experiences as a midwife if you have made an error in clinical practice.

This is part of a mixed methods PhD study. Based on a preceding qualitative study, this questionnaire is exploring the wider population of midwives' experiences of errors in clinical practice.

An error is anything from forgetting to do something, giving wrong information, labelling blood bottles incorrectly, interpreting a CTG or fundal height plotting incorrectly, giving the wrong drug or dose, or to an unintended incident leading to a serious outcome. Errors may have led to injury of a woman or baby or they may not have. Errors that do not result in injury are often referred to as near misses, close calls, or warning events - I am interested in the effect of these types of errors on midwives too.

Grober and Bohnen (2005 p3) say that an error "is an act of omission or commission in planning or execution that contributes or could contribute to an unintended result." Errors are usually the end result of predictable and understandable features of our everyday working environments.

I would be really grateful if you could answer the questions based on your own experiences of making an error that you remember in clinical practice. You will have the option to skip questions that are irrelevant to you.

For the purposes of this research, I am NOT looking at adverse events such as obstetric emergencies, where all care was delivered as required, but there was an adverse outcome. This could have also evoked strong feelings and be upsetting.

All information collected during the course of the research will be anonymous.

Completing the questionnaire and returning it will indicate consent to the study.

You can stop being part of the study at any time, without giving a reason, but we will

keep information about you that we already have. You can find out more about how we use your information from our data protection department at dataprotection@staffs.ac.uk

• our research ethics policy is available here: Research ethics - Staffordshire University (staffs.ac.uk)

• by asking one of the research team at natasha.carr@bcu.ac.uk

• by ringing us on 07425166485 Your data will be processed in accordance with the General Data Protection Regulation 2016 (GDPR).

The data controller for this project will be Staffordshire University.

Your data will be processed in accordance with the General Data Protection Regulation 2016 (GDPR). The data controller for this project will be Staffordshire University. The university will process your personal data for the purpose of the research outlined above. You have the right to access information held about you. Your right of access can be exercised in accordance with the GDPR. You also have other rights including rights of correction, erasure, objection, and data portability. Questions, comments and requests about your personal data can also be sent to the Staffordshire University Data Protection Officer. If you wish to lodge a complaint with the Information Commissioner's Office, please visit www.ico.org.uk.

As a thank you for your time in taking part, if you complete a separate link available at the end of the questionnaire, with your name and email address you will be entered into a draw to win a £25 Amazon Voucher. You will be notified by email if you have won. Thank you for your help. Your views are so important to me, midwives' voices need to be heard. This research is sponsored by Staffordshire University. Survey responses will be anonymous, will not be shared with an employer, and will not impact any professional standing.

Please take time to read this introductory information carefully. If you feel that you would like more information please contact: Natasha Carr: Natasha.carr@bcu.ac.uk or if you need support please contact: www.nurselifeline.org.uk / 08088010455 or your Professional Midwifery Advocate.

Q1. What is your age range?

- ○ under 21
- ○ 21 - 30
- ○ 31 - 40
- ○ 41 - 50
- ○ 51 - 60
- ○ 61 plus

Q2.
What best describes your gender?

- ○ Female
- ○ Male
- ○ Non-binary
- ○ Prefer to self describe

Q3. Please specify your ethnicity:

- ○ White
- ○ Black
- ○ Asian
- ○ Mixed race
- ○ Any other ethnic group
- ○ Prefer not to say

Q4.

Which of the following best describes your main employment status as a midwife?

- ○ Part-time employment
- ○ Full-time employment
- ○ Working on the bank / agency
- ○ Independent midwife

- ○ Unable to work due to the error
- ○ Not working in midwifery for another reason

Q5.

What grade band are you?

- ○ Band 5
- ○ Band 6
- ○ Band 7
- ○ Band 8
- ○ Independent midwife
- ○ Other

Q6.

How long have you been qualified?

- ○ Newly qualified (less than 1 year)
- ○ 1 – 5 years
- ○ 6 – 10 years
- ○ 11 – 15 years
- ○ 16 – 20 years
- ○ 21 years plus

Q7. Thinking about the place of work where you made your clinical error, please indicate your opinion on the following statements:

	Strongly Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The management did a good job of sharing information about errors	○	○	○	○	○
We didn't know about errors that happen in our unit	○	○	○	○	○

	Strongly Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I often heard about error conclusions and outcomes	○	○	○	○	○
Staff felt uncomfortable discussing errors with managers	○	○	○	○	○
Managers respected suggestions from staff members	○	○	○	○	○
Staff could easily approach managers with ideas and concerns	○	○	○	○	○
If I had a good idea for making a safety improvement, I believe my suggestion would be taken seriously	○	○	○	○	○

I trusted managers to do the right thing	○	○	○	○	○
Midwives were usually blamed when involved in an error event	○	○	○	○	○
Midwives feared disciplinary action when involved in an error event	○	○	○	○	○
When an error event occurred, the follow up team looked at each step in the process to determine how the error happened	○	○	○	○	○
I felt comfortable entering reports about errors in which I was involved	○	○	○	○	○
Staff members used error reporting to "tell" on each other	○	○	○	○	○
The hospital used a fair and balanced system when evaluating staff involvement in error events	○	○	○	○	○

	Strongly Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I trusted that the hospital would handle error events fairly	○	○	○	○	○
The hospital adhered to its own rules and policies	○	○	○	○	○
I felt comfortable entering error reports where others were involved	○	○	○	○	○

I felt uncomfortable with others entering error reports about events in which I was involved	○	○	○	○	○

Q8.

Thinking about the time following your clinical error, did you experience any of the following?

If you did, how did it affect your practice?

	Experienced the symptom		Affected my midwifery practice		
	yes	no	positively	negatively	no difference
Extreme fatigue	○	○	○	○	○
Sleep Disturbances	○	○	○	○	○
Rapid heart rate	○	○	○	○	○
Increased blood pressure	○	○	○	○	○
Muscle tension	○	○	○	○	○
Rapid breathing	○	○	○	○	○
Frustration	○	○	○	○	○
Decreased job satisfaction	○	○	○	○	○
Anger	○	○	○	○	○

	Experienced the symptom		Affected my midwifery practice		
	yes	no	positively	negatively	no difference
Extreme sadness	○	○	○	○	○
Difficulty concentrating	○	○	○	○	○
Flashbacks	○	○	○	○	○
Loss of confidence	○	○	○	○	○
Grief	○	○	○	○	○
Remorse	○	○	○	○	○
Stress	○	○	○	○	○
Anxiety	○	○	○	○	○
Isolation	○	○	○	○	○
Blame	○	○	○	○	○
Fear	○	○	○	○	○

Q9. Midwives have described different ways of coping following making an error in clinical practice. To what extent would the following have helped you recover from your error?

	Very helpful	Somewhat helpful	Neither helpful or not	Somewhat unhelpful	Very unhelpful
Having support from colleagues	○	○	○	○	○
Talking to the woman involved in the error	○	○	○	○	○
Talking to the family involved in the error	○	○	○	○	○
Someone to say it was not my fault	○	○	○	○	○
Caring for the woman again	○	○	○	○	○
Avoiding the family involved in the error	○	○	○	○	○
Telling the woman about the error	○	○	○	○	○
Being honest with the woman	○	○	○	○	○
Soul searching or internal reflecting	○	○	○	○	○

	Very helpful	Somewhat helpful	Neither helpful or not	Somewhat unhelpful	Very unhelpful
Relying on myself for support	○	○	○	○	○
Standing up for myself	○	○	○	○	○
Becoming defensive in my work	○	○	○	○	○
Avoiding the work area	○	○	○	○	○
Switching off from work	○	○	○	○	○

Exercising	○	○	○	○	○
Practising mindfulness	○	○	○	○	○
Following the investigation processes required	○	○	○	○	○
Taking sick leave	○	○	○	○	○
Education	○	○	○	○	○
Counselling	○	○	○	○	○
Having feedback about the error	○	○	○	○	○
Getting back to my usual work area	○	○	○	○	○

Q10. Did you find any other coping strategies helpful, if so what were they?

Q11. Sometimes midwives are moved from their usual work area following making an error in clinical practice. Were you moved from your usual work area following your error?

○ Yes

○ No

Q12. When you were moved from your usual clinical work area following an error, was this your choice?

- ○ My choice to move
- ○ Forcibly moved by my employer

Q13. Sometimes midwives are moved from their usual work area following making an error in clinical practice. When you had to move to a new work area following an error, please indicate your opinion about your feelings:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I suffered ill health in the new work area	○	○	○	○	○
I lost the support of my colleagues when I was moved	○	○	○	○	○
I had meaningfulness in my new work place	○	○	○	○	○
I was not comfortable in the new work area	○	○	○	○	○

I had a positive manager in the new work area	○	○	○	○	○
My error was reinforced in the new work area	○	○	○	○	○
I was accepted in the new work place	○	○	○	○	○
I was respected in the new work area	○	○	○	○	○
I worked in a cooperative team in the new work area	○	○	○	○	○
I had job satisfaction in my new work place	○	○	○	○	○
I felt isolated in the new work area	○	○	○	○	○
I felt I was being judged by others in the new work place	○	○	○	○	○
I had the ability to make decisions in the new work area	○	○	○	○	○

Q14. How would you describe your health (physical or mental) when you were moved to a new work area following an error in practice?

Q15. Thinking about your error, did you feel blamed in any way?

- ○ Yes
- ○ No

Q16. Did you experience any of these following your clinical error? Tick as many as apply to you.

- ☐ I did not experience blame
- ☐ I thought other people blamed me, but no one actually said they blamed me
- ☐ A midwife directly blamed me
- ☐ I blamed myself
- ☐ A doctor directly blamed me
- ☐ One of more of the parents directly blamed me
- ☐ A manager blamed me
- ☐ The woman or partner blamed me

Q17. To what extent do you agree or disagree with the following statements in relation to making an error:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
There is a blame response when an error is made in midwifery practice	○	○	○	○	○
A blame free environment is necessary to help with an error experience	○	○	○	○	○
Being blamed does not affect the experience of making an error	○	○	○	○	○
It is a reality that the NHS is a blame free environment	○	○	○	○	○
Being blamed for an error in practice is distressing	○	○	○	○	○
Being blamed hampered me moving on after an error	○	○	○	○	○

Q18. Following your error experience, how do you now feel? Choose all that apply.

- [ ] I have moved on with my life
- [ ] I am doing okay, but am still affected by the error event
- [ ] I have learnt from the error
- [ ] I am still suffering
- [ ] I have changed my practice to avoid future errors
- [ ] I made something good from the negative experience
- [ ] I have healed
- [ ] Other

Q19. Are you experiencing continued distress following the error you made?

- ○ Yes
- ○ No

Q20. If you are experiencing continuing distress following an error in clinical practice, please indicate the extent of your agreement or disagreement with the following statements about potential reasons for prolonged distress:

	Strongly agree	Somewhat agree	Neither agree or disagree	Somewhat disagree	Strongly disagree
I felt a sense of isolation	○	○	○	○	○
I felt a lack of confidence	○	○	○	○	○
I had an inability to accept that I am fallible as a midwife	○	○	○	○	○
The error led to or involved a legal case	○	○	○	○	○
I had continued uncertainty about the correct clinical practice	○	○	○	○	○
I felt that there was a lack of involvement in the investigation process	○	○	○	○	○

I felt that I had no feedback about what was going on following the error	○	○	○	○	○

Q21. What would contribute to your continuing distress following an error in clinical practice?

Q22. If you are experiencing continued distress from the error event, how long has this lasted?

- ○ Less than a week
- ○ Less than a month
- ○ More than a month
- ○ Up to 3 months
- ○ Up to 6 months
- ○ Up to a year
- ○ 1 - 3 years
- ○ 4 - 6 years
- ○ 7 - 10 years
- ○ Over 10 years

Q23. Thinking about your error, did you feel adequately supported so that you could return to midwifery practice to perform to your usual professional level?

- ○ Yes
- ○ No
- ○ other, please elaborate

Q24. From whom did you receive adequate support following an error in practice? Choose all that apply

- [ ] Midwifery colleague
- [ ] Designated support professional in my organisation
- [ ] Line manager
- [ ] Educationalist
- [ ] No one
- [ ] Chaplain
- [ ] Union
- [ ] Other

Q25. Do midwives in your current unit receive the support they need if they have physical or psychological distress following making an error in practice?
0 is never, 5 is sometimes and 10 equates with always.

never										always
0	1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○	○

Q26. Does your hospital have a specific support programme for midwives who have made errors?

- ○ No
- ○ Not sure
- ○ Yes

Q27. Please rate the following statements about learning in relation to your error?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Learning enabled me to change my practice positively	○	○	○	○	○
Learning caused me to change my practice negatively	○	○	○	○	○
The error stimulated my learning	○	○	○	○	○
The error enabled me to learn and improve my practice	○	○	○	○	○
I still do not know the right practice following the error	○	○	○	○	○
I have passed my learning on to others since making my error	○	○	○	○	○

I was made to feel like a complete novice again	○	○	○	○	○
Despite investigations and processes being complete my learning associated with the error is still incomplete	○	○	○	○	○
A formal education programme helped remedy my knowledge about the error	○	○	○	○	○
Informal education opportunities helped remedy the error	○	○	○	○	○
Experience of the error enabled me to learn from it	○	○	○	○	○
Support helped my learning	○	○	○	○	○
A formal education programme hindered recovery from the error	○	○	○	○	○

Q28. What would maximise your recovery following an error in clinical practice? Choose all that apply.

- ☐ Support from midwifery colleague
- ☐ Support from a designated professional (if so, who)
- ☐ My manager to be aware of the error
- ☐ The absence of blaming me
- ☐ Involvement in any investigation processes
- ☐ Constructive professional feedback
- ☐ Contact with the mother / family / baby involved in the error
- ☐ Information
- ☐ To remain in the same work area following the error
- ☐ To feel connected to the ongoing processes following the error
- ☐ Continual engagement with any ongoing investigation processes following the error
- ☐ A Just Culture in my workplace
- ☐ Other, please state

Q29. Please feel free to briefly describe the error you made (please do not breach any confidentiality by naming individuals / Trusts in your response). Please remember that if you need support please contact: www.nurselifeline.org.uk / 08088010455 or your Professional Midwifery Advocate :

Reward Entry Here. Please click and paste this link http://staffordshire.qualtrics.com/jfe/form/SV_4NHTibrE1m92mIm into your browser if you wish to be entered into the chance to win a £25 Amazon voucher for completing this questionnaire. You just need to add you name and email address to the questionnaire that opens from the link. You will not be contacted for any other purpose than to notify a winner, and names will not be linked to the data collected in the main survey.

We thank you for your time spent taking this survey.
Your response has been recorded.

Appendix 12

Ethical Approvals

BIRMINGHAM CITY University

Faculty of Health, Education and Life Sciences Research Office

Faculty of Health, Education and Life Sciences
Birmingham City University
Westbourne Road
Birmingham
B15 3TN

HELS_Ethics@bcu.ac.uk

08/02/2018

Mrs Natasha Carr

Seacole 429 Seacole Building
Westbourne Rd Edgbaston
Birmingham
West Midlands
B15 2TN
United Kingdom

Dear Natasha ,

Re: Carr /Feb /2018 /R(C) /1438 - An exploratory study examining the concept of midwives as the second victim. What experience do midwives have as the second victim after making an error in clinical practice?

Thank you for your application and documentation regarding the above study. I am pleased to confirm that the Faculty of Health, Education and Life Sciences of Birmingham City University has agreed to take on the role of Sponsor *once the following issue has been addressed*. There appears to be a discrepancy regarding the length of time you intend to retain the data collected (the patient information leaflet states 'at least 5 years', the response to Q15 states that 'data will be destroyed following conclusion of the study' whilst Q16's response states 'data will be stored for 5 years after completion of the study'.

I can also confirm that the legal liability for death or injury to any person participating in the project is covered under the University's insurance arrangements.

A copy of BCU's insurance details is available at:
https://city.bcu.ac.uk/Finance/Procurement-and-Insurance/Insurance

If you wish to make any changes to your proposed study (by request or otherwise), then you must submit an Amendment application to us (although in this instance, email confirmation to HELS ethics will suffice). Examples of changes include (but are not limited to) adding a new study site, a new method of participant recruitment, adding a new method of data collection and/or change of Project Lead.

Please also note that the Committee should be notified of any serious adverse effects arising as a result of this activity.

Keep a copy of this letter along with the corresponding application for your records as evidence of approval.

If you have any queries, please contact HELS_Ethics@bcu.ac.uk

I wish you every success with your study.

Yours Sincerely,

Mr. Tony Barlow

On behalf of the Faculty Academic Ethics Committee
Health, Education and Life Sciences

Page 1 of 1

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

NHS
Health Research Authority

Mrs Natasha Carr
PhD Student, Senior Lecturer in Midwifery
Birmingham City University
Faculty of Health, Education and Life Science Birmingham City University
Westbourne Road, Edgbaston
Birmingham
B15 3TN

Email: hra.approval@nhs.net
Research-permissions@wales.nhs.uk

12 November 2018

Dear Mrs Carr

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	**An exploratory study examining the concept of midwives as the second victim. What experience do midwives have as the second victim after making an error in clinical practice?**
IRAS project ID:	**244704**
Protocol number:	**Carr /Feb /2018 /R(C) /**
Sponsor	**Birmingham City University**

I am pleased to confirm that **HRA and Health and Care Research Wales (HCRW) Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

How should I continue to work with participating NHS organisations in England and Wales?
You should now provide a copy of this letter to all participating NHS organisations in England and Wales, as well as any documentation that has been updated as a result of the assessment.

Participating NHS organisations in England and Wales **will not** be required to formally confirm capacity and capability before you may commence research activity at site. As such, you may commence the research at each organisation 35 days following sponsor provision to the site of the local information pack, so long as:

- You have contacted participating NHS organisations (see below for details)
- The NHS organisation has not provided a reason as to why they cannot participate
- The NHS organisation has not requested additional time to confirm.

You may start the research prior to the above deadline if the site positively confirms that the research may proceed.

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

NHS
Health Research Authority

Mrs Natasha Carr
Senior Lecturer in Midwifery
Birmingham City University
Wheel Cottage, Church Road,
Crowle
Worcester, Worcestershire
WR7 4AT

Email: approvals@hra.nhs.uk
HCRW.approvals@wales.nhs.uk

27 July 2022

Dear Mrs Carr

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	**An exploratory study examining the concept of midwives as the second victim. What experience do midwives have as the second victim after making an error in clinical practice?**
IRAS project ID:	**312715**
Protocol number:	**N/A**
REC reference:	**22/PR/0722**
Sponsor	**Staffordshire Univeristy**

I am pleased to confirm that **HRA and Health and Care Research Wales (HCRW) Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

Please now work with participating NHS organisations to confirm capacity and capability, in line with the instructions provided in the "Information to support study set up" section towards the end of this letter.

How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?
HRA and HCRW Approval does not apply to NHS/HSC organisations within Northern Ireland and Scotland.

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report

(including this letter) have been sent to the coordinating centre of each participating nation. The relevant national coordinating function/s will contact you as appropriate.

Please see IRAS Help for information on working with NHS/HSC organisations in Northern Ireland and Scotland.

How should I work with participating non-NHS organisations?
HRA and HCRW Approval does not apply to non-NHS organisations. You should work with your non-NHS organisations to obtain local agreement in accordance with their procedures.

What are my notification responsibilities during the study?

The *"After HRA Approval – guidance for sponsors and investigators"* document on the HRA website gives detailed guidance on reporting expectations for studies with HRA and HCRW Approval, including:

- 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.

Who should I contact for further information?
Please do not hesitate to contact me for assistance with this application. My contact details are below.

Your IRAS project ID is **312715**. Please quote this on all correspondence.

Yours sincerely,
Kathryn Davies

Approvals Specialist

Email: approvals@hra.nhs.uk

Copy to: *Dr Sarahjane Jones*

INDEPENDENT PEER REVIEW APPROVAL FEEDBACK

Researcher Name	Natasha Carr
Title of Study	An exploratory study examining the concept of midwives as the second victim. What experience do midwives have as the second victim after making an error in clinical practice? Part two (quantitative) of a mixed methods study.
Status of approval:	**Approved**

Thank you for your resubmission to the Independent Peer Review Panel (IPR). Your application is now approved

Action now needed:

You must now apply to the Integrated Research Applications System (IRAS) for approval to conduct your study. You must not commence the study without this second approval. Please note that the university sponsor to be named on the form is Dr Tim Horne.

Please forward a copy of the letter you receive from the IRAS process to ethics@staffs.ac.uk as soon as possible after you have received approval.

Once you have received 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 an end of study report to Edward Tolhurst: e.tolhurst@staffs.ac.uk. A template can be found on the ethics Blackboard site.

Comments for your consideration: None

Signed: Dr Edward Tolhurst
University IPR coordinator

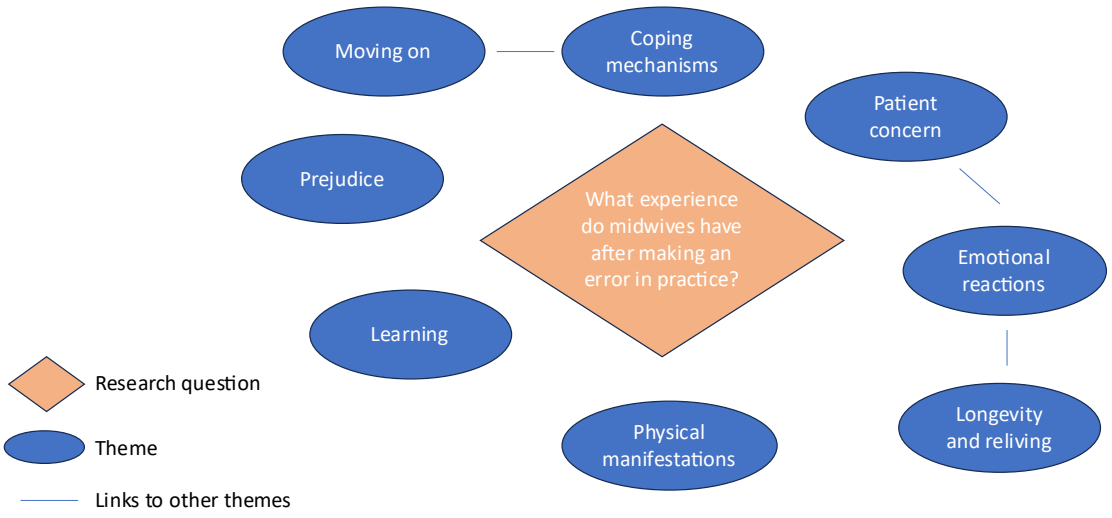
Date: 25th April 2022

Appendix 13

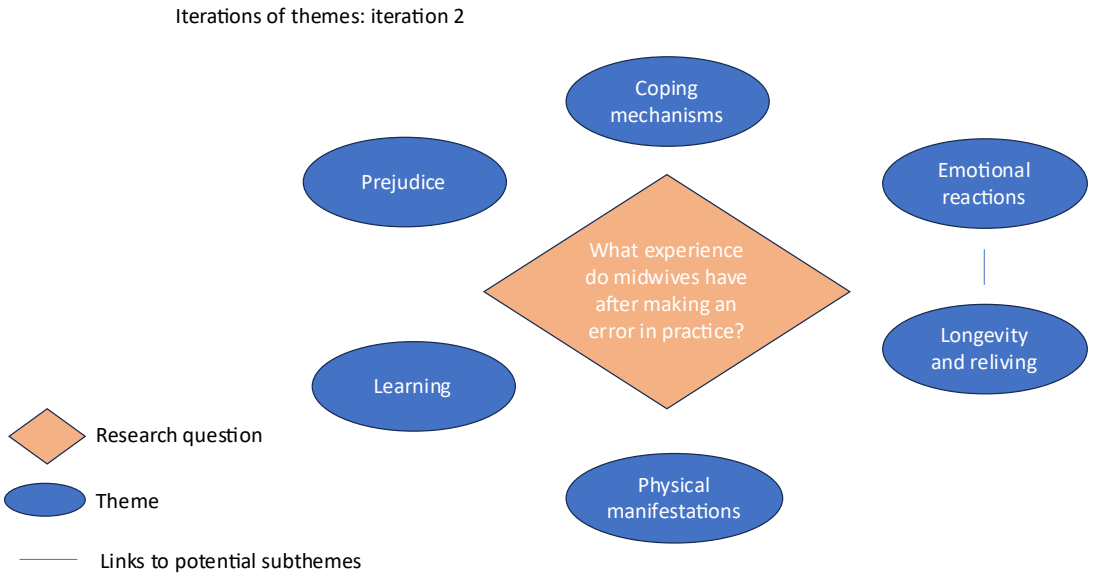
Iterative process of qualitative data revisiting and inductive determination of themes.

Theme – 1st iteration	**Number of sources identified in**	**Frequency of references in sources**
Coping Mechanisms	11	37
Emotional Reactions	15	136
Learning	12	38
Longevity and Reliving the Error	12	34
Moving on	8	23
Patient Concern	6	8
Physical Manifestations	7	16
Prejudice	12	43

Iterations of themes: iteration 1



Theme – 2nd iteration	**Number of sources identified in**	**Frequency of references in sources**
Coping Mechanisms including moving on	11	37
Emotional Reactions inclusive of concern for the patient	15	160
Learning	12	38
Longevity and Reliving the Error	12	34
Physical Manifestations	7	16
Prejudice	12	43



Merging of emotional reactions and concern for the patient to make emotional reactions inclusive of concern for the patient, reasoning being that concern is an emotional reaction and could be a subtheme of emotional reaction.

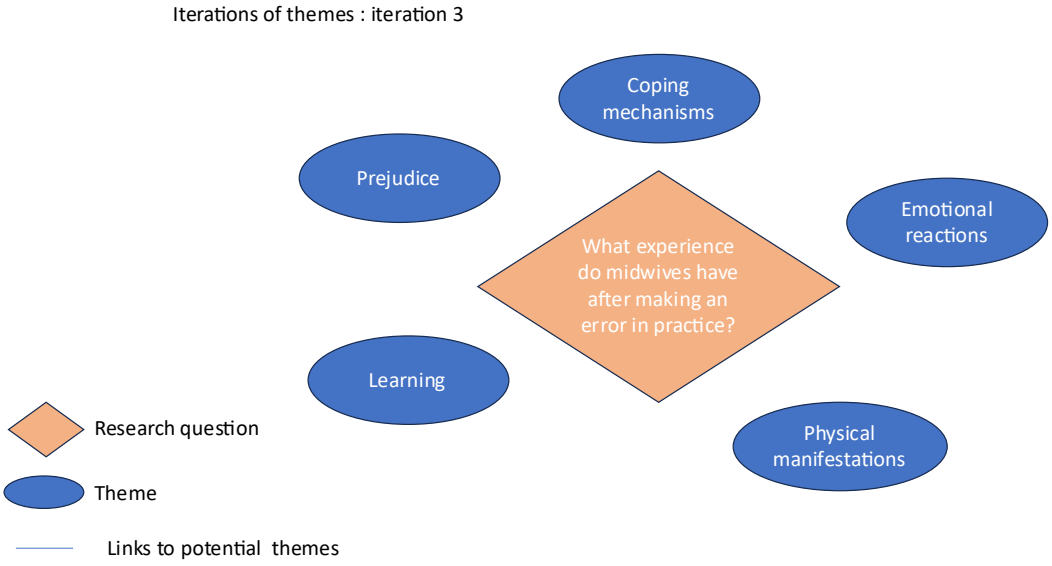
Additional merging of moving on with emotional reactions, the reasoning being that revisiting the content of this smaller theme enabled the discovery that moving on involved emotional reactions and did not warrant a distinct theme of its own.

Merging of moving on into coping as a broader theme as coping style could influence ability to move on and it may become a subtheme.

Now have a resultant 6 themes that were more mutually exclusive in iteration 2.

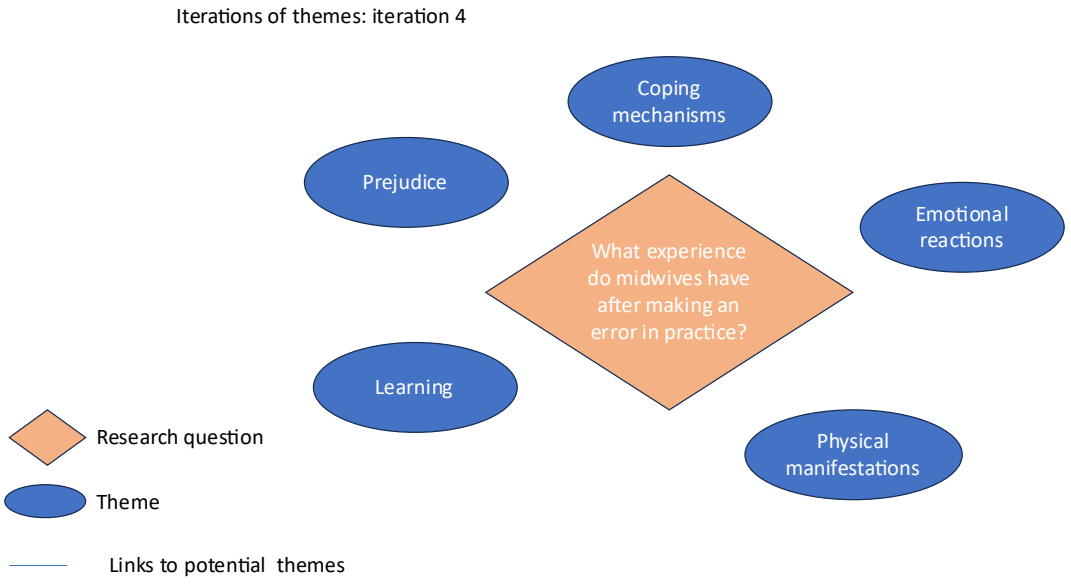
Theme – 3rd iteration	**Number of sources identified in**	**Frequency of references in sources**
Coping Mechanisms	11	37

Emotional Reactions inclusive of concern for the patient and longevity	15	194
Learning	12	38
Physical Manifestations	7	16
Prejudice	12	43



Merging of longevity and reliving the error into the Emotional Reactions as it is an extension or prolongation of emotional reactions to the error. As analysis of the data occurred this seemed a natural place to locate this data.:

Theme – 4th iteration	Number of sources identified in	Frequency of references in sources
Coping Mechanisms	11	37
Emotional Reactions	15	182
Learning	12	38
Physical Manifestations	7	16
Blame	15	55



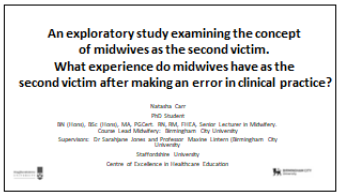
Renaming of the theme prejudice to blame and a more appropriate umbrella term for the data that sits within it. This allowed the merging of shame and guilt experiences identified in the data into the blame theme as these sits within 'self-blame' which became a sub theme.

There were now 5 main themes, with appropriate links to sub themes.

Appendix 14

Conference Presentations

National Professional Midwifery Advocate Conference, online, October 2023



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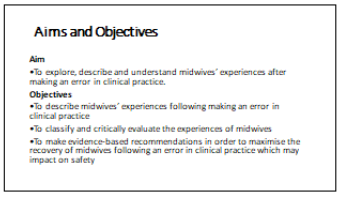

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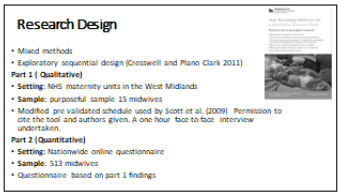

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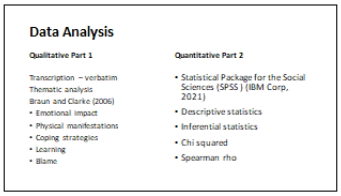

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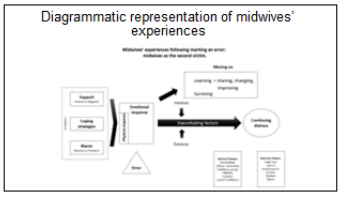

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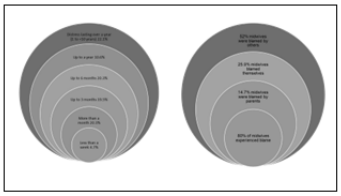

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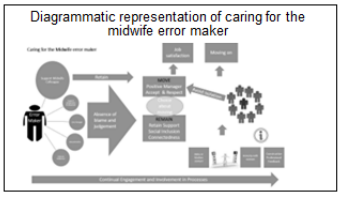

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- First study that specifically addresses the 2nd victim phenomenon in midwifery and in midwifery errors.
- A transparent NHS safety culture will only be achieved if the 2nd victim phenomena is recognised and addressed.
- Midwifery services need to create adequate evidence policies to mitigate the problems caused by the 2nd victim phenomenon in midwives who make errors.
- Midwifery services need to adopt the conceptual model of support that midwives require.

10

Impact on safety

- Evidence is at the heart of safety
- To argue for change, evidence must be at the heart of everything we do (British Safety Council 2018)
- Currently lacking in midwifery errors; but is emerging
- How we organise safety to be more effective (HSIB)?
- Proactive mitigation
- Using the data to drive safety maternity systems
- Promoting the role of the evidence-based PMA

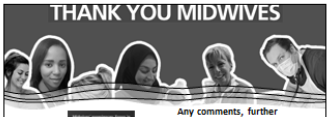
13

Is there a role for the PMA?

- The support person
- Model identifies support from midwife peer or support form a designate
- Retaining of midwifery support is important for midwives
- Avoidance of isolation
- Monitor continued distress
- Education and development if necessary – proactive and reactive (sharing, changing, improving)
- Support with QI initiatives related to safety arising from errors
- Education of managers working with midwives
- Absence of blame/ judgement (not involved in investigations)

11

THANK YOU MIDWIVES



Any comments, further contacts or for access to references, please use the QR code.

natasha.carr@bcu.ac.uk

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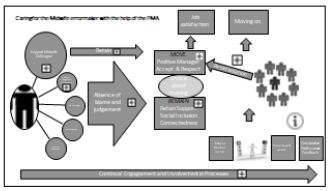

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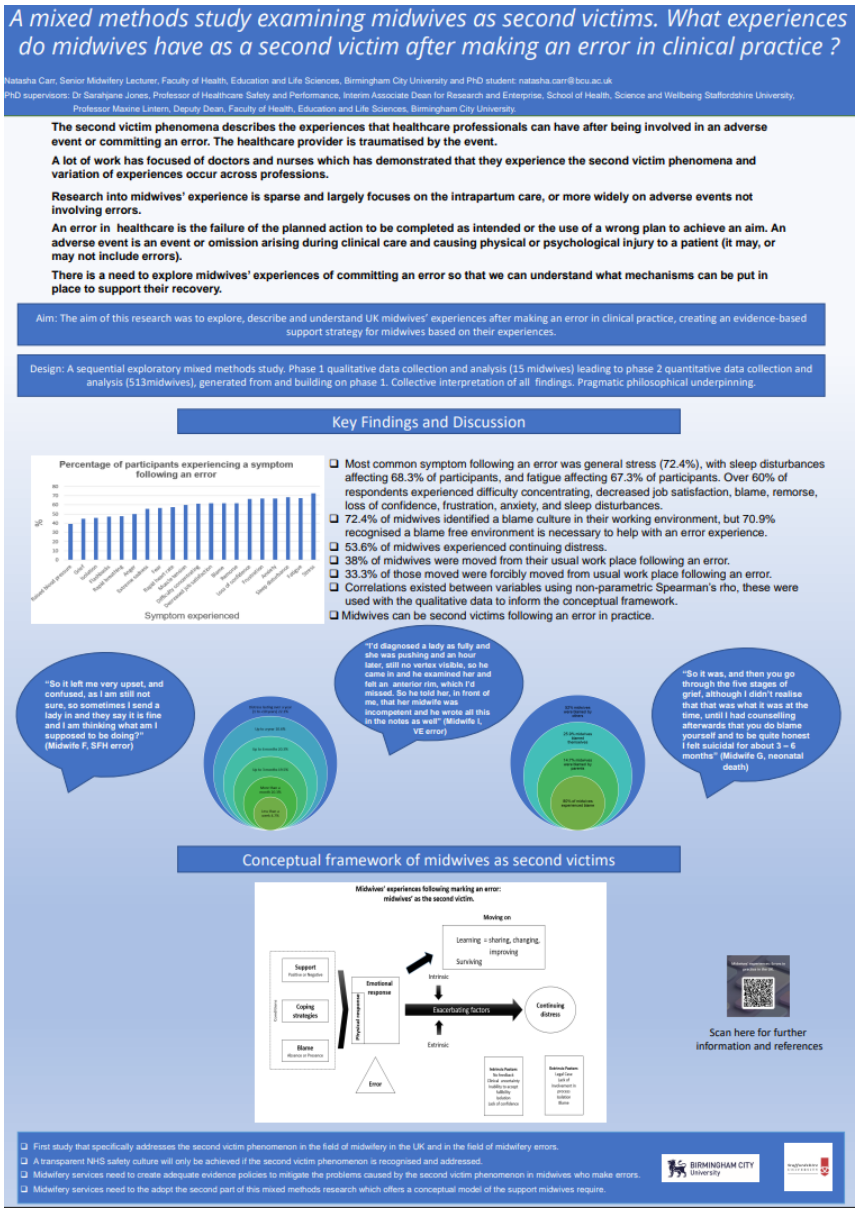
International Confederation of Midwives Conference, Bali, June 2023



National Patient Safety Conference, Baby Lifeline, Birmingham, September 2022

Staffordshire University

BIRMINGHAM CITY University

AN EXPLORATORY STUDY EXAMINING THE CONCEPT OF MIDWIVES AS THE SECOND VICTIM

What experience do midwives have as the second victim after making an error in clinical practice?

Natasha Carr, Senior Midwifery Lecturer, Birmingham City University and PhD student. Email: natasha.carr@bcu.ac.uk
PhD supervisors: Dr Sarahjane Jones, Professor Maxine Lintern

There are many patient safety incidents occurring in the National Health Service every year. The latest statistics show that the number of incidents reported by NHS organisations in England from April 2020 to March 2021 was 2,109,057 (NHS) 2021).

One stratum of a layered approach to risk management and safety governance is to examine mitigation and this has received little attention in the literature. Vincent and Amalberti (2016c) Mitigation is the action of reducing the severity, seriousness, or painfulness of some event and includes the impact of errors on the healthcare professional: the second victim. The existing literature is lacking in the United Kingdom and currently does not relate to midwives at all. There has also been a call for organisations to take accountability and provide staff with formal and informal systems of support following errors. It is argued that a transparent NHS safety culture will only be achieved if the second victim phenomenon is recognised and addressed (Edrees and Federico 2015).

This research, the first arm of a mixed methods study:

- Establishes for the first time that a midwife may suffer following a personal error in practice, distinct from adverse events
- Presents a concept analysis for both error experience and support required.

This work reports the qualitative arm of a larger mixed methods study, using an exploratory sequential design, (Cresswell and Plano Clark, 2011) which has a pragmatic philosophical underpinning. A purposeful sample of midwives was used who had made an error in practice across three maternity units in England. Ethical approval was gained from the Faculty Academic Ethics Committee (FAEC) at Birmingham City University and the Health Research Authority (HRA) in the UK. Using semi-structured interviews 15 midwives shared experiences of errors in practice. An interview schedule (modified pre validated schedule used by Scott et al. (2009) was utilised with permission. Following verbatim transcription using Braun and Clarke's (2006) thematic analysis, key themes (with sub themes) were determined. The second arm of the study, a quantitative questionnaire is underway. Scan the QR Code to participate.

This aims to triangulate, improve generalisability, refine and corroborate the findings of the first arm by surveying midwives in England about their experiences of making errors based on the first arm of the study. Findings should be available in 2023.

WHY MIDWIVES?

- Professional vulnerability
- Lack of voice
- Wahlberg et al. (2016) found that midwives experienced more sick leave than obstetricians in adverse events
- Expectation of perfection is extensive (Coughlan et al. 2017)
- Consequences of obstetric and midwifery errors are very serious in human terms and financially
- Highly complex technical procedures within midwifery
- Liability of potentially harming two humans
- Distinct autonomous professionals
- A relationship and bond of trust, being 'with women' is fundamental to their role; breaches are catastrophic, their relationship with their client base is quite distinctive (Rice and Warland, 2013

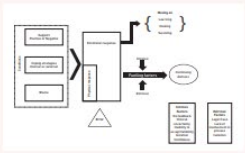
AN ESSENTIAL CONSTRUCT FOR DISCUSSION OF ERRORS IS THE DEFINING OF ERRORS AND THE DIFFERENTIATION OF ERRORS FROM OTHER RELATED ISSUES SUCH AS ADVERSE EVENTS (SMITH 2013)

Adverse Events	Errors
"an incident which results in harm to a consumer" (Health Quality and Safety Commission 2013 p.4)	Kohn et al. 1999), defined error in healthcare as the % fure of the planned action to be completed as intended or the use of a wrong plan to achieve an aim.
Ott (2018 p.xiii) "an event or omission arising during clinical care and causing physical or psychological injury to a patient" (may or may not include errors)	Reason (1990) p.9) defined error as "a generic term to encompass all those occasions in which a planned sequence of mental or physical activities fails to achieve its intended outcome, and when these failures cannot be attributed to the intervention of some chance agency", he claimed that errors take a limited number of forms: mistakes (planning failures) and slips and lapses (execution failures) and crucially acknowledge that errors can happen at any stage in the process of care.
Some events are clearly errors, but some incidents are not errors, but the 'patient' suffers a degree of harm as the incident or adverse event may have been an anticipated side effects or risk of the care being provided (Smith 2013).	
Some adverse events will be the result from a medical intervention or part of the natural risk of a life event such as childbirth such as an obstetric emergency and may not be preventable, such as side effects of planned care or a shoulder dystocia or postpartum haemorrhage, they are not attributable to errors from health care professionals.	

FINDINGS

THEMES

MIDWIVES' EXPERIENCES FOLLOWING AN ERROR: A NOVEL CONCEPT DIAGRAM



MIDWIVES' QUOTES

I think it's kind of a shame thing, reputational damage - that you're not good enough – a bit like the loss of confidence (Midwife F, CTG error)

It went to root cause analysis, I was basically lynched by the medical staff (Midwife F, SFH error)

So it left me very upset, and confused, as I am still not sure, so sometimes I send a lady in and they say it is fine and I am thinking what am I supposed to be doing? (Midwife F, SFH error)

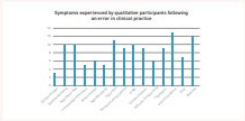
I'd diagnosed a lady as fully and she was pushing and an hour later, still no vertex visible, so he came in and he examined her and felt an anterior rim, which I'd missed. So he told her, in front of me, that her midwife was incompetent and he wrote all this in the notes as well. (Midwife I, VE error)

So it was, and then you go through the five stages of grief, although I didn't realise that that was what it was at the time, until I had counselling afterwards that you do blame yourself and to be quite honest I felt suicidal for about 3 – 6 months (Midwife G, neonatal death)

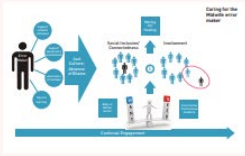
I felt it was unfair, it was harsh, and there was no support there at all. I think moving me off the labour ward was just a kick in the teeth because it was like, yeah that's your penalty, that's your sentence for doing what you did. But I mean, I did go back to labour ward, but I don't know, I think the damage was already done (Midwife K, CTG error)

After I had almost healed from it and it was anger that I was made to feel the way I was made to feel, as opposed to if I had been supported, if I had been helped, if I had been … you know given the time to heal and understood that this is what you go through (Midwife G, neonatal death)

I wouldn't see anybody or engage with anybody because I thought nobody is going to like me anymore because of what I have done. I have to say when I went back to work that was not the case at all. Nobody blamed me and no said 'she's the one over there' (Midwife A, drug error neonatal death)



MIDWIVES' SUPPORT REQUIRED; A CONCEPTUAL FRAMEWORK



References available on a handout or by contacting the author

Appendix 15

Participant Information Letters

Information Leaflet

Midwives' Experiences of Making Errors in Clinical Practice

I would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. Ask questions if anything you read is not clear or you would like more information. Take time to decide whether or not to take part on the research.

Why have I been invited to join the study?

You have been invited to join because you made an error in clinical practice and therefore have a valuable contribution to make on your experiences of this error.

Is this research related to the investigation or DATIX process?

No. There is no relationship between the research and any managerial or Trust processes. The research and Trust are independent of each other.

Do I have to take part?

No, it is up to you to decide if you want to take part or not. If you do decide to take part, you will be given this information sheet to keep and you will be asked to sign a consent form. You are still free to stop taking part in the study at any time without giving a reason. A decision to stop at any time, or a decision not to take part, will not affect you in any way.

What will happen to me if I take part?

If you agree to take part in this study, I would like to find out about your experiences as a midwife if an error in clinical practice has occurred.

I will collect information about your thoughts, opinions, feelings, perceptions, interpretation, views and insights related to the error or mistake in practice.

I will also collect routine demographic information about you, for example place of work, grade band and time qualified.

I will collect this information in a face-to-face interview, this should take about 1 hour and will be at a time and location that is convenient to you.

The study will involve audio recording the interviews and you will be offered the opportunity to check the transcript of the interview and remove or confirm data up to two weeks after receiving the transcript.

If you have indicated you have wanted to be included in the study and then change your mind, this is fine. Should I not hear from you, I will write one reminder letter. Any data pertaining to you that had been collected so far would be destroyed.

What are the possible advantages or disadvantages of taking part?

Some people do find it helpful to talk about their experiences related to errors in practice, it can be quite a cathartic process. The research will certainly give you, the midwife a voice, but in a confidential environment. I cannot promise the study will help you individually, but generically the information gained from the study will help to increase the understanding of midwives' experiences of making errors in clinical practice in England. The research is aiming to recommend a support system based on what midwives like yourself say that they need.

Will my taking part in the study be kept confidential?

All of the information that is collected about you during the course of the research will be kept strictly confidential. The only potential breaches of confidentiality will be for those practises suggesting a fitness to practise issues or safeguarding in line with professional obligations. In order to be able to contact you will have given this information to the researcher running the study and it will be held at the Birmingham City University. These details will be kept securely and only seen by those involved in the research.

You will not be named, nor will it be possible to identify individuals in any study publications. I am following the Government's strict rules about how to keep information like this and I will store it securely, for at least 5 years.

- A master list identifying participants to the research codes data will be held on a password protected computer accessed only by the research team.
- Hard paper/recorded data will be stored in a locked cabinet, within a locked office. The cabinet will only be accessed by the research team.
- Electronic data will be stored on a password protected computer, the details of which will be known only by research team.

We would like your permission to store your data and use it in future studies. If you agree, your data will only be used in studies that have separate ethical approval.

Who has approved the study?

This study have been reviewed by the University's Faculty Academic Ethics Committee and been granted a favourable opinion. The Trust's Research and Development team have also provided approval for the conduct of the study.

What if I want to make a complaint?

Any complaint about the way you have been dealt with during the study will be addressed.

If you are dissatisfied with the conduct of the research, please contact the researcher who will do their best to answer your questions and to resolve the matter. Alternatively, there is a complaints procedure. If you do not wish to discuss your complaint with the researcher, you are directed to the researcher's supervisor in the first instance, Dr Sarahjane Jones at sarahjane.jones@bcu.ac.uk or Professor Maxine Lintern at Maxine.lintern@bcu.ac.uk or to Alexandra.kendall@bcu.ac.uk, the Associate Dean for Research at Birmingham City University. In the event of a complaint relating to the NHS Trust, you should contact your line manager or your Trust's Research and Development Department.

Where and when can I find the results of the study?

The preliminary results of the study will be available in about 2019, and they will be published in peer reviewed journals. I will also send out a summary of the findings to all participants, if you would like them. You will not be identified in any report or publication.

Further information and contact details:

The researcher can be contacted at:

Natasha Carr: Natasha.carr@bcu.ac.uk

0121 331 6085 / 07425166485

Natasha Carr
PhD Student
Birmingham City University
Seacole 429
Seacole Building
Westbourne Road
Edgbaston
Birmingham
B15 3TN
Date
Dear (insert midwife's name)

Thank you for responding to my advert to participate in this research. The research study is being undertaken at Birmingham City University, is examining the experience of midwives like yourself who have experienced an error in clinical practice, with an ultimate aim of providing the best appropriate support as identified by midwives themselves.

If you continue to agree to take part in this study, I would like to find out about your experiences as a midwife following making an error in clinical practice. I will collect information about your thoughts, opinions, feelings, perceptions, interpretation, views and insights related to the error in practice. I will also collect routine demographic information about you, for example place of work, grade band and time qualified.

I would like to reassure you that there is no relationship between this research and any managerial or Trust processes. The research and Trust are independent of each other. All of the information that is collected about you during the course of the research will be kept strictly confidential. In order to be able to contact you, your name and contact details will be made available to the research team running the study and held at the Birmingham City University. These details will be kept securely and only seen by those involved in the research. From this point, I will only make one further attempt to contact by letter if I do not hear from you spontaneously. If you do not wish to continue after this point, I can assure you that your details will be destroyed.

I have enclosed for you to read a participant information leaflet so that you can see some more details of the study.

If you decide that you would be able to help me by participating in the research or you would like to ask me any questions, please contact me on 07425 166485 or 0121 331 6085 or email me at natasha.carr@bcu.ac.uk

Yours sincerely

Natasha Carr
Midwife and PhD Student

7th Dec 2017, version2

Appendix 16

Participants removed from the statistical analysis

Participants removed, 47 questionnaires were opened but no data were entered, therefore they were removed from analysis.

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Appendix 17

Qualitative Research Protocol

Contents

Researcher

### Principle Researcher	### Natasha Carr Seacole 429 Faculty of Health, Education and Life Science Birmingham City University Westbourne Road, Edgbaston B15 3TN 0121 331 6085 Natasha.carr@bcu.ac.uk
### Supervisor 1	### Dr Sarahjane Jones Ravensbury House 105 Faculty of Health, Education and Life Science Birmingham City University Westbourne Road, Edgbaston B15 3TN 0121 331 7041 Sarahjane.jones@bcu.ac.uk
### Supervisor 2	### Professor Maxine Lintern Associate Dean, Research and Enterprise City Centre Campus Curzon, C358 0121 202 8556 Maxine.lintern@bcu.ac.uk

Lay Summary

There are many patient safety incidents occurring in the National Health Service every year.

One stratum of a layered approach to risk management and safety governance is to examine mitigation and this has received little attention in the literature. Mitigation is the action of reducing the severity, seriousness, or painfulness of some events and includes the impact of errors or mistakes on the healthcare professional.

There is a known concept of the second victim which relates to the significant emotional reactions and long-lasting distress in the aftermath of an error. This has been explored in doctors and partially in nurses principally abroad, but the literature is lacking in the United Kingdom and currently does not relate to midwives at all. There has also been a call for organisations to take accountability and provide staff with formal and informal support following errors. The recognition that staff can be seriously affected by the role they have played in an error has been a very important step forward, although programs for supporting staff are still rare.

This research distinguishes between reactions to adverse events and to errors. It aims to describe the experiences of midwives in the English Maternity Units following making an error in practice. It will take a qualitative approach to gather and interpret the data. When midwives' experiences have been established it is envisaged that an appropriate evidence-based support system can be proposed for midwives.

Project Synopsis

Title	
Short title	Midwives' experiences following error
Chief Investigator	Natasha Carr
Aim and Objectives	**Aim** •To explore, describe and understand midwives' experiences after making an error in clinical practice. **Objectives** •To describe midwives' experiences following making an error in clinical practice •To classify and critically evaluate the experiences of midwives •To make evidence-based recommendations in order to maximise the recovery of midwives following an error in clinical practice which may impact on safety
Research configuration	Qualitative arm of a mixed methods study
Setting	Trusts offering NHS Maternity Care
Sample size	20 - 30
Eligibility criteria	Inclusion criteria • Midwives • Error made in clinical practice • Midwives who have made an error in practice • Midwives who perceive that they can recall the details of the event • Working in England at time of error Exclusion criteria • Non midwives • Midwives who have not made errors in practice • Errors not made in clinical practice • Midwives currently undergoing a trust investigation into an error • Working outside England at time of error

Study duration	Project length: March 2018 – December 2018 Length of participation – 1 hour face to face interview
Outcome measures	Participants' experiences of making errors in clinical practice Demographic data
Analysis techniques	Thematic interpretation of data in relation to the participants' experiences. Descriptive statistics of demographic data.

Introduction

There were 493,930 patient safety incidents reported in England between April 2015 and June 2016 (NHS Improvement 2017). Patient safety has been a focus in health care for over a decade (Hassen 2017) and is still prominent as reflected by the collection of national statistics (NHS Improvement 2017).

Vincent and Amalberti (2016c) outline five broad contemporary strategies in relation to risk management and safety governance. The first three strategies are focused on optimising patient care or controlling risk, followed by improving capacity for monitoring, and are well described in the patient safety literature. Finally comes mitigation, which is concerned with planning for potential harm and recovery. This proposal draws attention to the later approach of mitigation, which is an area that has received less attention in the patient safety literature.

Mitigation is the action of reducing the severity, seriousness, or painfulness of some events as research has shown that even the best people will sometimes make the worst mistakes (Reason 2000). Implicit in strategies about safety is an acceptance that errors will always occur, that no-one can function effectively all the time (Vincent and Amalberti 2016a, Kings Fund 2008). Reason (2000 p.768) proposes that "we cannot change the human condition, but we can change the conditions humans work in". Vincent and Amalberti (2016b) and Hassen (2017) rightly stress that the treatment and remediation of physical problems is obviously necessary when a patient has suffered some harm as the patient must be the first priority, consequently, the impact of errors on health care professionals has gained far less attention in the public debate (Schwappach and Boluarte 2008) and does not feature in current safety campaigns (RCN 2017, NHS England 2016a), even though it is argued that a transparent NHS safety culture will only be achieved if the second victim phenomenon is recognised and addressed (Edrees and Federico 2015).

Nonetheless, Wu (2000) introduced the concept of the second victim into medical literature, examining the significant emotional reactions and long-lasting distress in the aftermath of an error (Hassen 2017). However, this, and research since pertains predominantly to medics (Marmon and Heiss 2015, Luu 2012, McCay and Wu 2012 and Waterman et al.2007) and nurses (Wolf et al. 2000, Mayo and Duncan 2004, Rassin et al. 2005, Treiber and Jones 2010 and Quillivan et al. 2016). Few studies consider midwives (Van Gerven et al. 2016 and OBoyle 2013) and of these, Van Gerven et al. (2016) concede that midwives could not be

included in their data analysis because of the low number of participants and hence there was no new knowledge generated from this study about midwives. There is no consideration of midwives in the UK in any study. Prior research on the second victim has mostly not been undertaken in the UK and mostly undertaken in the USA. In the UK, obstetrics and gynaecology is the third highest risk specialty in terms of litigation and disproportionally the highest in terms of financial pay-out (NHSLA 2016) and warrants attention in terms of safety research (Corkhill et al.2016).

Schwappach and Boluarte (2008) explicitly call for organisations to take accountability and provide staff with formal and informal systems of support following errors, mirroring the findings of some of the research above in other health care professionals (Wu et al.2003). It is particularly important for individual recovery and patient safety, as West et al. (2006) documented a reciprocal cycle of error involvement, emotional distress and future errors when appropriate support and recovery was not forthcoming, and Luu et al. (2012) discussed the negative effect of being a second victim on clinical judgements and safety. The future impact of this research may lie in this arena as efforts to decrease errors in healthcare are directed at prevention rather than managing a situation when an error occurs. Healthcare practitioners may consequently lack the ability to manage the situation, have support and make a healthy recovery from the anguish that often accompanies making an error (Crigger 2004). The recognition that staff can be seriously affected by the role they have played in an error has been a very important step forward, although programs for supporting staff are still rare (Vincent and Amalberti 2016d). These experiences might not to be appreciated, and yet understanding the impact of such injuries is a prerequisite of providing useful and effective help (Vincent 2010). Following an error in practice, psychological support is equally important both for patients and staff. Vincent and Amalberti (2016b) consider that this should be part of a core safety strategy.

Key stakeholder involvement

In order to ensure that the research methodology was appropriate and that the sensitive topic of errors in practice was approached appropriately, key stakeholder involvement was sought. Key stakeholder events were undertaken at three NHS maternity units in the West Midlands in October and November 2017. Opinions were sought from a total of 10 clinical midwives and one Head of Midwifery. The clinicians currently in practice held clinical bands five - eight. There was no public involvement proposed in this research and so lay opinion was not sought. At the stakeholder events the researcher and / or supervisor one discussed the proposed research project specifically focussing on:

- Consent form
- Participation information leaflet
- Letters to participants
- Proposed interview schedule
- Recruitment to the study
- Objections to utilising Trust as a place to conduct the research
- Sensitive nature of the topic being researched

All recommendations and discussions were considered. The following were adopted into the study:

- The word error will be adopted for the study rather than mistake
- Only errors will be considered (as opposed to adverse events / incidents)
- A current live investigation became an exclusion criteria for the study
- There will be no contacting of potential participants who were identified from investigation into an error
- DATIX reports will not be utilised to generate participants
- A poster inviting participation will be used
- Distribution of the poster will be by physical posters, email and by social media sites or applications that are used by midwives such as Facebook or What's App.
- The stressing of potential benefits of the study in the participation leaflet will be adopted

Methodology

Aims and objectives

Aims and Objectives

Aim

•To explore, describe and understand midwives' experiences after making an error in clinical practice.

Objectives

•To describe midwives' experiences following making an error in clinical practice

•To classify and critically evaluate the experiences of midwives

•To make evidence-based recommendations in order to maximise the recovery of

midwives following an error in clinical practice which may impact on safety

Research Design

Mixed methods originates in the two major research paradigms (Terrell 2012). The use of mixed method tactics is often appropriate in health research (Cresswell and Plano Clark 2011). Previous studies have examined the concept of second victim independently in each opposing paradigm, for example Van Gerven (2016) took a quantitative approach, whilst Scott et al. (2009) and Ullstrom et al. (2014) took qualitative approaches. Creswell et al. (2004) and Harvey and Land (2017) contend that researchers should utilise whichever methods are required to achieve the prime results, even if this involves transferring between alternative paradigms, rather than working with either of the alternative opposing epistemological views of post positivism or constructivism (Christ 2013).

This protocol describes the first part of a larger mixed methods study. The exploratory sequential design, one of six mixed methods designs (Cresswell and Plano Clark (2011) which has a pragmatic philosophical underpinning will be used for the larger study. For this phase of the study, using sequential timing, qualitative data will be collected, a second phase that will collect quantitative data to generalise and triangulate the findings of the first

phase is anticipated to follow this qualitative phase and will be subject to its own ethical approval, at a later date, as the qualitative analysis will inform the formation of the quantitative research questions (Cresswell and Plano Clark 2011).

Setting, sample and recruitment

Setting

The setting will be NHS maternity units in the West Midlands. These maternity units will have inpatient and community services, delivering care to high and low risk clientele.

Sampling

A small purposeful sample will be used. The sampling frame for the sample will be based on an assessment of eligibility to participate in the study. The participants must meet the inclusion criteria. Midwives (particular persons) in clinical practice (particular setting) who have made an error in practice (particular event) will be deliberately selected as they can provide the required data for the study. The sample will be small, around 30 midwives.

Inclusion criteria

- Midwives
- Error made in clinical practice
- Midwives who have made an error in practice
- Midwives who perceive that they can recall the details of the event
- Working in England at time of error

Exclusion criteria

- Non midwives
- Midwives who have not made errors in practice
- Errors not made in clinical practice
- Midwives currently undergoing a trust investigation into an error
- Working outside England at time of error

Recruitment

The study will be advertised in the designated Trusts providing maternity care by poster (Appendix A). Advertisement by the poster and invitation to take part will also be sent out to midwives via closed Facebook pages or What's App groups where Trusts have this facility and by email (Appendix B). Box 1 illustrates the accompanying message that will go out with the email, Facebook or What's App posting of the poster and participation leaflet.

Box 1

I would like to invite you to take part in a research study about midwives' experiences of making errors in clinical practice. Before you decide you need to understand why the research is being done and what it would involve for you, so I have attached some information to this message. If you agree to take part in this study, I would like to find out about your experiences as a midwife if an error in clinical practice has occurred. All of the information that is collected during the course of the research will be kept strictly confidential.
Please take time to read the attached information carefully. If you feel that you would like more information or would like to take part, please contact:
Natasha Carr: Natasha.carr@bcu.ac.uk
0121 331 6085 / 07425166485
I look forward to hearing from you.

Midwives may volunteer to participate in the study by contacting the researcher in response to these adverts about the study.

Recruited midwives who have contacted the researcher will receive a letter (Appendix C) either by post or email. One follow up letter will be issued if necessary (Appendix D).

Qualitative data collection

Data Collection

Open ended data will be collected from participants via interviewing. However, an interview schedule will be used to allow the researcher to remain on track with discussing the phenomena in hand i.e. the experience of making an error.

The proposed interview schedule will be a modified pre validated schedule used by Scott et al. (2009) (Appendix E). Permission to cite the tool and authors has been sought (Appendix H).

A one-hour face-to-face interview will be undertaken in a private location convenient to the participant. Participants will be assured anonymity and confidentiality.

Before the interview commences, any questions will be answered, and a consent form will be reviewed and signed (Appendix F).

All interviews will be audio recorded with an encrypted audio recorder.

Upon the conclusion of each interview the audio recordings will be assigned a participant number to continue to preserve anonymity.

Study duration

The qualitative study will commence with data collection and proceed with analysis. It is anticipated that this phase will take 6 – 18 months following a successful ethics application. However, it is estimated that for each participant this will only be approximately an eight-to-ten-week window, which will be inclusive of; initial contacting and correspondence, arrangement of a convenient interview time and location, an hours interview, a two-week window of opportunity to comment on the transcript of the interview and any discussion from this including data removal.

Participant removal

Participants will be prevented from being involved in the study if they fall within the exclusion criteria prior to conducting the study. If adverse feelings in the participants occur and they need time to recover this will be permissible. In the event of an interview needing to be terminated this is also permissible. These events will be documented for completeness of documentation of the study.

Participant withdrawal

Participants can withdrawal from the research study at any point as explained in the participant information leaflet, letter and at the point of consent.

Unless the participant explicitly requests their data to be withdrawn, this will be retained and utilised within the study if appropriate to do so.

Participants do not have to disclose a reason for withdrawing from the study.

Data analysis

The researcher is aiming to understand and provide an accurate portrayal of the meaning of the qualitative data (Robson 2011 in Harvey and Land 2017 p278). This will be completed by an iterative process. The researcher will reflect on preconceived ideas and how these may impact on the interpretation of the data (Yardley 2008 in Harvey and Land 2017 p279). There should be no loss of the "essence of the data or contrasting views" (Harvey and Land 2017 p279). To aid this reflection a diary and will be kept, noting the researcher's actions and decisions. This will facilitate the rigour within the study (Harvey and Land 2017). It is acknowledged that it is difficult to separate data collection from data analysis (O'Leary 2014) as it is impossible to constrain all thinking processes and prior knowledge about the concept of the second victim or experiences following errors by health care professionals.

O'Leary (2014) advocates documenting ones assumptions and preconceived notions to consciously recognise biases and it will also assist in producing possible themes.

Using a staged guide of thematic analysis described by Braun and Clarke (2006), the data generated from this study will be analysed. Thematic analysis has been chosen as it provides flexibility as a research tool, potentially providing a rich and thorough, yet multifaceted account of data (Braun and Clarke 2006).

Stage 1: Immersion

The researcher will immerse herself in the data to become conversant with it; inclusive of transcription. Recorded interviews will be transcribed and accuracy checked against the recordings. Participants will be asked to check that the transcripts represent their views about their experiences of making errors in practice. Amendments could be made at this stage. Polit and Beck (2014) advocate the checking of coding by participants, however, Harvey and Land (2017) illustrate that qualitative research analysis is based on the possibility of multiple truths, not just one fixed truth and participant checking at the coding phase can lead to confusion rather than useful confirmation and therefore will be avoided. The data will be read and reread. It is important to actively read through the entire data (data corpus) prior to coding and searching for meanings and patterns. Braun and Clarke (2006) suggest that at this stage notes may be taken around initial ideas, but coding does not start.

Stage 2: Generating Codes

Codes will be produced for the data. Coding will be done with the assistance of a software program, 465, (QRS International 2018). It is important in this stage to code for as many potential codes as possible. Coding and later theme development will be data driven as opposed to being driven by existing research or knowledge. Harvey and Land (2017) demonstrate the use of factual codes and interpretive or analytical codes. Miles et al. (2013) refer to these as descriptive or inferential involving and discussing coding as analysis, deep reflection and interpretation of the data's meaning. For example, a factual code may be 'investigation', whereas an interpretive code could be 'fear, or 'isolation'. Initial coding of datasets will be reviewed for errors, which may result in amendments, amalgamations or separation of codes (Harvey and Land 2017), until a final coding framework emerges.

Stage 3: Generating Themes

The researcher will sort the codes into potential themes. Braun and Clarke (2006) explain that themes are made up of a subset of codes, with some codes forming main themes or sub-themes, although other codes may be discarded (or may be kept as outliers).

Stage 4: Refining Themes

The researcher will reanalyse the themes. Braun and Clarke (2006) illustrate that themes may collapse into other themes, or some themes may need to be broken down into smaller components. The researcher will conduct this at two levels, firstly be reviewing the data at the level of the coded data and secondly reviewing at the level of the themes.

Stage 5: Naming and defining themes

The researcher at this stage will be capturing the essence of what each theme is about. The creation of a narrative around the themes and the overall data will be created. This will be related to the research question. A final thematic map will be created.

Stage 6: Writing a report

Writing will commence as analysis of data commences as suggested by Braun and Clarke (2006), rather than this being done at the end of the data analysis process. Evidence of themes within the data will be provided. Where relevant, analysis will be widened, moving from a descriptive to an interpretative level with the inclusion of relevant existing literature. The researcher's inductive approach would be enhanced by not engaging with literature in the early stages of analysis (Braun and Clarke 2006). Braun and Clarke (2006p.24) succinctly put that the questions the researcher needs "to be asking, towards the end phases of your analysis, include: "what does this theme mean?" "What are the assumptions underpinning it?" "What are the implications of this theme?" "What conditions are likely to have given rise to it?" „Why do people talk about this thing in this particular way (as opposed to other ways)?" and "What is the overall story the different themes reveal about the topic?" . Trustworthiness is required, so that any findings are worth paying attention to (Lincoln and Guba 1985). Confirmability will be shown by the use of verbatim extracts from transcripts and confirmation of transcripts by participants. Credibility is enhanced by the use of the pre validated data collection tool and appropriate sampling (Harvey and Land 2017), dependability will be demonstrated through methodological rigour, inclusive of explicit explanation (Miles et al. 2013) and authenticity of the deep understanding (Wolcott 1990) will be demonstrated from the emergence of themes from the data (Miles et al. 2013).

The following terminology will be adopted

Code: "shorthand labels - usually a word, short phase, or metaphor - often derived from the participants' accounts, which are assigned to data fragments defined as having some common meaning or relationship." (Carpenter & Suto, 2008, p. 116)

Data corpus: all of the data that you collect for your research. (Braun & Clarke, 2006)

Data extract: an individual coded chunk of data that you have extracted from a data item.

For example, a meaningful coded section of an interview. (Braun & Clarke, 2006)

Data item: an individual piece of data that you collect. For example, one interview. (Braun & Clarke, 2006)

Data set: a subset of the data corpus that you are using for a particular analysis. (Braun & Clarke, 2006)

Reflexivity: "disciplined self-reflection." The active process of reflecting on your own views, context and biases and how they affect your research process, including data analysis. (Carpenter & Suto, 2008, p. 93)

Theme: an idea that captures something important about the data in relation to the research question that represents a pattern in responses. (Braun & Clarke, 2006)

Benefits of the study

Whilst the study may not directly benefit individual participants, the new knowledge generated from the study could help to increase the understanding of midwives' experiences following errors in practice and the concept of the second victim in midwives in England.

The ultimate aim is the suggestion of the development of an evidence-based support structure for midwives following errors in practice. Vincent and Amalberti (2016c) in their discussion of a contemporary model of risk management believe that organisations need to have effective systems in place to support patients, carers and staff in the aftermath of serious failures and harm. This is perhaps the most neglected aspect of patient safety. (Vincent and Amalberti 2016c). Further development of this strategy is important at the clinical and organisational level for the NHS.

Some participants may find it helpful to talk about their experiences related to errors in practice. This study will provide this opportunity and the opportunity for referral to further help if participants wish this.

Ethics, governance, regulation and informed consent

Ethical approval and permission to undertake the study will be sought from the Faculty Academic Ethics Committee (FAEC) and Health Research Authority (HRA) approval will also be required to conduct the research (HRA 2017a). The University requires standards to be upheld in the conduct of research (BCU 2017), working to the frameworks developed which ensure that anyone undertaking research should be 'expected to observe the highest standards of integrity, honesty and professionalism and to embed good practice in every aspect of their work' (RCUK 2013, updated 2017).

A research diary will help the researcher to be reflexive and identify ethical quandaries and ensure that she has dealt with them appropriately.

The researcher will ensure that the study is conducted in accordance with the relevant regulations and with Good Clinical Practice. The researcher has undertaken a Good Clinical Practice in Research Course.

Ethical Considerations	
Confidentiality and anonymity	There will be assurance in writing and verbally that all information will be secured confidentially. Anonymity will be maintained during data analysis.
Data Protection and Storage	The study staff will ensure that participants' anonymity is maintained. The participants will only be identified by their participant identification number with the exception of the case report form but will be anonymised as soon as it is practical to do so thus complying with the Data Protection Act (Information Commissioners Office 2017).
Informed consent	The study will be clearly explained to participants verbally and via a participant information leaflet (Appendix G). Consideration of beneficence when obtaining informed consent is integral within this concept to ensure that participants fully understand the research process and any possible costs or benefits. Permission to conduct and audio tape the

	interviews will be obtained in writing (Appendix F).
Right to withdraw	Participants will have the right to withdraw from the research, and this will be explained to them from the outset and in all correspondence.
Safeguarding	The process of interviewing could raise adverse feelings in the participants. Guillemin and Gilman (2004) highlight that the opportunity to talk about a delicate topic can be emotional and that they may need time to recover, change topics or terminate an interview; participants will have these options. It is therefore "imperative that counselling facilities are available should any participant require that support" (Rogers 2008 p.179). The hospital's occupational health system will be utilised as this is a universally available resource. In addition, the Professional Advocate Midwife will be utilised (NHS England 2016b). Confidentiality would be justifiably breached in the event of a safeguarding issue arising. Participant will be made aware of this at the point of consent (Appendix F).
Right to approach	All possible participants will be approached so that their privacy and data protection is not breached i.e. the researcher will not be provided with the contact details (email addresses, Facebook addresses, What's App accounts) of possible participations, without their prior verbal consent obtained by someone who has a right to be in communication with these individuals as part of their role.
Professional Misconduct	For researchers who hold professional qualifications the decision-making process around ethical considerations has great complexity as they also have to abide by their own ethical codes, which for midwifery is the Nursing and Midwifery Council (NMC 2015). If unprofessional or poor practice is disclosed during the research project then researcher will need to consider that the NMC has a defined

	process for referring a practitioner (NMC 2011), however, following the pragmatic approach, the underling philosophical approach of this research, a possible solution, as advocated by Rogers (2008) is to take a case by case approach, have a discussion with the participant involved and encourage self-disclosure with an appropriate person. Professional codes of ethics may supersede research protocols; participants would need to be made aware of this at the point of consent (Appendix F).

Project timeline

This demonstrates the approximate overall project timeline.

Doctoral Research Project	Start Date	End Date
Literature Review	01.01.17	31.01.19
Design Methodology	01.01.17	01.09.17
BCU Ethical Application	15.12.17	15.12.17
Organisation of Research Sites, approval in principle	7.12.17	On going
IRAS application and approval	01.01.18	30.04.18
Purposeful Sample selection	01.05.18	30.09.18
Qualitative Data Collection	31.05.18	31.10.18
Qualitative Data Analysis	31.05.18	31.12.18
Writing Up	01.01.18	31.01.19
Dissemination of Findings	01.02.19	01.06.19

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Appendix A Poster Advert

BIRMINGHAM CITY
Faculty of Health, Education and Life Sciences

Now Recruiting Midwives for *a Qualitative Research Study*

Would you like to participate in research?

- What has been the impact of errors on you?
- The voice of the midwife is not present in the existing literature.
- The study is examining the experience of midwives like yourself who have the understanding around making an error in practice.
- What was your experience following an error in practice?
- Would you be happy to share your experiences in confidence?
- This research will give midwives a voice.

Please contact: **Natasha Carr** at **natasha.carr@bcu.ac.uk**

BIRMINGHAM CITY
Faculty of Health, Education and Life Sciences

Now Recruiting Midwives for *a Qualitative Research Study*

Would you like to participate in research?

- What has been the impact of errors on you?
- The voice of the midwife is not present in the existing literature.
- The study is examining the experience of midwives like yourself who have the understanding around making an error in practice.
- What was your experience following an error in practice?
- Would you be happy to share your experiences in confidence?
- This research will give midwives a voice.

Contact: **Natasha Carr** at **natasha.carr@bcu.ac.uk**
T: **0121 331 6085 or 07425166485**

Birmingham City University

Appendix B

Email / social media distribution invitation to participate

I would like to invite you to take part in a research study about midwives' experiences of making errors in clinical practice. Before you decide you need to understand why the research is being done and what it would involve for you, so I have attached some information to this message. If you agree to take part in this study, I would like to find out about your experiences as a midwife if an error in clinical practice has occurred. All of the information that is collected during the course of the research will be kept strictly confidential.

Please take time to read the attached information carefully. If you feel that you would like more information or would like to take part please contact:

Natasha Carr: Natasha.carr@bcu.ac.uk

0121 331 6085 / 07425166485

I look forward to hearing from you.

Appendix C Letter in response to the poster

Natasha Carr

PhD Student

Birmingham City University

Seacole 429

Seacole Building

Westbourne Road

Edgbaston

Birmingham

B15 3TN

Date

Dear (insert midwife's name)

Thank you for responding to my advert to participate in this research. The research study is being undertaken at Birmingham City University, is examining the experience of midwives like yourself who have experienced an error in clinical practice, with an ultimate aim of providing the best appropriate support as identified by midwives themselves.

If you continue to agree to take part in this study, I would like to find out about your experiences as a midwife following making an error in clinical practice. I will collect information about your thoughts, opinions, feelings, perceptions, interpretation, views and insights related to the error in practice. I will also collect routine demographic information about you, for example place of work, grade band and time qualified.

I would like to reassure you that there is no relationship between this research and any managerial or Trust processes. The research and Trust are independent of each other.

All of the information that is collected about you during the course of the research will be kept strictly confidential. In order to be able to contact you, your name and contact details will be made available to the research team running the study and held at the Birmingham City University. These details will be kept securely and only seen by those involved in the research. From this point, I will only make one further attempt to contact by letter if I do not hear from you spontaneously. If you do not wish to continue after this point, I can assure you that your details will be destroyed.

I have enclosed for you to read a participant information leaflet so that you can see some more details of the study.

If you decide that you would be able to help me by participating in the research or you would like to ask me any questions, please contact me on 07425 166485 or 0121 331 6085 or email me at natasha.carr@bcu.ac.uk

Yours sincerely

Natasha Carr

Midwife and PhD Student

Appendix D Follow up letter

Natasha Carr

PhD Student

Birmingham City University

Seacole 429

Seacole Building

Westbourne Road

Edgbaston

Birmingham

B15 3TN

Date

Dear (insert midwife's name)

Thank you for taking the time to read this letter. I would like to further invite you to take part in a research study that is being undertaken at Birmingham City University. Just to remind you, the study is examining the experience of midwives like yourself who have experienced an error in practice with an ultimate aim of providing the best appropriate support as identified by midwives themselves. I would really value your important contribution. It is important that midwives have a voice.

If you agree to take part in this study, I would like to find out about your experiences as a midwife following making an error in clinical practice. I will collect information about your thoughts, opinions, feelings, perceptions, interpretation, views and insights related to the error. I will also collect routine demographic information about you, for example place of work, grade band and time qualified.

I would like to further reassure you that there is no relationship between this research and any managerial or Trust processes that may have occurred. The research and Trust are independent of each other.

All of the information that is collected about you during the course of the research will be kept strictly confidential. In order to be able to contact you, your name and contact details will only be made available to the research team running the study and will be held at Birmingham City University. These details will be kept securely and only seen by those involved in the research.

I have enclosed another participant information leaflet for you to read so that you can see some more details of the study.

Please contact me on 07425 166485 or 01221 331 6085 or email me at natasha.carr@bcu.ac.uk if you do want to be involved in the study or you would like to just discuss the study in more detail. All discussions will be confidential.

Yours sincerely

Natasha Carr

Midwife

PhD Student

Appendix E Data Collection Tool

Second victim interview guide (Adapted from S D Scott, et al (2009) The natural history of recovery for the health care provider ‘‘second victim’’ after adverse patient events. Qual Saf Health Care 2009;18:325–330")

Participant demographics (can be determined before interview)

1. Sex

2. Professional qualification

3. Years of experience

Event details

4. Think about a clinical error from your past that impacted you both professionally and/or personally. Please share what you remember as specifically as possible from the moment that it was discovered that something was wrong. How did you respond to this event? How did it impact you?

Interviewer: If not forthcoming by this participant’s recollection, and as appropriate, determine:

5. How long ago did this event occur?

6. Type of event (confirmation of medical error)

7. Describe your specific role in the event

8. The patient outcome (no harm, temporary harm, permanent harm, death)

9. Event occurrence at this Trust versus another Trust

Professional and personal impact from this experience

10. Thank you for sharing the event details with me. Now I would like to focus on what needs you experienced immediately after this event both personally and professionally.

11. What needs were addressed?

12. How were these needs addressed?

13. What needs did you have that were not addressed?

14. What would you recommend for having these needs addressed?

Participant experiences with, or normal reactions to, stress

15. When you are concerned or stressed about something happening at work, how do you typically manage those types of situations?

16. Who do you typically turn to when you need advice or reassurance or support about a work-related issue?

17. In your professional training, how did you learn to respond to errors on a professional and/or personal basis?

18. Where do you believe is the best place or approach for staff to learn about how to handle errors in practice?

Support structures

19. Based on your experience, what would you do differently if you were supporting a peer or colleague going through the same thing you went through?

20. How would you describe the environment at this Trust in terms of being supportive/helpful versus non-supportive/not helpful after an event that has an emotional impact on a team member?

21. What is your advice to us as we plan design for a ‘‘perfect world’’ where the best support/guidance possible is provided when a team member(s) is emotionally impacted following an error in practice?

22. What else would you like to share about your experience?

23. Please review this list of symptoms that some staff have reported. If you experienced any of these, please tell me how that symptom impacted you both personally and professionally.

24. Are there any symptoms not on this list that you think should be included on this list?

25. Are there any additional comments you would like to make regarding your experience?

List of symptoms

Extreme fatigue

Sleep disturbances

Rapid heart rate

Increased blood pressure

Muscle tension

Rapid breathing

Frustration

Decreased job satisfaction

Anger

Extreme sadness

Difficulty concentration

Flashbacks

Loss of confidence

Grief

Remorse

Depression

Repetitive / intrusive moments

Self-doubt

Return to work anxiety

Second guessing career

Fear of reputation damage

Excessive excitability

Avoidance of patient care areas

Appendix F: Consent Form

IRAS ID:

Participant Identification Number for this study:

CONSENT FORM

Title of Project: The Experience of Midwives Following Errors in Clinical Practice

Name of Researcher: Natasha Jayne Carr

Please **initial** box

1. I confirm that I have read the information sheet dated..... (version.....) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. ☐

3. I give permission that the information collected about me can be used to support other research in the future, and may be shared anonymously with other researchers and for publications. ☐

4. I understand that the professional Code of Ethics (NMC 2015) may supersede research protocols if unprofessional or poor practice is disclosed during the research. ☐

5. I agree to have my interview audio recorded. ☐

6. I agree to the use of anonymised quotes in publications I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential. ☐

7. I agree to take part in the above study. ☐

Name of Participant	Date	Signature

Name of Person taking consent	Date	Signature

Appendix G: Participant Information Sheet

Information Leaflet

Midwives' Experiences of Making Errors in Clinical Practice

I would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. Ask questions if anything you read is not clear or you would like more information. Take time to decide whether or not to take part on the research.

Why have I been invited to join the study?

You have been invited to join because you made an error in clinical practice and therefore have a valuable contribution to make on your experiences of this error.

Is this research related to the investigation or DATIX process?

No. There is no relationship between the research and any managerial or Trust processes. The research and Trust are independent of each other.

Do I have to take part?

No, it is up to you to decide if you want to take part or not. If you do decide to take part, you will be given this information sheet to keep and you will be asked to sign a consent form. You are still free to stop taking part in the study at any time without giving a reason. A decision to stop at any time, or a decision not to take part, will not affect you in any way.

What will happen to me if I take part?

If you agree to take part in this study, I would like to find out about your experiences as a midwife if an error in clinical practice has occurred.

I will collect information about your thoughts, opinions, feelings, perceptions, interpretation, views and insights related to the error or mistake in practice.

I will also collect routine demographic information about you, for example place of work, grade band and time qualified.

I will collect this information in a face-to-face interview, this should take about 1 hour and will be at a time and location that is convenient to you.

The study will involve audio recording the interviews and you will be offered the opportunity to check the transcript of the interview and remove or confirm data up to two weeks after receiving the transcript.

If you have indicated you have wanted to be included in the study and then change your mind, this is fine. Should I not hear from you, I will write one reminder letter. Any data pertaining to you that had been collected so far would be destroyed.

What are the possible advantages or disadvantages of taking part?

Some people do find it helpful to talk about their experiences related to errors in practice, it can be quite a cathartic process. The research will certainly give you, the midwife a voice, but in a confidential environment. I cannot promise the study will help you individually, but generically the information gained from the study will help to increase the understanding of midwives' experiences of making errors in clinical practice in England. The research is aiming to recommend a support system based on what midwives like yourself say that they need.

Will my taking part in the study be kept confidential?

All of the information that is collected about you during the course of the research will be kept strictly confidential. The only potential breaches of confidentiality will be for those practises suggesting a fitness to practise issues or safeguarding in line with professional obligations. In order to be able to contact you will have given this information to the researcher running the study and it will be held at the Birmingham City University. These details will be kept securely and only seen by those involved in the research.

You will not be named, nor will it be possible to identify individuals in any study publications. I am following the Government's strict rules about how to keep information like this and I will store it securely, for at least 5 years.

- A master list identifying participants to the research codes data will be held on a password protected computer accessed only by the research team.
- Hard paper/recorded data will be stored in a locked cabinet, within a locked office. The cabinet will only be accessed by the research team.
- Electronic data will be stored on a password protected computer, the details of which will be known only by research team.

We would like your permission to store your data and use it in future studies. If you agree, your data will only be used in studies that have separate ethical approval.

Who has approved the study?

This study have been reviewed by the University's Faculty Academic Ethics Committee and been granted a favourable opinion. The Trust's Research and Development team have also provided approval for the conduct of the study.

What if I want to make a complaint?

Any complaint about the way you have been dealt with during the study will be addressed.

If you are dissatisfied with the conduct of the research, please contact the researcher who will do their best to answer your questions and to resolve the matter. Alternatively, there is a complaints procedure. If you do not wish to discuss your complaint with the researcher, you are directed to the researcher's supervisor in the first instance, Dr Sarahjane Jones at sarahjane.jones@bcu.ac.uk or Professor Maxine Lintern at Maxine.lintern@bcu.ac.uk or to Alexandra.kendall@bcu.ac.uk, the Associate Dean for Research at Birmingham City University. In the event of a complaint relating to the NHS Trust, you should contact your line manager or your Trust's Research and Development Department.

Where and when can I find the results of the study?

The preliminary results of the study will be available in about 2019, and they will be published in peer reviewed journals. I will also send out a summary of the findings to all participants, if you would like them. You will not be identified in any report or publication.

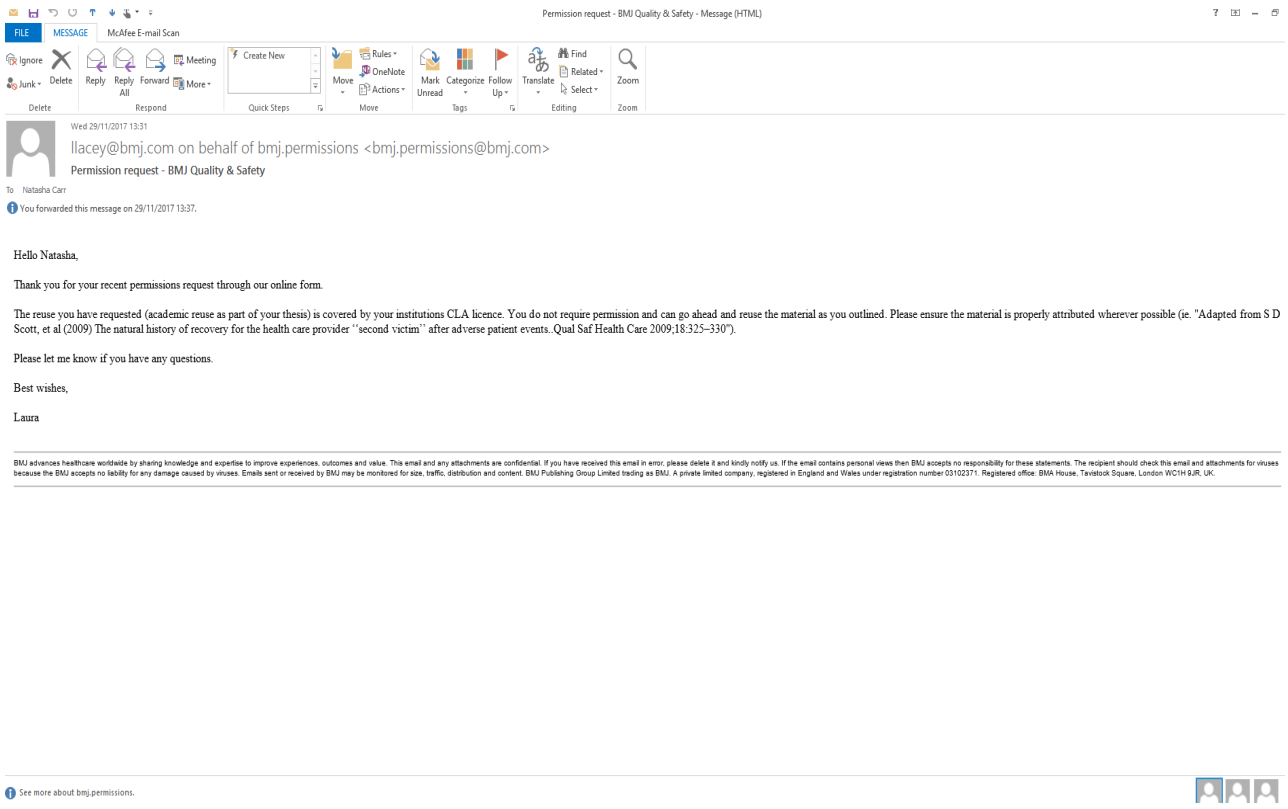
Further information and contact details:

The researcher can be contacted at:

Natasha Carr: Natasha.carr@bcu.ac.uk

0121 331 6085 / 07425166485

Appendix H: Permission to use interview schedule



Permission request - BMJ Quality & Safety - Message (HTML)

FILE MESSAGE McAfee E-mail Scan

Ignore Junk Delete | Reply Reply All Forward Meeting More | Create New | Move Rules OneNote Actions | Mark Unread Categorize Follow Up | Translate Find Related Select | Zoom

Delete Respond Quick Steps Move Tags Editing Zoom

Wed 29/11/2017 13:31

llacey@bmj.com on behalf of bmj.permissions <bmj.permissions@bmj.com>

Permission request - BMJ Quality & Safety

To Natasha Carr

You forwarded this message on 29/11/2017 13:37.

Hello Natasha,

Thank you for your recent permissions request through our online form.

The reuse you have requested (academic reuse as part of your thesis) is covered by your institutions CLA licence. You do not require permission and can go ahead and reuse the material as you outlined. Please ensure the material is properly attributed wherever possible (ie. "Adapted from S D Scott, et al (2009) The natural history of recovery for the health care provider ''second victim'' after adverse patient events..Qual Saf Health Care 2009;18:325–330").

Please let me know if you have any questions.

Best wishes,

Laura

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Appendix 18

Quantitative Research Protocol

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Lay Summary

Many patients are potentially harmed or harmed during the care they get with the NHS.

To reduce the risk of harm to patients in the NHS different approaches have been taken. This is known as risk management and safety governance. An area that has not been looked at very much is that of mitigation. Mitigation is about reducing the seriousness of some harmful events and includes reducing the impact of errors or mistakes on the healthcare professional too.

Where harm has occurred to the healthcare professional because of an error that they have made, this is known as the concept of being a second victim. A second victim can experience significant emotional reactions and long-lasting distress following an error. This has been explored in doctors and partially in nurses outside the United Kingdom, but not in the United Kingdom. There is very little information about midwives.

Organisations such as the NHS must take accountability and provide staff with support following errors. It must be recognised that midwives can be seriously affected by the role they have played in an error, and appropriate support provided for them.

This research only looks at midwives' experiences after making an error in practice. It distinguishes between experiences following adverse events and errors. Adverse events do occur in maternity care, but nobody has made an error that has led to it, adverse events happen when all care has been provided in the manner planned, but an outcome may be poor anyway.

The first part of this study described the experiences of midwives in three English Maternity Units following making an error in practice. This second part of the research will seek to see if the first findings are found in more midwives. When the study is completed, an appropriate support system will be proposed for midwives.

Project Synopsis

Title	A sequential mixed methods exploratory study examining the concept of midwives as the second victim. What experience do midwives have as the second victim after making an error in clinical practice? Part Two of a Mixed Methods Study: Quantitative Phase
Short title	Midwives' experiences following error
Chief Investigator	Natasha Carr
Aim and Objectives	**Aim** This is the quantitative part of a sequential mixed methods study. The first part was a qualitative study, which generated novel data related to midwives' experiences of making an error in clinical practice. This quantitative part of the study has the aim of understanding the extent to which the results of the qualitative study's conceptual model of midwives' experiences following an error, and the model of support they require following an error, experience reflects a wider midwifery population and quantity their experiences of making an error. **Objectives** 1. To quantify the emotional and physical responses experienced by midwives following an error 2. To know the impact of the error experience on midwives' professional practice 3. To appreciate how error experiences persist for midwives 4. To appreciate how midwives are able to move forwards following an error 5. To examine the relationship between the error experience of midwives and the support they perceived they had 6. To examine the relationship between the experience of the midwives and the level of blame they perceived they experience 7. To determine if learning featured in the error experiences of midwives 8. To recognise which coping mechanisms are most helpful in supporting midwives to recover from making an error 9. To examine the relationship between removal from the normal work environment following an error and error experience 10. To identify the nature of the culture that midwives are working in in relation to error experiences 11. To make evidence-based recommendations in order to maximise the recovery of midwives following an error in clinical practice which may impact on safety

Research configuration	Quantitative phase of a mixed methods sequential exploratory study
Setting	NHS Trusts offering Maternity Care in England
Population to be recruited and recruitment	Efforts will be made to invite all midwives working in the NHS in England. The Chief Midwifery Officer for England will distribute the invitation to participate to all Directors of Midwifery in Trusts in England asking them to distribute the invite within their organisations. Social media will also be used to promote the survey. It is acknowledged that not all these midwives will have made errors or will perceived themselves to have made errors. Participants will be approached electronically.
Eligibility criteria	**Inclusion criteria** Midwives working in England who have: • worked in clinical practice • and have made at least one error in clinical practice • and can recall the details of the error event **Exclusion criteria** • People who are working outside of England • Midwives who have not made at least one error in clinical practice • Midwives who cannot recall the details of errors they have made in practice
Study duration	Project length: March / April 2022– July / August 2022 Length of participation – less than 15 minutes to complete on-line questionnaire
Outcome measures	Participants' experiences of making errors in clinical practice Demographic data Verification, elaboration or contradiction of the qualitative data and concepts or models already generated in phase one of the mixed methods exploratory sequential design study
Analysis techniques	Final interpretation of data will occur to determine to what extent the quantitative results generalise, refute or expand on the initial qualitative findings about midwives' experiences. The researcher will employ a rigorous and systematic approach to data management so that the data set generated by the quantitative phase can be managed efficiently (O'Leary 2014). A computer package will be utilised to facilitate analysis; IBM SPSS will be used. The data will be screened to ensure it is complete (O'Leary 2014); it will then be entered into the database. Data will then be cleaned by checking for errors and ensuring accuracy. A strict record of data will be maintained for five years. The study staff will ensure that participants' anonymity is maintained, thus complying with the Data Protection Act and GDPR requirements (Information Commissioners Office 2021).

	The selection of statistical tests is important for analysis of any research data and depends upon the aims of the research and the type of data being tested (Field 2013). Analytical practices will be supported by the type of data that is generated to create defensible arguments and concepts. **Data Analysis – Descriptive Statistics** The first analysis will be a series of descriptive statistics (mean, media and mode) for the key variables to examine what interesting features are apparent. This will be a simple statistical analysis where the desire is not to statistically manipulate any results but to illuminate what the data are trying to say (Robson, 2011). At this stage, this will be important to merely describe given that so little is known about the midwives' experiences of errors and the lack of focused literature available for guidance. For nominal level data only the mode for the average, and there is no meaningful measure of spread in this case. Nominal values do not form any sort of scale or have intermediate values such as male / female or ethnic origin or yes or no response questions (Rugg 2007). They are essentially grouping variables. Descriptive statistics will describe the simple features of the data set such as demographics. This will describe and summarise the characteristics of the sample (O'Leary 2014). Relevant statistical data will be reported in standardised display formats (Miles et al.2013). Percentages, mode, median, mean will be used. Nominal data will include gender, grade band, age band and this data has categories that cannot be rank ordered – each category is just different. No statistical operations can be performed on the data relative to each other. For ordinal data the distances between numbers are not equal and therefore meaningfully adding them together to create an average in not possible (Rugg 2007). Ordinal data involves putting things in order (Rugg 2007). It will account for the visual analogue Likert- style scales (Rugg 2007) that were used for the responses generated from the qualitative phase of the mixed methods study. On a Likert scale, midwives will be asked to rank on a scale their agreement to disagreement with a statement related to the qualitative findings in the first phase of the study. Likert scales using a 5-point ordinal scale allow responses to be ranked or rated, even if the distance between response is not measurable (Sullivan and Artino 2013); only statistical judgments and limited statistics can be performed. To describe the data, means will not be utilised unless the data follows a classic normal distribution, and a frequency distribution of responses will likely be more helpful (Sullivan and Artino 2013). **Analysis – Inferential Statistics** Secondly, some inferential tests will be performed to see if any differences can be seen from the descriptive data are likely to be due to chance alone, or not. For pairs of nominal variables, chi-square testing will be utilised. Inferential statistics may be used to compare the sample from the quantitative phase with the sample characteristics from the qualitative phase of the study, for example are the percentages of male and

	females, or their average age in the samples or registered midwives statistically similar (O'Leary 2014). Most of this data will be nominal data and therefore for univariate analysis the Chi-squared test will suffice (O'Leary 2014). For ordinal data such as that generated by the Likert scale questions, correlations can be explored. Using a non-parametric data test, the Spearman test can be utilised. Analytical practices will be supported by the type of data that is generated to create defensible arguments and concepts. The analysis will be conducted in a critical, reflexive and iterative way that moves between the data and the overarching frameworks of the research (O'Leary 2014).

Introduction

Patient safety has been a focus in health care for over a decade (Hassen 2017) and is still prominent as reflected by the collection of national statistics (NHS Improvement 2021).

The latest statistics show that the number of incidents reported by NHS organisations in England from April 2020 to March 2021 was 2,109,057 (NHSI 2021).

Whilst this represents a decrease of 6.1% compared to the year previous, these latest data were collected during the onset of the Covid-19 pandemic where significant changes to healthcare use and service delivery were experience (NHSI 2021). However, nationally, the overall profile of incident characteristics (incident type, degree of harm, care setting where the incident occurred) was consistent between April 2019 to March 2020 and April 2020 to March 2021. Most incidents are reported as causing no harm (69.3%) or low harm (27.1%). Fewer than 4% of incidents reported caused higher degrees of harm. These incident reports cover a variety of issues form hospital-onset probable or definite healthcare acquired infections to errors in practice and so is not possible to differentiate which statistics pertain to errors or to which professions. One can only see a national picture of the reporting of patient safety incidents and of the characteristics of incidents (type, care setting, degree of harm) (NHSI 2021).

Vincent and Amalberti (2016c) outline five broad contemporary strategies in relation to risk management and safety governance. The first three strategies are focused on optimising patient care or controlling risk, followed by improving capacity for monitoring, and are well described in the patient safety literature. Finally comes mitigation, which is concerned with planning for potential harm and recovery. This proposal draws attention to the later approach of mitigation, which is an area that has received less attention in the patient safety literature. Mitigation is the action of reducing the severity, seriousness, or painfulness of some events as research has shown that even the best people will sometimes make the worst mistakes (Reason 2000). Implicit in strategies about safety is an acceptance that errors will always occur, that no-one can function effectively all the time (Vincent and Amalberti 2016a, Kings Fund 2008). Reason (2000 p.768) proposes that “we cannot change the human condition, but we can change the conditions humans work in”. Vincent and Amalberti (2016b) and Hassen (2017) stress that the treatment and remediation of physical problems is obviously necessary when a patient has suffered some harm as the patient must be the first priority, consequently, the impact of errors on health care professionals has gained far less attention in the public debate (Schwappach and Boluarte 2008) and does not feature in current safety campaigns (RCN 2017, NHS England 2016a), even though it is argued that a transparent NHS safety culture will

only be achieved if the second victim phenomenon is recognised and addressed (Edrees and Federico 2015).

In the literature there is a consensus in relation to medical staff that the concept of second victim exists, and this has been established and been used consistently since Wu (1993, 2003) first used the term. There is discussion in the literature about variation between specialisms in how the second victim phenomenon is experienced (Luu et al. 2012, Harrison et al 2013, Mira et al. 2015, Walberg et al. 2016 and Van Gerven et al. 2016). Research has established that nurses experience short- and long-term emotional trauma as a result of making medicine errors (Crigger 2004, Mayo and Duncan 2004, Raisin et al. 2005, Treiber and Jones 2010). Preventive or supportive strategies are required according to the research, but have not been definitively developed form the evidence base (Sheen 2015, Ullstrom et al. 2014, Mira et al 2015, Taifoori and Valiee 2015, Koehn et al. 2016, Kerkman 2020).

The literature demonstrates that clinicians who experience the second victim phenomenon may show symptoms similar to other disorders, for instance PTSD, burnout, compassion fatigue, and secondary traumatic stress; there is an overlap in symptomology (McDaniel and Morris 2020). The midwifery literature has focused on adverse events and tends to refer to secondary traumatic stress, rather than the second victim phenomenon. Although a recent US (McDaniel and Morris 2020) commentary started to debate how midwives are affected by the second victim phenomenon, however this was in relation to adverse events and obstetric nurses. Additionally, this and other research in not UK based (Finney at el 2021) and looks at obstetric nurses and also at adverse encounters. Secondary traumatic stress is said to occur amongst childbirth professionals who witness death and sorrow in a family who has lost a newborn, particularly if the professional has played a role in the intrapartum period (Winters 2018). Midwives witness traumatic events and births and may develop post-traumatic stress symptoms and display symptoms akin to the second victim. The research around this has been exclusively focused on adverse events or has not made a distinction between type of adverse event or error. Additionally, the majority of research on adverse events and the effect of midwives is intrapartum focused (Sheen et al 2015, Cauldwell et al. 2016, Cohen et al. 2017 and Wahlberg et al. 2016), although Dutch research (Kerkman 2020) is suggestive that there is variance of experience across work areas in responses to traumatic events, with community midwives more affected. There is a need to focus on errors, in the UK and midwives' responses.

Examining a phenomenon with a single approach opens the research up to criticism as all methods have inherent biases and limitations (Greene et al 1989). Greene et al. (1989) proposed that triangulation that occurs in mixed methods studies is a positive design strategy as the results can corroborate one another and then the validly of findings is enhanced. The only UK midwifery focused study on midwives acknowledged that there is a need for larger generalisable studies in relation to midwife's trauma and only by doing this supportive or preventive strategies could be

developed (Sheen et al. 2015). Qualitative research continues to provide richer data about experiences; however, the quantitative studies offer wider generalisability, but at the cost of the qualitative detail. There is an assumption in using pre-determined responses in quantitative surveys, and there can be a lack of a personalised account of error experience due to using predefined answers related to emotions and feelings which can limit the research. For the few mixed methods studies available, the addition of qualitative extracts form participants in addition to a quantitative perspective enriches the data but still does not increase the knowledge about midwives' experiences of making errors in clinical practice (Hans et al. 2017). Several studies identified the need for further research (Covel and Richie,2009 Rinaldi et al.,2016, Sheen et al.,2015, Trieber and Jones,2018, Delacroix, 2017 and Cohen et al. (2017).

Twenty-two studies have been identified previously (Carr et al. 2020 / unpublished) that were exclusively nursing error focused, the nearest profession to midwifery and were concerned solely with error experience, removing the confusion of adverse event experience. From this systematic review, using thematic synthesis, six themes relating to nurse's experiences following errors were derived with subthemes: Psychological Response, Physical Response, Prejudice against them, Restoration to former life, Coping Mechanisms or Strategies and Learning. However, none of these studies were able to contribute knowledge about midwifery. All of the nurse – midwife or midwifery research has been conducted on adverse events. In the body of literature on the second victim, there is often little distinction between the second victim research resulting from adverse events and from errors. There is a poor body of literature focusing on midwives and errors. To date, the focus in midwifery has been on the adverse events and any reaction or experience of a midwife to those events. A recent review of the second victim (Coughlan et al. 2017) focusing on maternity care, where it is argued that the expectation of perfection, confirmed the focus has been on adverse events with little distinction between error and adverse event. Guilt, blame, grief, horror, PTSD symptoms and shame can all be experienced following an adverse event such as a maternal death or traumatic birth. The labelling of these experiences has been variable. A meta ethnographic study of midwives' and nurses' experiences of adverse labour and birth events, containing 11 studies identified themes of:

(i) feeling the chaos.
(ii) powerless, responsible and a failure.
(iii) "It adds another scar to my soul"
(iv) finding a way to deal with it.

Nurses and midwives, it was concluded, felt relatively unprepared for dealing with traumatic events and became traumatised by the experience. It was concluded that support was required for these healthcare professionals (Elmir et al. 2017). Despite the acknowledgement that midwives may experience distress form traumatic events

there is no discourse on how errors contribute to this or distinction between adverse events and errors. The midwives' perspective is underrepresented.

. The research on doctors is on both errors and adverse events and does not relate to midwifery, with obstetric studies being in the minority. The research on mixed healthcare professionals is on both errors and adverse events, and it is often not possible to distinguish which healthcare professional was responsible for which experience.

Schwappach and Boluarte (2008) explicitly call for organisations to take accountability and provide staff with both formal and informal systems of support following errors, mirroring the findings of some of the research above in other health care professionals since Wu et al.'s (2003) formative research. It is particularly important for individual recovery and patient safety as a whole, as West et al. (2006) documented a reciprocal cycle of error involvement, emotional distress and future errors when appropriate support and recovery was not forthcoming, and Luu et al. (2012) discussed the negative effect of being a second victim on clinical judgements and safety. The future impact of this research may lie in this arena as efforts to decrease errors in healthcare are directed at prevention rather than managing a situation when an error occurs. Healthcare practitioners may consequently lack the ability to manage the situation, have support and make a healthy recovery from the anguish that often accompanies making an error (Crigger 2004). The recognition that staff can be seriously affected by the role they have played in an error has been a very important step forward, although programmes for supporting staff are still rare (Vincent and Amalberti 2016d). These experiences might not to be appreciated, and yet understanding the impact of such injuries is a prerequisite of providing useful and effective help (Vincent 2010). Following an error in practice, psychological support is equally important both for patients and staff and should be part of a core safety strategy (Vincent and Amalberti 2016b).

This research will contribute to the knowledge about midwives' experiences of making an error in clinical practice, an under researched area. Specifically, this research will contribute to the research about errors in England in the NHS on midwives. Some prior studies have taken a qualitative approach whilst others have taken a quantitative approach, demonstrating both approaches can be valid (Farrelly 2013). However, based on the ontological and epistemological beliefs of the researcher and the existing literature that exposes methodological weaknesses in either a pure quantitative or pure qualitative approach for examining this phenomenon, an alternative mixed methods approach will be undertaken, and this is the quantitative part of that approach.

OVERVIEW OF MODELS FROM QUALATATIVE STUDY TO GIVE CONTEXT

Narrative around conceptual frameworks

Midwife's experiences following an error

Based on the qualitative data from interviews with 15 midwives who had made errors in clinical practice, a conceptual model was generated depicting the experiences that they had experienced.

When an error is made by a midwife in clinical practice an emotional response is invoked: this may be a long-term, immediate or short-term emotional response. To a lesser degree there is a physical response too. The emotional response that is raised in midwives can be categorised as fear, anger and distress and is inclusive of stress and anxiety too. There are three conditions that mediated these emotional and physical responses: internal or external coping strategies, positive or negative support and blame.

In relation to blame, blame is considered by midwives as either perceived, directed from another individual or it is self-blame. Blame has been defined as "a judgement about a deficiency or fault by a person or people" (Cooper et al. 2017 p.457). Blame from another may stem from the English legal system, where in litigation fault or blame has to be determined, or from an innate human reaction that when things go wrong one assigns blame as part of the attribution theory (Weiner 1972, 2010) and potentially demands justice, seeking assurance that the error will not occur again (Runciman et al. 2003).

Tangney and Dearing (2004) reflect that when faced with an error one will turn towards evaluating the self and rendering a judgement; the result being shame or guilt and self-blame. Perceived blame occurs when nobody is actually blaming the midwife; however, he or she conceives that people must be blaming him or her, but this is not a reality. The effect of this is very real though.

In relation to coping, coping following an error event is facilitated by support from colleagues, sometimes the need to talk to the family involved in their error event, the need for information and an array of self-management coping strategies. Nurturing the emotional responses of midwives and the physical responses of midwives following an error in clinical practice are the conditions of support which could be positive or negative and coping strategies invoked by the midwife which may be internal or external.

As a result of the conditions mediating the emotional and physical responses, some midwives are able to move on from their error experience. Moving on involves processes around learning, healing and surviving. The error may have been at the root of the learning or there may have been a change in practice for example. Surviving, similarly as identified by Scott et al. (2009) in the sixth stage of moving on, surviving was an outcome of a midwife's experience which means that the midwife was now carrying out her midwifery role at the expected level and was 'doing okay'but continues to be afflicted by the error event.

In relation to healing, some midwives describe that they eventually become healed following their error event and this may have involved a change in how they practised; similar to the thriving in the six stage of Scott et al's (2009) trajectory who identified that some of their mixed healthcare participants had made something good come from the negative experiences. Although no midwives in the qualitative study had left the profession, a subset of midwives continued to be distressed, often displaying longevity of distress. There are some intrinsic and extrinsic factors that seem to fuel continued distress in midwives. These intrinsic and extrinsic factors that fuel continuing distress were multi factorial and were inclusive of a lack of involvement in the investigatory processes, a lack of feedback following the clinical error and uncertainty following the error, the error leading to a legal case, inability to accept fallibility, isolation which stemmed from being removed from the usual place of work or being suspended or going off sick and a lack of confidence.

Model of support following an error experience

Based on the qualitative data from interviews with 15 midwives who had made errors in clinical practice, a conceptual model was generated depicting how midwives would like to be helped and cared for following an error event in order to aid recovery.

Following an error in clinical practice, the midwife as the error maker, wants the awareness of her manager, she acts professionally to bring the error to the attention of a relevant healthcare professional on recognition that an error has occurred. Midwives require support from a designated professional or a supportive midwifery colleague. The midwife should avoid social isolation and retain connectedness to the

clinical area in which she normally works. Removal from the normal work area should be avoided and the midwife should be facilitated to stay in the normal work environment.

Midwives are open to learning from an error individually or as part of a wider unit. The midwife needs constructive professional feedback about the error and the processes that are occurring as a consequence of making an error.

The midwife may want to have contact with the baby, woman or family involved in the error event, but due to the sensitive nature of this, this will be dependent on the wishes of the family but should be an option.

Throughout the whole error event process, continual and ongoing engagement with the midwife is required from management and supportive persons.

A Just Culture, with the absence of blame (directed, perceived or self-blame), where the midwife is working, is an essential component of the process. Moving on, learning, healing and surviving will be facilitated by the above processes. Conversely, removal from the normal work area, social isolation and lack of involvement in the processes, attribution of blame and a disconnect with persons available for support and restoration following an error event will hinder the recovery process and harm the midwife.

A diagrammed representation of these concepts can be seen in Appendix A.

Key stakeholder involvement

In order to ensure that the research methodology was appropriate, the questionnaire was effective and that the sensitive topic of errors in practice was approached appropriately, key stakeholder involvement was sought. A stakeholder event was undertaken in December 2021; a small sample of midwives were asked to try the questionnaire and to feedback about the questionnaire.

There was no public involvement proposed in this research and so lay opinion was not sought.

The assumption that questions are easily understood needed addressing (Groves et al. 2009) as did how well the answers correspond to what is required to be measured. The repetition of the measure in the expert group addressed the issuer of reliability or response variance (Groves et al. 2009). The standards for the questionnaire to meet were content, cognitive and usability standards (Groves et al. 2009). Did the questions ask about the right things did the respondents understand the questions and can respondents complete the questions as they were intended to? Measurement error could be related to the questionnaire itself perhaps through a poor questionnaire design, the participant's responses related to their understanding of the questions or the mode of the questionnaire (Patel 2019).

To systematically evaluate the questions, an expert review was sought. Subject matter experts, i.e., midwives reviewed the questions to determine if the content was appropriate for measuring the intended concept i.e., error experiences, providing feedback in writing around the content, cognitive and usability standards. A statistician also reviewed the questionnaire and the data that would be generated from it to ensure that the aims and objectives of the research would be captured by the questionnaire. PhD supervisors, experts in research also reviewed the questionnaire. Obtaining a statistical opinion during the design phase of this study was a way to maximize efficiency in the research process (Williams 2015).

In a field pre-test, 12 midwives completed the draft survey to gain insights into any questions and responding. Data gained was not to be used in the main study but could be used to determine any items with high levels of missing data, unpopular questions or questions that were difficult to interpret. Validity references to the extent to which a construct (elements of information sought by the researcher, in this case experiences of error) is satisfactorily captured (Patel 2019). The questionnaire was validated by establishing face validity. A subgroup of midwives were involved in a stakeholder trial of the questionnaire (December 2021) involving a trial of the questionnaire with feedback. Midwives were chosen as they would understand the topic area under investigation, but the data generated would not be included in the study. It was important to evaluate whether the questions were clear and easy for participants to understand and answer (Groves et al. 2009).

Research supervisors and a statistician were also asked to review the questionnaire.

Key issues that were discovered and amended from this were:

- It did effectively capture the topic under investigation
- It was clear that error experiences were the focus of the questionnaire and so consideration had been made in relation to any measurement errors or the extent to which a measure (for example a question postured to the participant) accurately captures the construct (experiences post error making) (Patel 2019).
- It did not cause distress of offend anyone
- Typographical errors were corrected
- Clarity of expression of some concepts was improved e.g., error examples
- Ambiguous questions were improved to remove ambiguity
- Instructions were clear and unambiguous but were improved further by the addition of a sentence about anonymity being assured, reinforcement of the help information if distressed and ability to skip questions that were not relevant to assist navigation.
- There was no desirability bias detected or repetition of questions
- Time taken to complete the questions was acceptable to participants

Methodology

Aims and objectives

Aims and Objectives

Aim

This is the quantitative part of a sequential mixed methods study. The first part was a qualitative study which generated novel data related to midwives' experiences of making an error in clinical practice. This quantitative part of the study has the aim of understanding the extent to which the results of the qualitative study's conceptual model of midwives' experiences following an error, and the model of support they require following an error, experience reflect a wider midwifery population and quantity their experiences of making an error.

Objectives

1. To quantify the emotional and physical responses experienced by midwives following an error
2. To know the impact of the error experience on midwives' professional practice
3. To appreciate how error experiences persist for midwives
4. To appreciate how midwives are able to move forwards following an error
5. To examine the relationship between the error experience of midwives and the support they perceived they had
6. To examine the relationship between the experience of the midwives and the level of blame they perceived they experience
7. To recognise which coping mechanisms are most helpful in supporting midwives to recover from making an error
8. To examine to relationship between removal from the normal work environment following an error and error experience
9. To make evidence-based recommendations in order to maximise the recovery of midwives following an error in clinical practice which may impact on safety

Research Design

Mixed methods originate in the two major research paradigms (Terrell 2012). The use of mixed methods tactics is often appropriate in health research (Cresswell and Plano Clark 2011). Previous studies have examined the concept of second victim independently in each opposing paradigm, for example, Van Gerven (2016) took a quantitative approach, whilst Scott et al. (2009) and Ullstrom et al. (2014) took

qualitative approaches. A recent systematic review (Carr et al. 2020 unpublished) revealed that no studies considered midwives in their findings. Creswell et al. (2004) and Harvey and Land (2017) contend that researchers should utilise whichever methods are required to achieve the prime results, even if this involves transferring between alternative paradigms, rather than working with either of the alternative opposing epistemological views of post positivism or constructivism (Christ 2013).

This protocol describes the second part of a mixed methods study. The exploratory sequential design, one of six mixed methods designs (Cresswell and Plano Clark (2011) which has a pragmatic philosophical underpinning will be used (Appendix B). For this phase of the study, using sequential timing, quantitative data will be collected, as a second phase that is aiming to generalise and triangulate the findings of the first qualitative phase. The qualitative analysis has informed the formation of the quantitative research questions (Cresswell and Plano Clark 2011). Appendix A shows the conceptual framework generated from the qualitative phase.

Setting, sample and recruitment

Setting

The setting will be NHS maternity units in England. These maternity units will have inpatient and community services, delivering care to women who require both universal and additional care.

Sampling

The participants must meet the inclusion criteria. Midwives (particular persons) whilst in clinical practice (particular setting) have made an error (particular event) will be deliberately targeted as they can provide the required data for the study.

Inclusion criteria

Midwives working in England who have:

- worked in clinical practice
- and have made at least one error in clinical practice
- and can recall the details of the error event

Exclusion criteria

- Midwives who are working outside of England
- Midwives who have not made at least one error in clinical practice
- Midwives who cannot recall the details of errors they have made in practice

All midwives in England will be targeted by this research in order to aim for full representation of the population under study and enable as many midwives as possible to take part. This will give the maximum number of participants and will avoid making assumptions about the wider population that were drawn from a sample. Not all of these midwives will have made errors or will perceived themselves to have made errors. There is no national database maintained of clinical errors pertaining only to midwives. A large sample of participants will be used (Cresswell and Plano Clark 2011) from the target population. The National Reporting and Learning System for the NHS does not log patient safety incidents by profession, only by incident type and generic location (NHS Improvement 2017). Therefore, it is impossible to determine a size for the population of midwives making errors in the NHS out of the 32,183 on the permanent register to practise in England (NMC 2021). Ethnicity is not defined by profession, but only by registered status, with white being most dominant, followed by black African, Asian Filipina or, Indian, Black Caribbean, Pakistani and mixed white and Caribbean. Age similarly points to most registrants being between 41 – 50, followed by 31 – 40, then 21 – 30, 51 – 55, 56 – 60, 66 – 70, 71 – 75 and over 75. Also, not everyone on the register will currently be working as a midwife even they are registered (NMC 2021).

Recruitment

Taking a pragmatic approach, midwives can be accessed via the NHS Trusts. Not all of these midwives may have made an error in practice, however. Using personalised correspondence is associated with higher response rates for electronic questionnaires (Cook 2000), approaching safety leads and Heads of Midwifery in the Trusts to facilitate the research may provide this approach. Response rates cannot be determined because the researcher will not know what number of people were actually invited. The researcher won't know the response rate but can estimate representativeness because you know the number of midwives registered and their demographic makeup. However, this will be an estimate though because people might respond who have left the register. Commentary would need to be made about this and acknowledgement of any limitations to this effect (Miles et al. 2013).

The Chief Midwife for England, Professor Jacqueline Dunkley-Bent has agreed to share the link for the survey with Regional Chief Midwives for cascade to maternity providers (Appendix C). Professor Jacqueline Dunkley-Bent is both the Chief Midwifery Officer and National Maternity Safety Champion for NHS England and NHS Improvement. In addition, the researcher's networks such as the Lead Midwives for Education and Professional Midwifery Advocacy networks will be utilised, along with social media. Twitter, Facebook and What's App will also be used more widely to target midwives in the professional arena who may not be accessible via a NHS Trust. Questionnaires will also be sent out to midwives via closed Facebook pages or What's App groups where Trusts have this facility. Box 1 illustrates the accompanying message that will go out with the email, Facebook or What's App posting of the questionnaire.

Box 1

Are you a midwife? Have you made an error in clinical practice?
Safety in maternity care is very important. I would like to invite you to take part in an anonymous PhD research study about midwives' experiences of making errors in clinical practice. I would like to find out about your experiences as a midwife if you have made an error in clinical practice in England with a view to establishing an evidence base for this and recommending a specific evidence-based support system.
All information collected during the course of the research will be anonymous. Completing the questionnaire and returning it indicates consent to the study.
As a thank you for your time in taking part, if you complete a separate link available at the end of the questionnaire with your name and email address you will be entered into a draw to win a £25 Amazon Voucher. You will be notified by email if you have won.
Thank you for your help.
Please take time to read the introductory information carefully. If you feel that you would like more information, contact:
Natasha Carr: Natasha.carr@bcu.ac.uk
07425166485

Quantitative data collection

Data Collection

Data will be collected from participants via an online questionnaire.

The proposed questionnaire is based on the qualitative data that was determined in phase one of the mixed methods study (see above). Building on the results of the qualitative phase, the instrument (questionnaire) is based on the emergent framework about midwives' experiences has been developed, connecting phase one with phase two of the research.

The questionnaire should take 15 minutes to complete.

Participants will be assured anonymity and confidentiality.

The researcher will collect largely closed ended data. The questionnaire will be administered online via the online Qualtrics platform, and the third step of the exploratory design procedure will occur.

A conceptual framework has evolved from the qualitative phase of the study (see above). This will be presented to the participants in the questionnaire in the form of questions and items with the aim of gaining generalisation, confirmation or modification of the qualitative findings. This will work towards the aim of establishing the experience of midwives following making an error in clinical practice. Some of the original interview data from the qualitative phase has been converted into rating scales or magnitudes (Miles et al. 2013). For example, the degree to which midwives felt the same feelings following errors in practice. This will be asked using a five-point scale as this is both easy and reliable (Miles et al. 2013).

Voluntary and informed consent will be assumed if participation takes place, this is made clear on the questionnaire.

Questionnaires give the participants' opportunity to answer in their own time, reach wide geographical coverage, can offer confidentiality, although returns may be low and there is no opportunity for clarification of questions (O'Leary 2014). An invitation email containing an embedded link to the questionnaire will be used (as per Van Gerven et al. 2016). There will inevitably be some limitations despite this rigorous process that my pose a threat to validity or generalisability of the results that will be acknowledged and taken into consideration.

Study duration

The quantitative study will commence with data collection and proceed with analysis. It is anticipated that this phase will take 3 - 6 months following a successful ethics application. However, it is estimated that for each participant this will only be approximately 15-minute window, which will be inclusive of, questionnaire completion and automated return of the questionnaire.

Participant removal

Participant data will be prevented from being involved in the study if they fall within the exclusion criteria when conducting the study. This will be documented for completeness of documentation of the study.

Participant withdrawal

Participants can choose not to participate at all by ignoring the request to participate.

Participants do not have to disclose a reason for declining to take part in the study.

Pilot Study

The study has been trial tested with a subset of the intended population, but the data are not intended to be utilised, in order to assist with validating the questionnaire (Patel 2019). Adjustments have been made to questions in order to further validate the questionnaire.

Data analysis

Final interpretation of data will occur to determine what extent the quantitative results generalise or expand on the initial qualitative findings about midwives' experiences. The researcher will employ a rigorous and systematic approach to data management so that the data set generated by the quantitative phase can be managed efficiently (O'Leary 2014). A computer package will be utilised to facilitate analysis using the IBM SPSS statistics package. The data will be screened to ensure it is legible and complete (O'Leary 2014). Data will then be cleaned by checking for errors and ensuring accuracy.

A strict record of data will be maintained for five years. The study staff will ensure that participants' anonymity is maintained, thus complying with the Data Protection Act and GDPR requirements (Information Commissioners Office 2021).

The selection of statistical tests are important for analysis of any research data and depends upon the aims of the research and the type of data being tested (Field 2013). Analytical practices will be supported by the type of data that is generated in order to create defensible arguments and concepts.

Data Analysis – Descriptive Statistics

The first analysis will be a series of descriptive statistics (mean, media and mode) for the key variables to examine what interesting features are apparent.

This will be a simple statistical analysis where the desire is not to statistically manipulate any results but to illuminate what the data are trying to say (Robson, 2011). At this stage, it will be an important to merely describe given that so little is known about the midwives' experiences of errors and the lack of focused literature available for guidance.

For Nominal level data only the mode for the average, and there is no meaningful measure of spread in this case. Nominal values do not form any sort of scale or have intermediate values such as ethnic origin or yes or no response questions (Rugg 2007). They are essentially grouping variables. Descriptive statistics will describe the simple features of the data set such as demographics. This will describe and summarise the characteristic of the sample (O'Leary 2014). Relevant statistical data will be reported in standardised display formats (Miles et al.2013). Percentages, mode, median, mean will be used. Nominal data will include gender, grade band,

age band and this data has categories that cannot be rank ordered – each category is just different.

For ordinal data, the distances between numbers are not equal and therefore meaningfully adding them together to create an average is not possible (Rugg 2007) Ordinal data involves putting things in order (Rugg 2007). It will account for the visual analogue Likert- style scales (Rugg 2007) that were used for the responses generated from the qualitative phase of the mixed methods study.

On a Likert scale, midwives will be asked to rank on a scale their agreement to disagreement with a statement related to the qualitative findings in the first phase of the study. Likert scales using a 5-point ordinal scale allow responses to be ranked or rated, even if the distance between responses is not measurable (Sullivan and Artino 2013); only statistical judgments and limited statistics can be performed. To describe the data, means will not be utilised unless the data follows a classic normal distribution, and a frequency distribution of responses will likely be more helpful (Sullivan and Artino 2013). Non-parametric tests will be used (Carifio and Perla 2008).

Analysis – Inferential Statistics

Secondly, some inferential tests will be performed to see if any differences can be seen from the descriptive data are likely to be due to chance alone, or not.

For pairs of nominal variables, chi-square testing will be utilised. Inferential statistics may be used to compare the sample from the quantitative phase with the sample characteristics from the qualitative phase of the study, for example are the percentages of male and females, or their average age in the sample of registered midwives statistically similar (O'Leary 2014). Most of this data will be nominal data and therefore for univariate analysis the Chi-squared test will suffice (O'Leary 2014).

For ordinal data such as that generated by the Likert scale questions, correlations can be explored. Using a non-parametric data test, the Spearman test can be utilised.

Analytical practices will be supported by the type of data that is generated in order to create defensible arguments and concepts. The analysis will be conducted in a critical, reflexive and iterative way that moves between the data and the overarching frameworks of the research (O'Leary 2014).

Outcomes

The outcomes will be aligned with the study's aims and objectives.

The researcher will develop a novel understanding of the concept of the second victim as applied to midwives in the England. It is anticipated that a framework will be developed to support mitigation of the consequences of the second victim phenomena in midwives.

The impact of the outcomes will be assessed and disseminated in relevant publications pertinent to the field of safety and midwifery. There will be a discussion of engagement, adoption of the findings, and embracement of the change at policy and Trust level, for example into safety campaigns.

Benefits of the study

Whilst the study may not directly benefit individual participants, the new knowledge generated from the study will help to increase the understanding of midwives' experiences following errors in practice and the concept of the second victim in midwives in England. It should contribute to designing an evidence-based support system for midwives.

The ultimate aim is the suggestion of the development of an evidence-based support structure for midwives following errors in practice. Vincent and Amalberti (2016c) in their discussion of a contemporary model of risk management believe that organisations need to have effective systems in place to support patients, carers and staff in the aftermath of serious failures and harm. This is perhaps the most neglected aspect of patient safety (Vincent and Amalberti 2016c). Further development of this strategy is important at the clinical and organisational level for the NHS.

Some participants find it helpful to share their experiences related to errors in practice as noted in the qualitative phase of the study. This arm of the study will provide this opportunity too.

Ethics, governance, regulation and informed consent

Ethical approval and permission to undertake the study will be sought from the Faculty Academic Ethics Committee (FAEC) and Health Research Authority (HRA) approval will also be required to conduct the research (HRA 2017a). The University requires standards to be upheld in the conduct of research (Staffordshire University 2021), working to the frameworks developed, which ensure that anyone undertaking research should be 'expected to observe the highest standards of integrity, honesty and professionalism and to embed good practice in every aspect of their work' (RCUK 2013, updated 2017).

The researcher will ensure that the study is conducted in accordance with the relevant regulations and with Good Clinical Practice. The researcher has undertaken a Good Clinical Practice in Research Course.

Ethical Considerations	
Confidentiality and anonymity	There will be assurance on the questionnaire that all information will be secured confidentially. Anonymity will be maintained during data analysis and writing up of the data. Only participants who enter their email address to go into a draw to receive a voucher can be identified. This information will not be included or attached to / in any analysis and will be destroyed once the voucher has been sent. The data collected for the study and data for the voucher are not linked.
Data Protection and Storage	The study staff will ensure that participants' anonymity is maintained. The participants cannot be identified by completing the study questionnaire so thus complying with the Data Protection Act and GDPR requirements. (Information Commissioners Office 2021). To enter the incentive prize draw, a separate questionnaire is completed, not linked to the data collection. All details will be destroyed following award of the incentive voucher.
Informed consent	Consideration of beneficence and autonomy when obtaining informed consent is integral within this concept to

	ensure that participants fully understand the research process and any possible costs or benefits. Completion and return of the questionnaire will indicate the participant's consent to be included in the study.
Right to not take part	Participants do not have to take part in the research and can ignore the offer to complete the questionnaire.
Safeguarding	The questionnaire could potentially raise adverse feelings in the participants; Guillemin and Gilman (2004) highlight that the opportunity to consider a delicate topic can be emotional. A link will be provided on the questionnaire to the researcher and to an appropriate support organisation.
Right to approach	All possible participants will be approached so that their privacy and data protection is not breached i.e., the researcher will not be provided with the contact details (email addresses, Facebook addresses, What's App accounts) of possible participations, without their prior consent obtained by someone who has a right to be in communication with these individuals as part of their role.
Professional Misconduct	For researchers who hold professional qualifications the decision-making process around ethical considerations has great complexity as they also have to abide by their own ethical codes, which for midwifery is the Nursing and Midwifery Council (NMC 2015, updated 2018). Unlike the qualitative phase of the mixed methods research where participants were able to provide free response answers, the quantitative phase will mainly allow closed responses based on the qualitative stage. Any free responses cannot be linked to an identifiable participant. Any unforeseen issues will be considered on its merits and an appropriate professional response determined.

HRA approval and not setting up every Trust as a PIC via their R&D site

HRA approval will be sought for this research as it involves access to midwives in the NHS. It was considered whether it would necessitate setting up every Trust as a PIC via their R&D site? This would not be feasible.

Advice was sought from Matt Rogerson, Research Regulation officer at the health Research Authority.

Advice was received as thus (Appendix D):

"We would take a proportionate approach to this. While we would categorize this as a Staff Only Study recruiting through the NHS (therefore requiring HRA Approval, but not REC), any assessment of the study would largely be focusing on the protection of participants, so an Approvals Specialist would be looking at matters of consent, GDPR etc etc. Setting up each intended NHS site as a PIC through R&D would not be commensurate to the study activities. In terms of whether a site needs to be set up as a PIC for this type of study, the main question to ask is:

Would the organizations be processing data for the purposes of the study?

In this case, it appears that the survey would be sent out via standard staff mailing lists so there is no study-specific activity being undertaken and no data processing for the purposes of the study. So no, sites would not be considered to be PICs."

Project timeline

This demonstrates the approximate overall project timeline.

Doctoral Research Project	**Start Date**	**End Date**
Literature Review	2020	**ongoing**
Design Methodology	Feb - May 2021	**May 2021**
University Ethical Application	November 2021	**December2021**
Organisation of Research Sites	May 2021	**July 2021**
HRA application and approval	December 2021	**January 2021**

Sample selection / access	May 2021	**June 2021**
Quantitative Data Collection	March/April 2022	**July / August 2022**
Quantitative Data Analysis	August 2022	**October 2022**
Writing Up	August 2022	**December 2022**
Dissemination of Findings	2023	**onwards**

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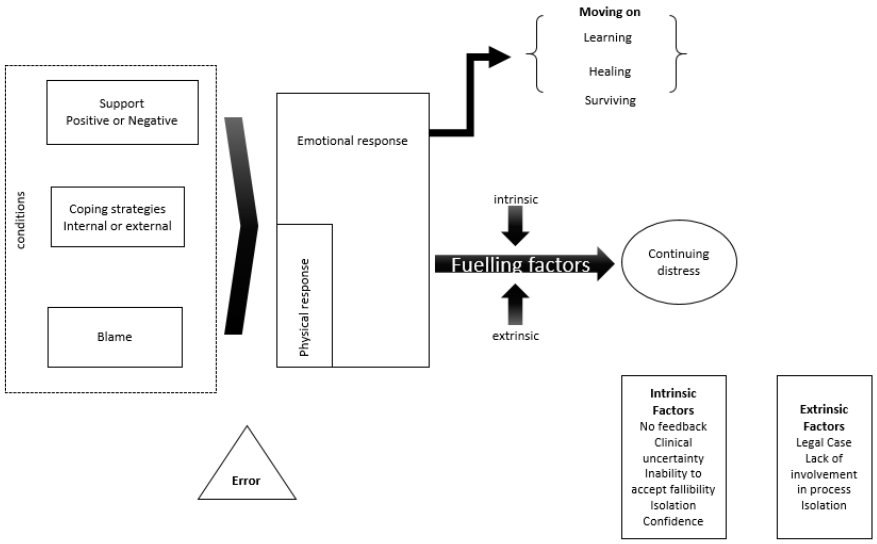
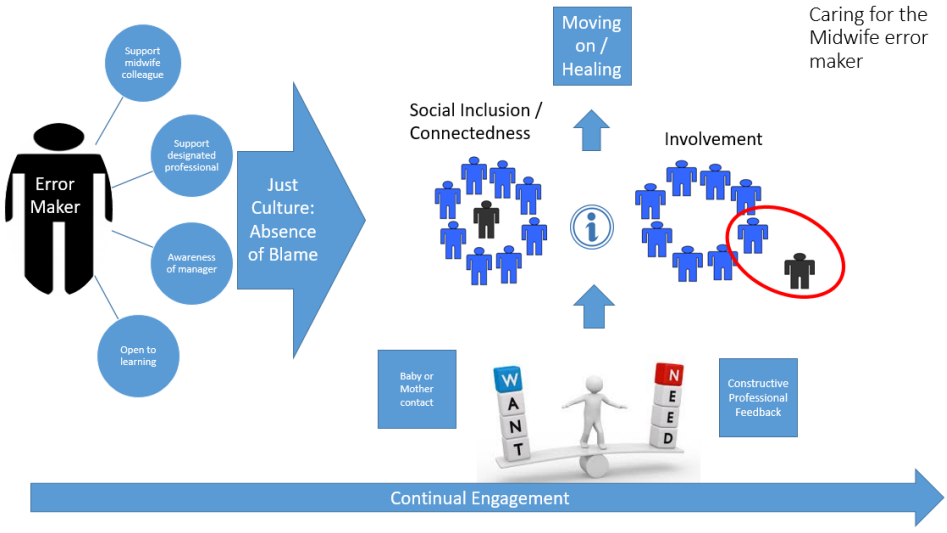
Appendix A: Concept diagrams from phase 1 of the mixed methods study

Midwives' experiences of error



Caring for the midwife error maker



Appendix B: Six Mixed Methods Design Classification

Cresswell and Plano Clark (2011 p.73)

Convergent design	Concurrent quantitative and qualitative data collection, separate analyses and the merging of the two data sets
Explanatory design	Methods implemented sequentially. Phase 1 quantitative data collection and analysis and phase 2 qualitative data collection and analysis. This builds on phase 1.
Exploratory design	Methods implemented sequentially. Phase 1 qualitative data collection and analysis and phase 2 quantitative data collection and analysis. This builds on phase 1.
Embedded design	Either the concurrent or sequential collection of data with separate data analysis and the use of supporting data before, during, or after the major data collection procedures
Transformative design	Framing the concurrent or sequential collection and analysis of quantitative and qualitative data set within a transformative, theoretical framework that guides the methods decisions
Multiphase design	Combining the concurrent or sequential collection and analysis of quantitative and qualitative data sets over multiple phases of a programme of study

Appendix C: Distribution email

Confirmatory email trail about distribution of questionnaires to Regional Chief midwives to cascade to maternity providers

Thankyou Natasha, unfortunately I do not have a distribution network. I am however more than happy to share the link to the survey with Regional Chief Midwives for cascade to maternity providers. Alternatively, you could contact the RCM.

Kind regards,

Professor Jacqueline Dunkley-Bent OBE

Chief Midwifery Officer

National Maternity Safety Champion

NHS England and NHS Improvement

Email: jacqueline.dunkley-bent@nhs.net

Mobile: +447814228955

 @dunkleybent

I work flexibly which means I sometimes send emails out of usual working hours. I don't expect you to read or respond to this email outside of your working hours.

PA - Ali Tribe

07730 381385 / ali.tribe@nhs.net

Business Manager – Gemma Bullen

07702 154926 / gemma.bullen@nhs.net

www.england.nhs.uk and www.improvement.nhs.uk

From: Natasha Carr <Natasha.Carr@bcu.ac.uk>
Sent: 06 June 2021 16:06
To: DUNKLEY-BENT, Jacqueline (NHS ENGLAND & NHS IMPROVEMENT - X24) <jacqueline.dunkley-bent@nhs.net>

Cc: JONES Sarahjane <sarahjane.jones@staffs.ac.uk>
Subject: RE: midwifery network and PhD research

Dear Professor Dunkley-Bent,

Thank you so much for expressing an interest in helping me with my research, following an email from Mark Radford.

I am currently undertaking my PhD in health, whilst working full time as a senior midwifery lecturer at Birmingham, City University. My Phd specifically examines the experience of midwives following making an error in clinical practice. There are many errors occurring in the National Health Service every year, many made by us as midwives. One stratum of a layered approach to risk management and safety governance is to examine mitigation and this has received little attention in the literature. Mitigation is the action of reducing the severity, seriousness, or painfulness of some event and includes the impact of errors on the healthcare professional: the second victim. The existing literature is lacking in the United Kingdom and currently does not relate to midwives at all. There has also been a call for organisations to take accountability and provide staff with formal and informal support following errors. My research is a mixed methods study; an exploratory sequential design, which has a pragmatic philosophical underpinning. Mixed methods originates in the two major research paradigms. The use of mixed method tactics is often appropriate in health research It is contend that researchers should utilise whichever methods are required to achieve the prime results, even if this involves transferring between alternative paradigms, rather than working with either of the alternative opposing epistemological views of post positivism or constructivism.

I have completed the first arm of the study which was a qualitative study which has established for the first time that a midwife may suffer emotionally, physically and professionally following a personal error in practice, distinct from adverse events, and I have presented a concept analysis for both error experience and support required. There were some harrowing accounts from midwives who had made errors many years ago, but who were still affected today. This work is being prepared for conference and publication, however, there has been a delay due to COVID. I am now producing an online questionnaire that is based on the data generated form the qualitative arm of the mixed methods study, this is currently being done and will be sent for ethical approval shortly.

My difficulty is the distribution of the questionnaire. I am aiming for the questionnaire to potentially reach all midwives in England and as I stated, it will be in an online format.

I am wondering if you would be able to introduce myself and my PhD supervisor – Dr Sarahjane Jones to an appropriate distribution network, or perhaps be involved in the distribution? Obviously, I need as much coverage as possible to enable the findings to be relevant and representative of midwives as a whole. I am really passionate about making this research work for midwives, giving us a voice and ultimately making the National Health Service and midwifery practice after for everyone involved.

I am really happy to provide more information for you or to have a conversation about my research.

I look forwards to hearing from you.

Best Wishes

Natasha

Natasha Carr

Senior Lecturer in Midwifery

Professional Midwifery Advocate

Course Lead- Midwifery Long BSc (Hons) and MSci

BN (Hons), BSc (Hons), MA, PGCE, RN, RM, FHEA.

SCT370 Seacole Building

Birmingham City University

Westbourne Road

Edgbaston

B15 3TN

07415166485 (Personal Mobile)

07702817142 (Team on call mobile 9 – 5 Monday to Friday)

natasha.carr@bcu.ac.uk

From: DUNKLEY-BENT, Jacqueline (NHS ENGLAND & NHS IMPROVEMENT - X24) <jacqueline.dunkley-bent@nhs.net>
Sent: 20 May 2021 18:37

To: Mark Radford <Mark.Radford@hee.nhs.uk>; JONES Sarahjane <sarahjane.jones@staffs.ac.uk>
Cc: Natasha Carr <Natasha.Carr@bcu.ac.uk>
Subject: RE: midwifery network

Thanks Mark.

Dear Sarahjane, very happy to assist and look forward to receiving further information

Kind regards,

Professor Jacqueline Dunkley-Bent OBE

Chief Midwifery Officer

National Maternity Safety Champion

NHS England and NHS Improvement

Email: jacqueline.dunkley-bent@nhs.net

Mobile: +447814228955

@dunkleybent

I work flexibly which means I sometimes send emails out of usual working hours. I don't expect you to read or respond to this email outside of your working hours.

PA - Ali Tribe

07730 381385 / ali.tribe@nhs.net

Business Manager – Gemma Bullen

07702 154926 / gemma.bullen@nhs.net

www.england.nhs.uk and www.improvement.nhs.uk

From: Mark Radford <Mark.Radford@hee.nhs.uk>
Sent: 20 May 2021 12:15
To: JONES Sarahjane <sarahjane.jones@staffs.ac.uk>
Cc: Natasha Carr <natasha.carr@bcu.ac.uk>; DUNKLEY-BENT, Jacqueline (NHS ENGLAND & NHS IMPROVEMENT - X24) <jacqueline.dunkley-bent@nhs.net>
Subject: RE: midwifery network

That's ok! There is a very strong and vibrant education and research network led by our Chief Midwife!

I have linked in Jacquie to the email to connect

Mark

From: JONES Sarahjane <sarahjane.jones@staffs.ac.uk>
Sent: 19 May 2021 10:09
To: Mark Radford <Mark.Radford@hee.nhs.uk>
Cc: Natasha Carr <natasha.carr@bcu.ac.uk>
Subject: midwifery network

Hi Mark,

I am hoping you can help me. Natasha is part our of PhD student cohort, based at BCU but having transferred to Staffs for her PhD like Rachel and David.

She wants to send out a survey to midwives across the country. I know that there are DoN networks and wondered if there was an equivalent for midwives that you would kindly introduce us to?

Natasha's work is exploring the 2nd victim concept in midwives. She has undertaken a qualitative study already and has been able to build a conceptual model of the recovery (or failure to recover) process. She wants to seek access to a bigger sample for a quant study to explore father some of the key findings from the qualitative study.

Sadly, she is unable to join us this Friday so won't be able to tap you up then ☺

Kind regards

Sarahjane

Dr Sarahjane Jones PhD SFHEA

Associate Professor in Patient Safety

School of Health and Social Care

T: 01785 353822

E: Sarahjane.jones@staffs.ac.uk

Discover my latest research here:

Using knowledge discovery through data mining to gain intelligence from routinely collected incident reporting in an acute English hospital

An observational study on the rate of reporting of adverse event on healthcare staff in a mental health setting: An application of Poisson expectation maximisation analysis on nurse staffing data

Staffordshire University
Centre of Excellence in Healthcare Education
Room BL132
Black Heath Lane
Stafford
ST18 OYB

Appendix D: HRA and R&D Email advice

Hi again,

Just wanted to follow up to 'show my working' as it were, in case further clarity is required.

In terms of whether a site needs to be set up as a PIC for this type of study, the main question to ask is:

Would the organizations be processing data for the purposes of the study?

In this case, it appears that the survey would be sent out via standard staff mailing lists so there is no study-specific activity being undertaken and no data processing for the purposes of the study. So no, sites would not be considered to be PICs.

As I mentioned previously, HRA Approval would still be required but with the focus very much on governance pertaining to protection of participants and not on site set up.

Kind regards,

Matt

Matt Rogerson (they/them/theirs or he/him/his)

Approvals Specialist

LGBTQ+ staff group co-lead

Equality, Diversity & Inclusion Steering Group

Health Research Authority

HRA Centre - Manchester| 3rd Floor, Barlow House, 4 Minshull Street | Manchester | M1 3DZ

T. 0207 104 8127

E. matt.rogerson@hra.nhs.uk

W. www.hra.nhs.uk

For information on the HRA's work on Covid19 please visit this link: https://www.hra.nhs.uk/about-us/news-updates/research-nhs-during-covid-19-pandemic/

From: Matt Rogerson
Sent: 20 September 2021 09:12
To: JONES Sarahjane <sarahjane.jones@staffs.ac.uk>
Cc: Natasha Carr <natasha.carr@bcu.ac.uk>
Subject: RE: quick question about recruitment

Hi Sarahjane,

Thanks for reaching out. We would take a proportionate approach to this. While we *would* categorize this as a Staff Only Study recruiting through the NHS (therefore requiring HRA Approval, *but not REC*), any assessment of the study would largely be focusing on the protection of participants, so an Approvals Specialist would be looking at matters of consent, GDPR etc etc.

Setting up each intended NHS site as a PIC through R&D would not be commensurate to the study activities. If I was assessing this I wouldn't even send out an initial assessment letter as I would presume Trust R&D involvement to be limited if existing at all.

Hope this helps!

Matt

Matt Rogerson (they/them/theirs or he/him/his)

Research Regulation Officer

LGBTQ+ staff group co-lead

Equality, Diversity & Inclusion Steering Group

Health Research Authority

HRA Centre - Manchester| 3rd Floor, Barlow House, 4 Minshull Street | Manchester | M1 3DZ

T. 0207 104 8127

E. matt.rogerson@hra.nhs.uk

W. www.hra.nhs.uk

For information on the HRA's work on Covid19 please visit this link: https://www.hra.nhs.uk/about-us/news-updates/research-nhs-during-covid-19-pandemic/

From: JONES Sarahjane <sarahjane.jones@staffs.ac.uk>
Sent: 17 September 2021 10:00
To: Matt Rogerson <matt.rogerson@hra.nhs.uk>
Cc: Natasha Carr <natasha.carr@bcu.ac.uk>
Subject: quick question about recruitment

Hi Matt,

I am being cheeky again and asking to tap into your expertise. I understand if this isn't appropriate, just say if so.

I have a PhD student (Natasha) who is constructing a survey for midwives. The Chief Midwifery Officer for England (working at NHS England and NHS Improvement) has agreed to distribute the invitation to participate through the director of midwives at all Trusts in England, asking them to distribute to their workforce via email. This is the simplest way to be able to potentially invite all currently employed midwives and avoid

recruitment bias. The NMC who hold the register won't do this sort of thing. Natasha will also be doing some social media distribution.

In our minds, we have been assuming that this needs HRA approval because in the end, the survey is delivered in the inbox of staff in the NHS through their organisation via their director of midwifery. Then we had a moment of shock. Would this mean we would have to set up every Trust as a PIC via their R&D site? You can imagine that this would not be feasible. Are you able to give any advice?

Kind regards

Sarahjane

Dr Sarahjane Jones PhD SFHEA

Associate Professor in Patient Safety

Interim Associate Dean for Research and Enterprise

School of Health and Social Care

T: 01785 353822

E: Sarahjane.jones@staffs.ac.uk

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Using knowledge discovery through data mining to gain intelligence from routinely collected incident reporting in an acute English hospital

An observational study on the rate of reporting of adverse event on healthcare staff in a mental health setting: An application of Poisson expectation maximisation analysis on nurse staffing data

Staffordshire University

Centre of Excellence in Healthcare Education

Room BL132

Black Heath Lane

Stafford

ST18 OYB

@StaffsUniHSC StaffsUniHSC Facebook

Appendix 19

Evidence for the 'non-normal' distribution of data

Grade band

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
What grade band are you?	487	94.9%	26	5.1%	513	100.0%

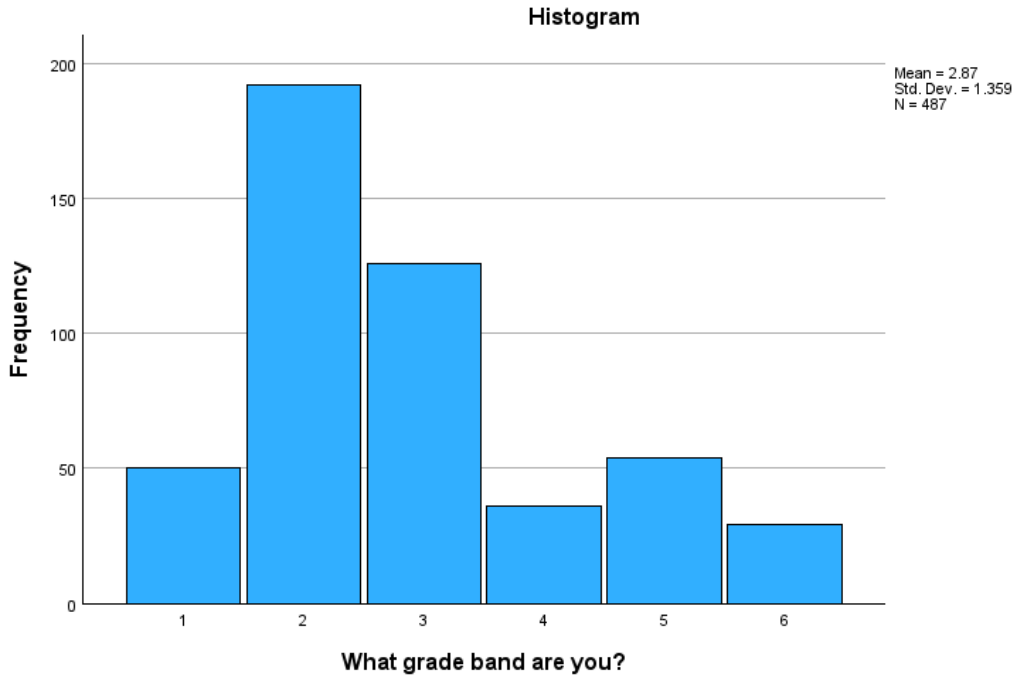
Descriptives

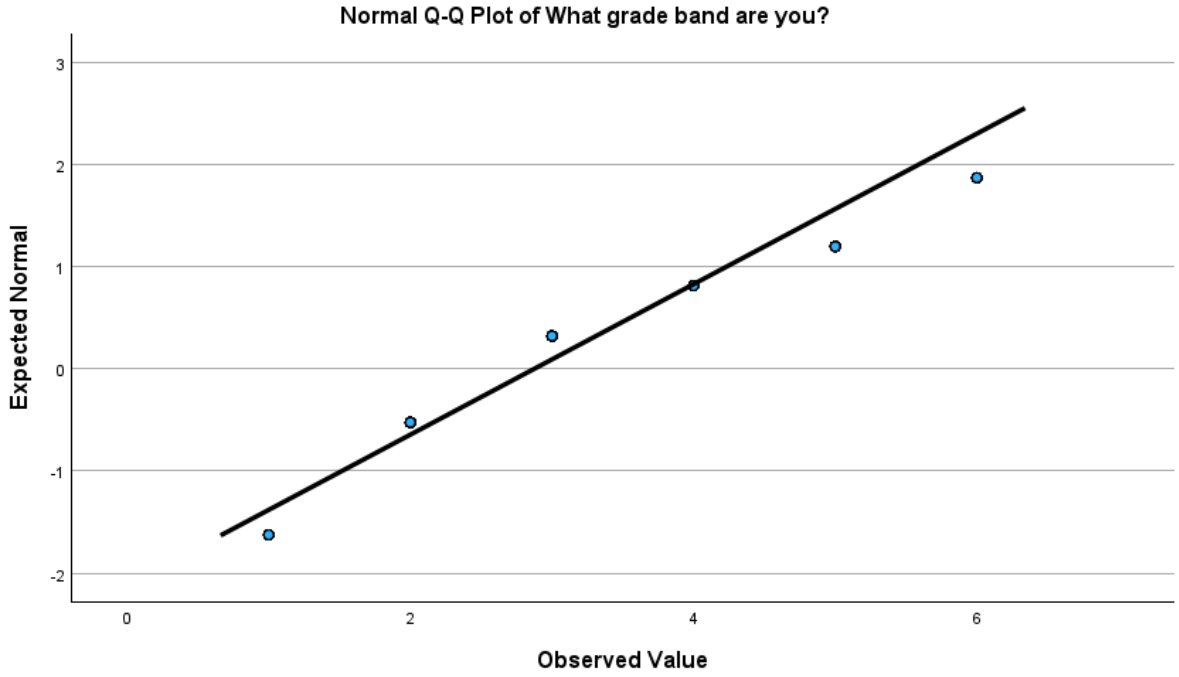
			Statistic	Std. Error
What grade band are you?	Mean		2.87	.062
	95% Confidence Interval for Mean	Lower Bound	2.75	
		Upper Bound	3.00	
	5% Trimmed Mean		2.81	
	Median		3.00	
	Variance		1.846	
	Std. Deviation		1.359	
	Minimum		1	
	Maximum		6	
	Range		5	
	Interquartile Range		1	
	Skewness		.821	.111
	Kurtosis		-.174	.221

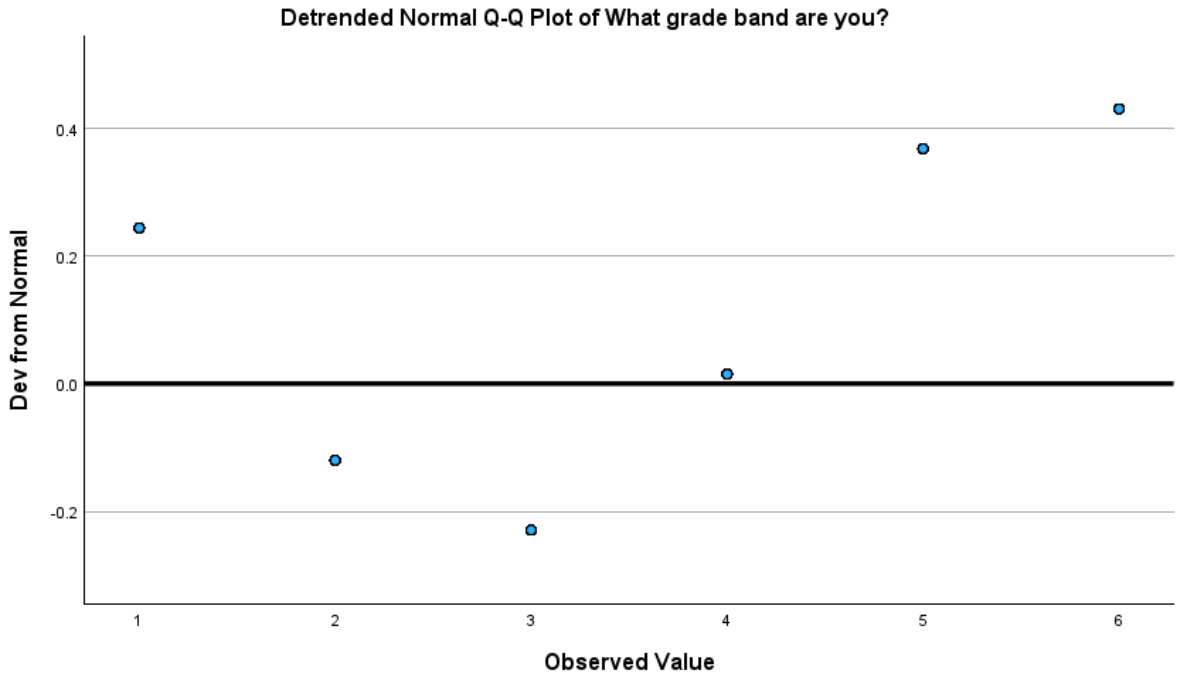
Tests of Normality

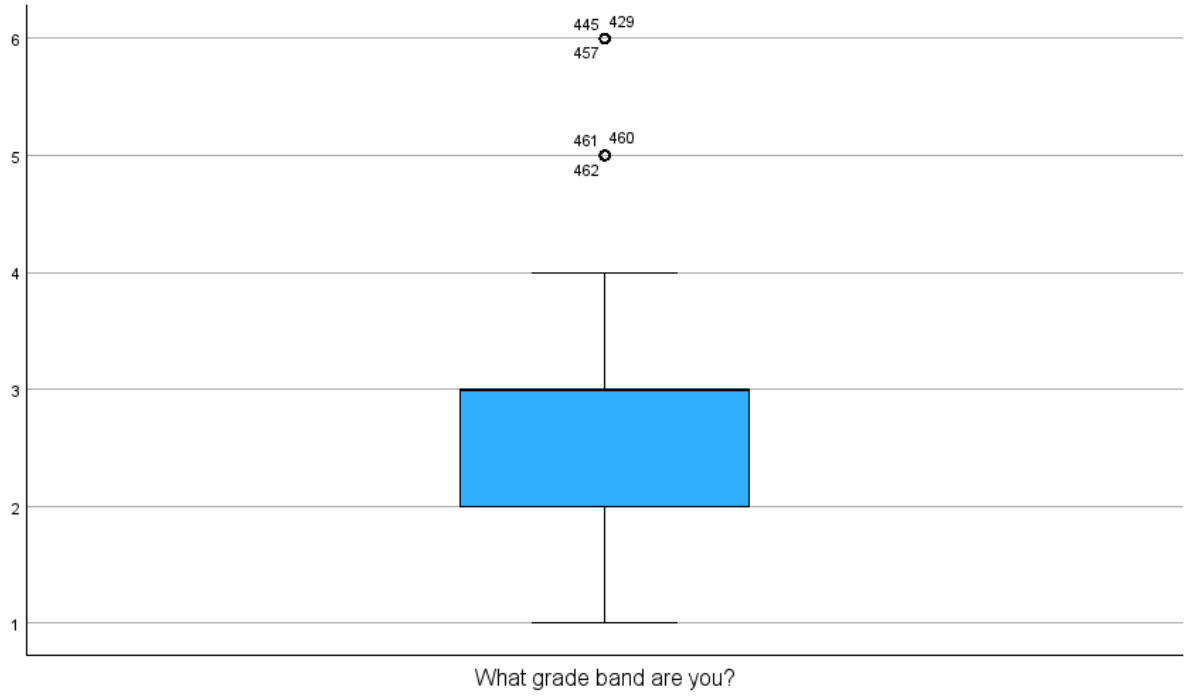
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
What grade band are you?	.237	487	<.001	.866	487	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 2.87
Std. Dev. = 1.359
N = 487
Frequency
200
150
100
50
0
1
2
3
4
5
6
What grade band are you?


Normal Q-Q Plot of What grade band are you?
Expected Normal
3
2
1
0
-1
-2
0
2
4
6
Observed Value





Age

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
What is your age range?	488	95.1%	25	4.9%	513	100.0%

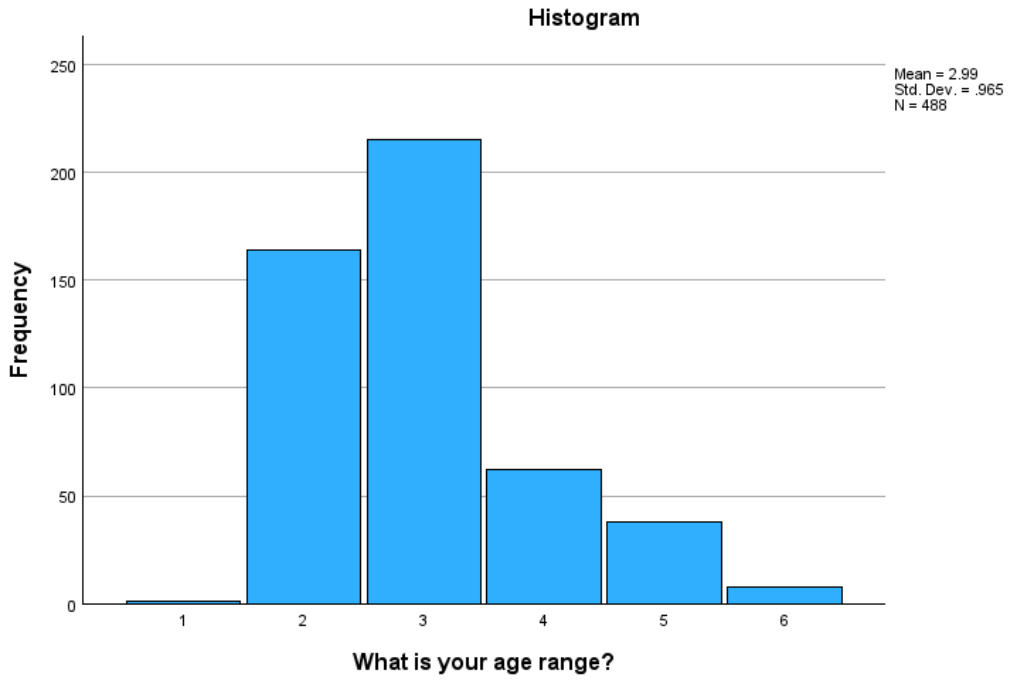
Descriptives

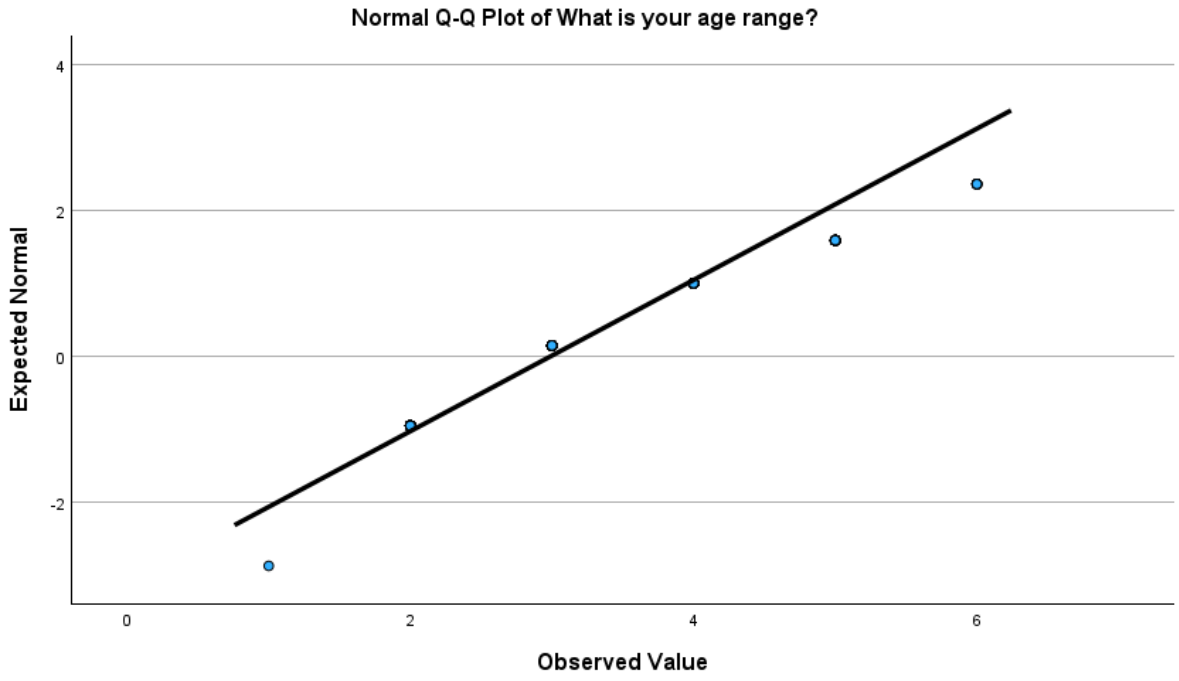
			Statistic	Std. Error
What is your age range?	Mean		2.99	.044
	95% Confidence Interval for Mean	Lower Bound	2.91	
		Upper Bound	3.08	
	5% Trimmed Mean		2.92	
	Median		3.00	
	Variance		.932	
	Std. Deviation		.965	
	Minimum		1	
	Maximum		6	
	Range		5	
	Interquartile Range		1	
	Skewness		.965	.111
	Kurtosis		.598	.221

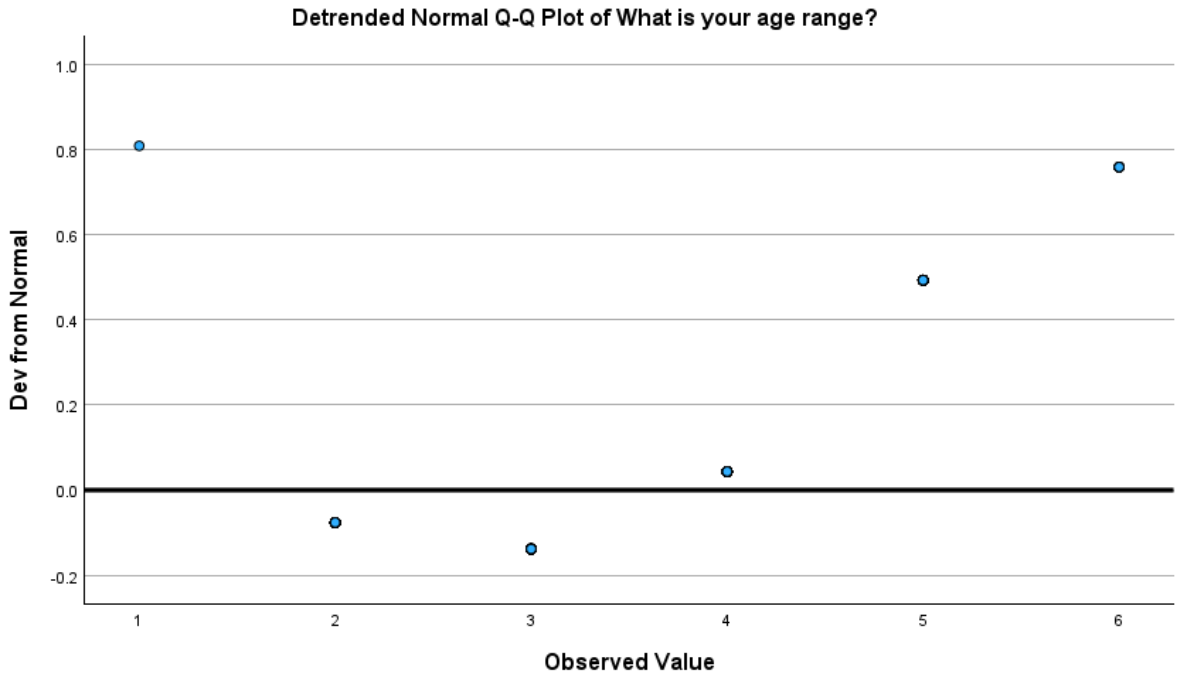
Tests of Normality

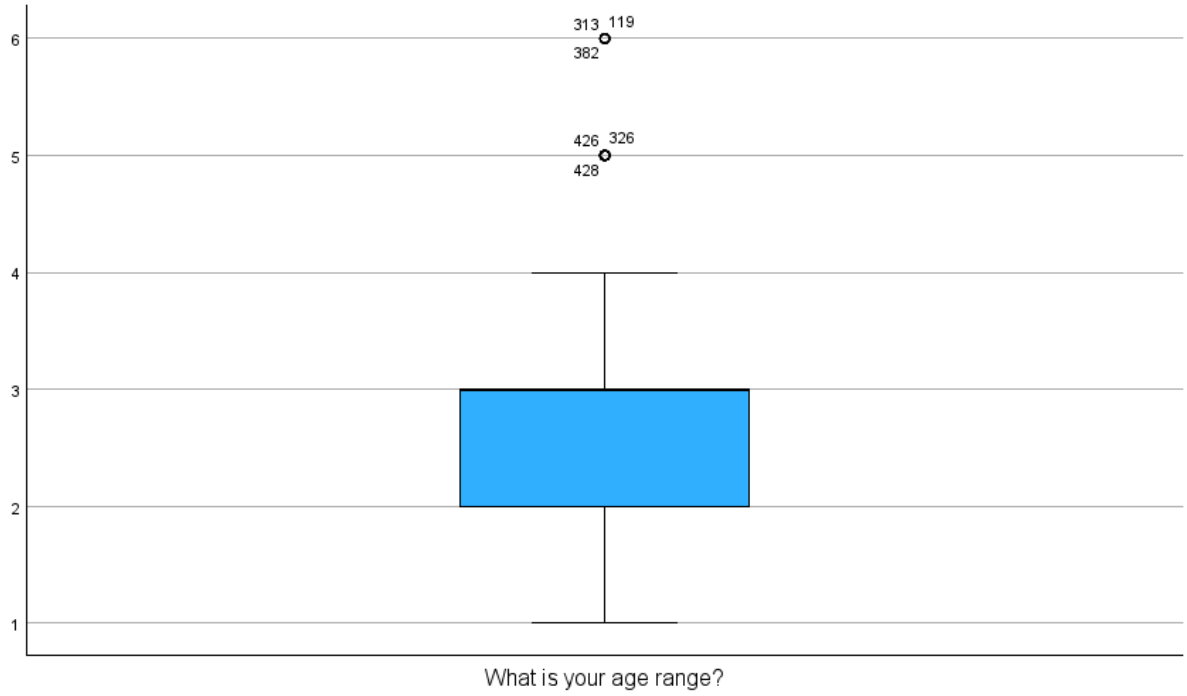
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
What is your age range?	.275	488	<.001	.829	488	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 2.99
Std. Dev. = .965
N = 488
Frequency
250
200
150
100
50
0
1
2
3
4
5
6
What is your age range?


Normal Q-Q Plot of What is your age range?
Expected Normal
4
2
0
-2
0
2
4
6
Observed Value





Gender

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
What best describes your gender? - Selected Choice	487	94.9%	26	5.1%	513	100.0%

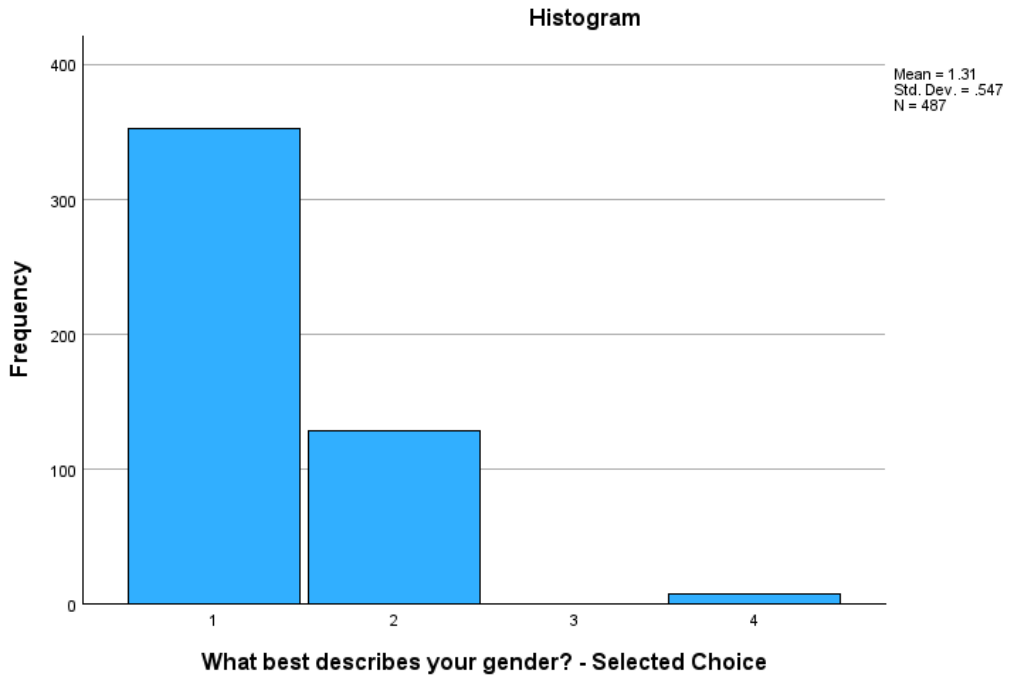
Descriptives

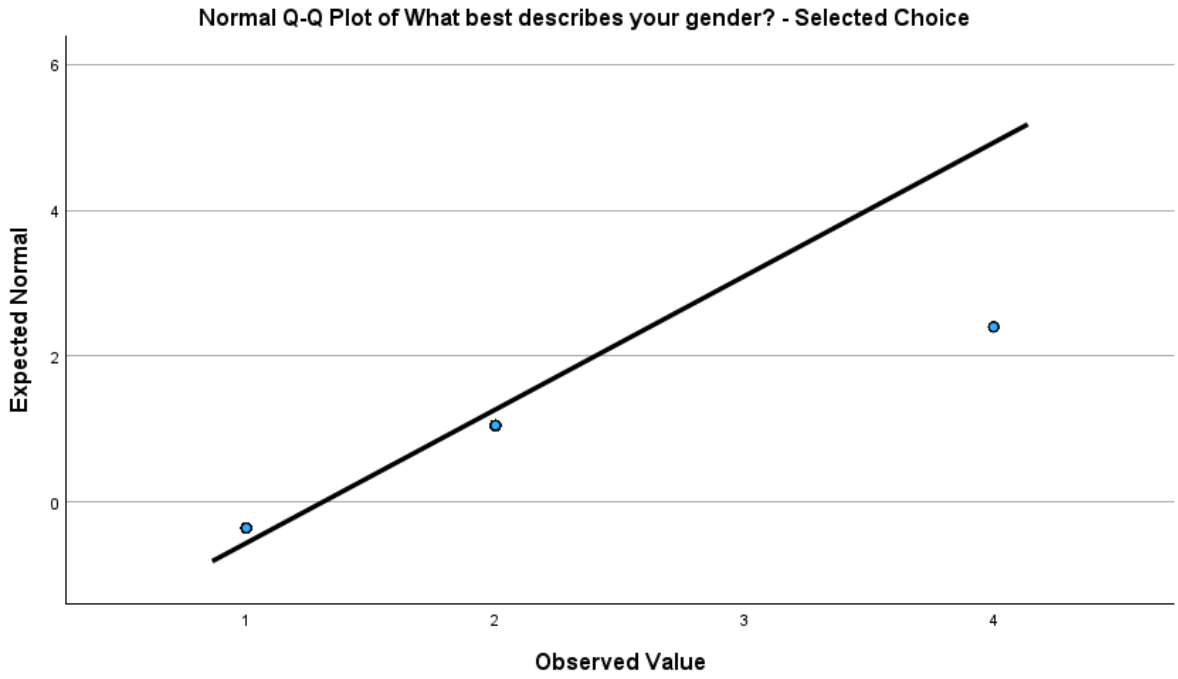
			Statistic	Std. Error
What best describes your gender? - Selected Choice	Mean		1.31	.025
	95% Confidence Interval for Mean	Lower Bound	1.26	
		Upper Bound	1.35	
	5% Trimmed Mean		1.25	
	Median		1.00	
	Variance		.299	
	Std. Deviation		.547	
	Minimum		1	
	Maximum		4	
	Range		3	
	Interquartile Range		1	
	Skewness		2.141	.111
	Kurtosis		6.325	.221

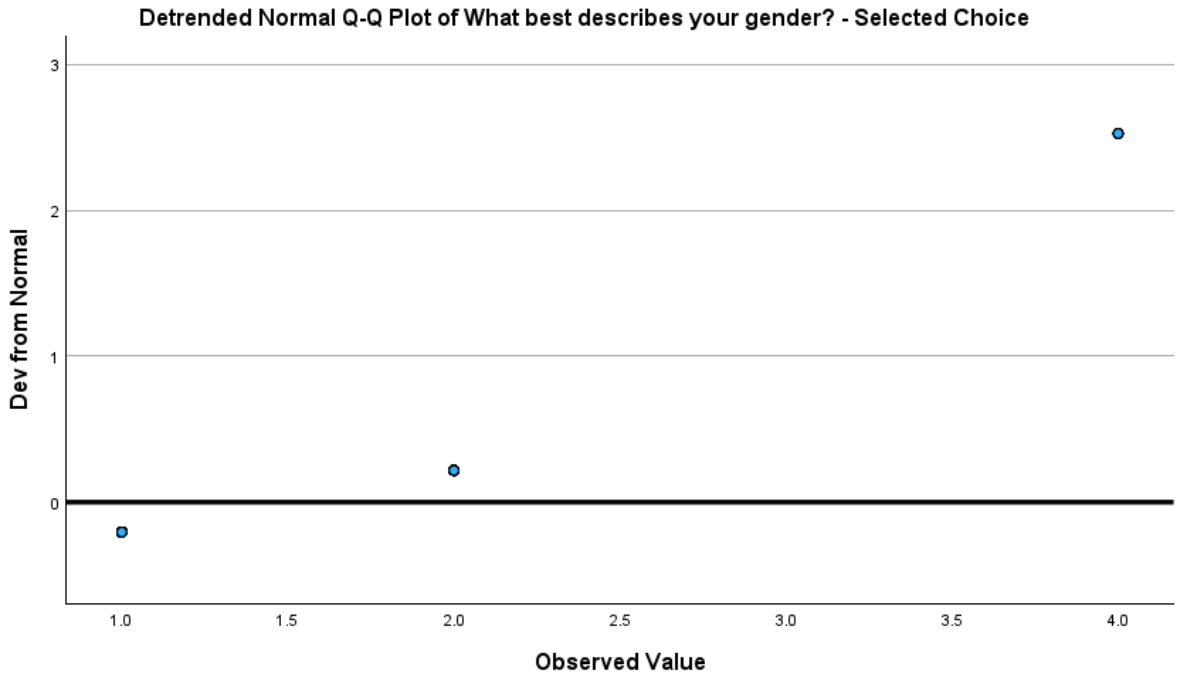
Tests of Normality

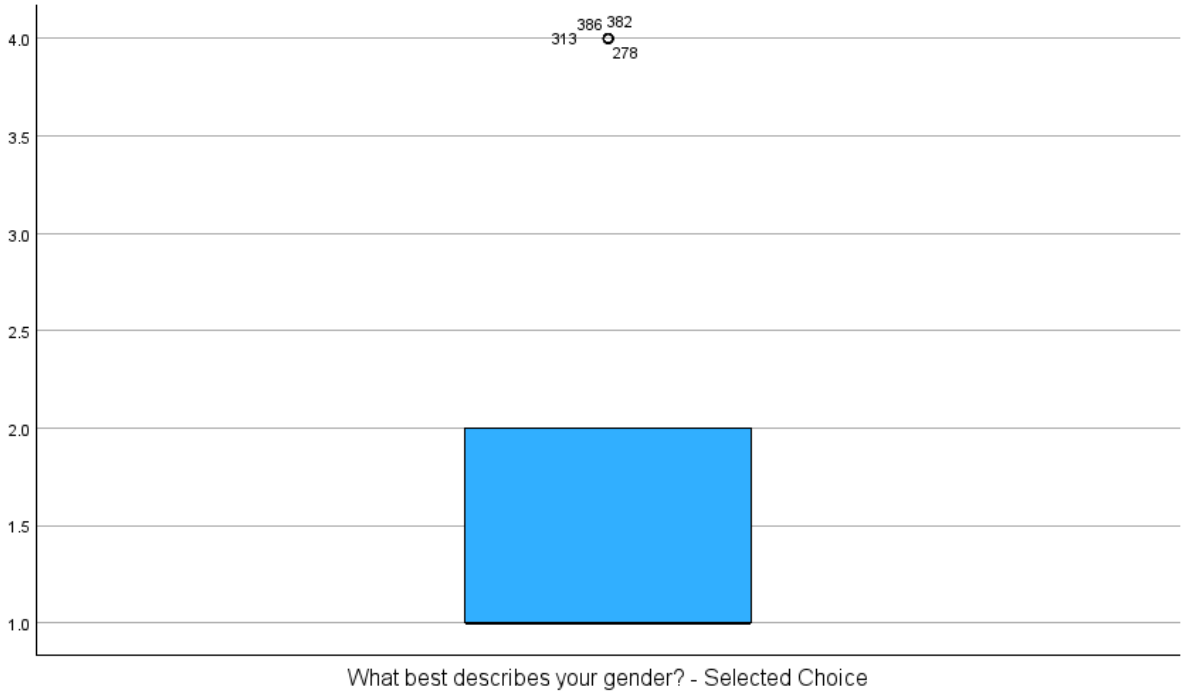
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
What best describes your gender? - Selected Choice	.435	487	<.001	.558	487	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.31
Std. Dev. = .547
N = 487
Frequency
400
300
200
100
0
1
2
3
4
What best describes your gender? - Selected Choice


Normal Q-Q Plot of What best describes your gender? - Selected Choice
Expected Normal
6
4
2
0
1
2
3
4
Observed Value





Ethnicity

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Please specify your ethnicity: - Selected Choice	487	94.9%	26	5.1%	513	100.0%

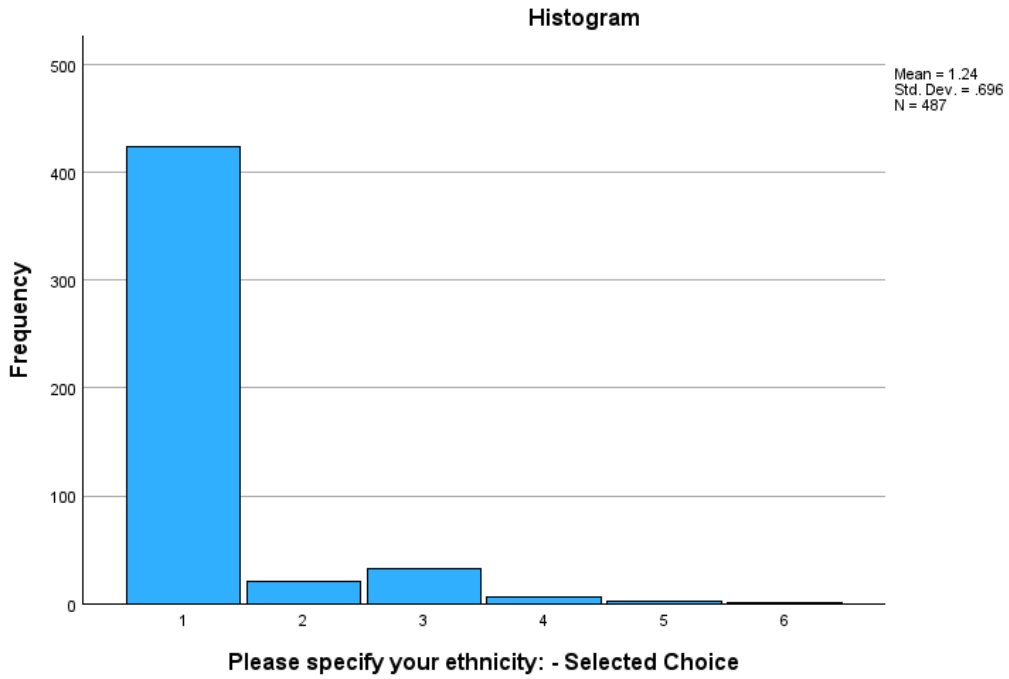
Descriptives

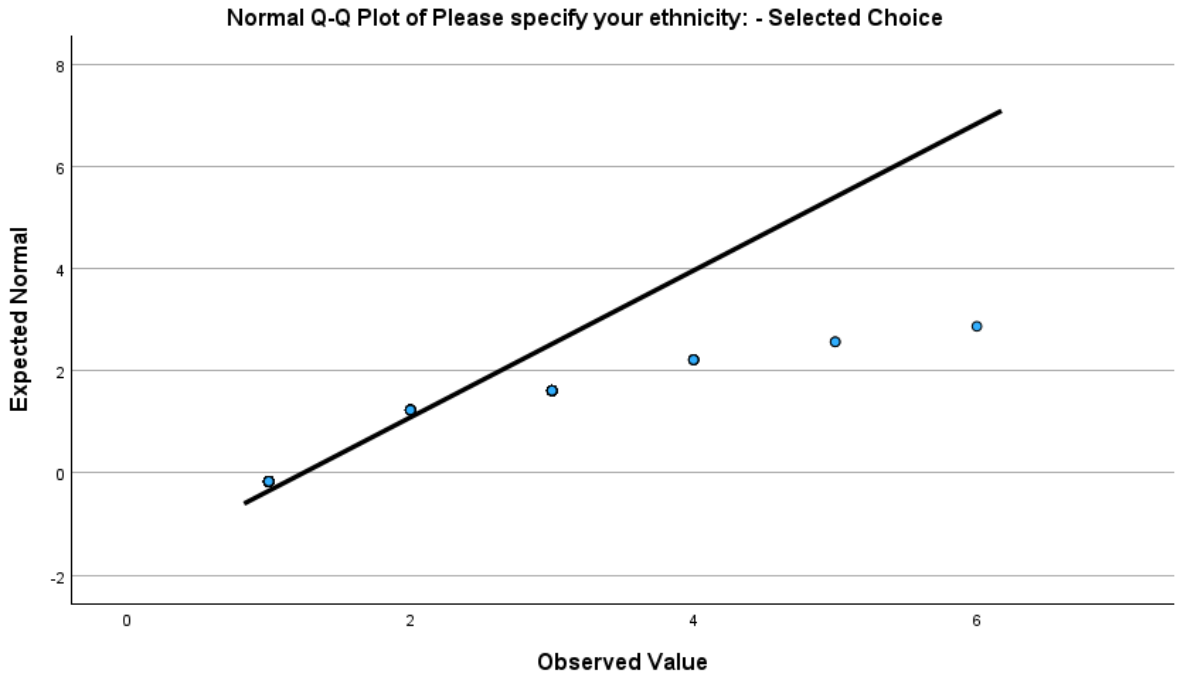
			Statistic	Std. Error
Please specify your ethnicity: - Selected Choice	Mean		1.24	.032
	95% Confidence Interval for Mean	Lower Bound	1.18	
		Upper Bound	1.30	
	5% Trimmed Mean		1.13	
	Median		1.00	
	Variance		.484	
	Std. Deviation		.696	
	Minimum		1	
	Maximum		6	
	Range		5	
	Interquartile Range		0	
	Skewness		3.199	.111
	Kurtosis		11.023	.221

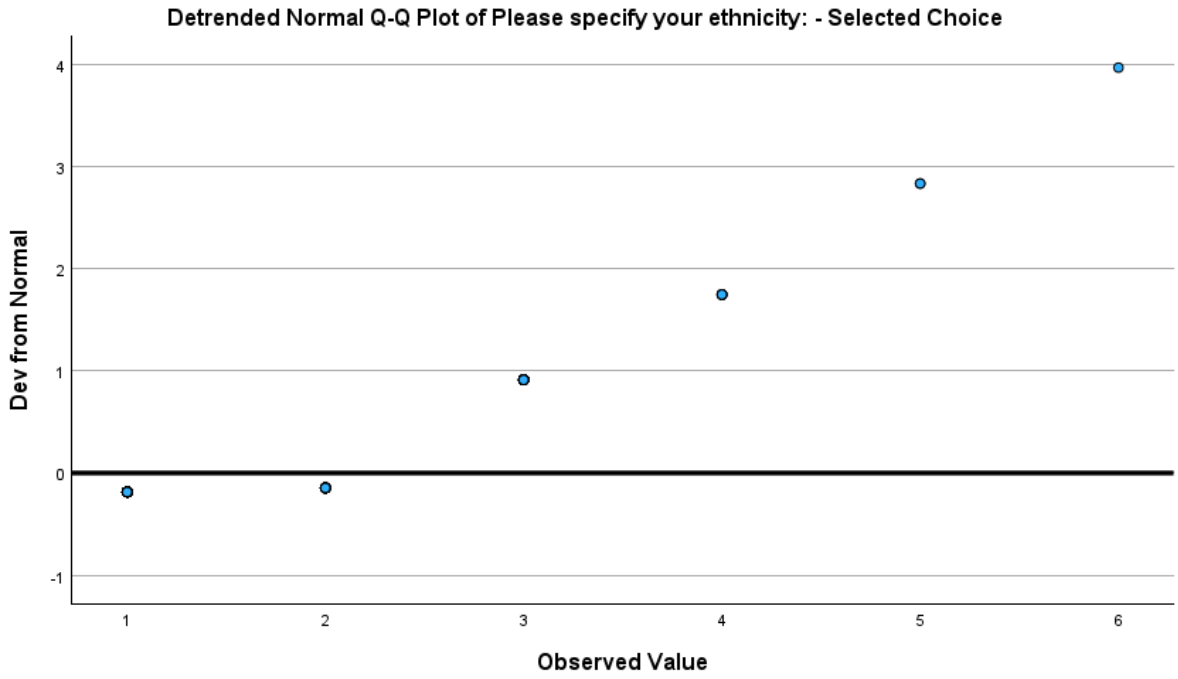
Tests of Normality

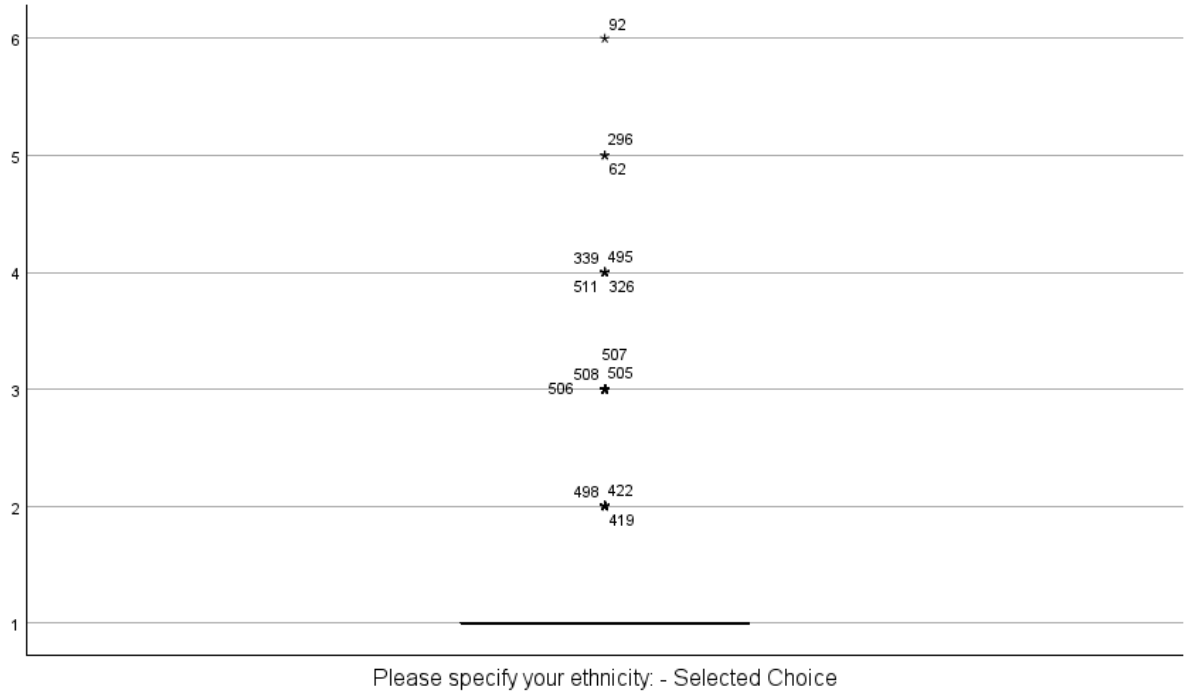
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Please specify your ethnicity: - Selected Choice	.507	487	<.001	.396	487	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.24
Std. Dev. = .696
N = 487
Frequency
500
400
300
200
100
0
1
2
3
4
5
6
Please specify your ethnicity: - Selected Choice


Normal Q-Q Plot of Please specify your ethnicity: - Selected Choice
Expected Normal
8
6
4
2
0
-2
0
2
4
6
Observed Value





Main Employment as a Midwife

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Which of the following best describes your main employment status as a midwife?	487	94.9%	26	5.1%	513	100.0%

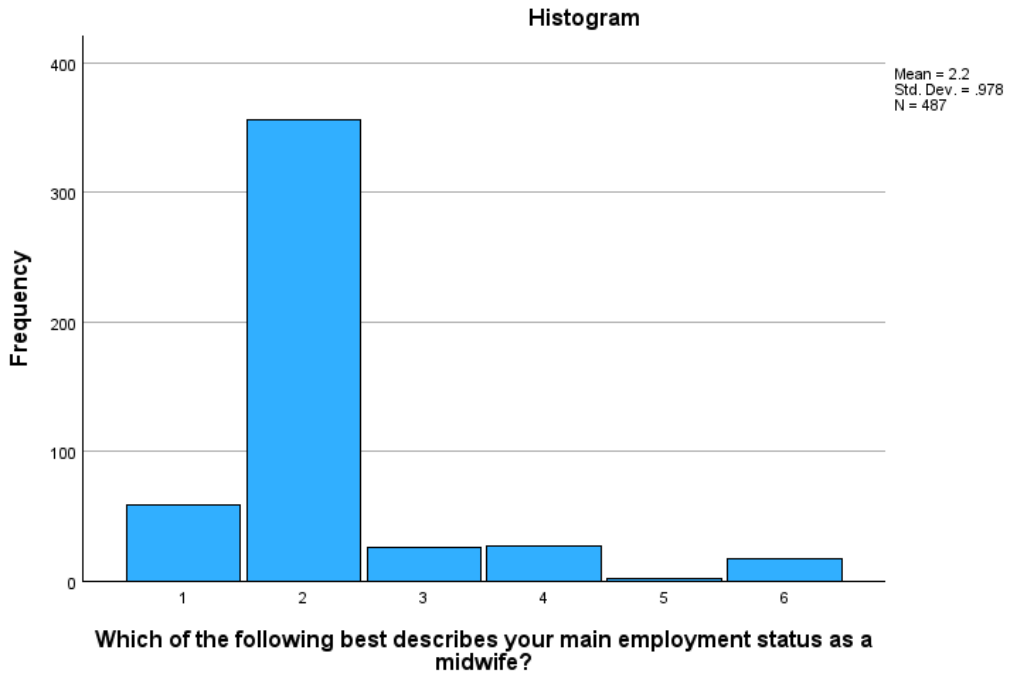
Descriptives

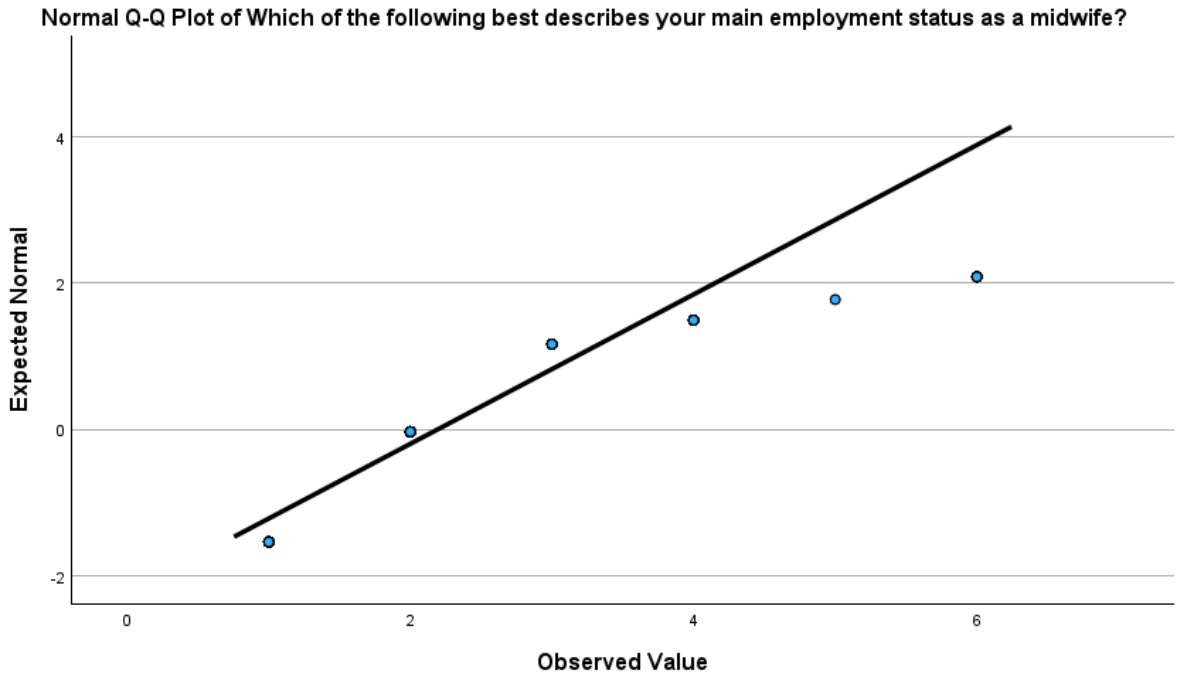
			Statistic	Std. Error
Which of the following best describes your main employment status as a midwife?	Mean		2.20	.044
	95% Confidence Interval for Mean	Lower Bound	2.11	
		Upper Bound	2.28	
	5% Trimmed Mean		2.08	
	Median		2.00	
	Variance		.956	
	Std. Deviation		.978	
	Minimum		1	
	Maximum		6	
	Range		5	
	Interquartile Range		0	
	Skewness		2.321	.111
	Kurtosis		6.345	.221

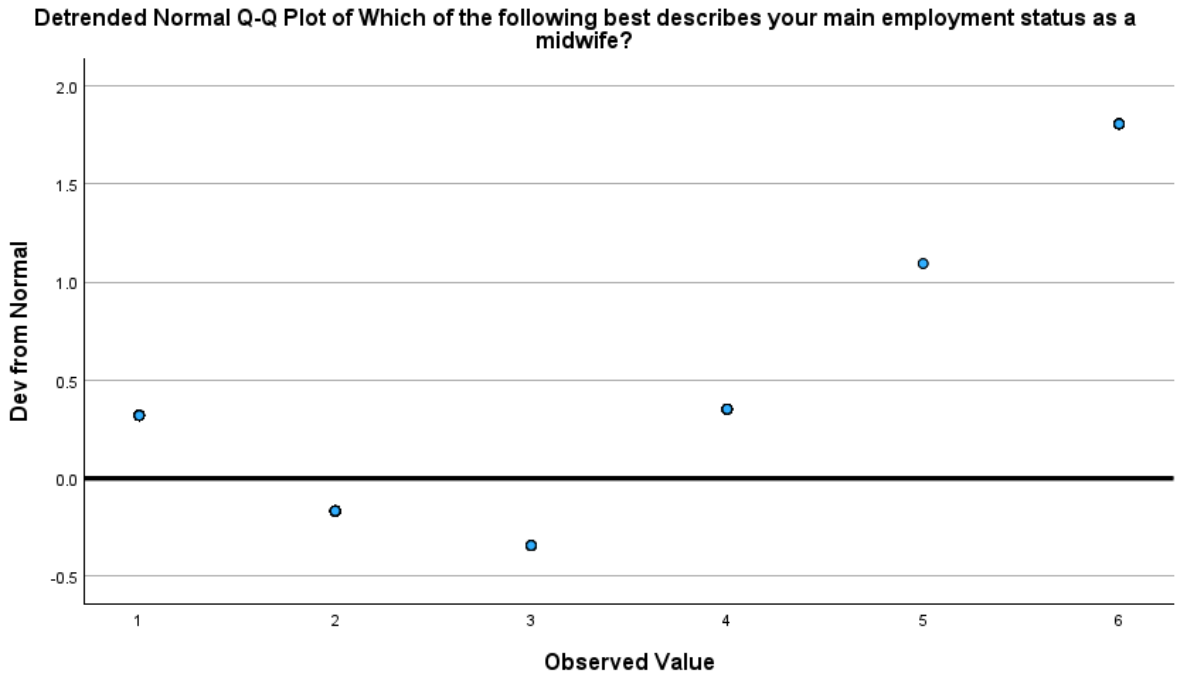
Tests of Normality

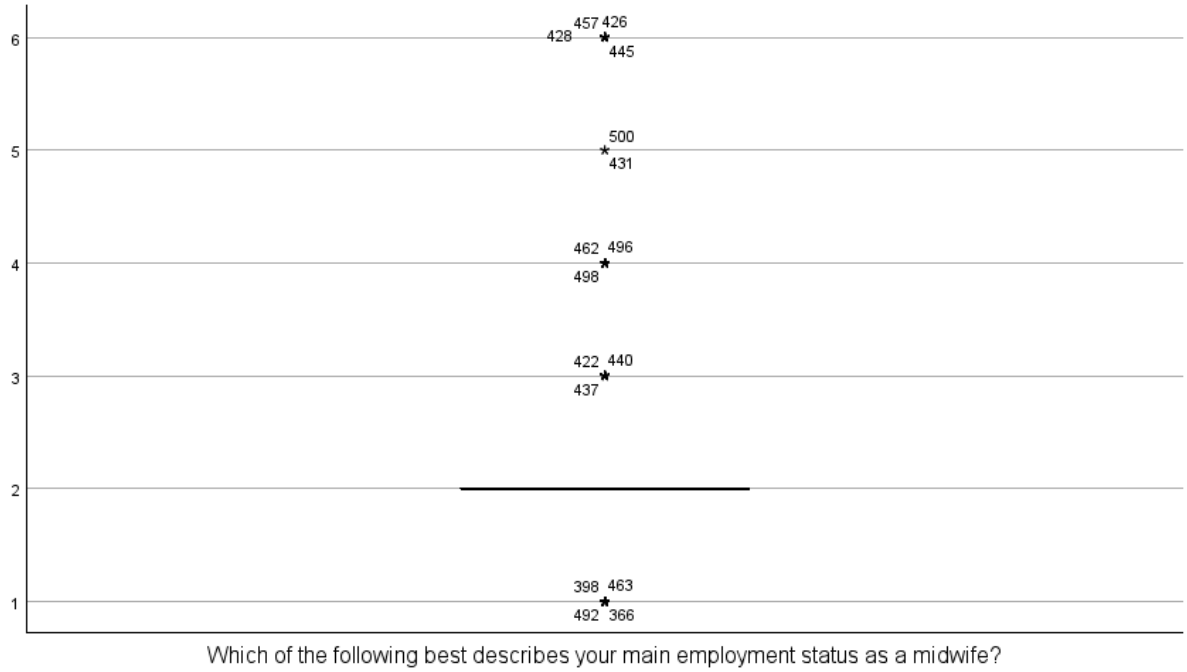
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Which of the following best describes your main employment status as a midwife?	.431	487	<.001	.609	487	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 2.2
Std. Dev. = .978
N = 487
Frequency
400
300
200
100
0
1
2
3
4
5
6
Which of the following best describes your main employment status as a midwife?


Normal Q-Q Plot of Which of the following best describes your main employment status as a midwife?
Expected Normal
4
2
0
-2
0
2
4
6
Observed Value





Long qualified as Midwife

Case Processing Summary

Cases

	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
How long have you been qualified?	488	95.1%	25	4.9%	513	100.0%

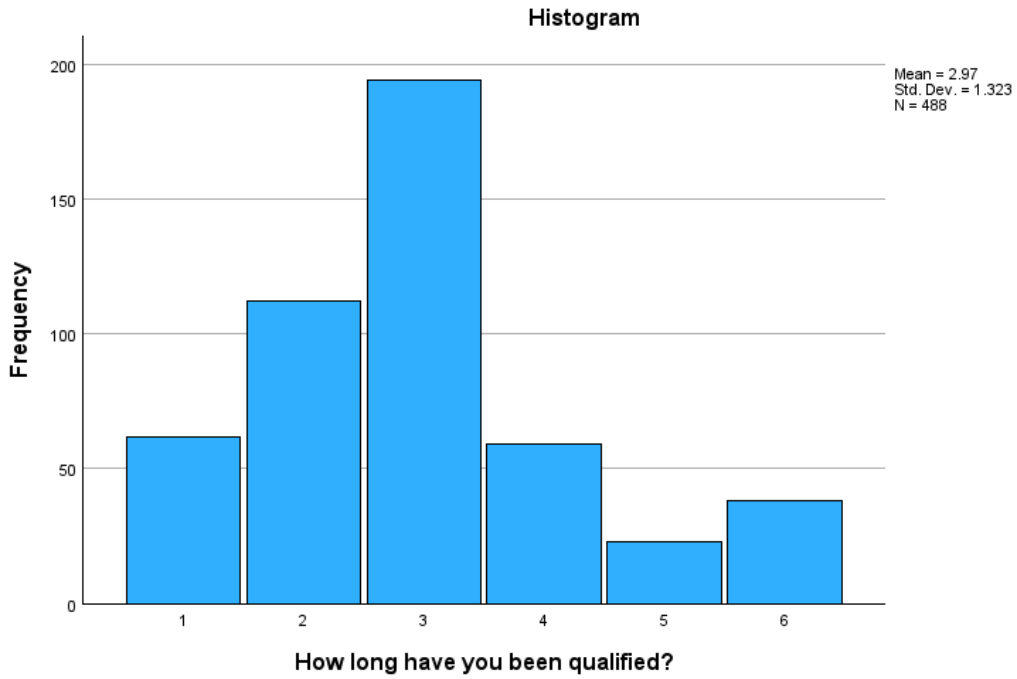
Descriptives

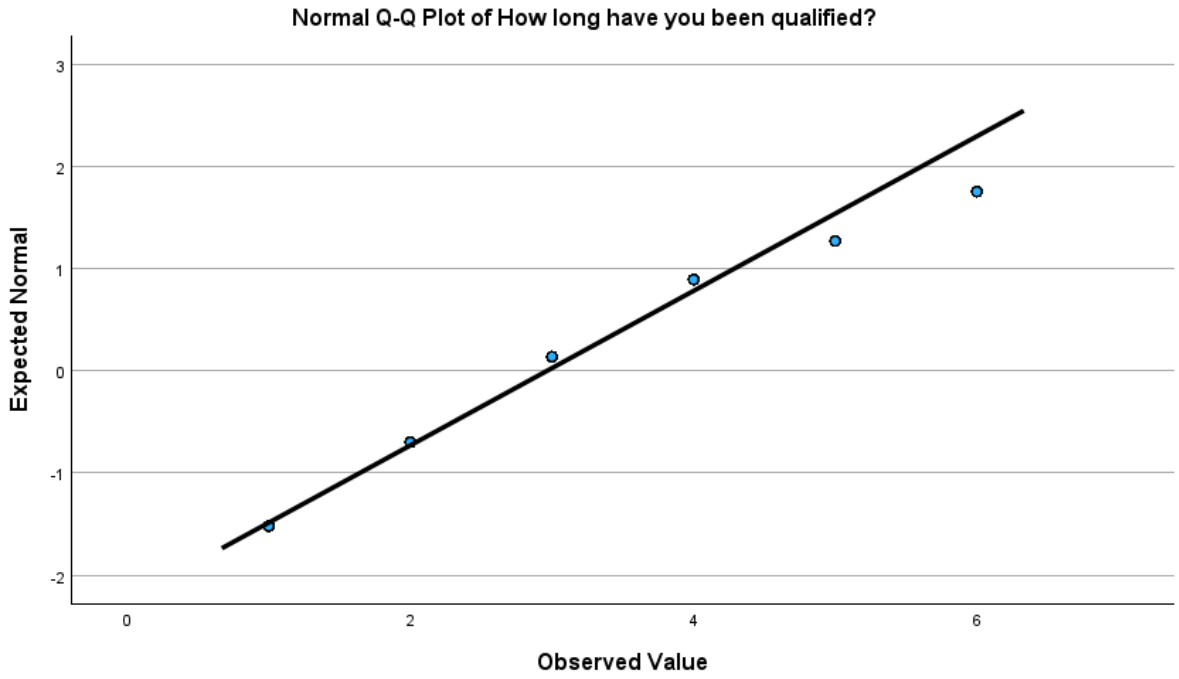
			Statistic	Std. Error
How long have you been qualified?	Mean		2.97	.060
	95% Confidence Interval for Mean	Lower Bound	2.85	
		Upper Bound	3.08	
	5% Trimmed Mean		2.91	
	Median		3.00	
	Variance		1.750	
	Std. Deviation		1.323	
	Minimum		1	
	Maximum		6	
	Range		5	
	Interquartile Range		1	
	Skewness		.668	.111
	Kurtosis		.176	.221

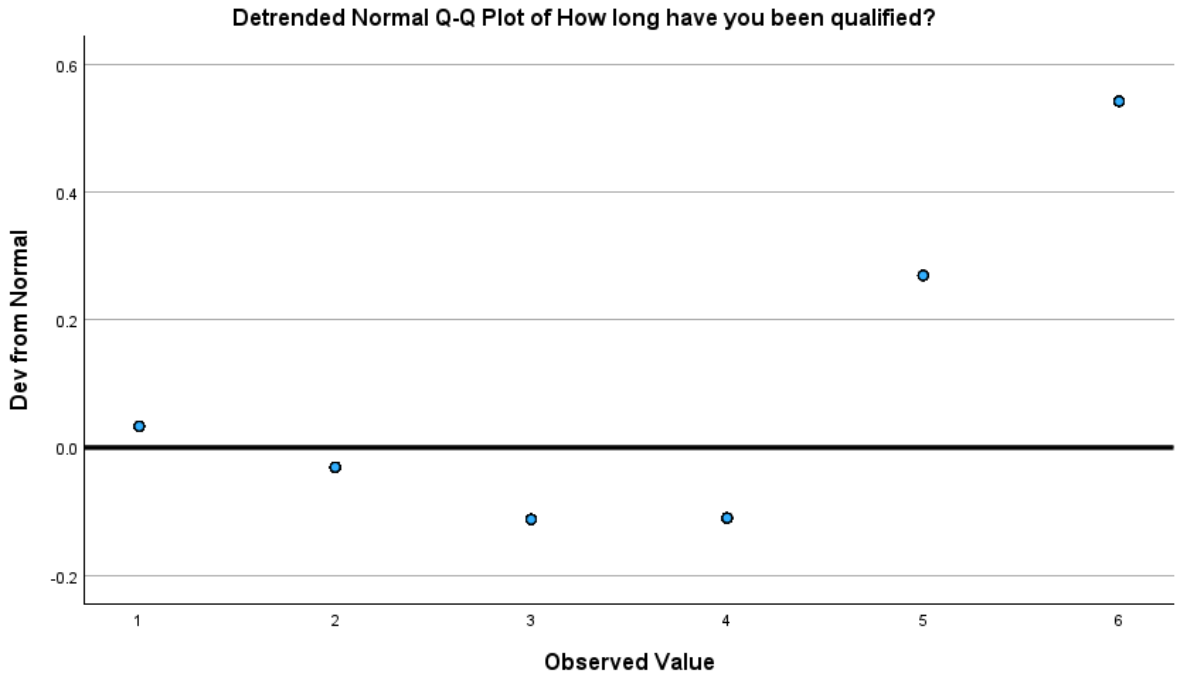
Tests of Normality

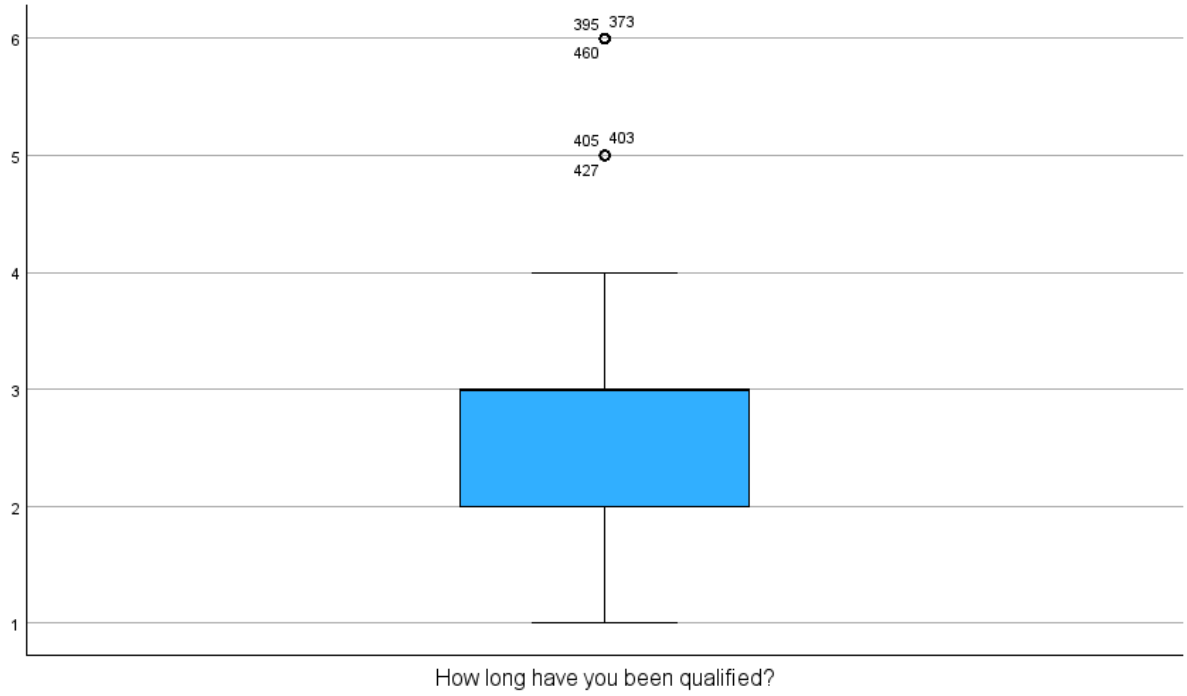
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
How long have you been qualified?	.244	488	<.001	.891	488	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 2.97
Std. Dev. = 1.323
N = 488
Frequency
200
150
100
50
0
1
2
3
4
5
6
How long have you been qualified?


Normal Q-Q Plot of How long have you been qualified?
Expected Normal
3
2
1
0
-1
-2
0
2
4
6
Observed Value





Extreme fatigue

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
.. - Experienced the symptom - Extreme fatigue	448	87.3%	65	12.7%	513	100.0%

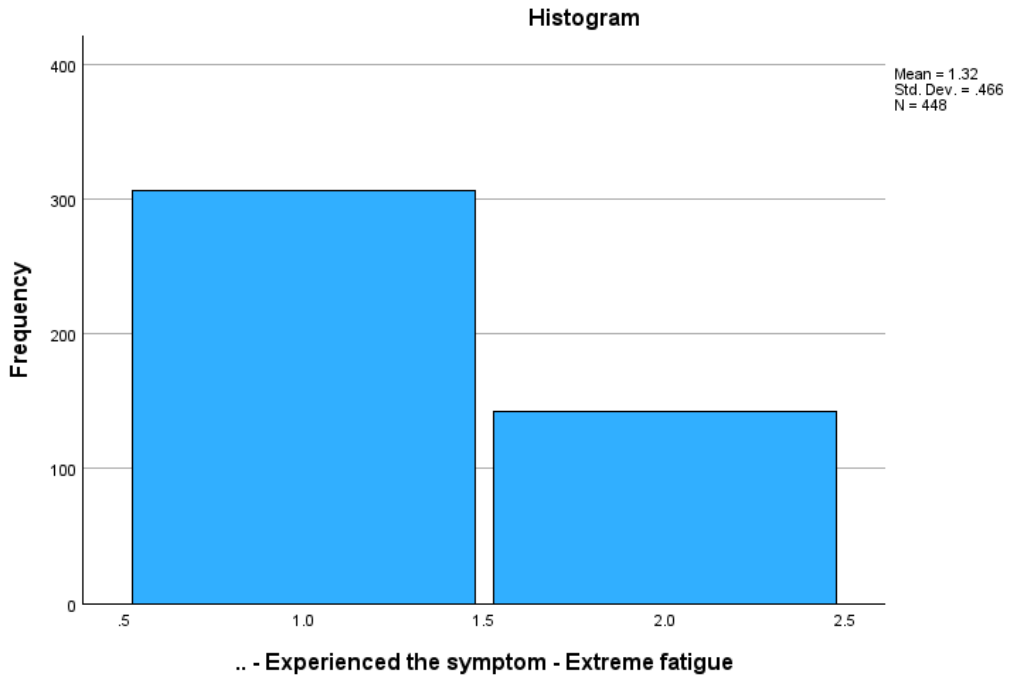
Descriptives

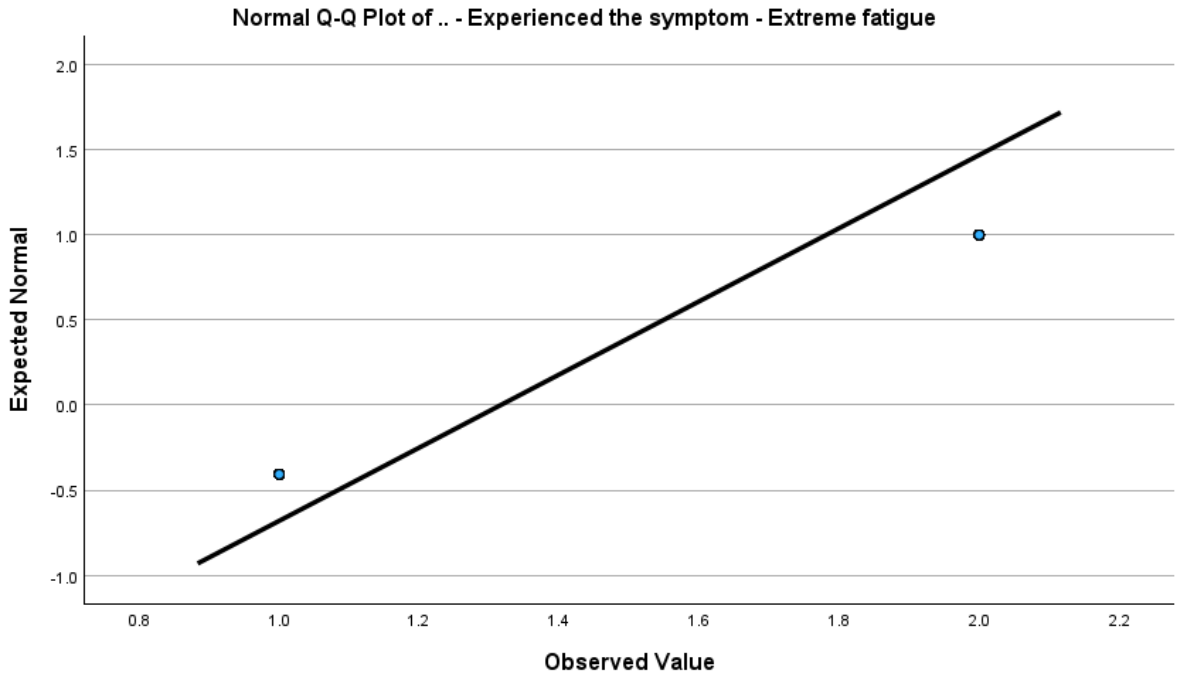
			Statistic	Std. Error
.. - Experienced the symptom - Extreme fatigue	Mean		1.32	.022
	95% Confidence Interval for Mean	Lower Bound	1.27	
		Upper Bound	1.36	
	5% Trimmed Mean		1.30	
	Median		1.00	
	Variance		.217	
	Std. Deviation		.466	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.789	.115
	Kurtosis		-1.383	.230

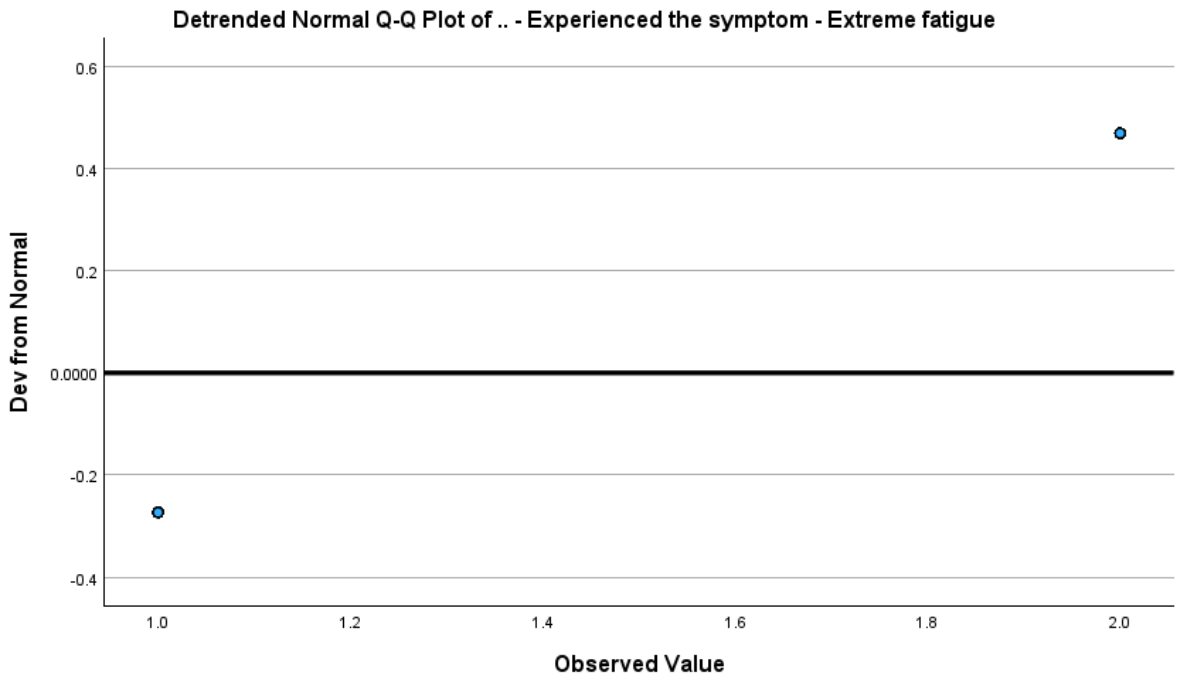
Tests of Normality

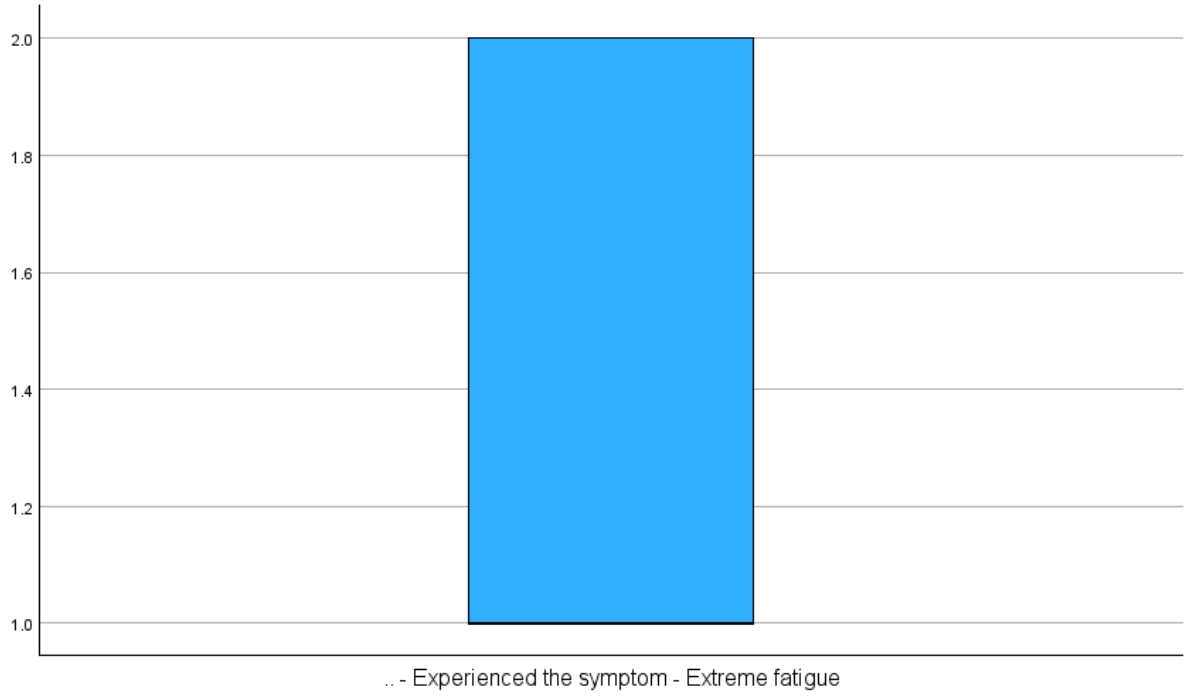
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
.. - Experienced the symptom - Extreme fatigue	.435	448	<.001	.586	448	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.32
Std. Dev. = .466
N = 448
Frequency
400
300
200
100
0
.5
1.0
1.5
2.0
2.5
.. - Experienced the symptom - Extreme fatigue


Normal Q-Q Plot of .. - Experienced the symptom - Extreme fatigue
Expected Normal
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Sleep Disturbances

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Sleep Disturbances	446	86.9%	67	13.1%	513	100.0%

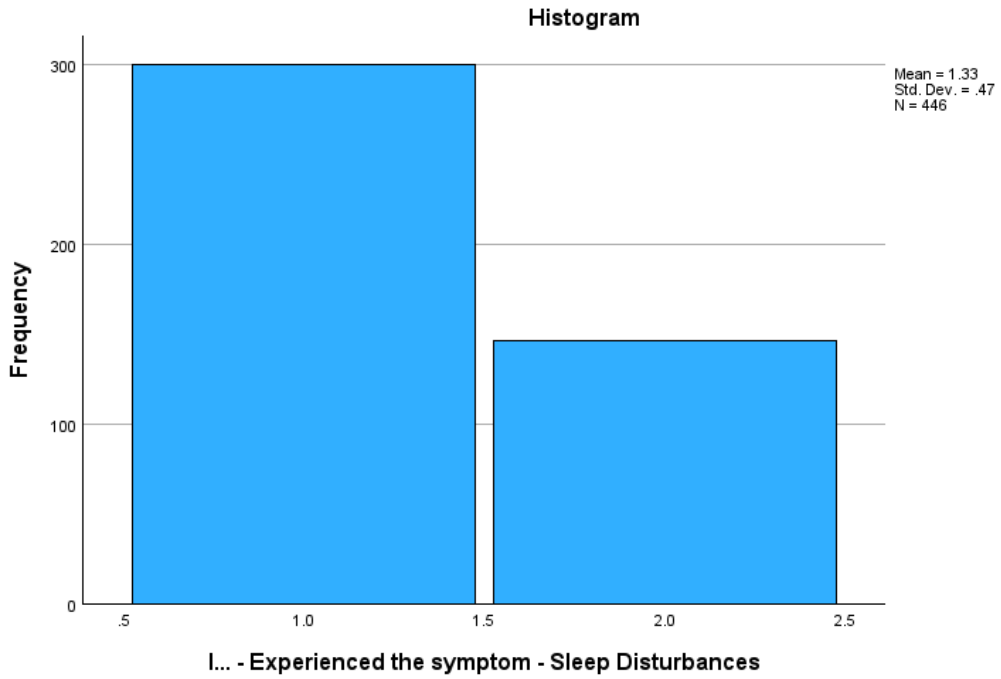
Descriptives

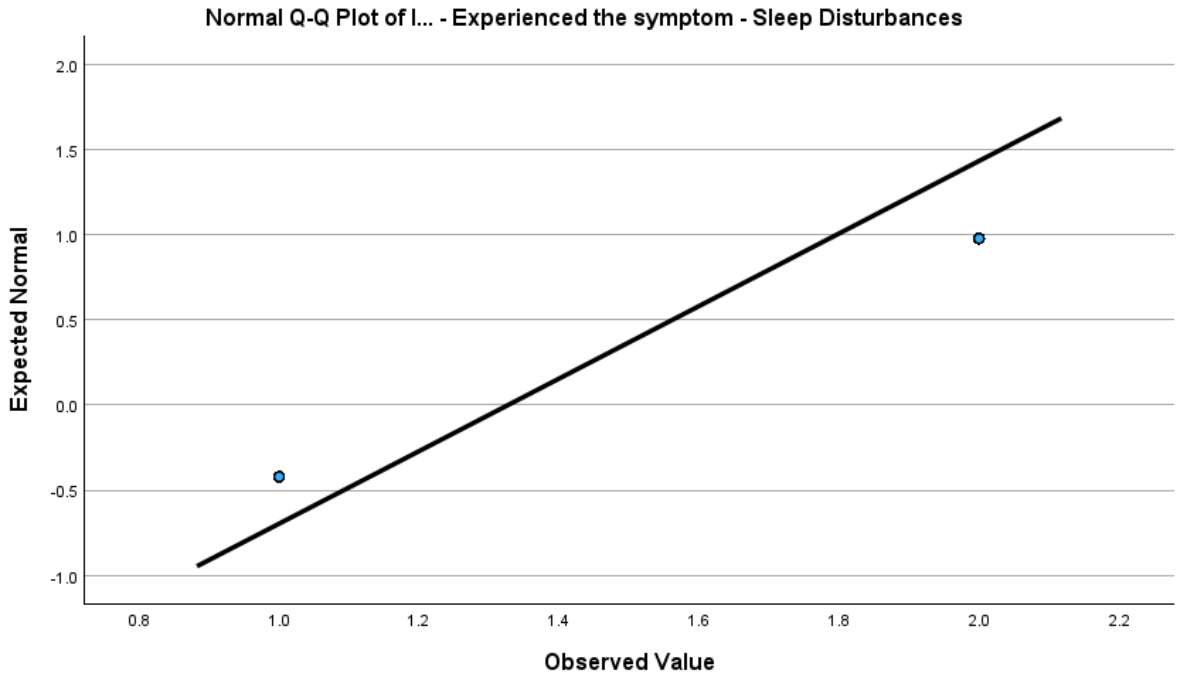
			Statistic	Std. Error
I... - Experienced the symptom - Sleep Disturbances	Mean		1.33	.022
	95% Confidence Interval for Mean	Lower Bound	1.28	
		Upper Bound	1.37	
	5% Trimmed Mean		1.31	
	Median		1.00	
	Variance		.221	
	Std. Deviation		.470	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.738	.116
	Kurtosis		-1.461	.231

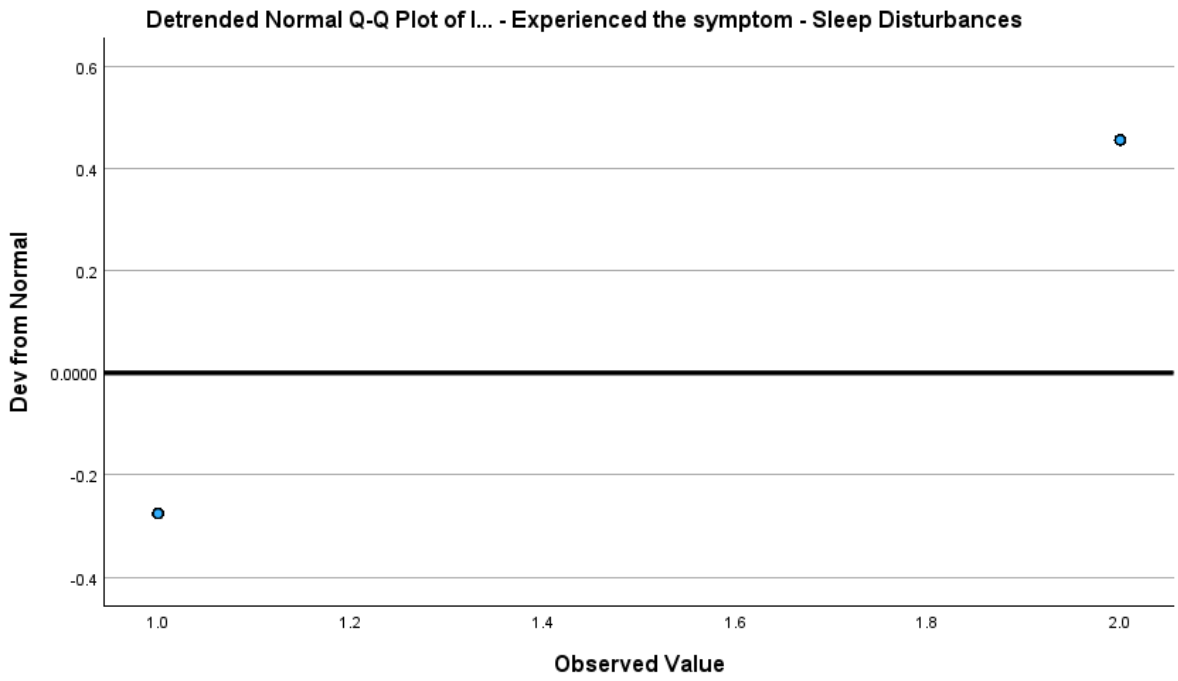
Tests of Normality

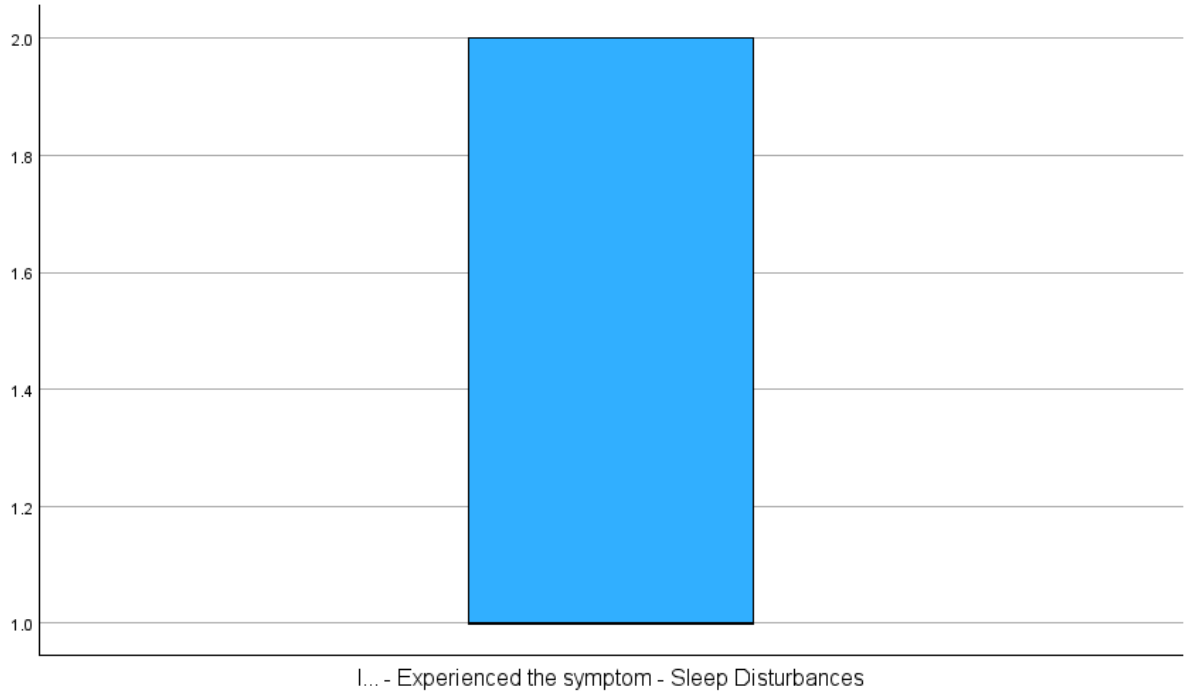
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Sleep Disturbances	.430	446	<.001	.592	446	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.33
Std. Dev. = .47
N = 446
Frequency
300
200
100
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Sleep Disturbances


Normal Q-Q Plot of I... - Experienced the symptom - Sleep Disturbances
Expected Normal
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Increased Heart Rate

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
T I... - Experienced the symptom - Rapid heart rate	443	86.4%	70	13.6%	513	100.0%

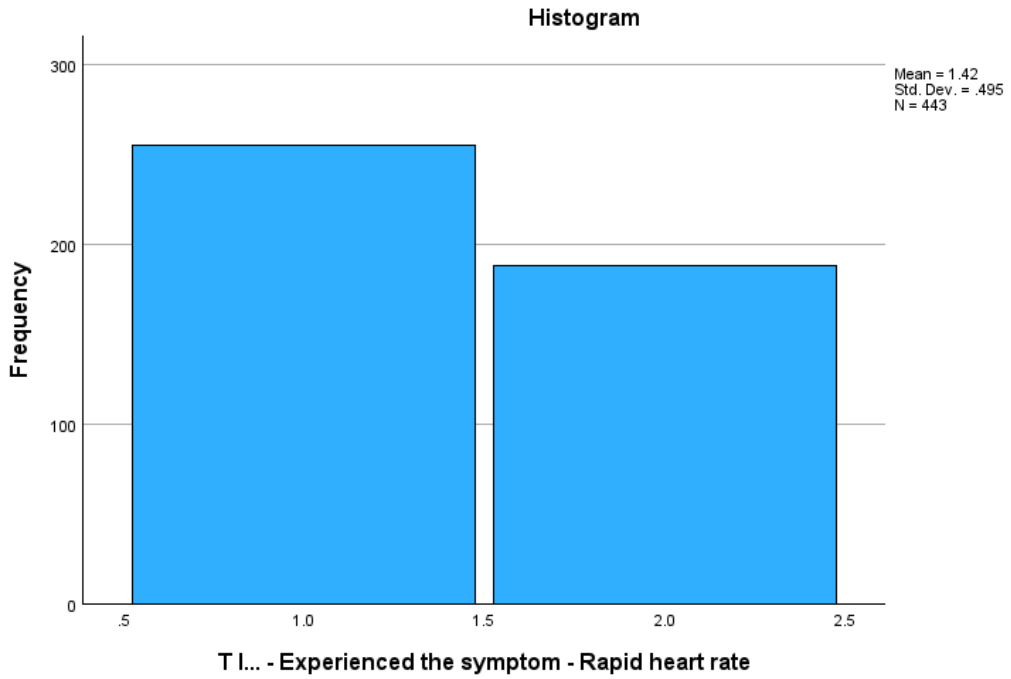
Descriptives

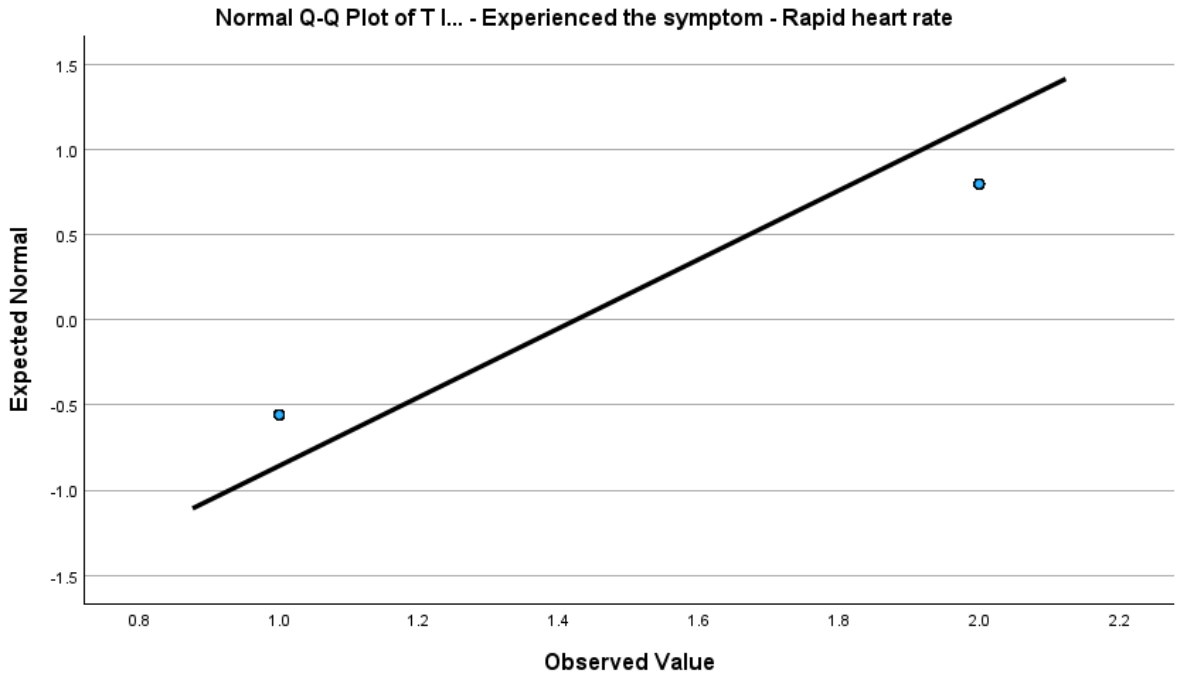
			Statistic	Std. Error
T I... - Experienced the symptom - Rapid heart rate	Mean		1.42	.024
	95% Confidence Interval for Mean	Lower Bound	1.38	
		Upper Bound	1.47	
	5% Trimmed Mean		1.42	
	Median		1.00	
	Variance		.245	
	Std. Deviation		.495	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.307	.116
	Kurtosis		-1.914	.231

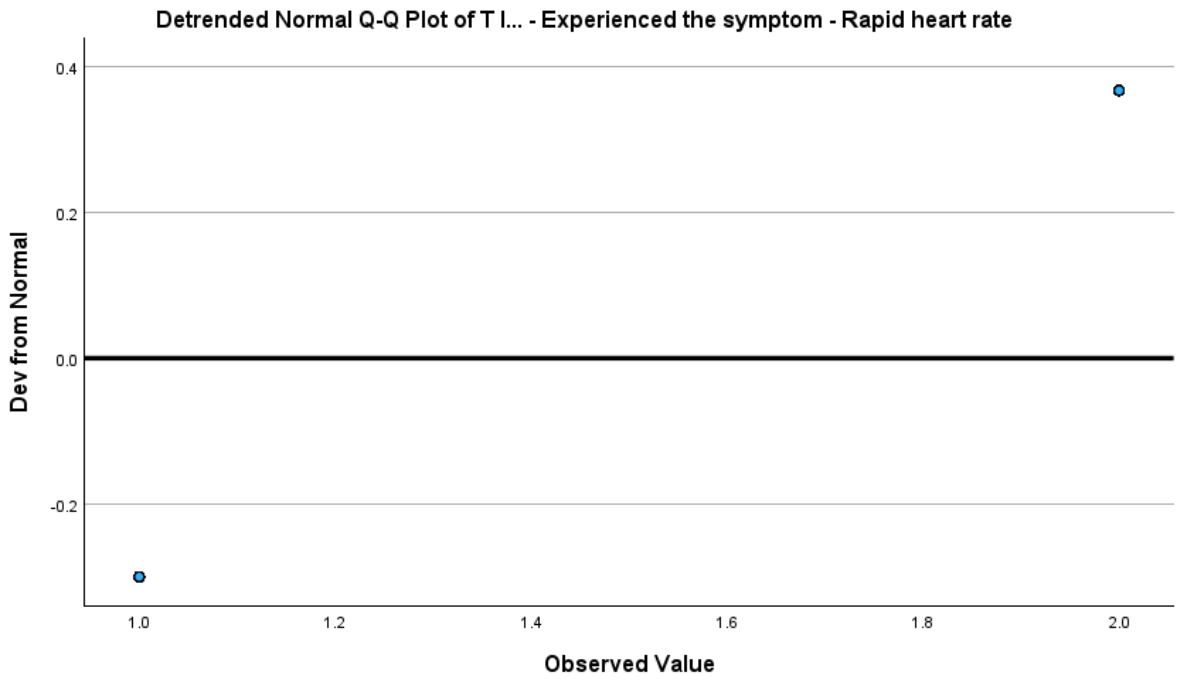
Tests of Normality

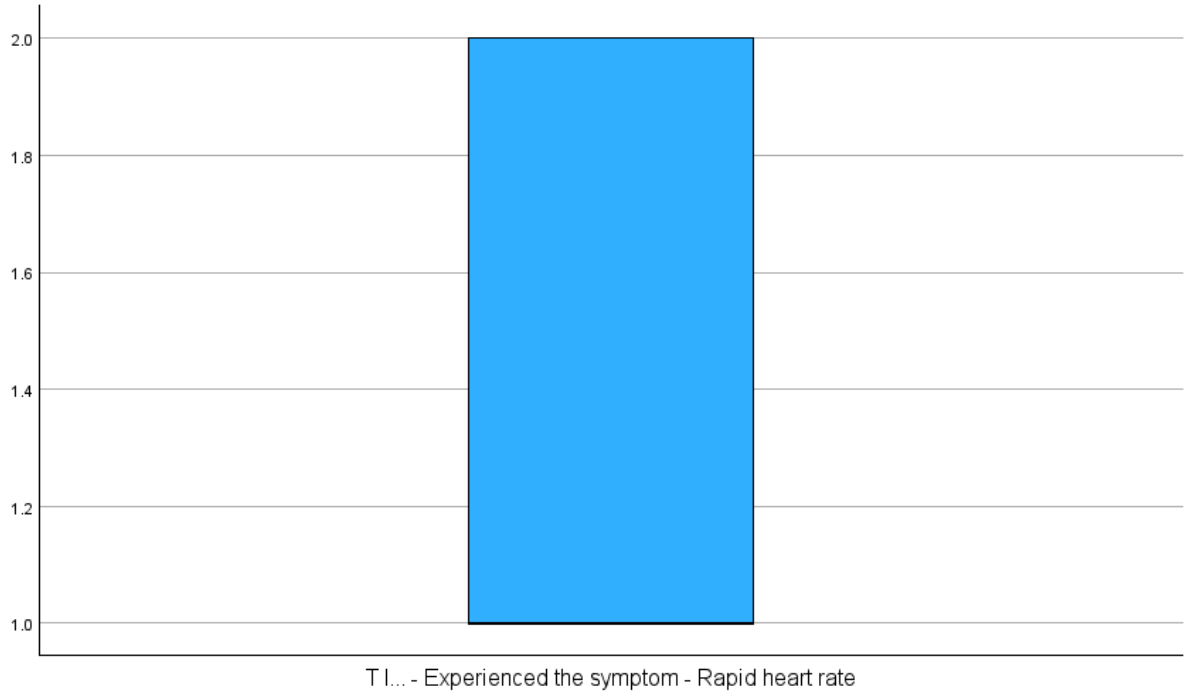
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
T I... - Experienced the symptom - Rapid heart rate	.380	443	<.001	.628	443	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.42
Std. Dev. = .495
N = 443
Frequency
300
200
100
0
.5
1.0
1.5
2.0
2.5
T I... - Experienced the symptom - Rapid heart rate


Normal Q-Q Plot of T I... - Experienced the symptom - Rapid heart rate
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Increased BP

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Increased blood pressure	437	85.2%	76	14.8%	513	100.0%

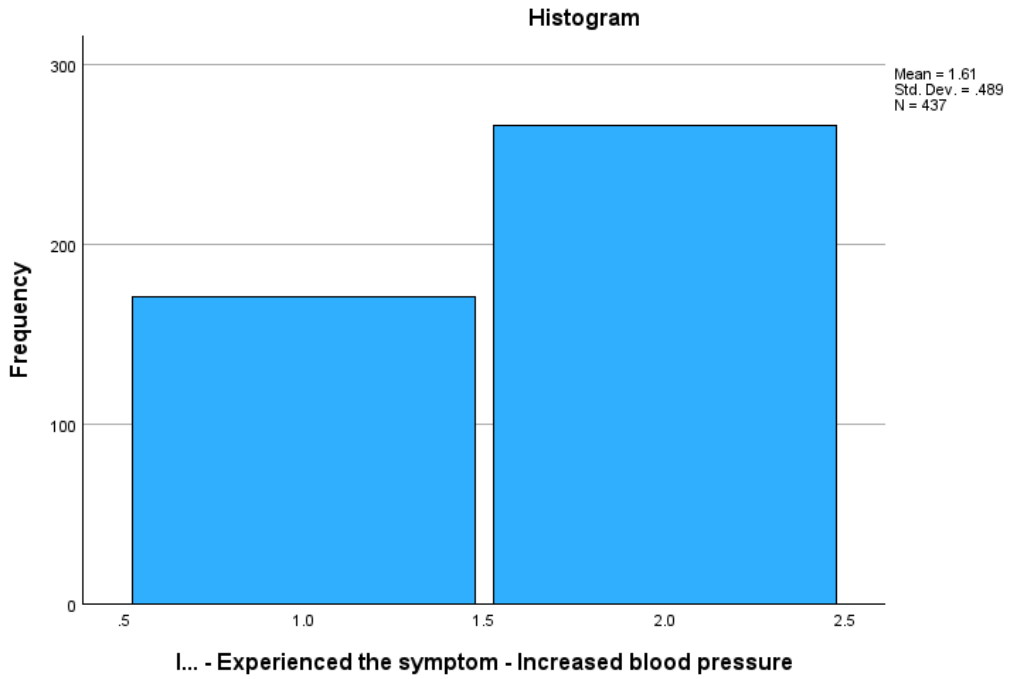
Descriptives

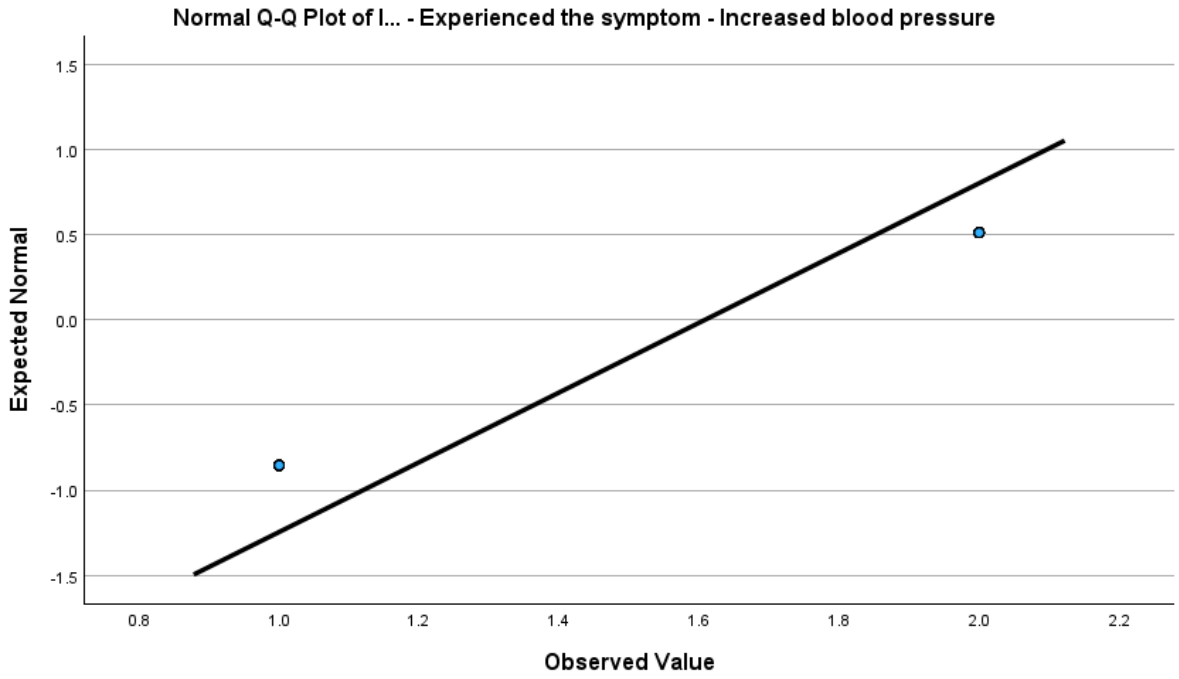
			Statistic	Std. Error
I... - Experienced the symptom - Increased blood pressure	Mean		1.61	.023
	95% Confidence Interval for Mean	Lower Bound	1.56	
		Upper Bound	1.65	
	5% Trimmed Mean		1.62	
	Median		2.00	
	Variance		.239	
	Std. Deviation		.489	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		-.447	.117
	Kurtosis		-1.809	.233

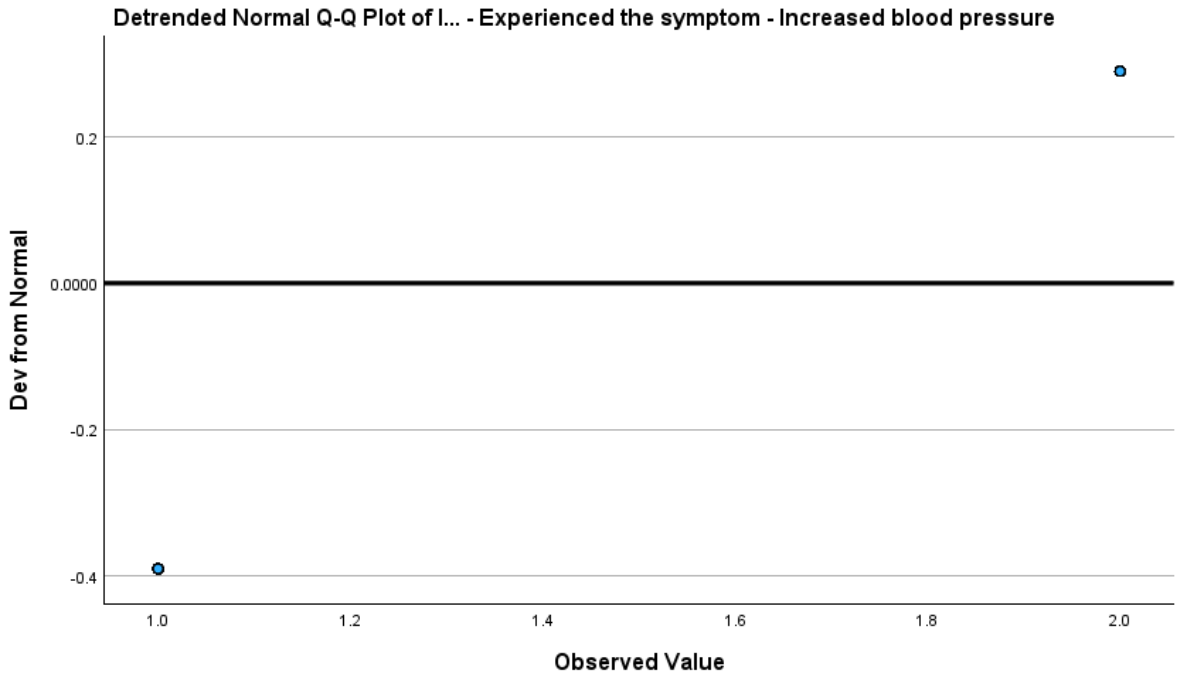
Tests of Normality

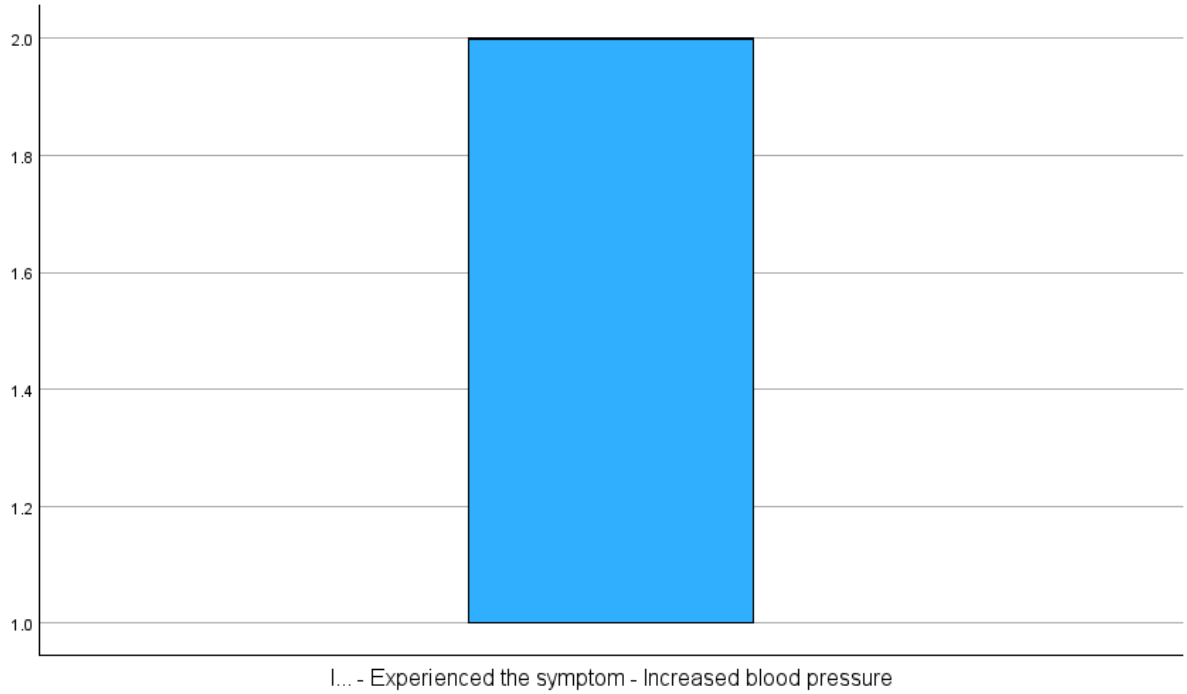
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Increased blood pressure	.397	437	<.001	.619	437	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.61
Std. Dev. = .489
N = 437
Frequency
300
200
100
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Increased blood pressure


Normal Q-Q Plot of I... - Experienced the symptom - Increased blood pressure
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Muscle Tension

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Muscle tension	444	86.5%	69	13.5%	513	100.0%

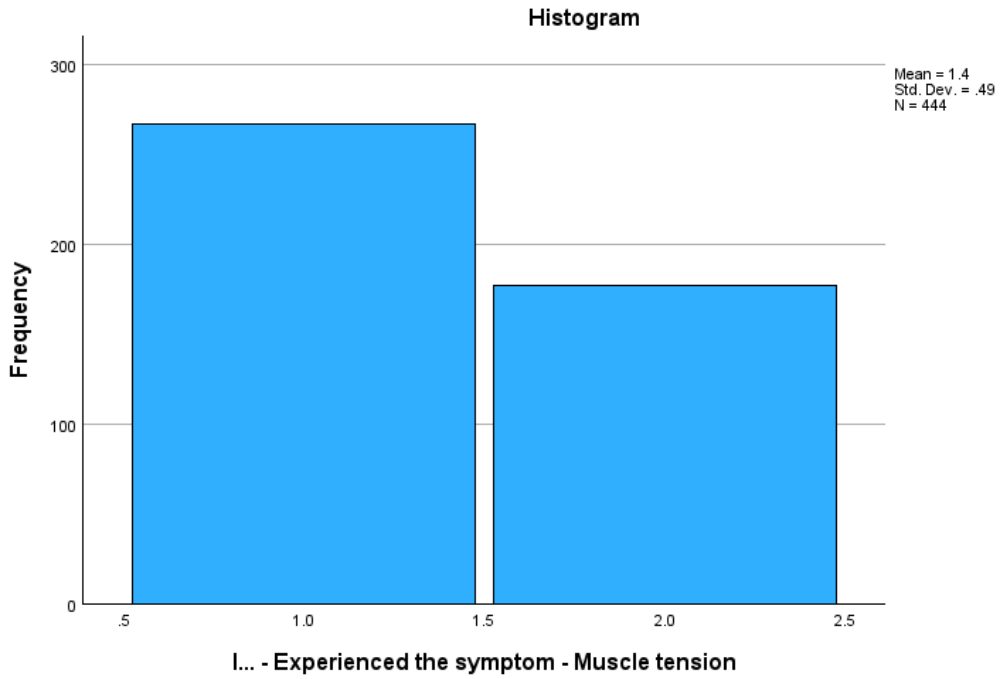
Descriptives

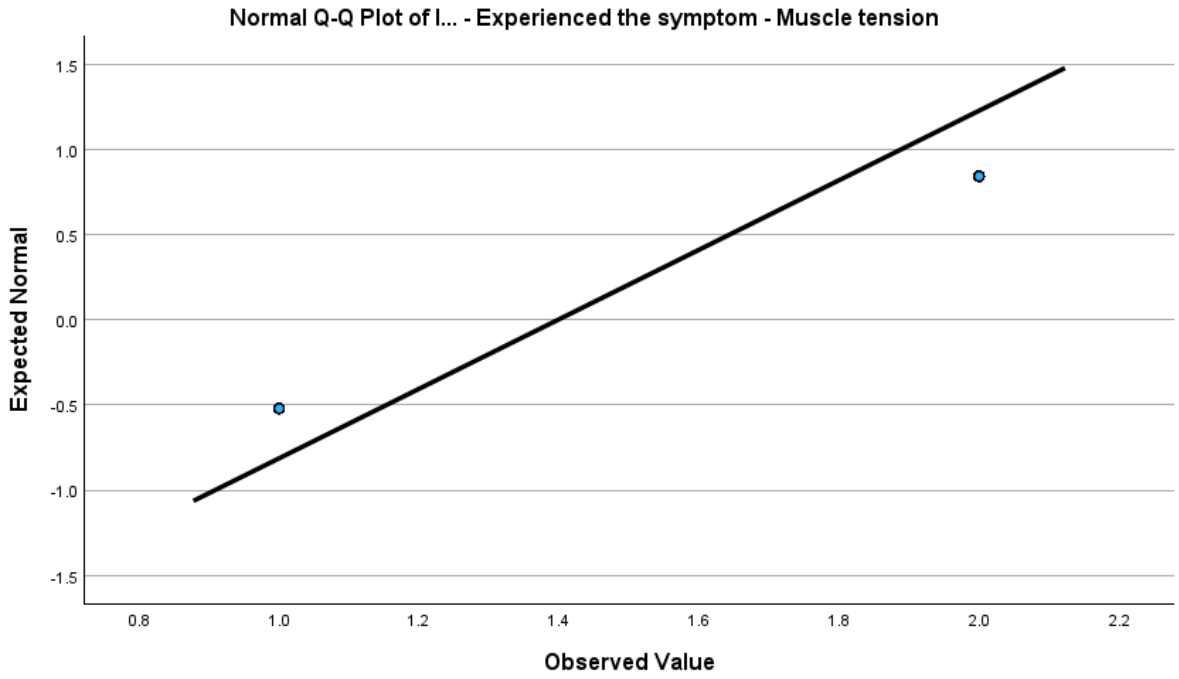
			Statistic	Std. Error
I... - Experienced the symptom - Muscle tension	Mean		1.40	.023
	95% Confidence Interval for Mean	Lower Bound	1.35	
		Upper Bound	1.44	
	5% Trimmed Mean		1.39	
	Median		1.00	
	Variance		.240	
	Std. Deviation		.490	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.415	.116
	Kurtosis		-1.836	.231

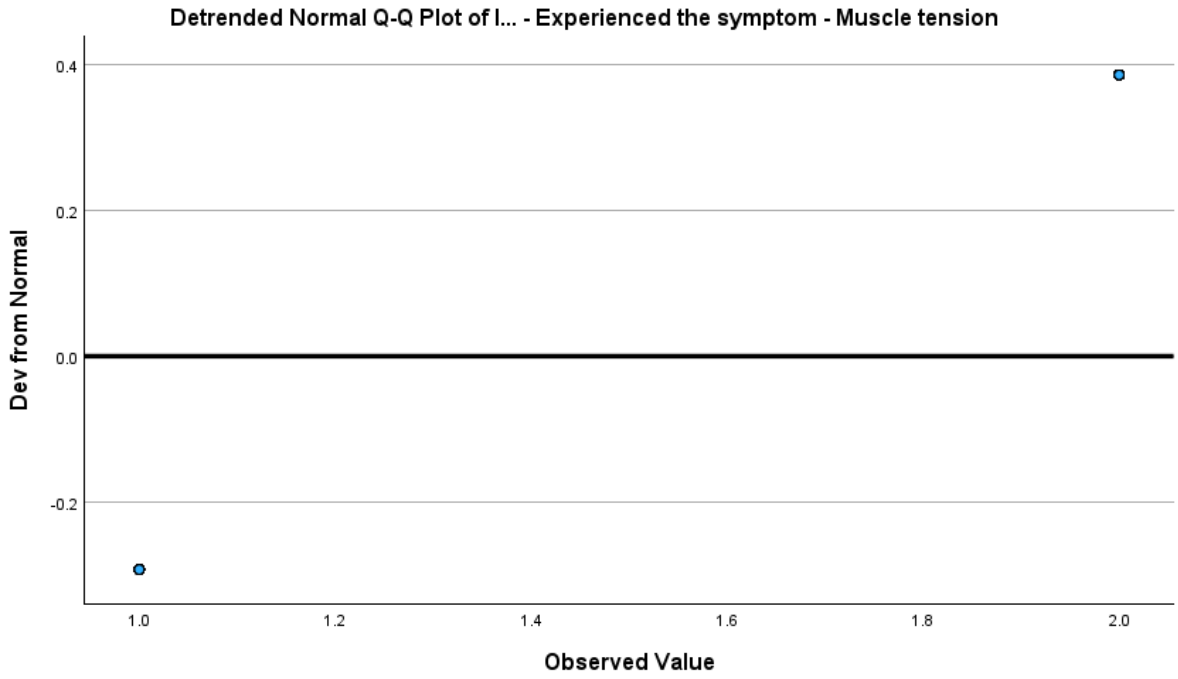
Tests of Normality

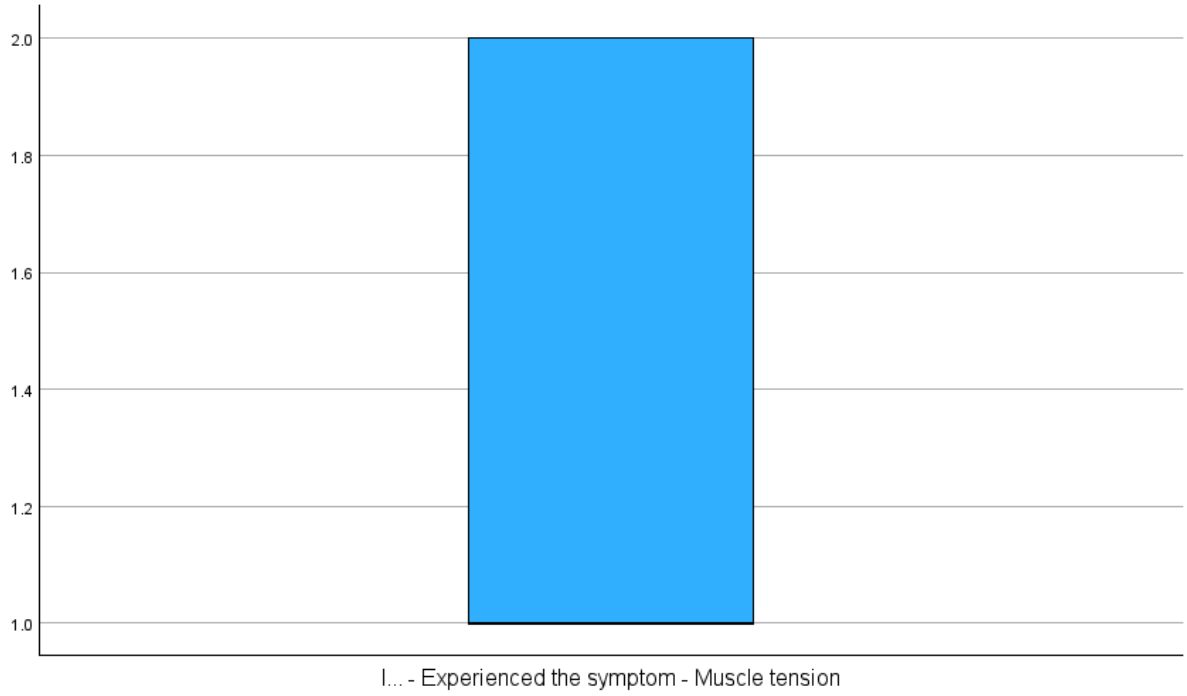
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Muscle tension	.393	444	<.001	.621	444	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.4
Std. Dev. = .49
N = 444
Frequency
300
200
100
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Muscle tension


Normal Q-Q Plot of I... - Experienced the symptom - Muscle tension
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Rapid Breathing

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Rapid breathing	433	84.4%	80	15.6%	513	100.0%

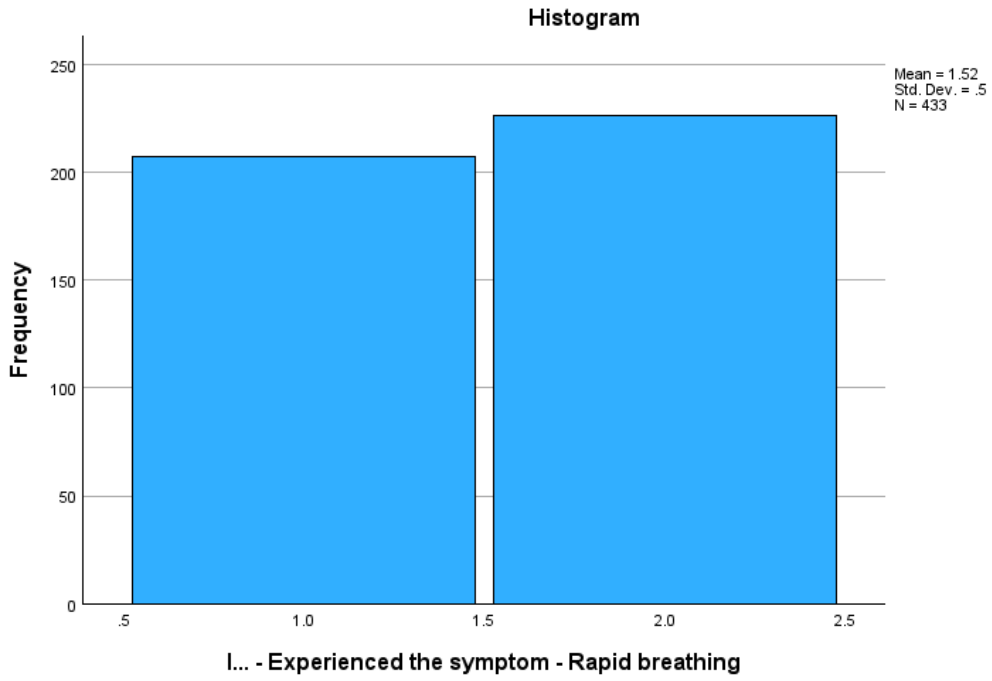
Descriptives

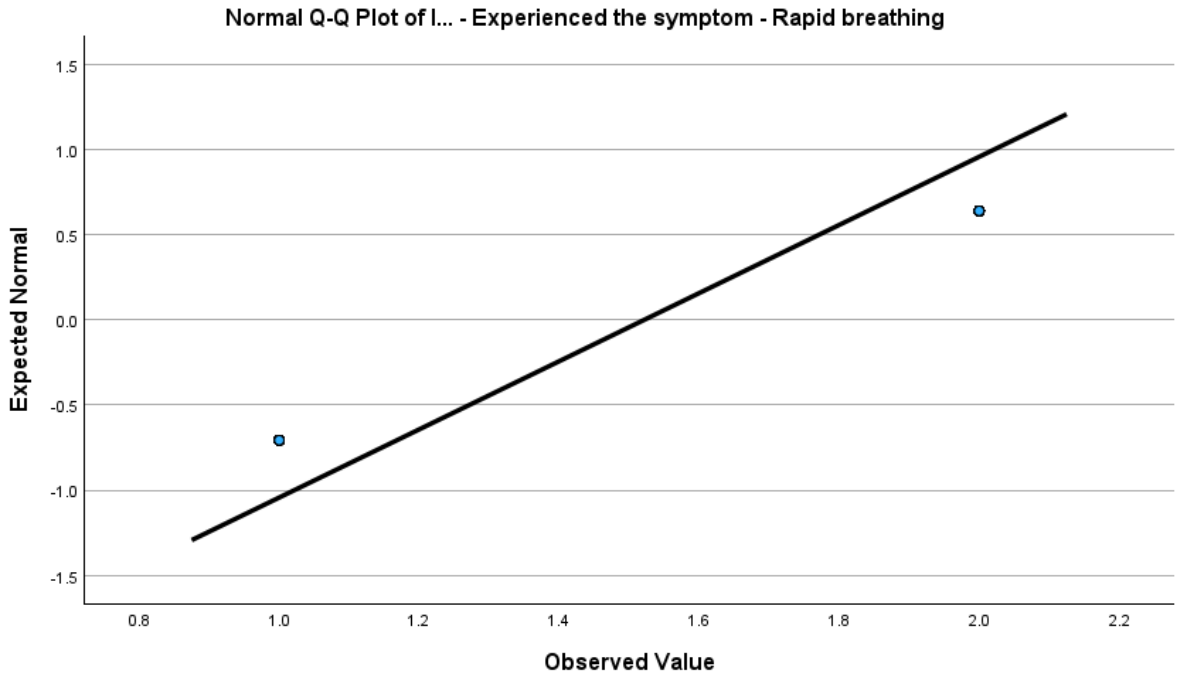
			Statistic	Std. Error
I... - Experienced the symptom - Rapid breathing	Mean		1.52	.024
	95% Confidence Interval for Mean	Lower Bound	1.47	
		Upper Bound	1.57	
	5% Trimmed Mean		1.52	
	Median		2.00	
	Variance		.250	
	Std. Deviation		.500	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		-.088	.117
	Kurtosis		-2.001	.234

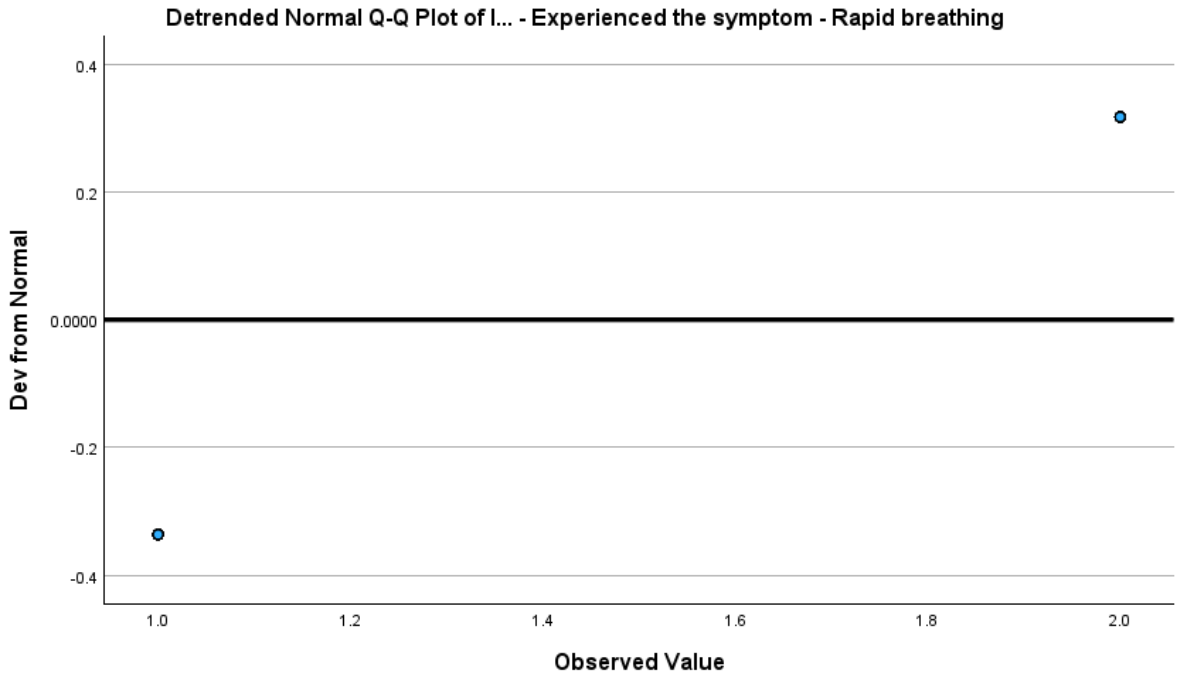
Tests of Normality

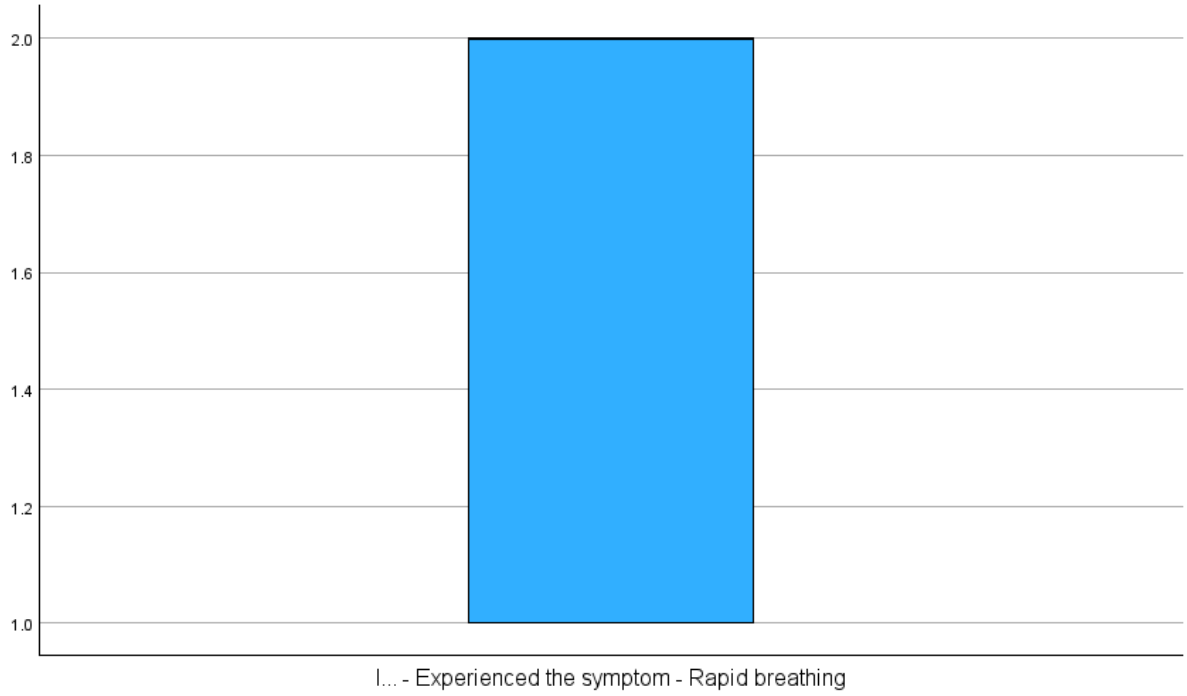
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Rapid breathing	.352	433	<.001	.636	433	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.52
Std. Dev. = .5
N = 433
Frequency
250
200
150
100
50
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Rapid breathing


Normal Q-Q Plot of I... - Experienced the symptom - Rapid breathing
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Frustration

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Frustration	439	85.6%	74	14.4%	513	100.0%

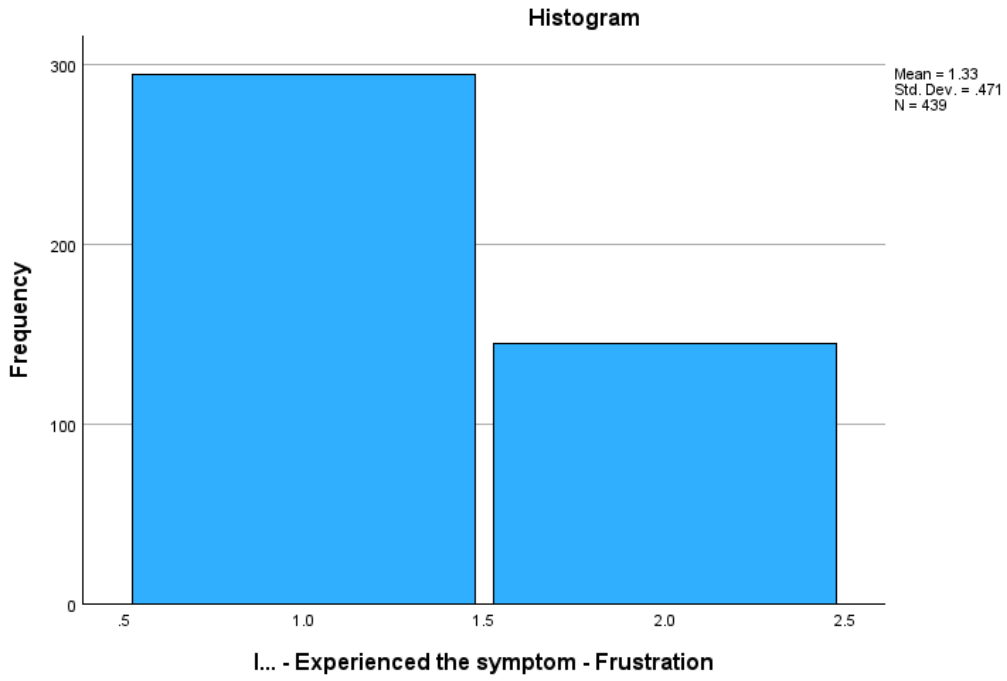
Descriptives

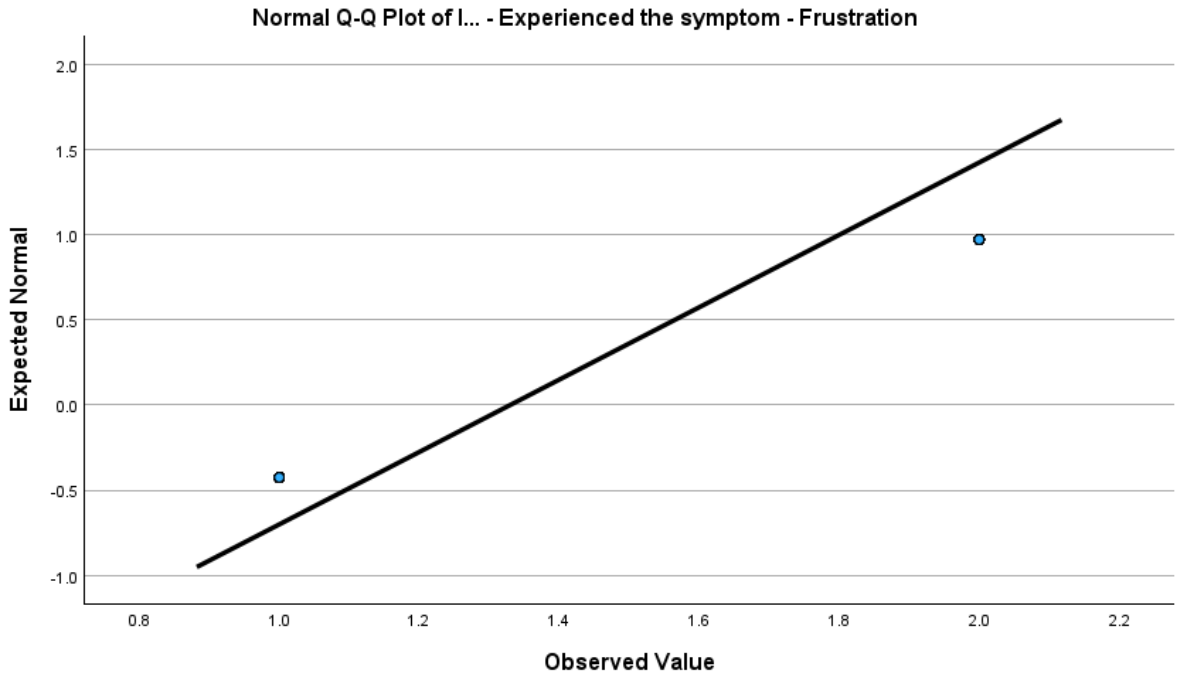
			Statistic	Std. Error
I... - Experienced the symptom - Frustration	Mean		1.33	.022
	95% Confidence Interval for Mean	Lower Bound	1.29	
		Upper Bound	1.37	
	5% Trimmed Mean		1.31	
	Median		1.00	
	Variance		.222	
	Std. Deviation		.471	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.724	.117
	Kurtosis		-1.482	.233

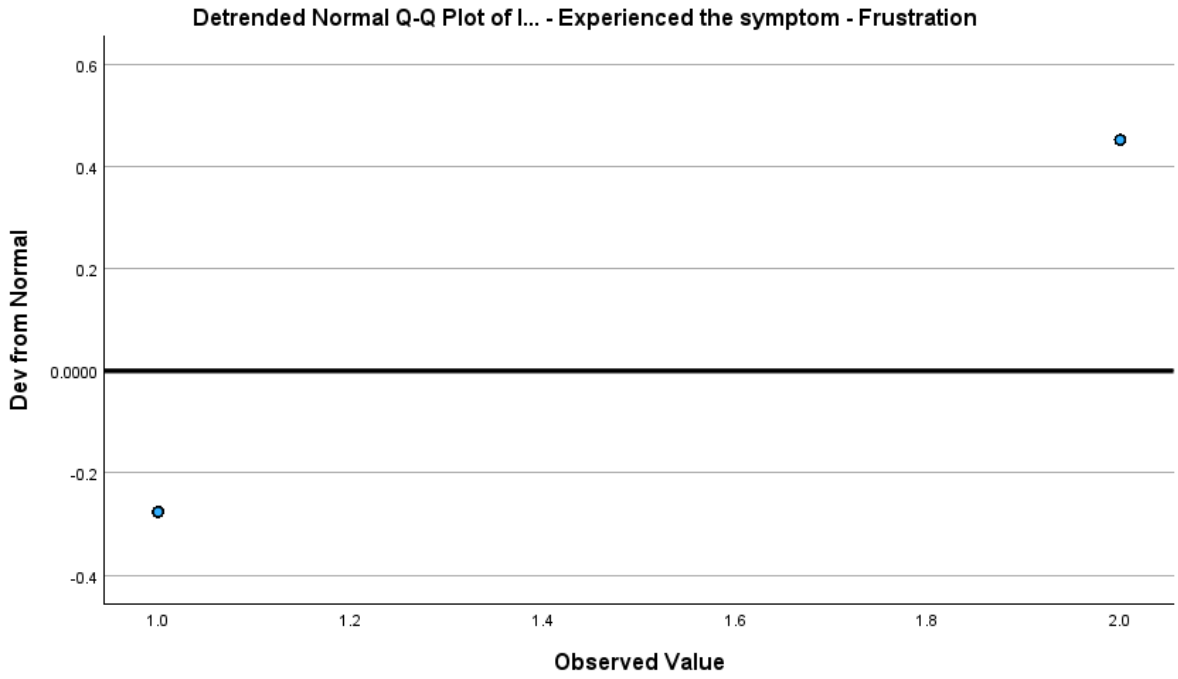
Tests of Normality

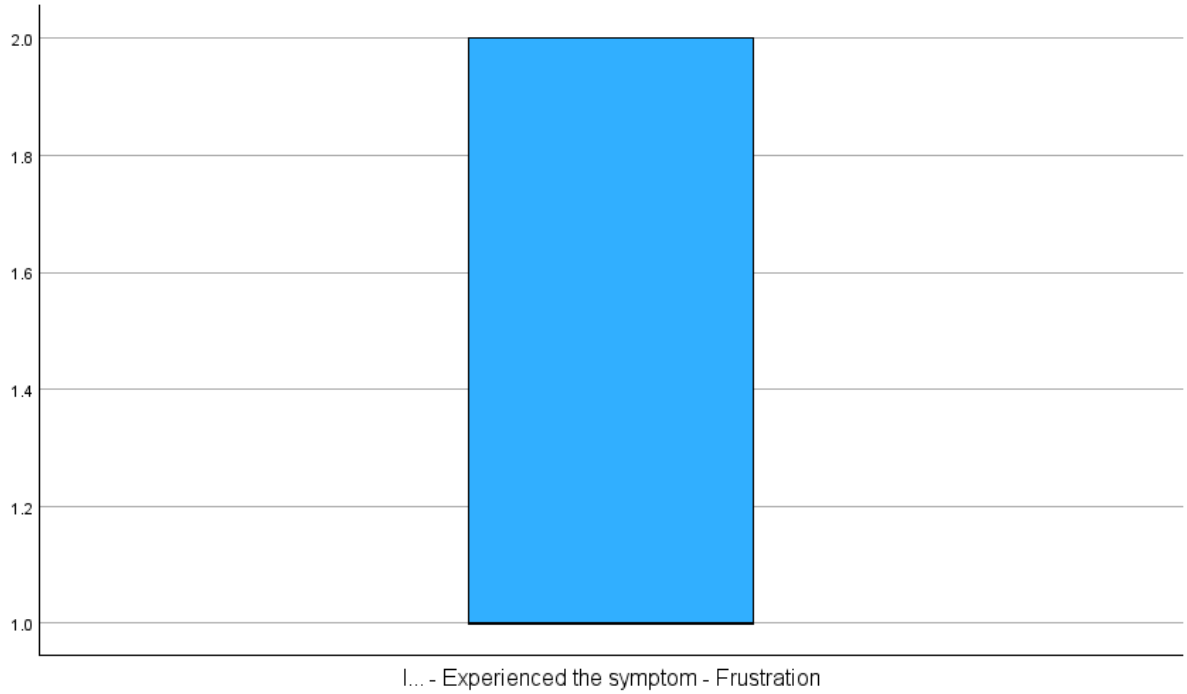
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Frustration	.428	439	<.001	.593	439	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.33
Std. Dev. = .471
N = 439
Frequency
300
200
100
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Frustration


Normal Q-Q Plot of I... - Experienced the symptom - Frustration
Expected Normal
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Decreased job satisfaction	446	86.9%	67	13.1%	513	100.0%

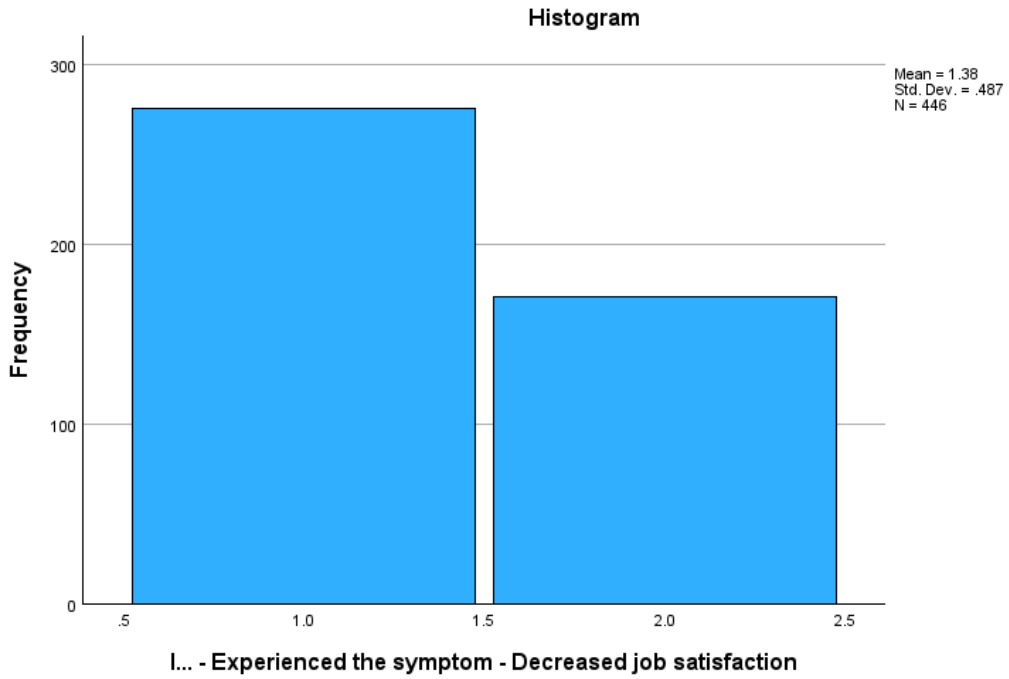
Descriptives

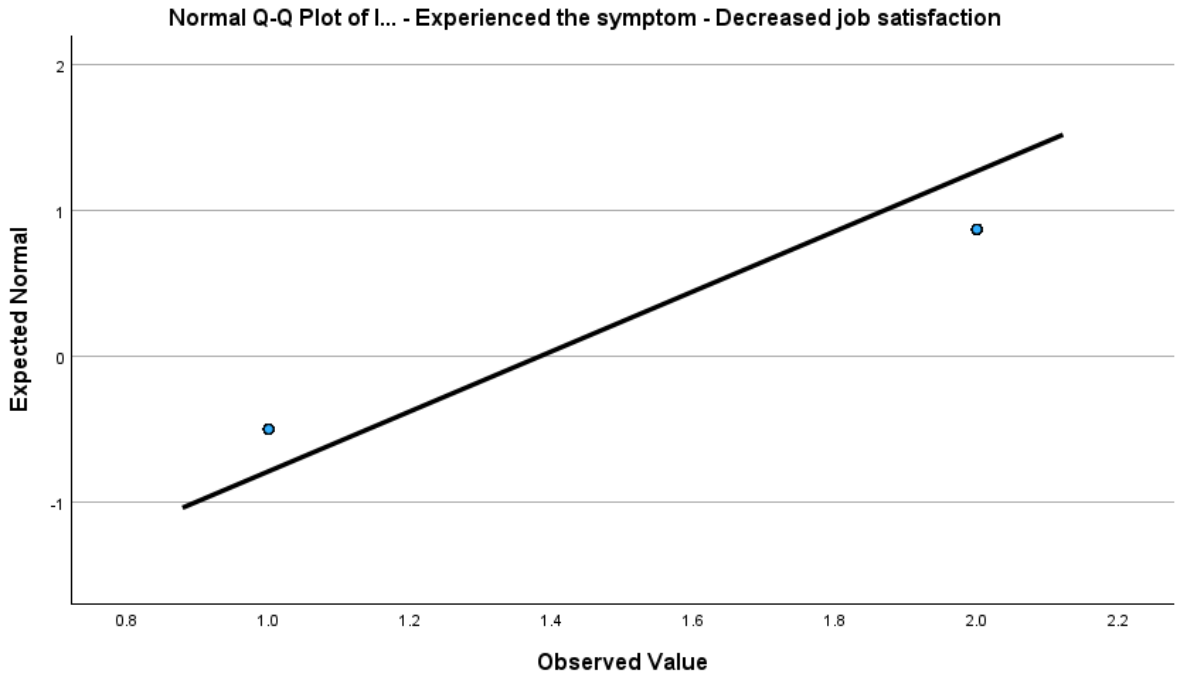
			Statistic	Std. Error
I... - Experienced the symptom - Decreased job satisfaction	Mean		1.38	.023
	95% Confidence Interval for Mean	Lower Bound	1.34	
		Upper Bound	1.43	
	5% Trimmed Mean		1.37	
	Median		1.00	
	Variance		.237	
	Std. Deviation		.487	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.481	.116
	Kurtosis		-1.776	.231

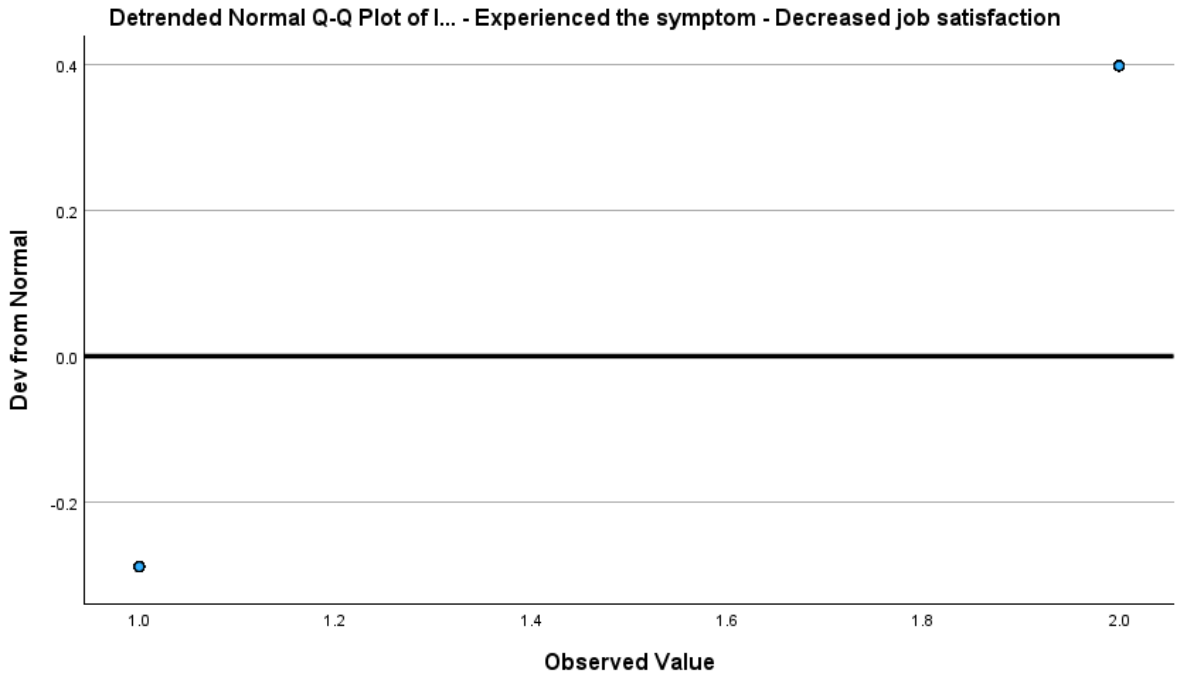
Tests of Normality

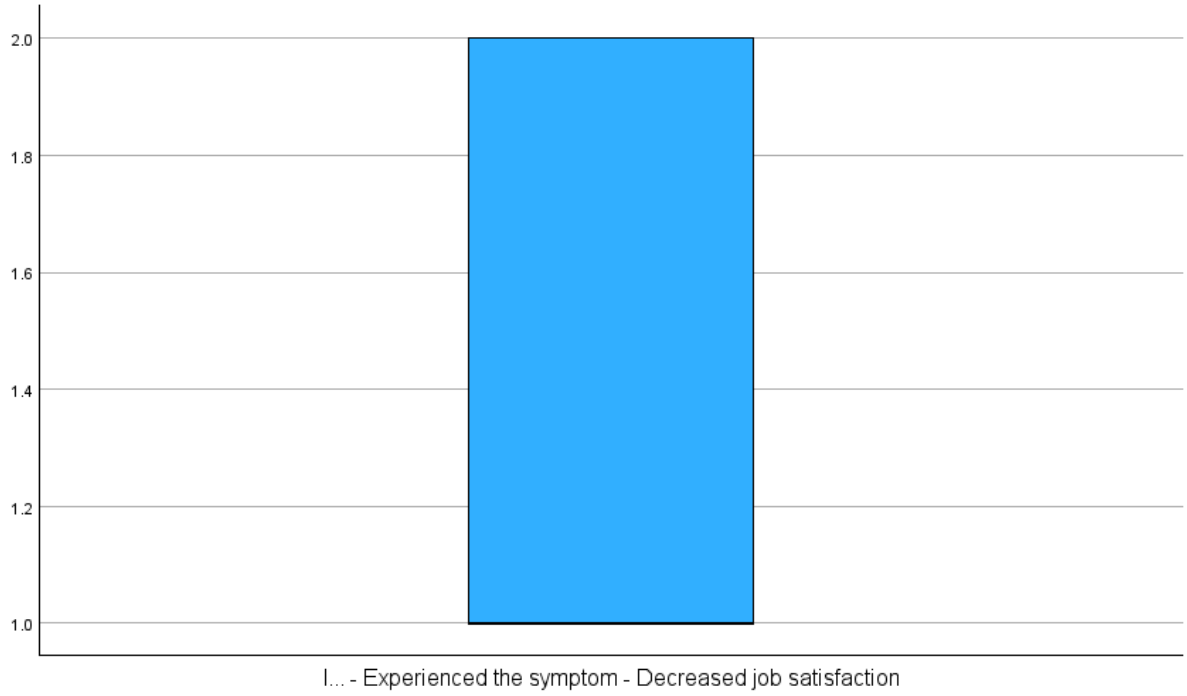
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Decreased job satisfaction	.401	446	<.001	.616	446	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.38
Std. Dev. = .487
N = 446
Frequency
300
200
100
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Decreased job satisfaction


Normal Q-Q Plot of I... - Experienced the symptom - Decreased job satisfaction
Expected Normal
2
1
0
-1
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Anger

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Anger	442	86.2%	71	13.8%	513	100.0%

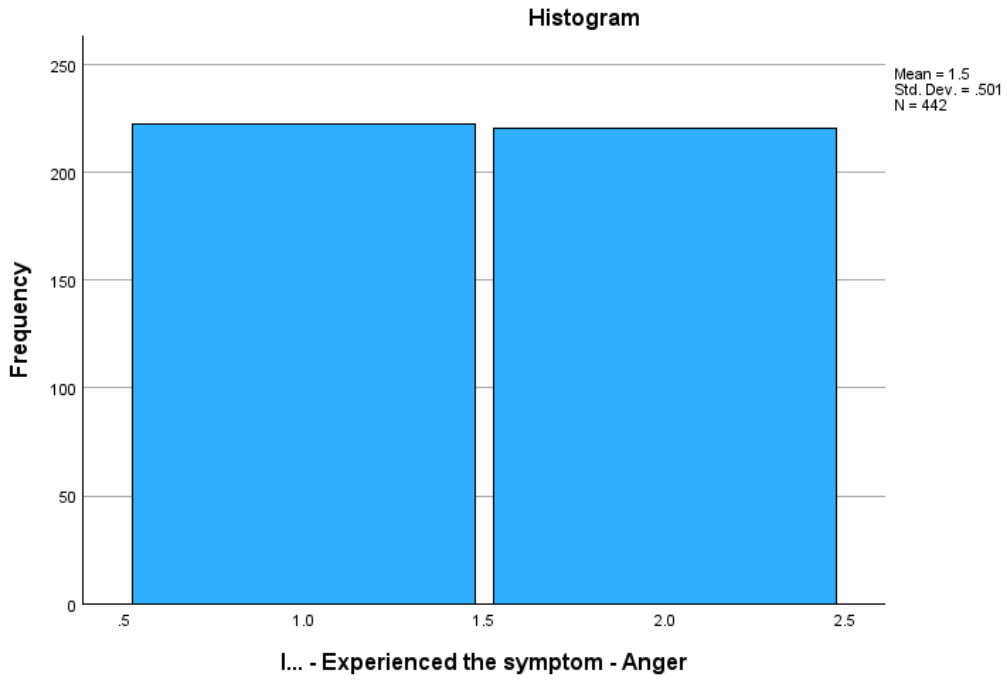
Descriptives

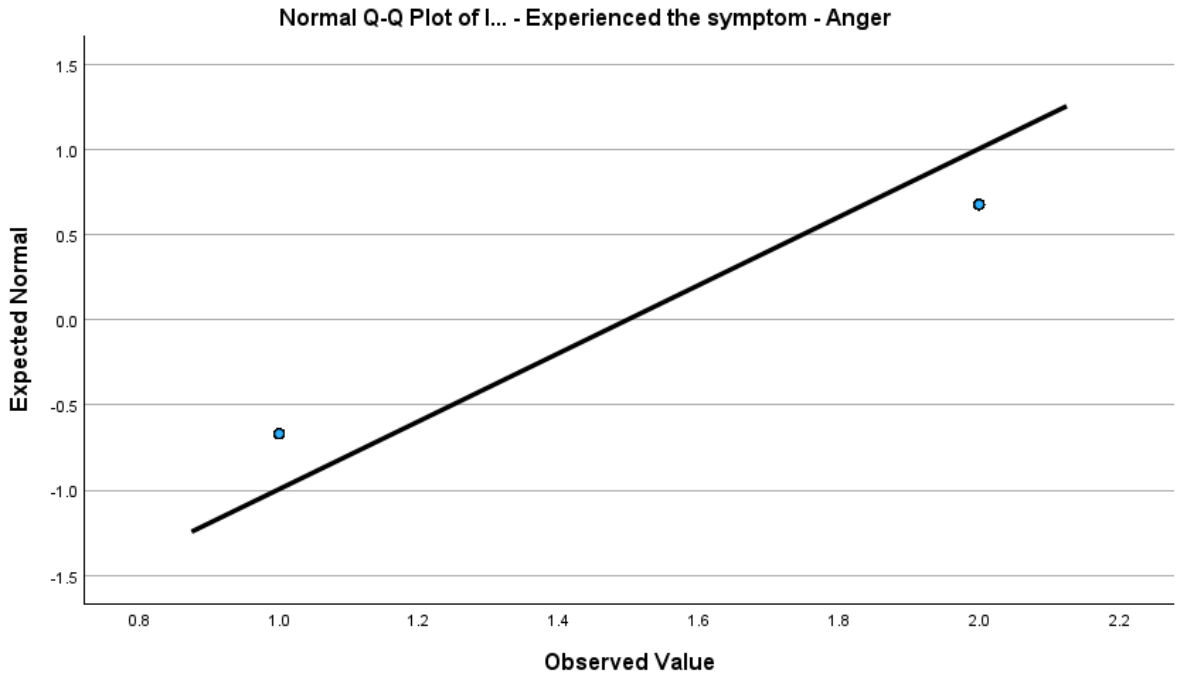
			Statistic	Std. Error
I... - Experienced the symptom - Anger	Mean		1.50	.024
	95% Confidence Interval for Mean	Lower Bound	1.45	
		Upper Bound	1.54	
	5% Trimmed Mean		1.50	
	Median		1.00	
	Variance		.251	
	Std. Deviation		.501	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.009	.116
	Kurtosis		-2.009	.232

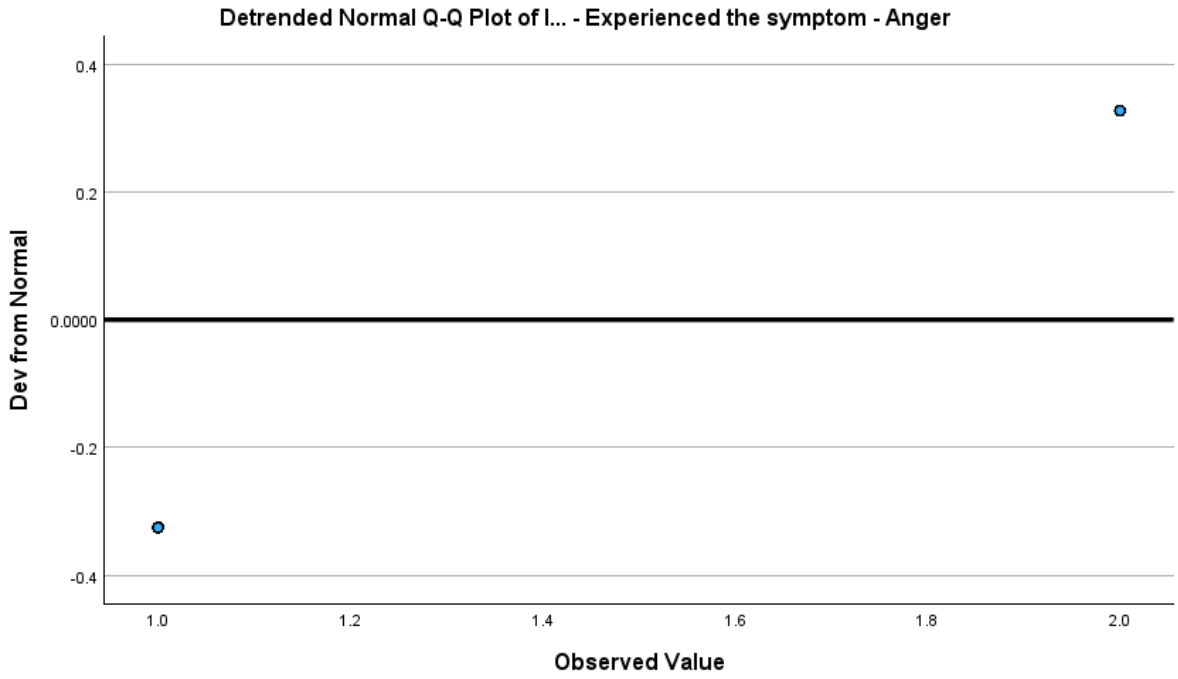
Tests of Normality

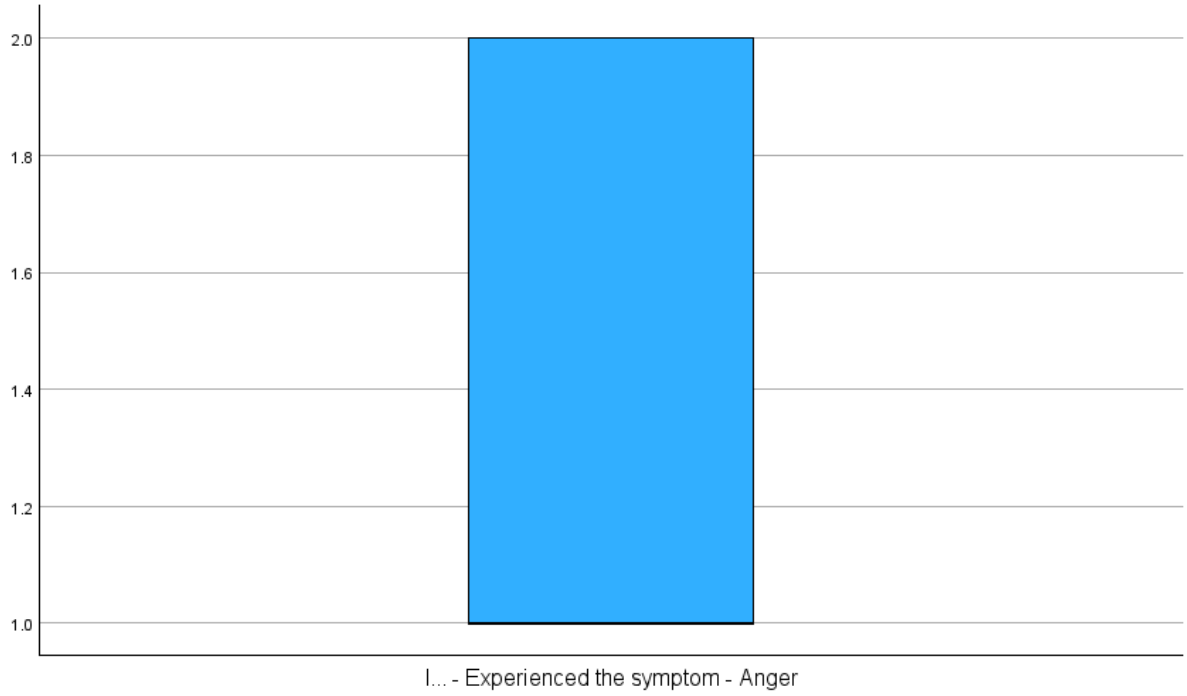
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Anger	.342	442	<.001	.637	442	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.5
Std. Dev. = .501
N = 442
Frequency
250
200
150
100
50
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Anger


Normal Q-Q Plot of I... - Experienced the symptom - Anger
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Extreme Sadness

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Extreme sadness	444	86.5%	69	13.5%	513	100.0%

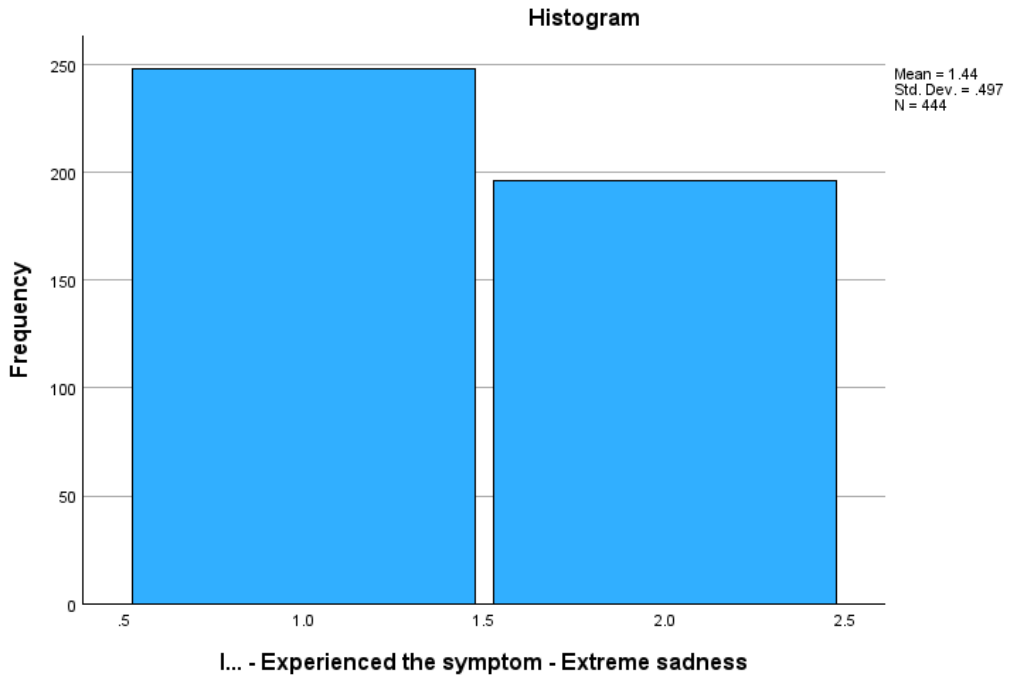
Descriptives

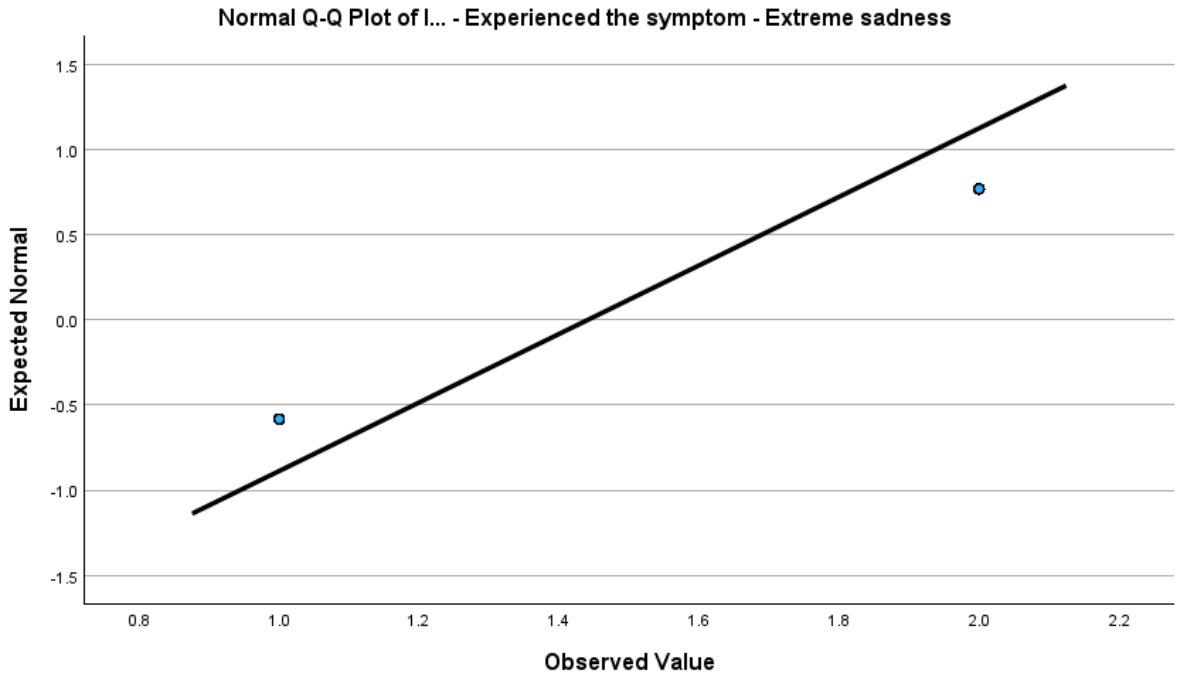
			Statistic	Std. Error
I... - Experienced the symptom - Extreme sadness	Mean		1.44	.024
	95% Confidence Interval for Mean	Lower Bound	1.40	
		Upper Bound	1.49	
	5% Trimmed Mean		1.43	
	Median		1.00	
	Variance		.247	
	Std. Deviation		.497	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.237	.116
	Kurtosis		-1.953	.231

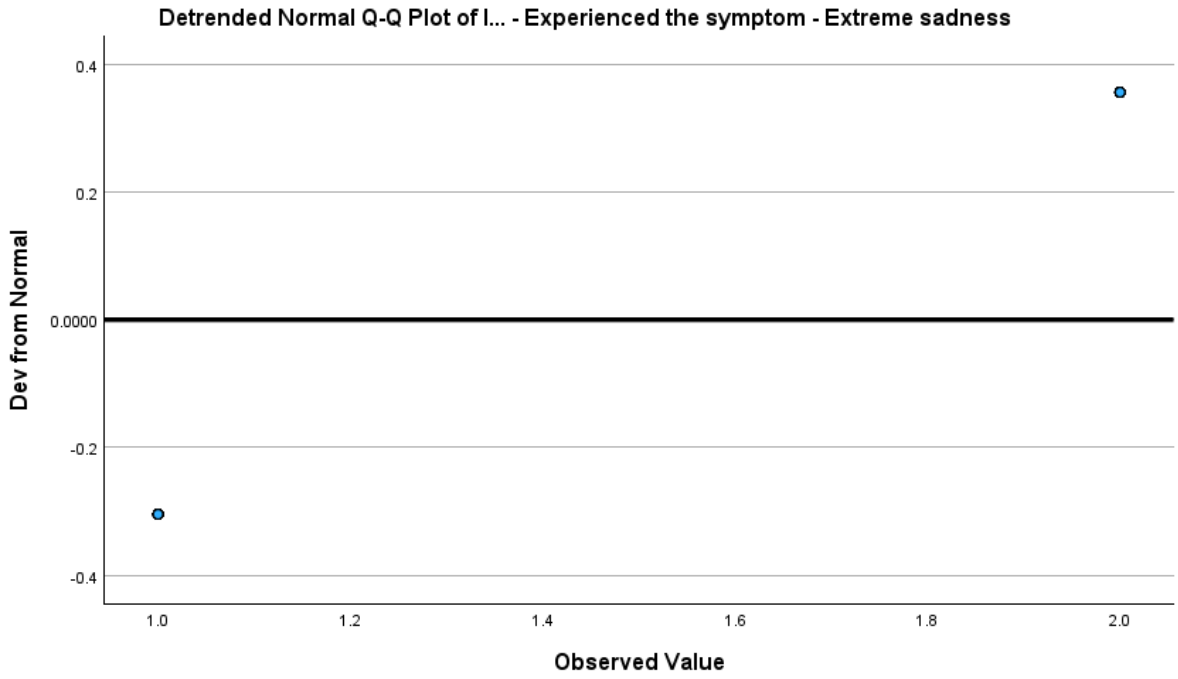
Tests of Normality

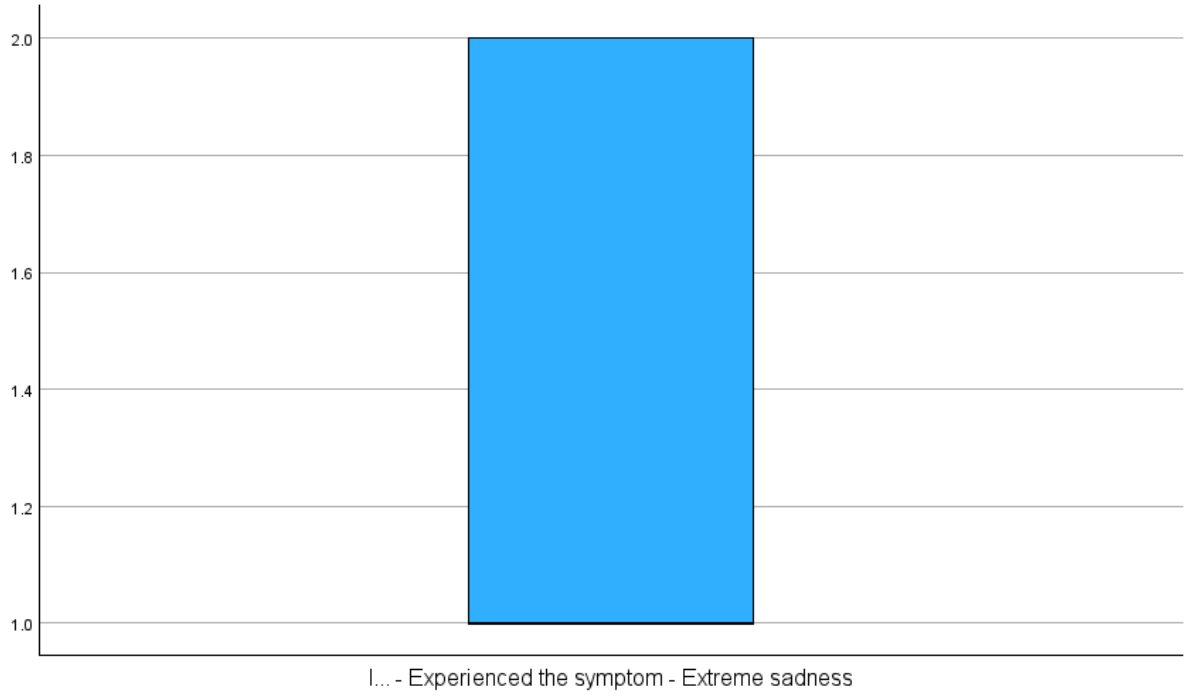
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Extreme sadness	.371	444	<.001	.632	444	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.44
Std. Dev. = .497
N = 444
Frequency
250
200
150
100
50
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Extreme sadness


Normal Q-Q Plot of I... - Experienced the symptom - Extreme sadness
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Difficulty Concentrating

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Difficulty concentrating	446	86.9%	67	13.1%	513	100.0%

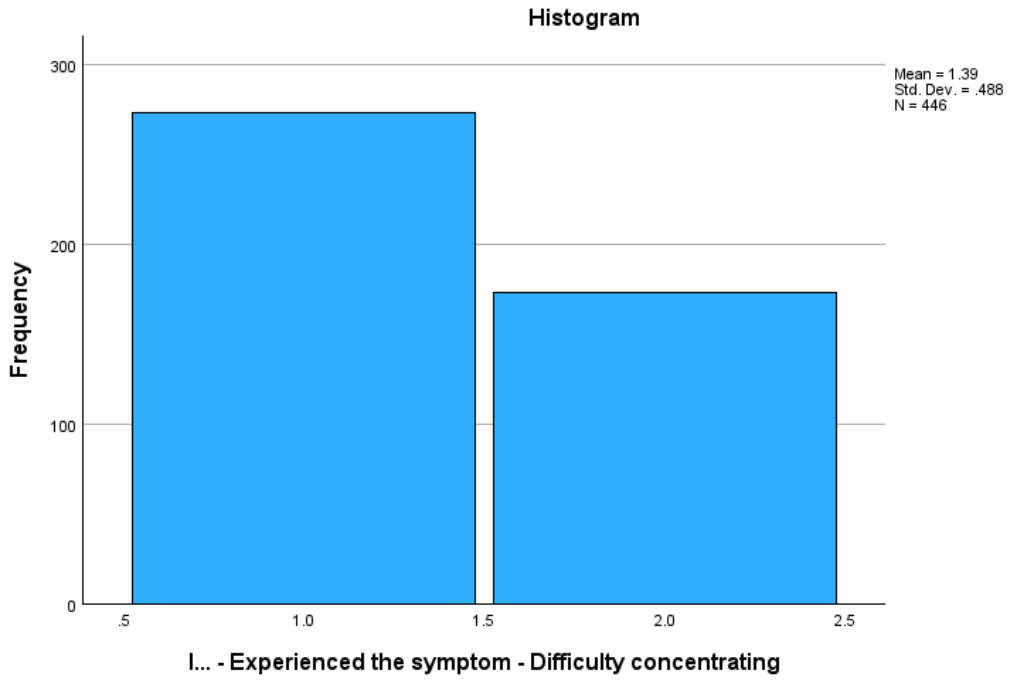
Descriptives

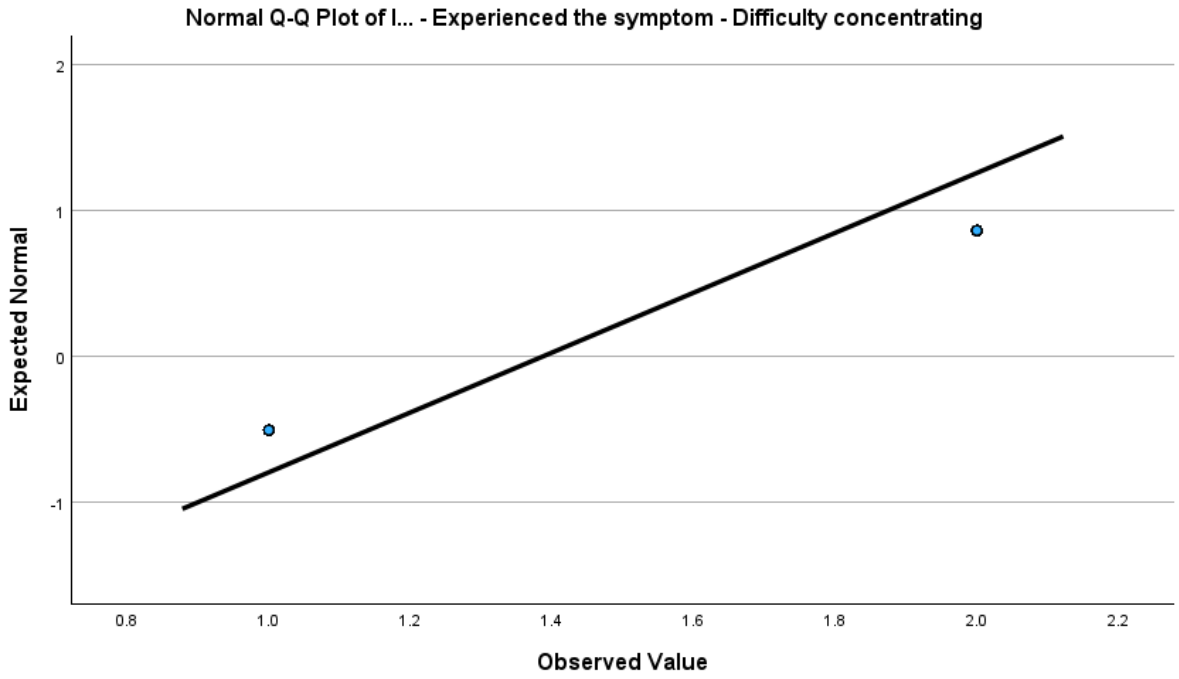
			Statistic	Std. Error
I... - Experienced the symptom - Difficulty concentrating	Mean		1.39	.023
	95% Confidence Interval for Mean	Lower Bound	1.34	
		Upper Bound	1.43	
	5% Trimmed Mean		1.38	
	Median		1.00	
	Variance		.238	
	Std. Deviation		.488	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.462	.116
	Kurtosis		-1.795	.231

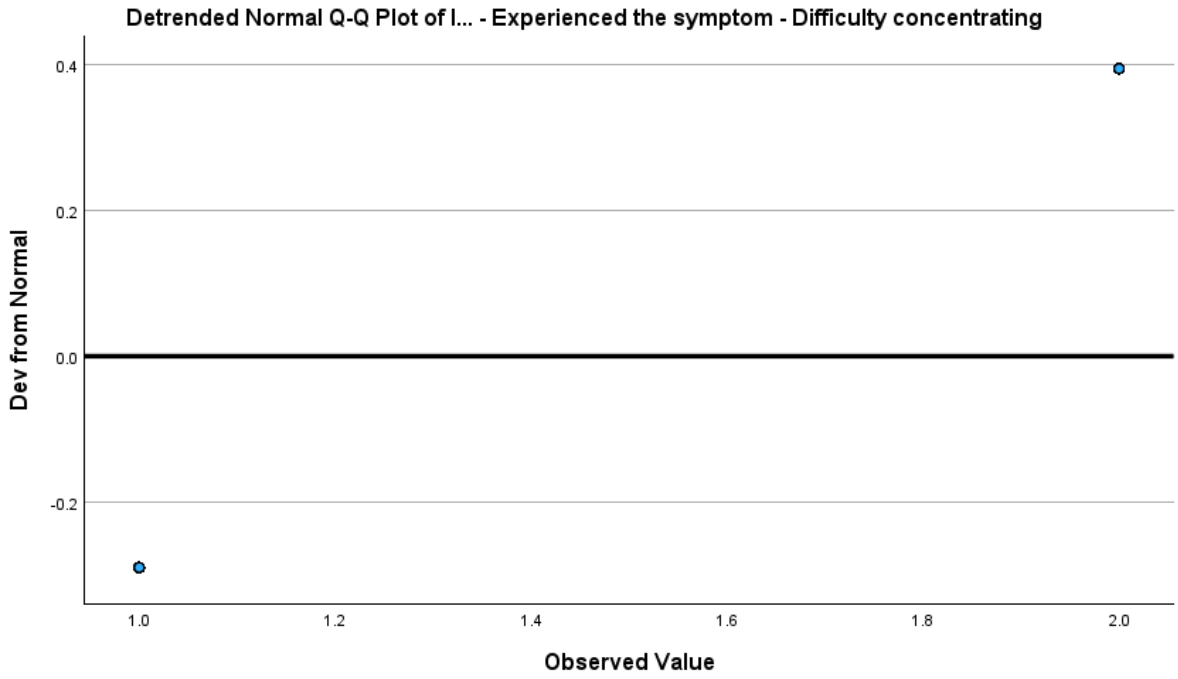
Tests of Normality

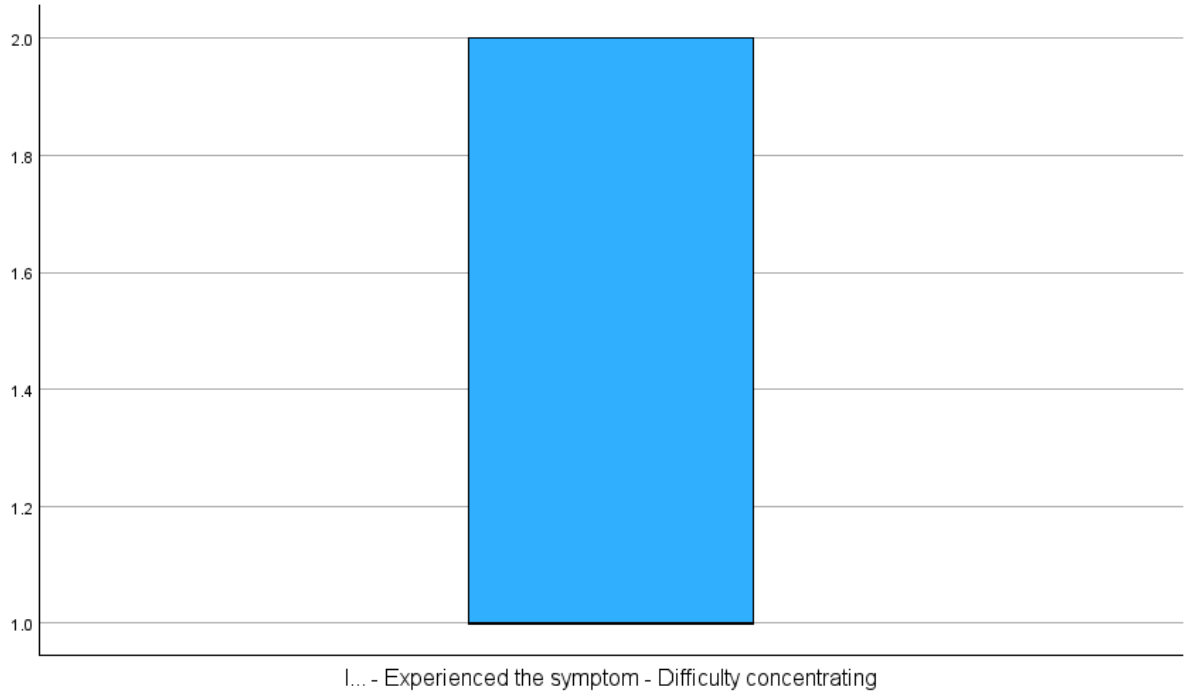
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Difficulty concentrating	.399	446	<.001	.618	446	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.39
Std. Dev. = .488
N = 446
Frequency
300
200
100
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Difficulty concentrating


Normal Q-Q Plot of I... - Experienced the symptom - Difficulty concentrating
Expected Normal
2
1
0
-1
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Flashbacks

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Flashbacks	443	86.4%	70	13.6%	513	100.0%

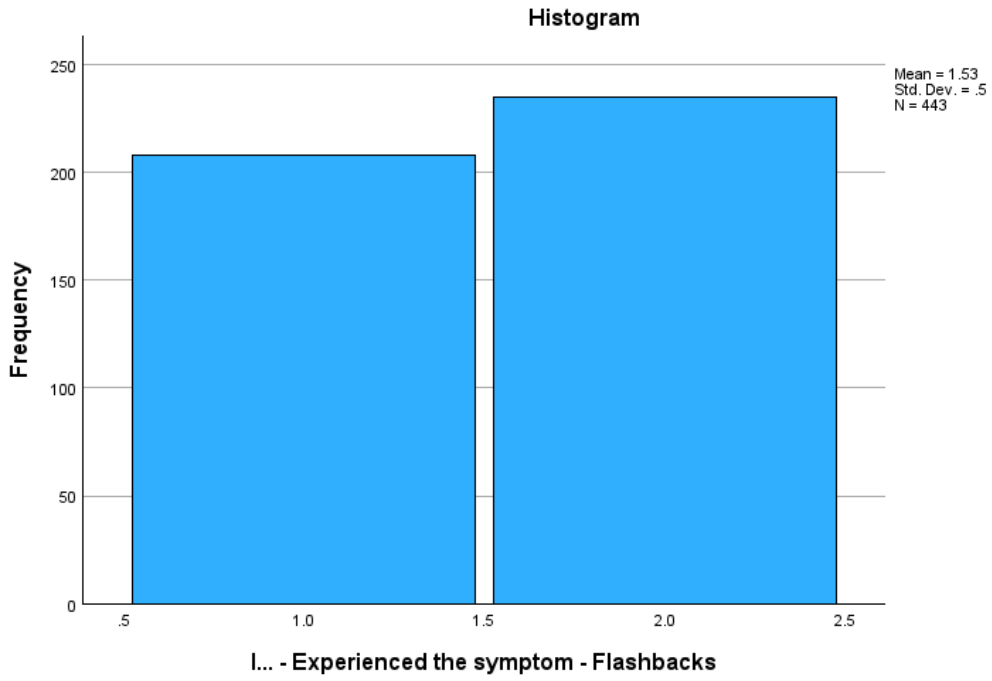
Descriptives

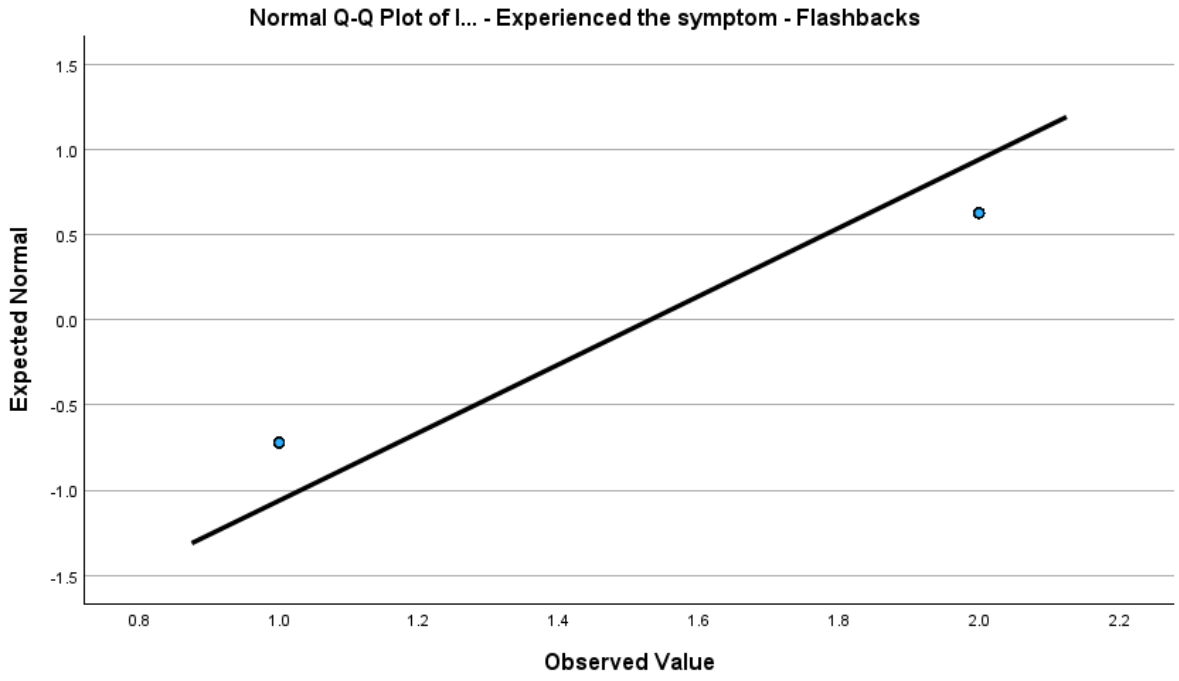
			Statistic	Std. Error
I... - Experienced the symptom - Flashbacks	Mean		1.53	.024
	95% Confidence Interval for Mean	Lower Bound	1.48	
		Upper Bound	1.58	
	5% Trimmed Mean		1.53	
	Median		2.00	
	Variance		.250	
	Std. Deviation		.500	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		-.123	.116
	Kurtosis		-1.994	.231

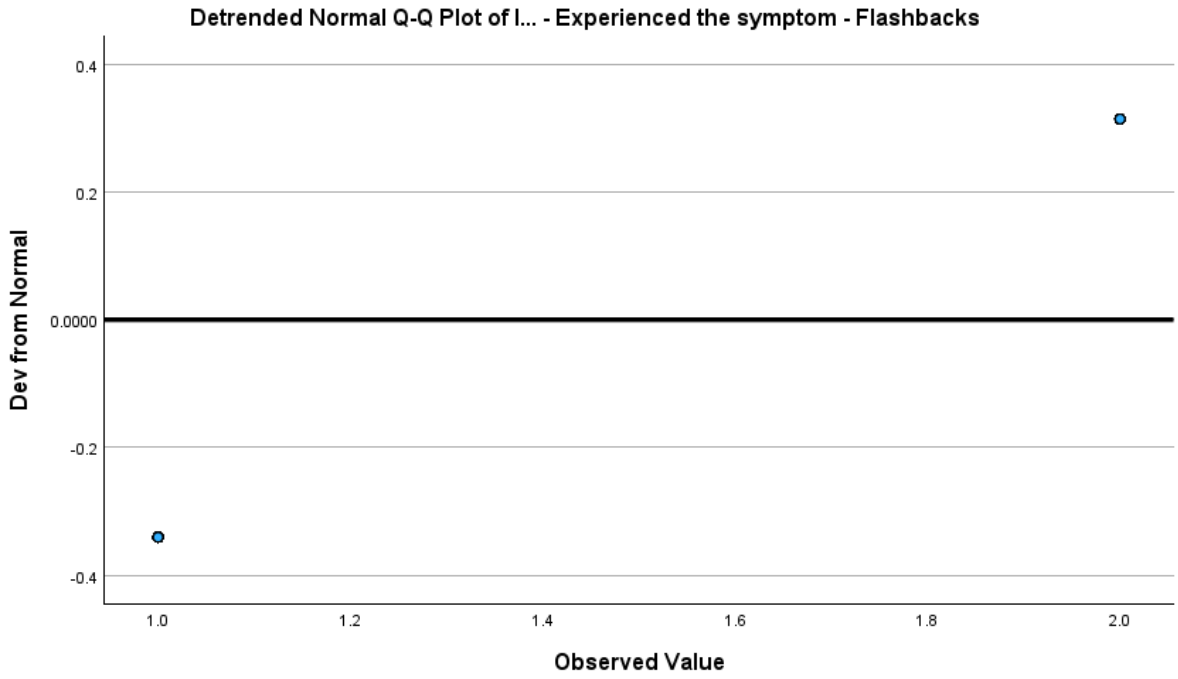
Tests of Normality

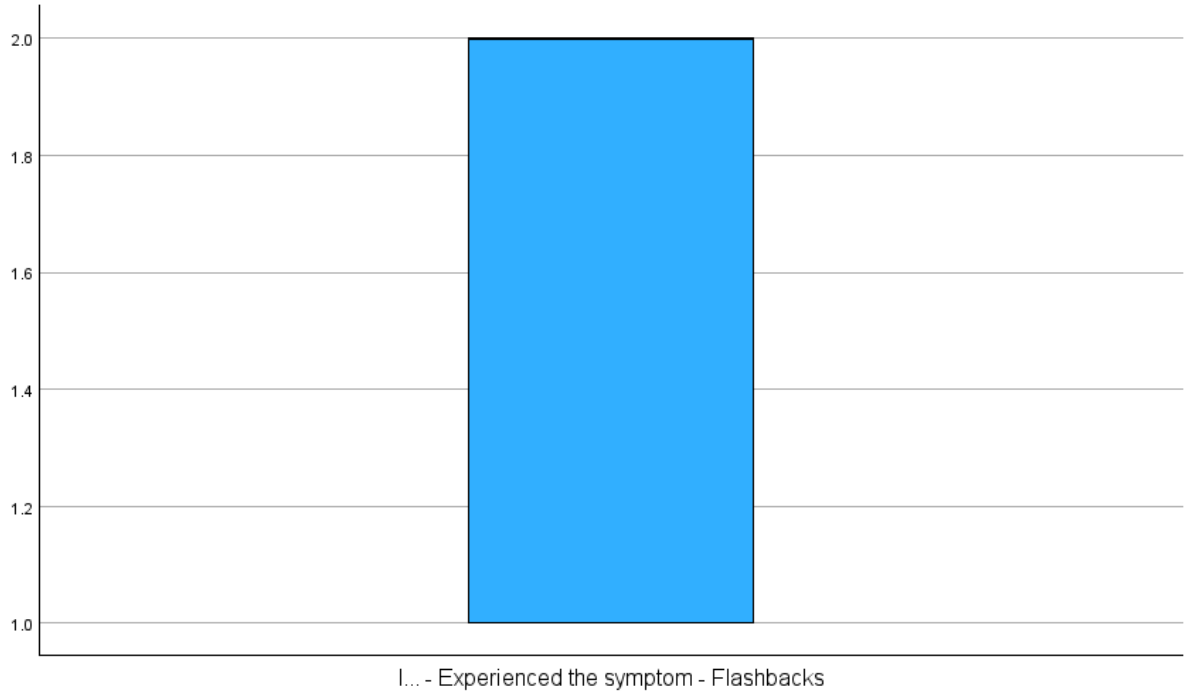
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Flashbacks	.357	443	<.001	.635	443	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.53
Std. Dev. = .5
N = 443
Frequency
250
200
150
100
50
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Flashbacks


Normal Q-Q Plot of I... - Experienced the symptom - Flashbacks
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Loss of confidence

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Loss of confidence	438	85.4%	75	14.6%	513	100.0%

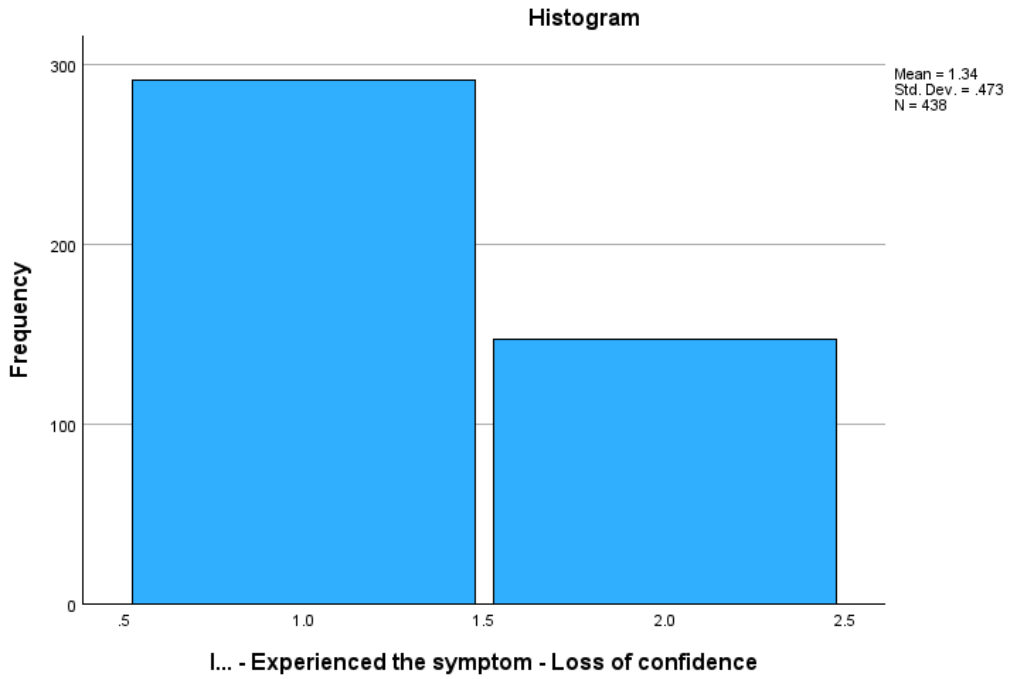
Descriptives

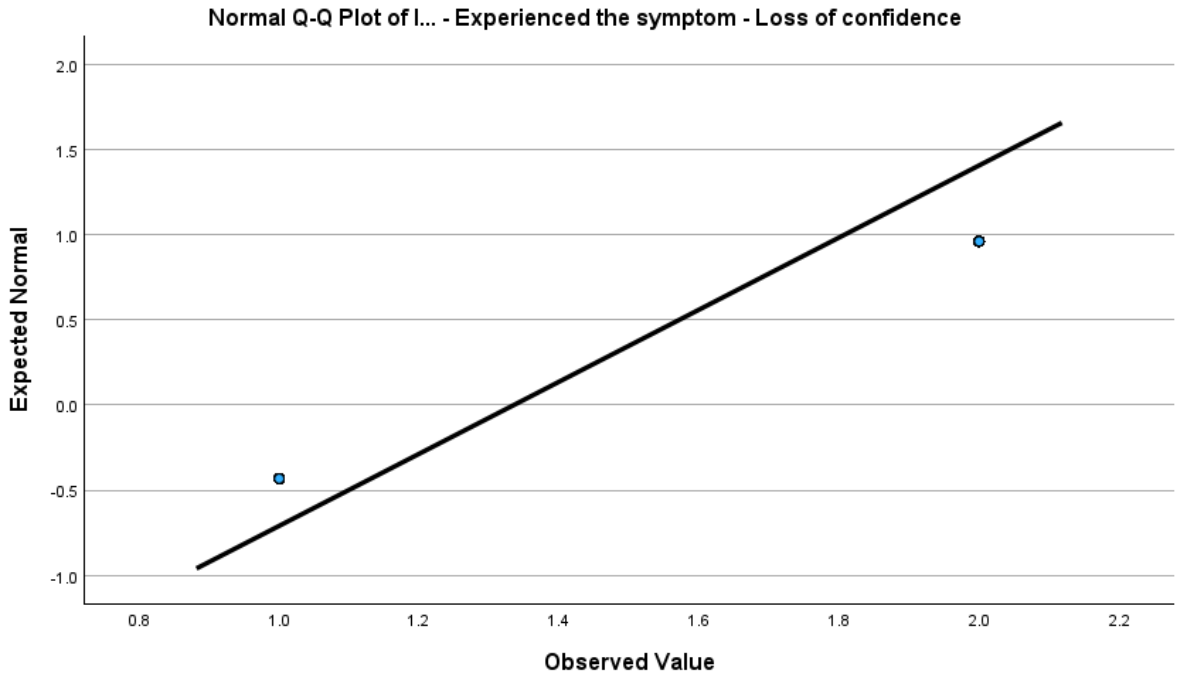
			Statistic	Std. Error
I... - Experienced the symptom - Loss of confidence	Mean		1.34	.023
	95% Confidence Interval for Mean	Lower Bound	1.29	
		Upper Bound	1.38	
	5% Trimmed Mean		1.32	
	Median		1.00	
	Variance		.223	
	Std. Deviation		.473	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.699	.117
	Kurtosis		-1.519	.233

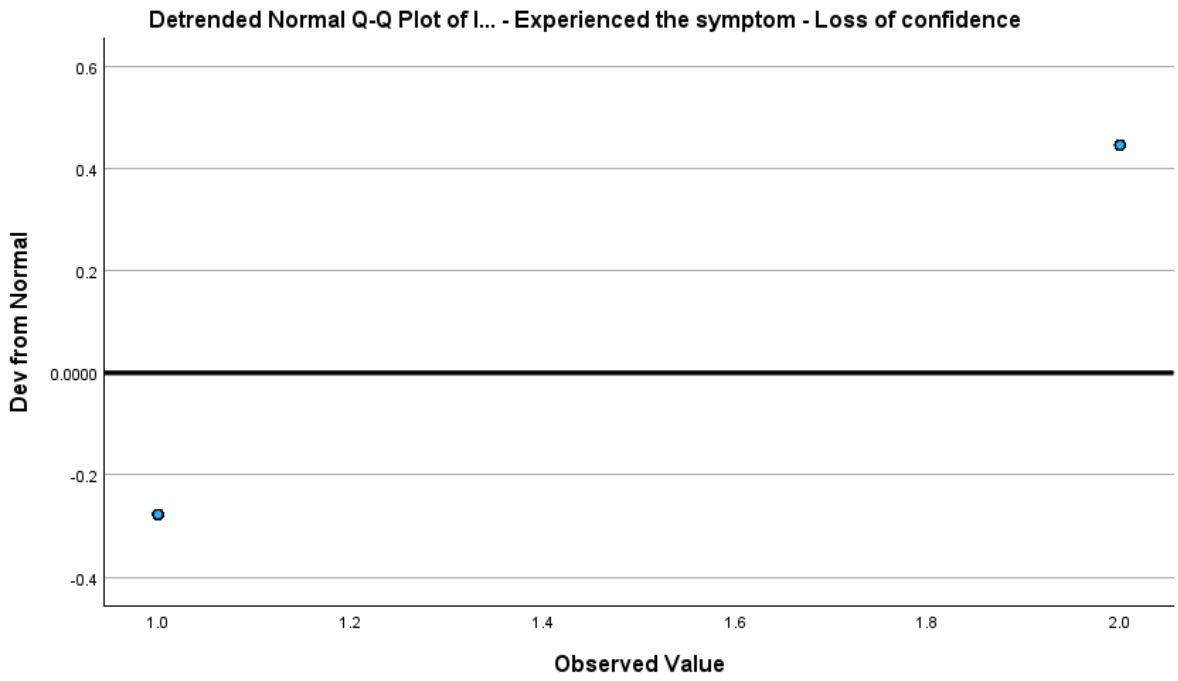
Tests of Normality

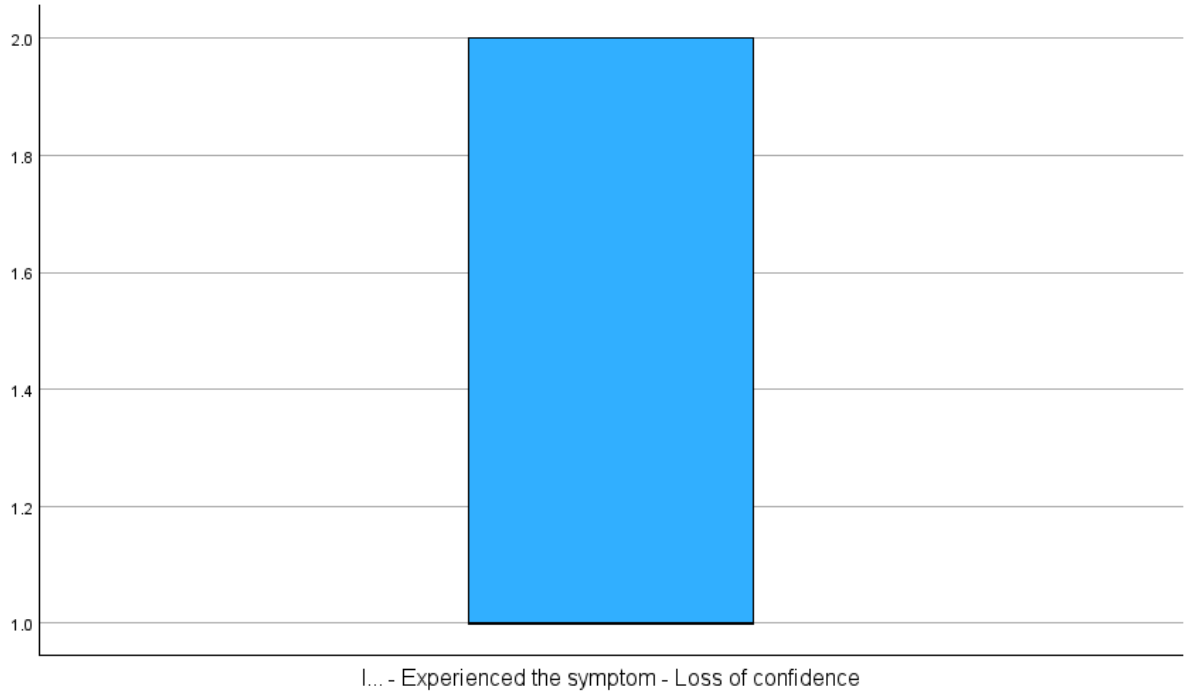
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Loss of confidence	.426	438	<.001	.596	438	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.34
Std. Dev. = .473
N = 438
Frequency
300
200
100
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Loss of confidence


Normal Q-Q Plot of I... - Experienced the symptom - Loss of confidence
Expected Normal
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Grief

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Grief	430	83.8%	83	16.2%	513	100.0%

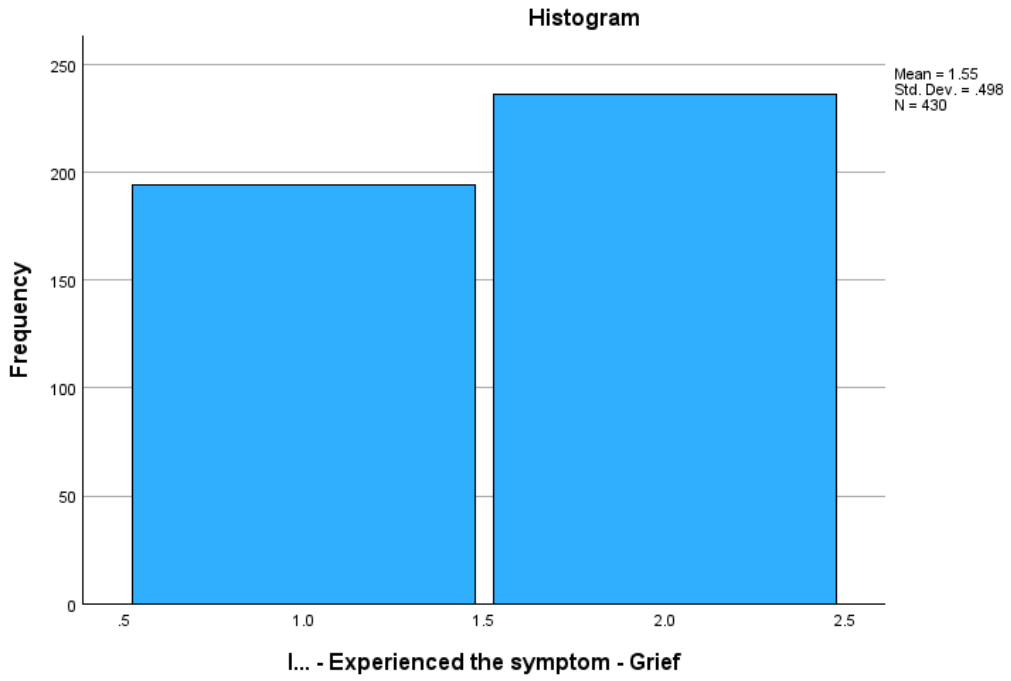
Descriptives

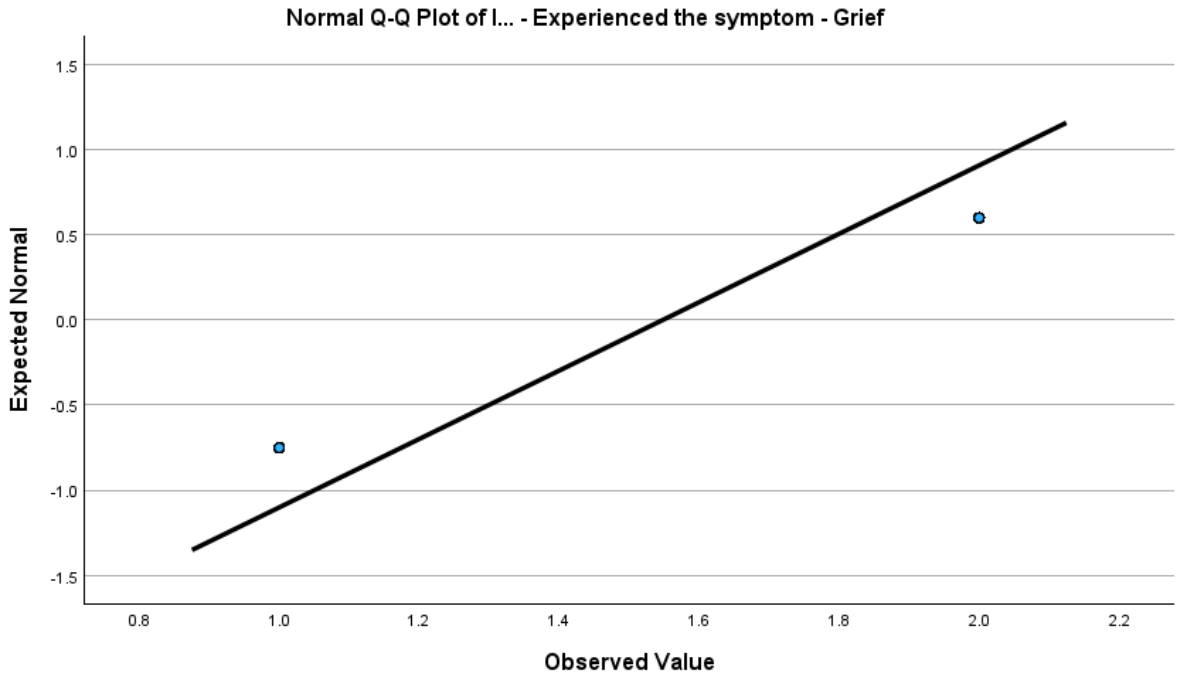
			Statistic	Std. Error
I... - Experienced the symptom - Grief	Mean		1.55	.024
	95% Confidence Interval for Mean	Lower Bound	1.50	
		Upper Bound	1.60	
	5% Trimmed Mean		1.55	
	Median		2.00	
	Variance		.248	
	Std. Deviation		.498	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		-.197	.118
	Kurtosis		-1.970	.235

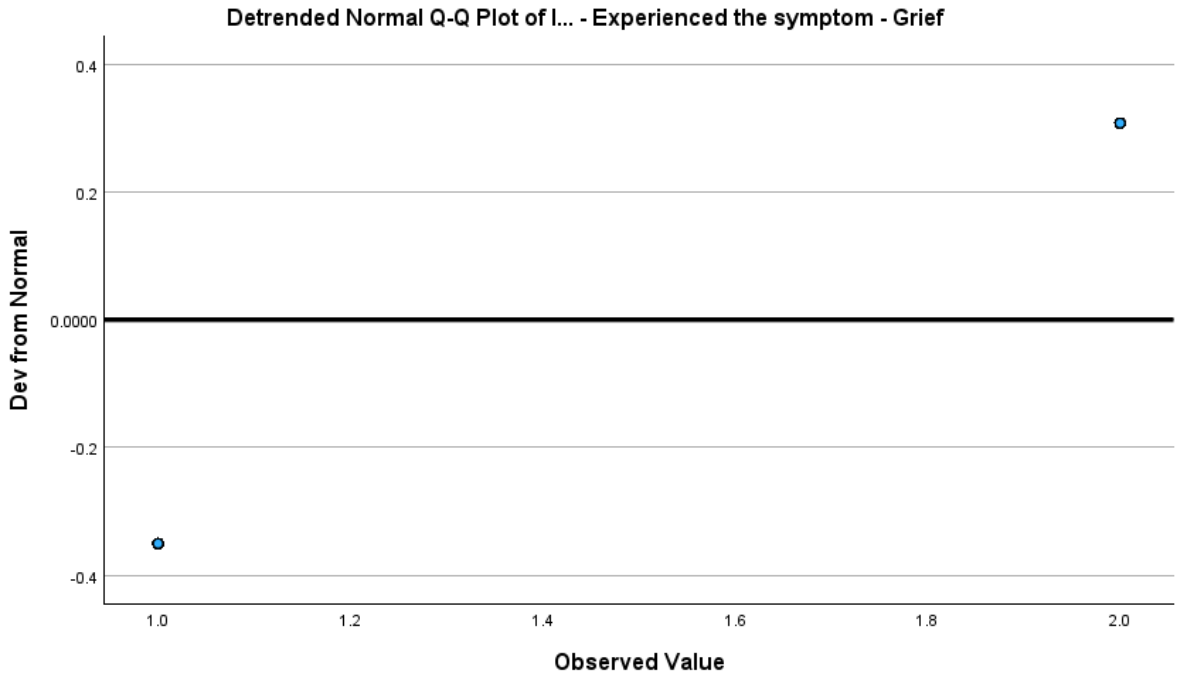
Tests of Normality

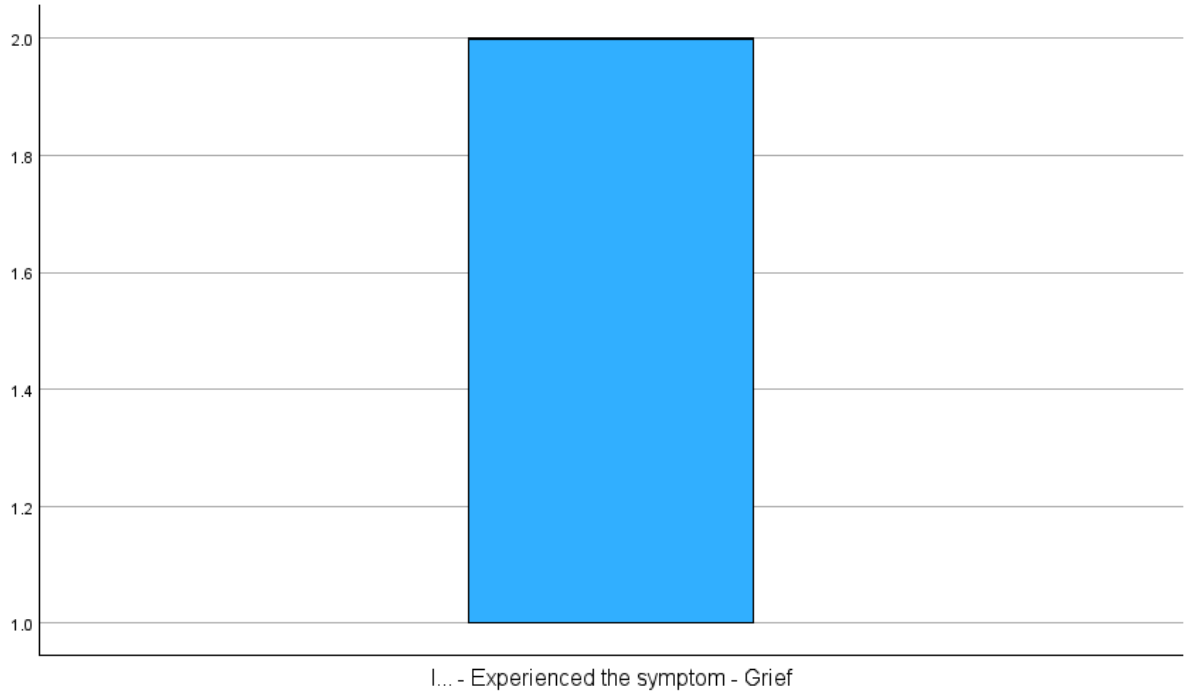
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Grief	.366	430	<.001	.633	430	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.55
Std. Dev. = .498
N = 430
Frequency
250
200
150
100
50
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Grief


Normal Q-Q Plot of I... - Experienced the symptom - Grief
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Remorse

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Remorse	440	85.8%	73	14.2%	513	100.0%

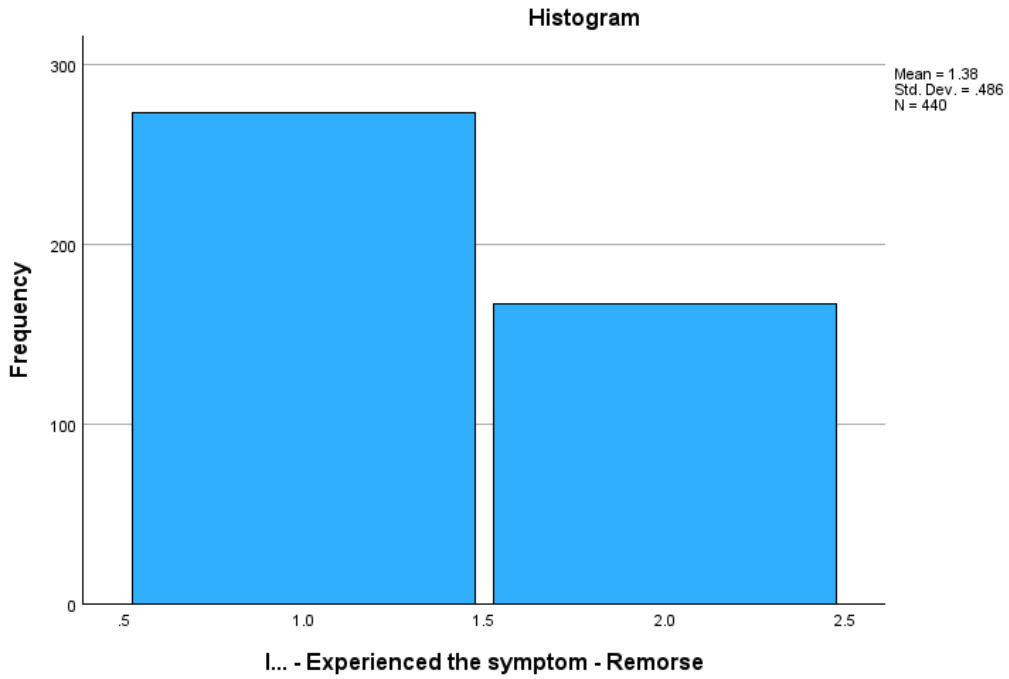
Descriptives

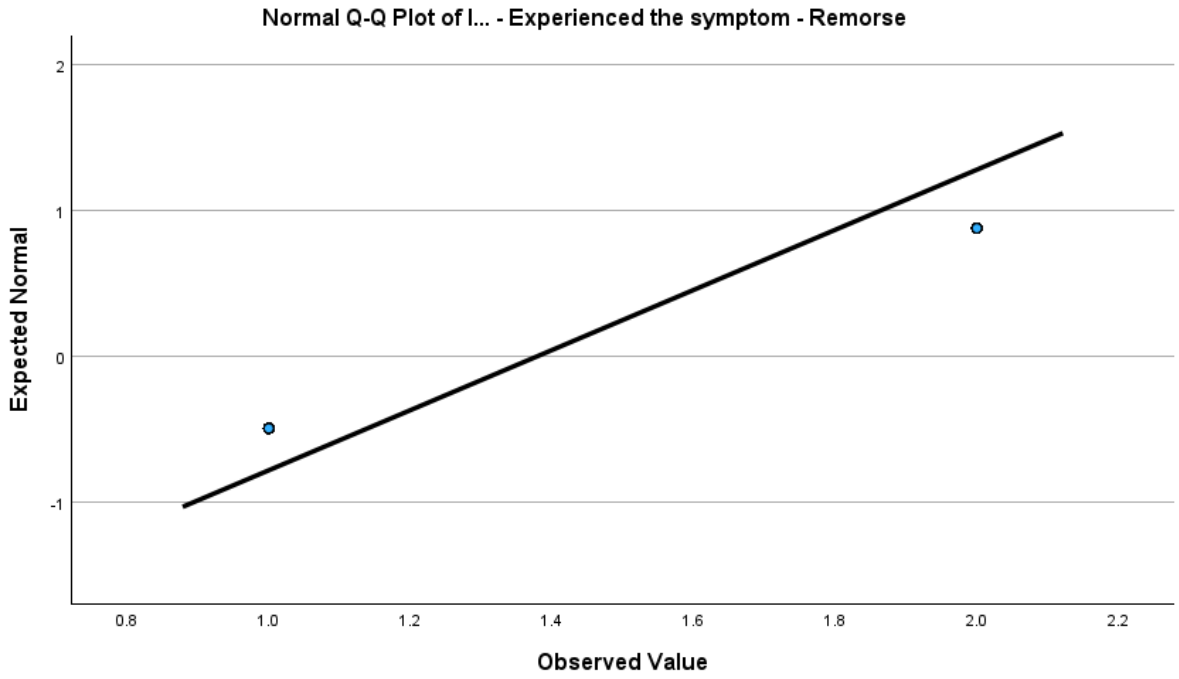
			Statistic	Std. Error
I... - Experienced the symptom - Remorse	Mean		1.38	.023
	95% Confidence Interval for Mean	Lower Bound	1.33	
		Upper Bound	1.43	
	5% Trimmed Mean		1.37	
	Median		1.00	
	Variance		.236	
	Std. Deviation		.486	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.498	.116
	Kurtosis		-1.760	.232

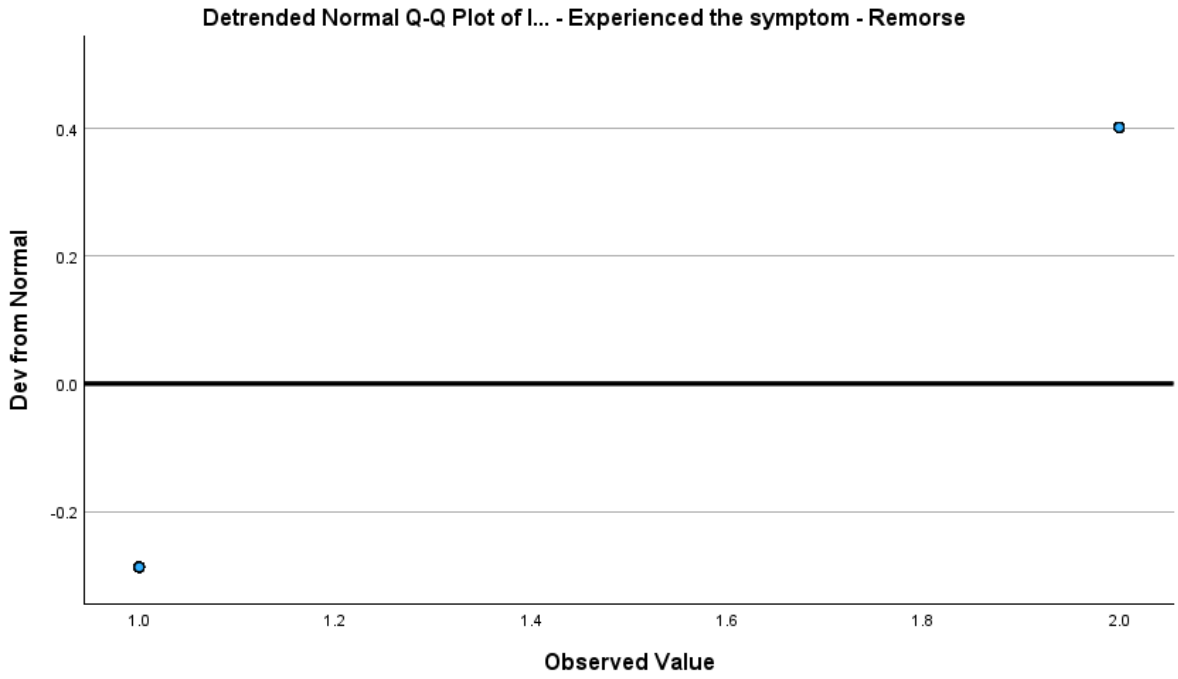
Tests of Normality

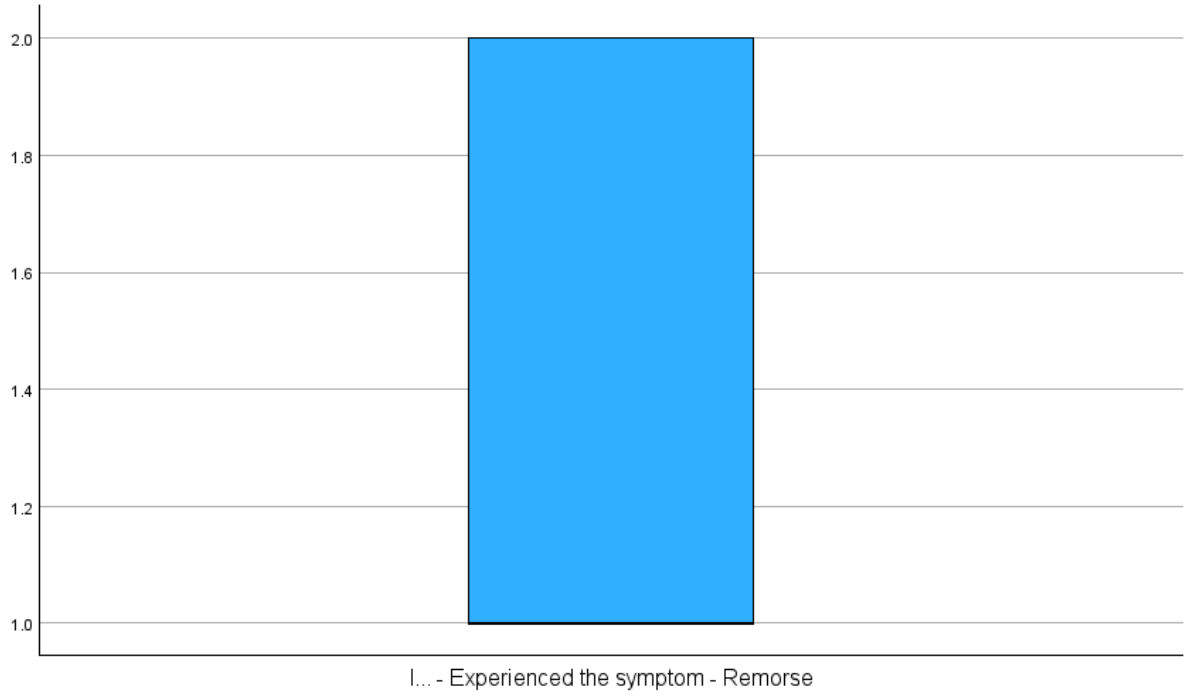
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Remorse	.403	440	<.001	.615	440	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.38
Std. Dev. = .486
N = 440
Frequency
300
200
100
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Remorse


Normal Q-Q Plot of I... - Experienced the symptom - Remorse
Expected Normal
2
1
0
-1
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Stress

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Stress	442	86.2%	71	13.8%	513	100.0%

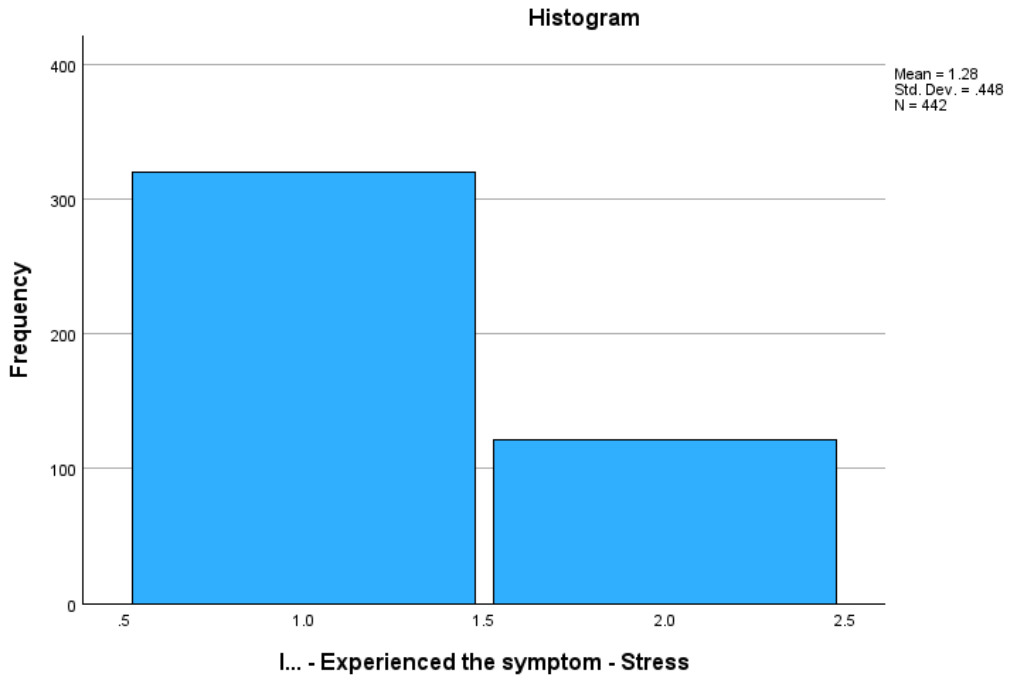
Descriptives

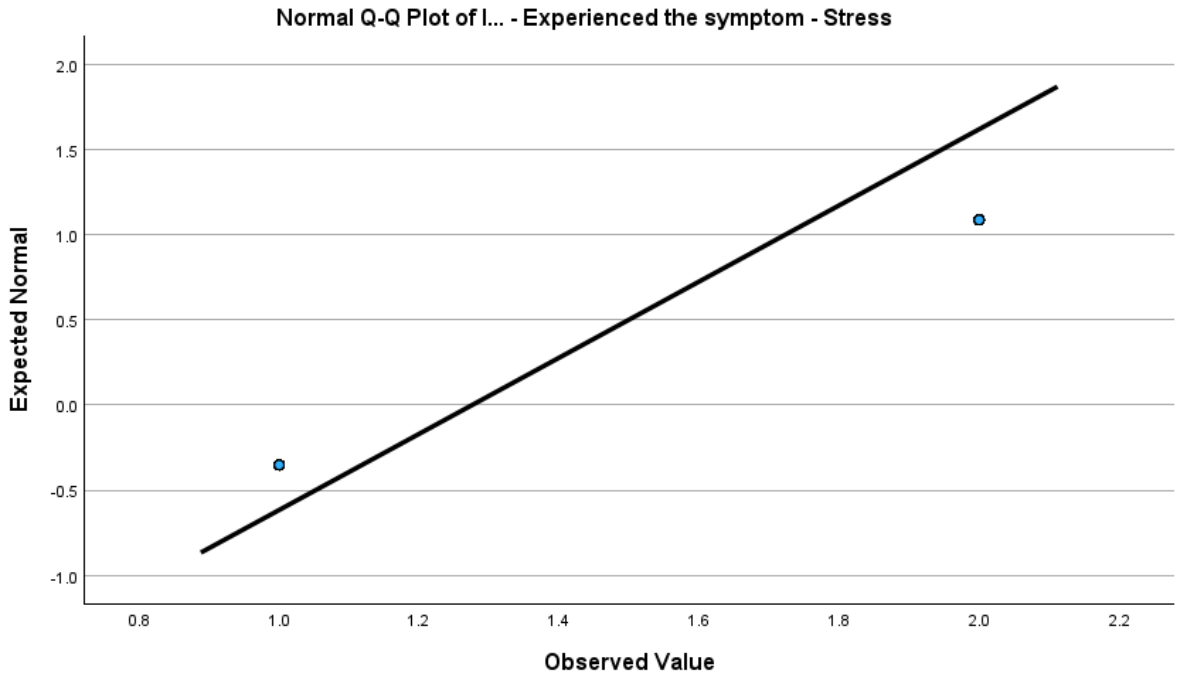
			Statistic	Std. Error
I... - Experienced the symptom - Stress	Mean		1.28	.021
	95% Confidence Interval for Mean	Lower Bound	1.23	
		Upper Bound	1.32	
	5% Trimmed Mean		1.25	
	Median		1.00	
	Variance		.200	
	Std. Deviation		.448	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		1.006	.116
	Kurtosis		-.993	.232

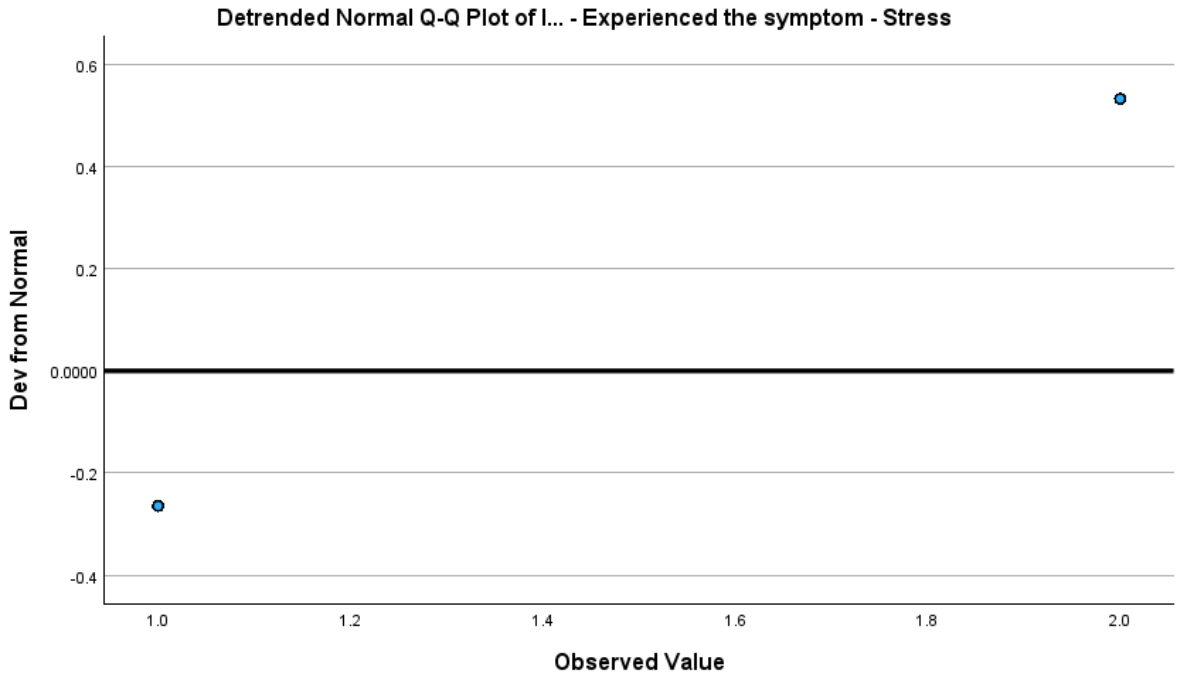
Tests of Normality

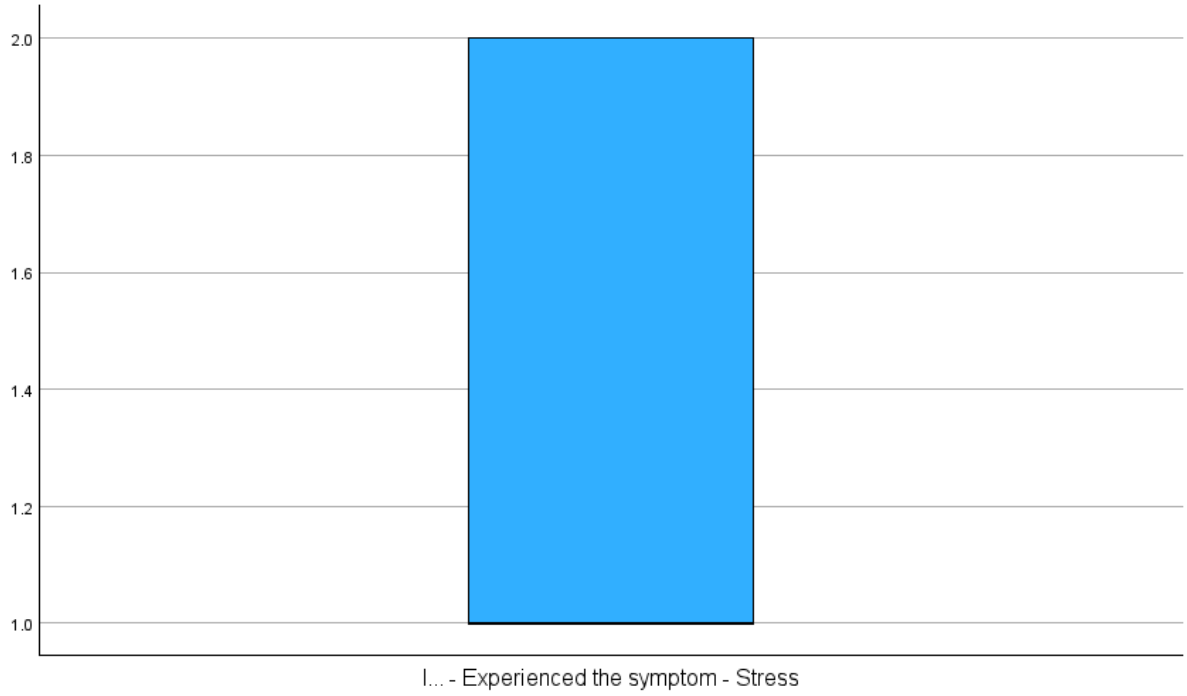
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Stress	.455	442	<.001	.559	442	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.28
Std. Dev. = .448
N = 442
Frequency
400
300
200
100
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Stress


Normal Q-Q Plot of I... - Experienced the symptom - Stress
Expected Normal
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Anxiety

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Anxiety	442	86.2%	71	13.8%	513	100.0%

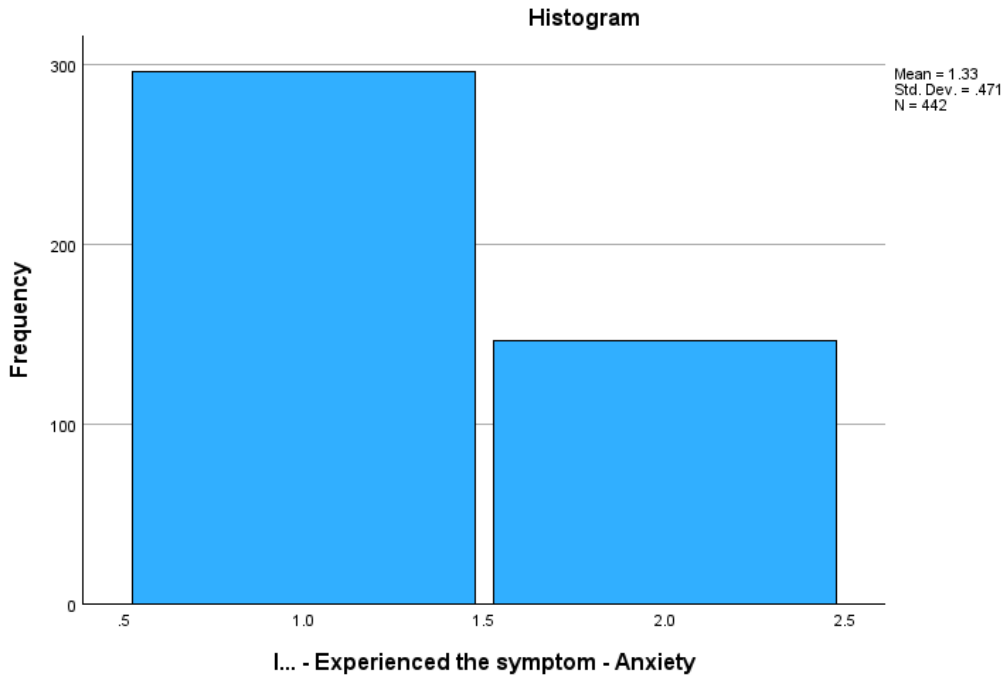
Descriptives

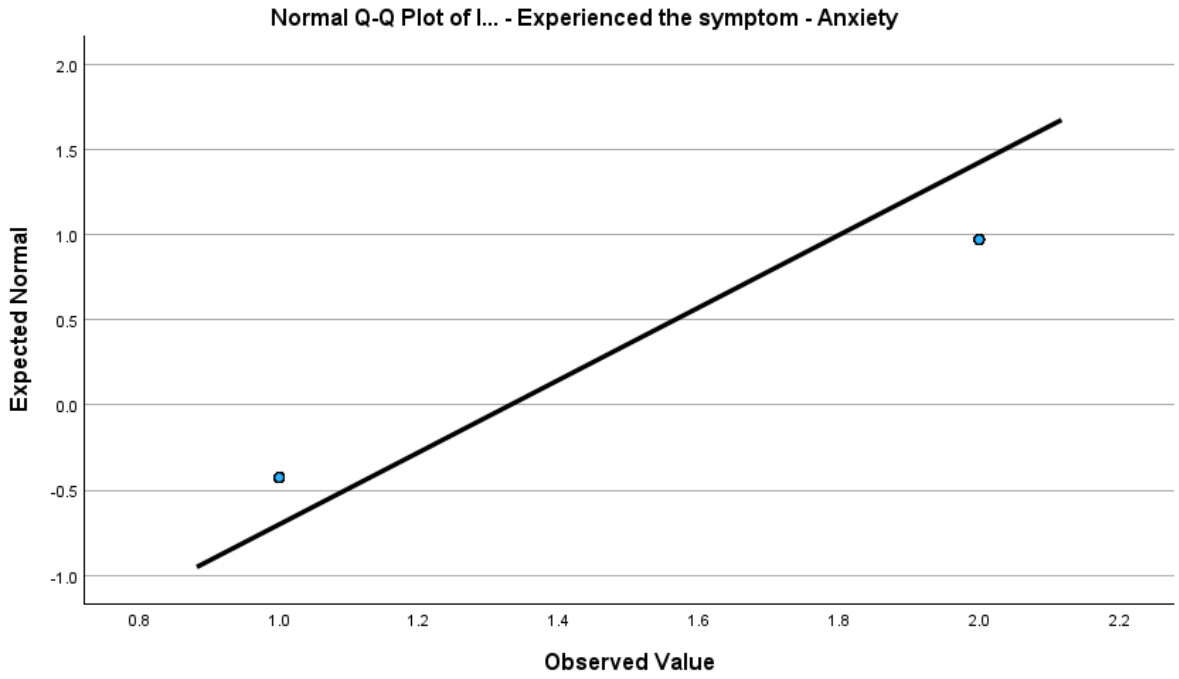
			Statistic	Std. Error
I... - Experienced the symptom - Anxiety	Mean		1.33	.022
	95% Confidence Interval for Mean	Lower Bound	1.29	
		Upper Bound	1.37	
	5% Trimmed Mean		1.31	
	Median		1.00	
	Variance		.222	
	Std. Deviation		.471	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.724	.116
	Kurtosis		-1.483	.232

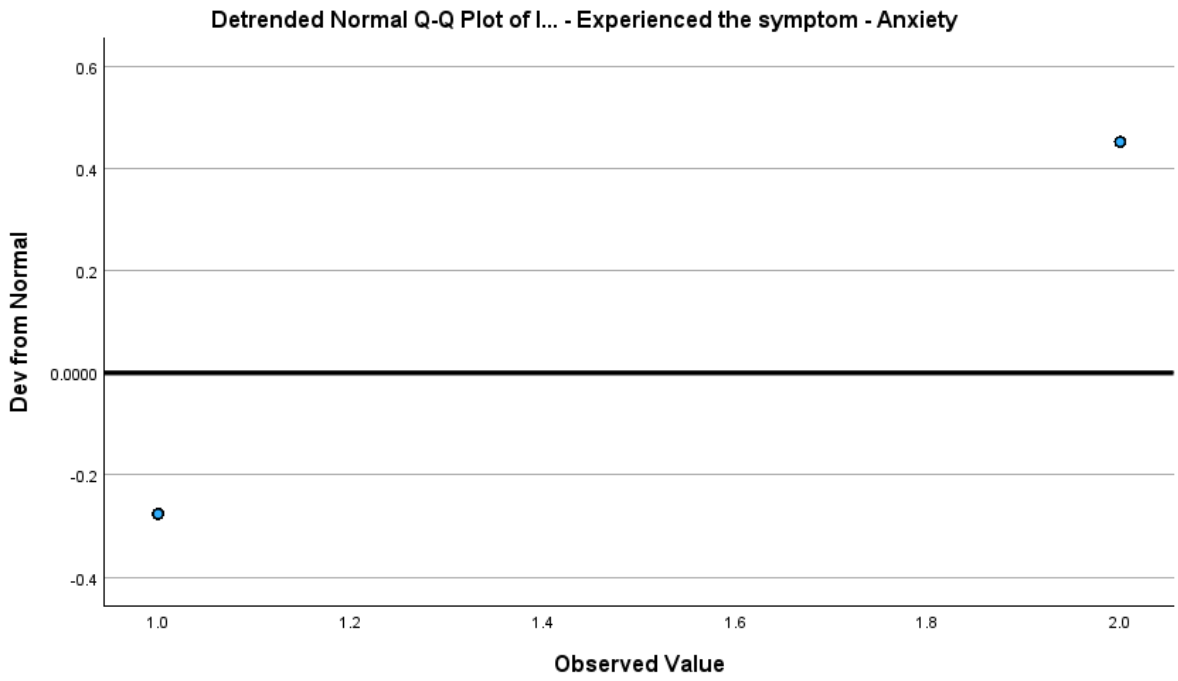
Tests of Normality

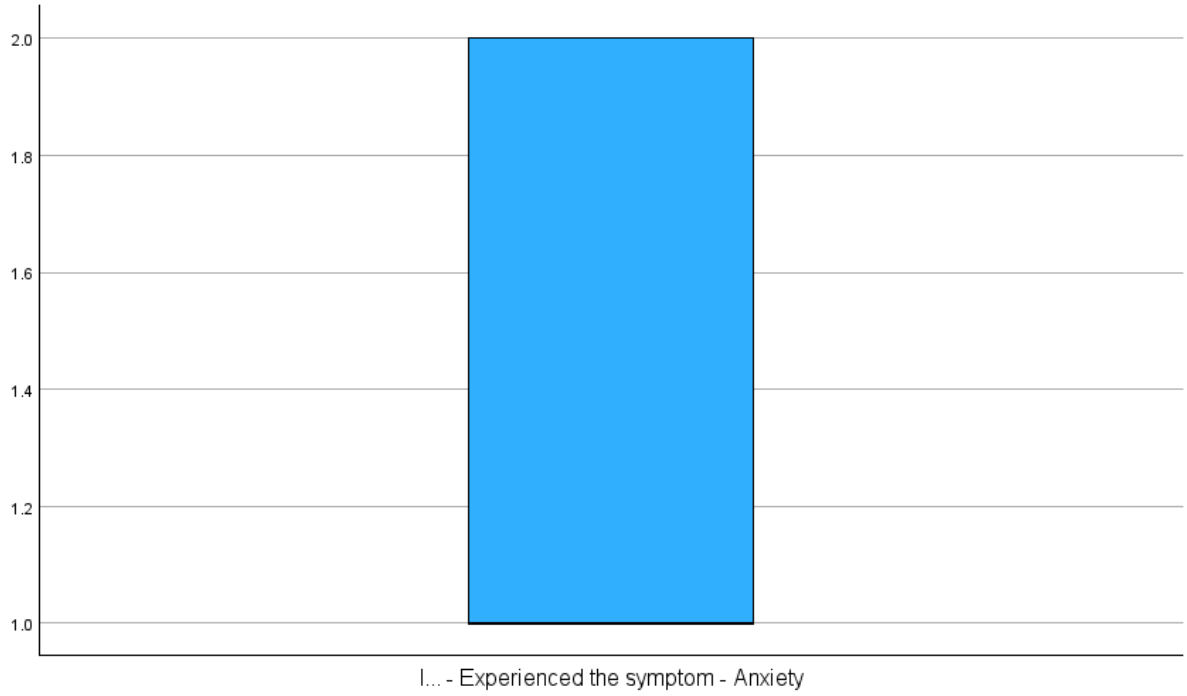
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Anxiety	.428	442	<.001	.593	442	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.33
Std. Dev. = .471
N = 442
Frequency
300
200
100
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Anxiety


Normal Q-Q Plot of I... - Experienced the symptom - Anxiety
Expected Normal
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Isolation

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Isolation	434	84.6%	79	15.4%	513	100.0%

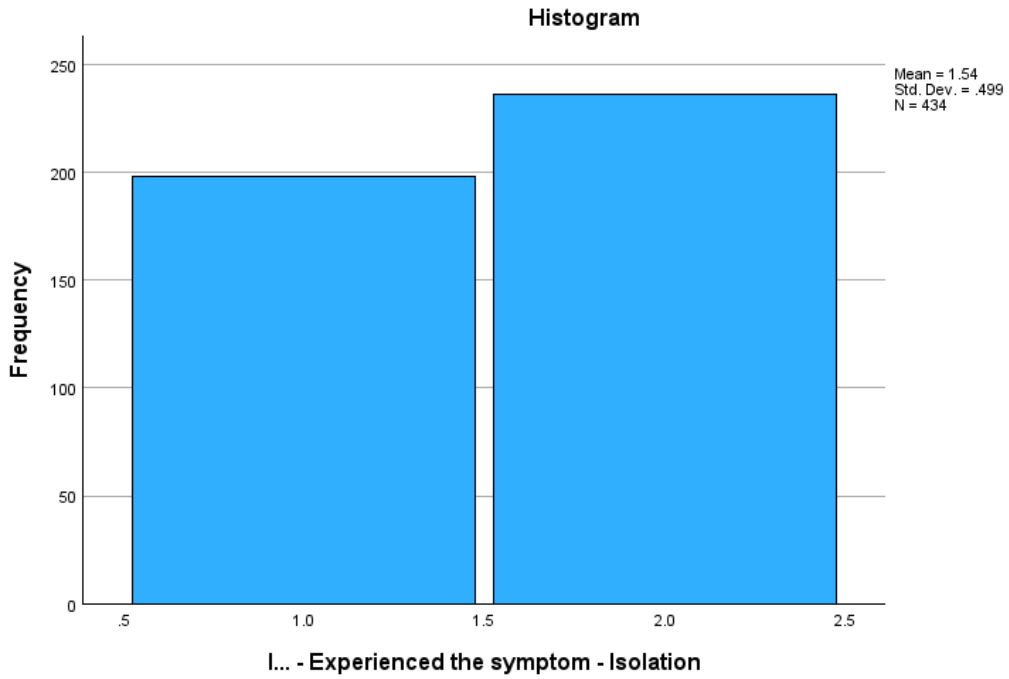
Descriptives

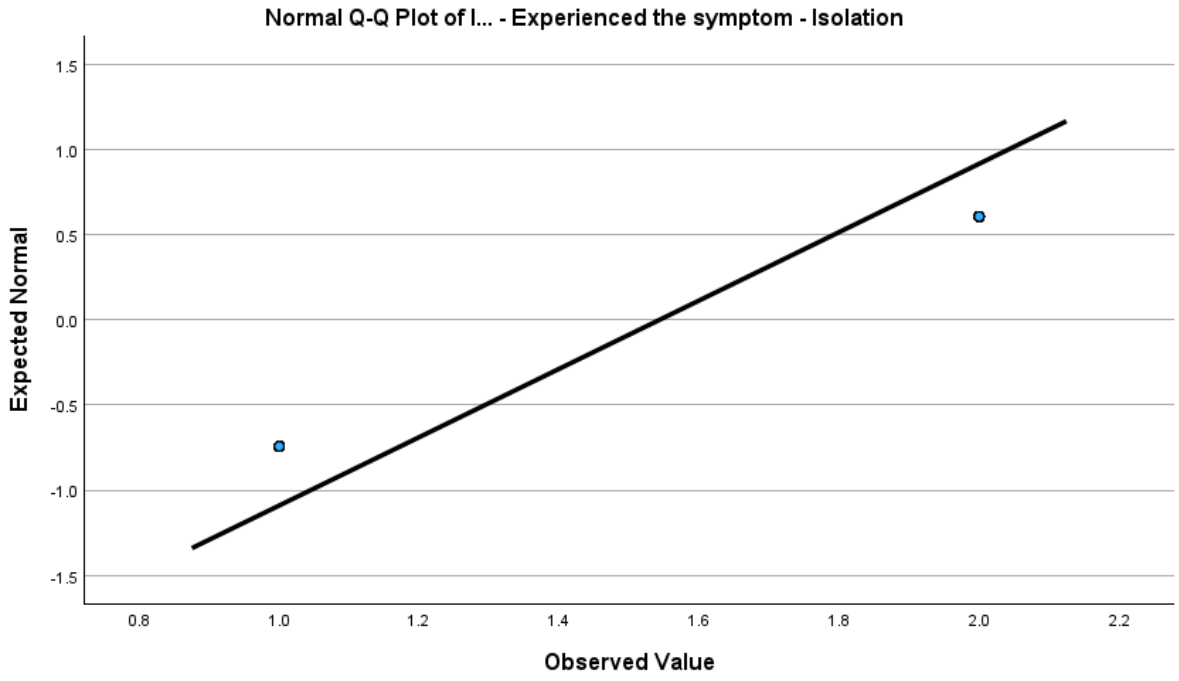
			Statistic	Std. Error
I... - Experienced the symptom - Isolation	Mean		1.54	.024
	95% Confidence Interval for Mean	Lower Bound	1.50	
		Upper Bound	1.59	
	5% Trimmed Mean		1.55	
	Median		2.00	
	Variance		.249	
	Std. Deviation		.499	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		-.176	.117
	Kurtosis		-1.978	.234

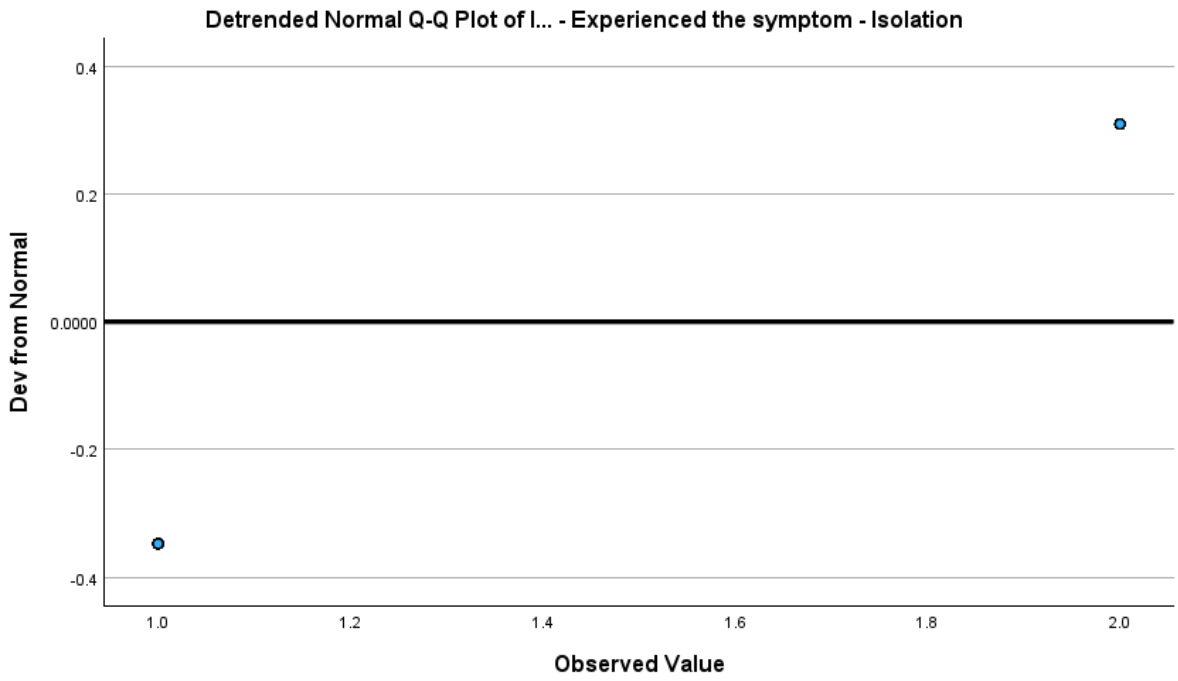
Tests of Normality

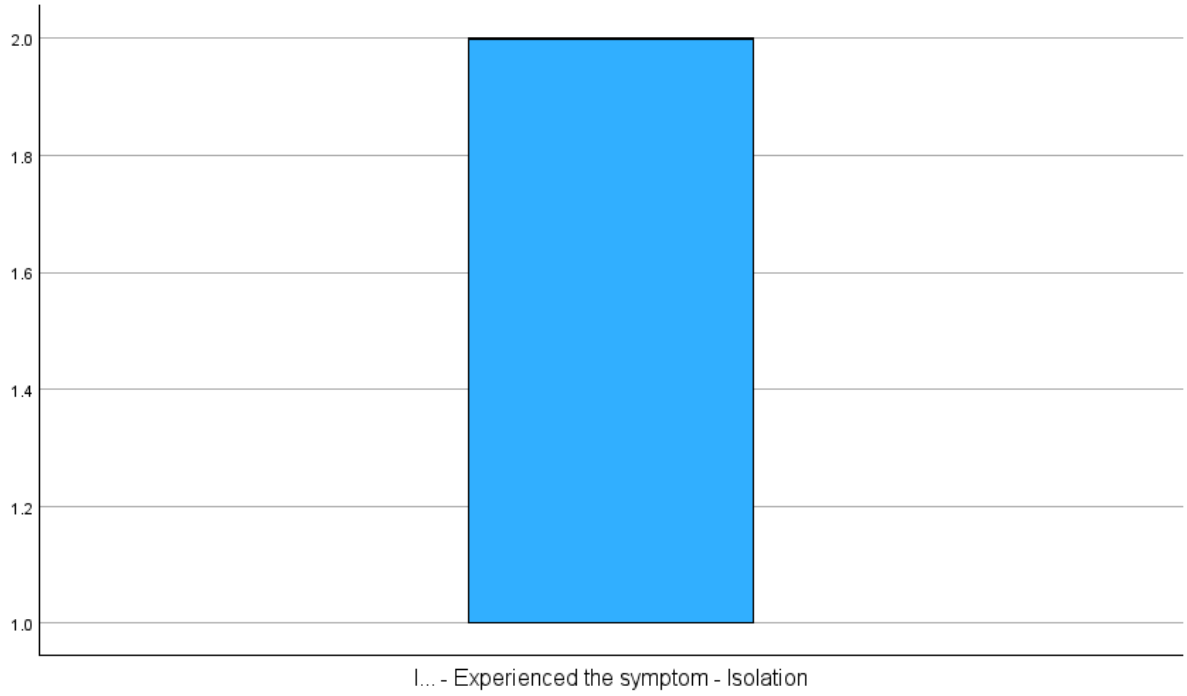
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Isolation	.364	434	<.001	.634	434	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.54
Std. Dev. = .499
N = 434
Frequency
250
200
150
100
50
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Isolation


Normal Q-Q Plot of I... - Experienced the symptom - Isolation
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value


Detrended Normal Q-Q Plot of I... - Experienced the symptom - Isolation
Dev from Normal
0.4
0.2
0.0000
-0.2
-0.4
1.0
1.2
1.4
1.6
1.8
2.0
Observed Value


2.0
1.8
1.6
1.4
1.2
1.0
I... - Experienced the symptom - Isolation

Blame

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Blame	436	85.0%	77	15.0%	513	100.0%

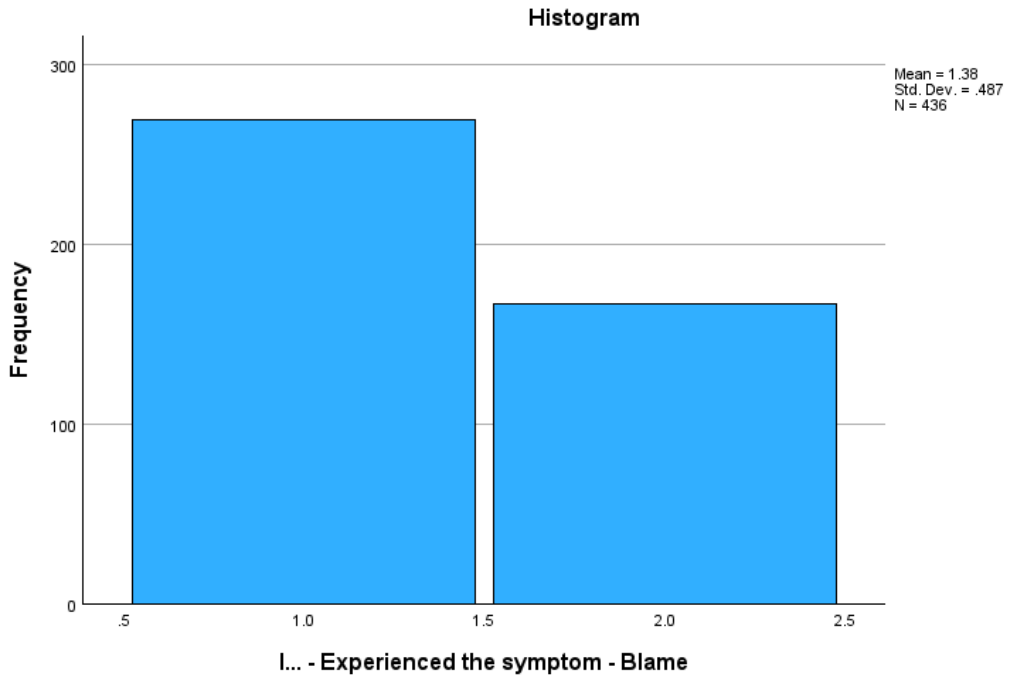
Descriptives

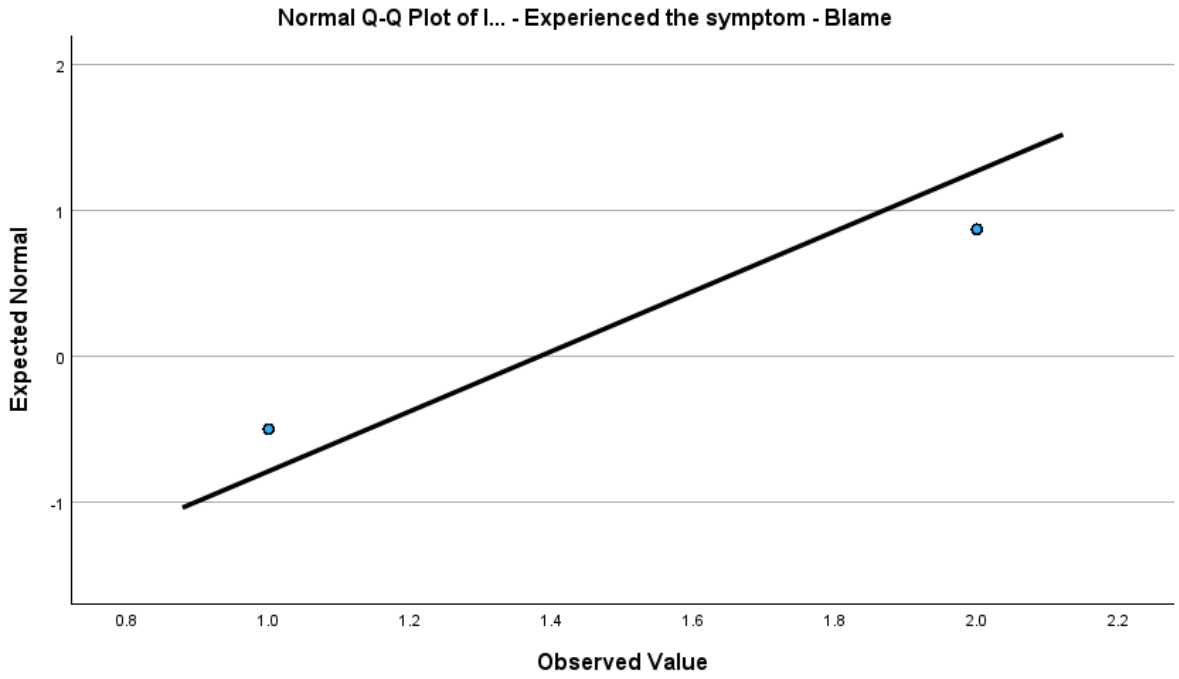
			Statistic	Std. Error
I... - Experienced the symptom - Blame	Mean		1.38	.023
	95% Confidence Interval for Mean	Lower Bound	1.34	
		Upper Bound	1.43	
	5% Trimmed Mean		1.37	
	Median		1.00	
	Variance		.237	
	Std. Deviation		.487	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.483	.117
	Kurtosis		-1.775	.233

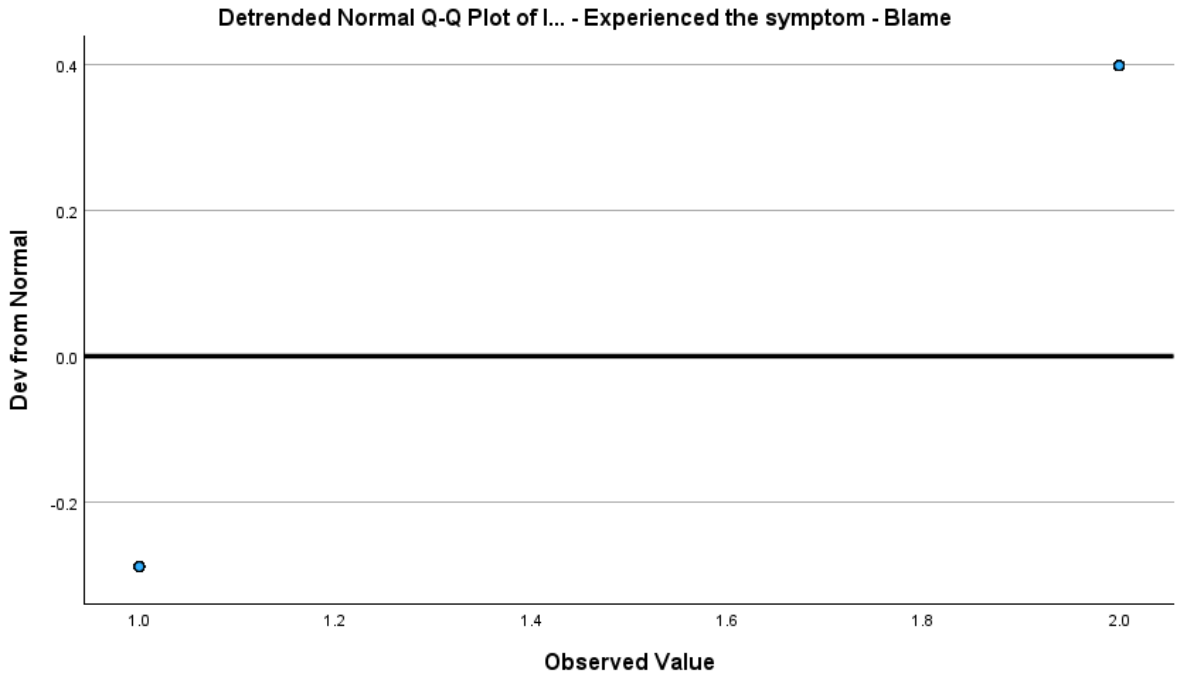
Tests of Normality

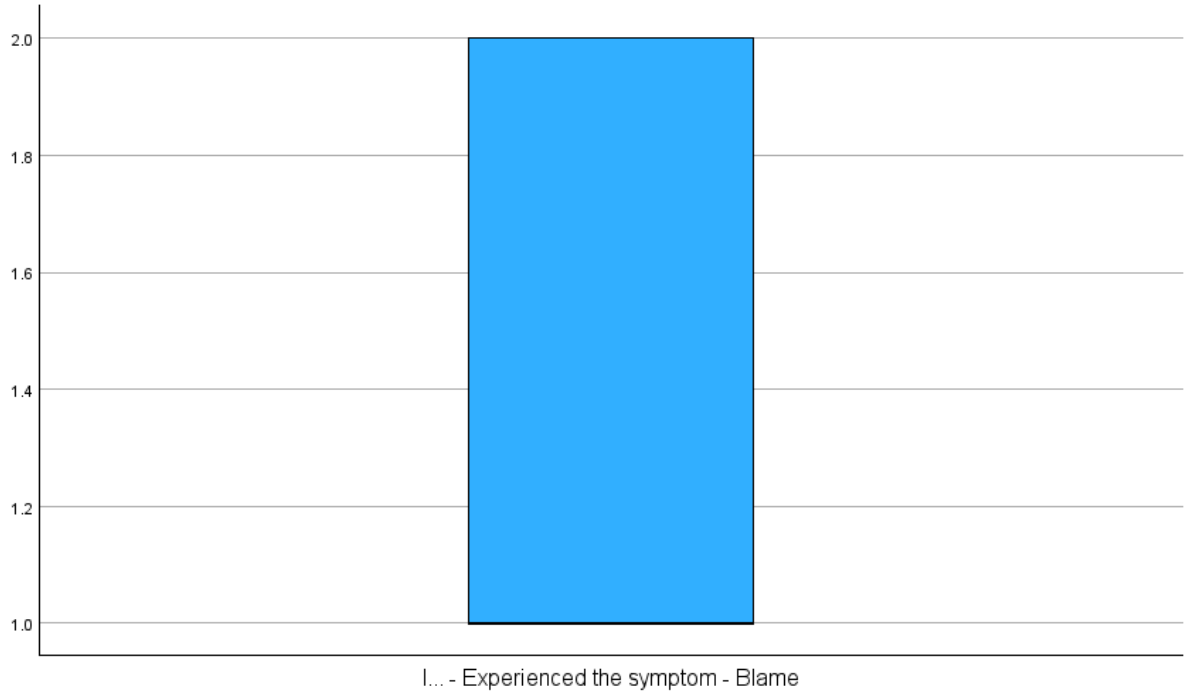
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Blame	.401	436	<.001	.616	436	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.38
Std. Dev. = .487
N = 436
Frequency
300
200
100
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Blame


Normal Q-Q Plot of I... - Experienced the symptom - Blame
Expected Normal
2
1
0
-1
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Fear

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I... - Experienced the symptom - Fear	435	84.8%	78	15.2%	513	100.0%

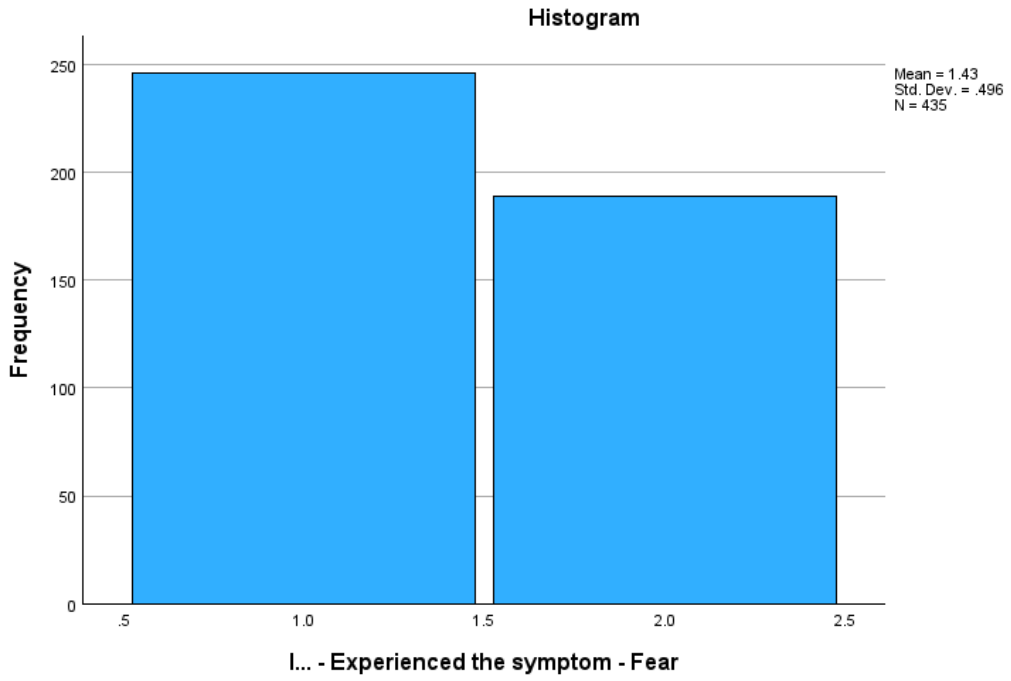
Descriptives

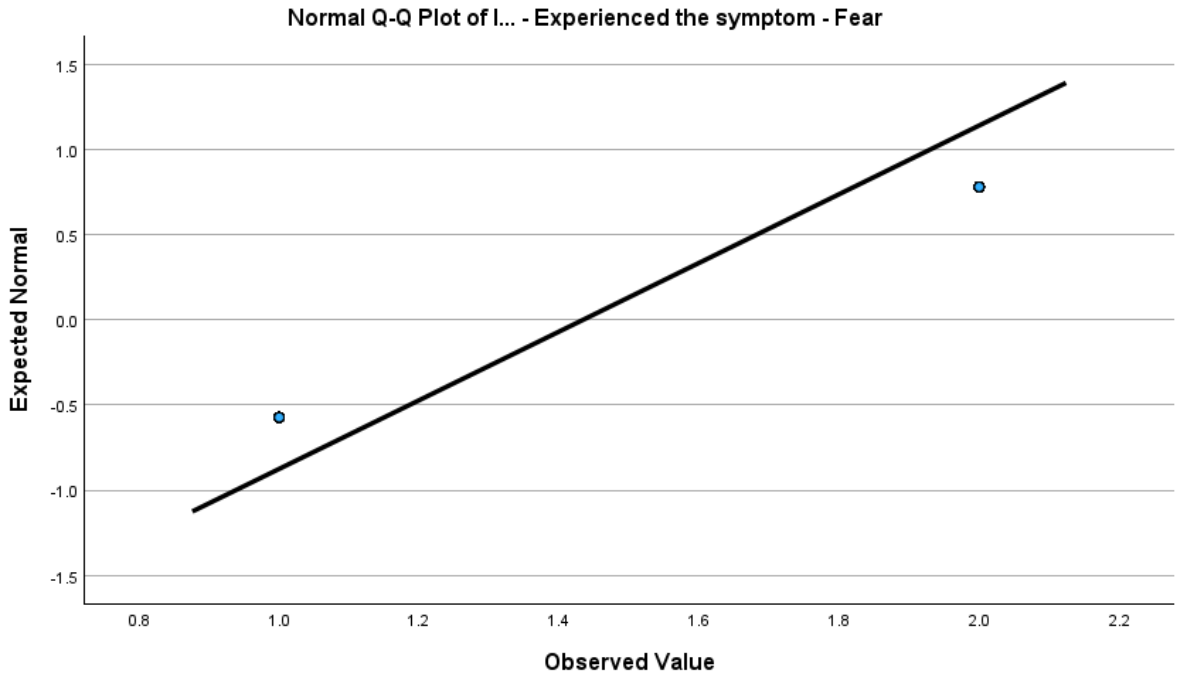
			Statistic	Std. Error
I... - Experienced the symptom - Fear	Mean		1.43	.024
	95% Confidence Interval for Mean	Lower Bound	1.39	
		Upper Bound	1.48	
	5% Trimmed Mean		1.43	
	Median		1.00	
	Variance		.246	
	Std. Deviation		.496	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.265	.117
	Kurtosis		-1.939	.234

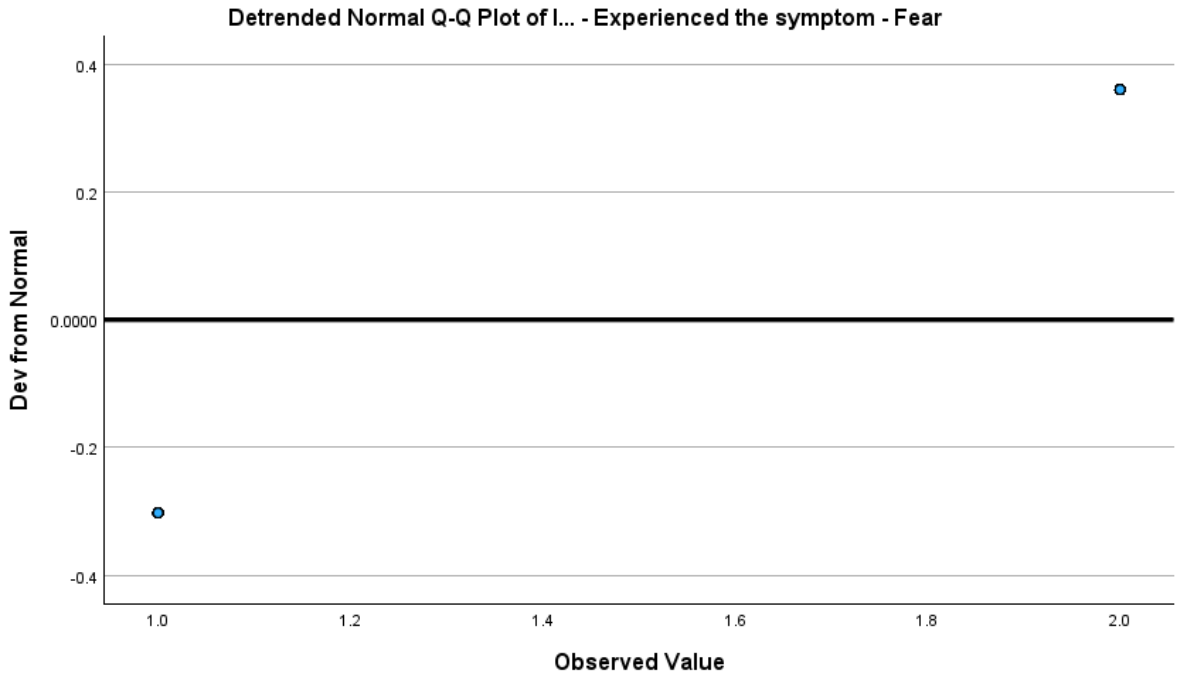
Tests of Normality

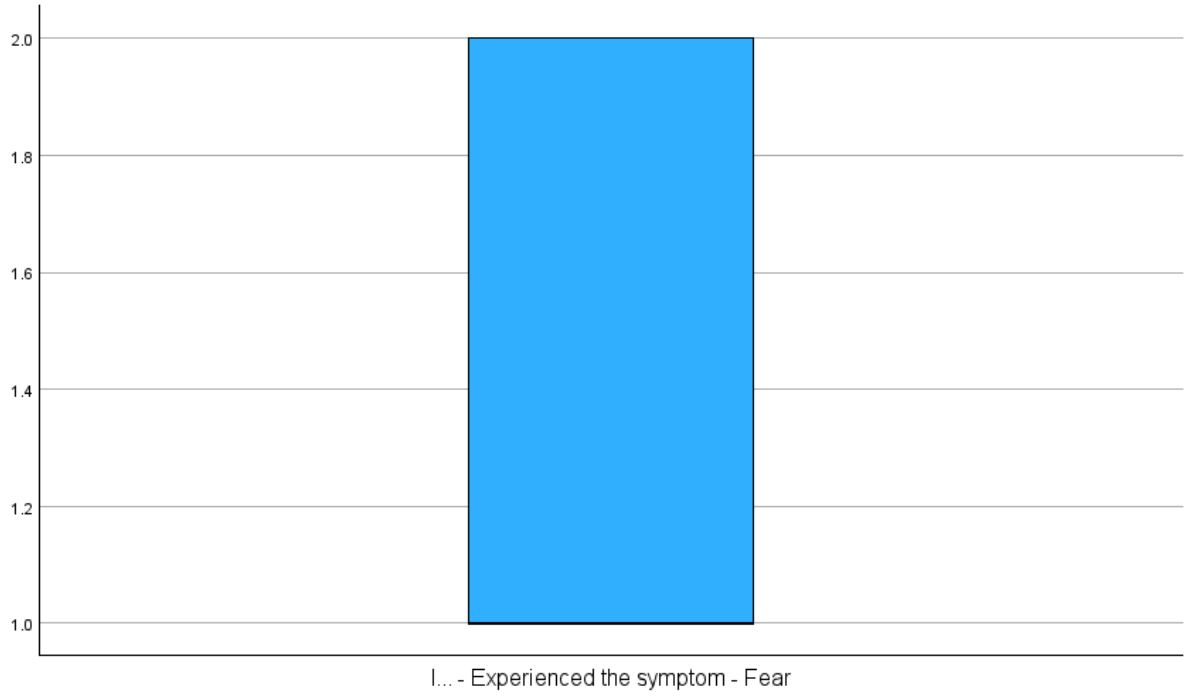
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I... - Experienced the symptom - Fear	.375	435	<.001	.630	435	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.43
Std. Dev. = .496
N = 435
Frequency
250
200
150
100
50
0
.5
1.0
1.5
2.0
2.5
I... - Experienced the symptom - Fear


Normal Q-Q Plot of I... - Experienced the symptom - Fear
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value





Choice of moving to new clinical area

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
When you were moved from your usual clinical work area following an error, was this your choice?	157	30.6%	356	69.4%	513	100.0%

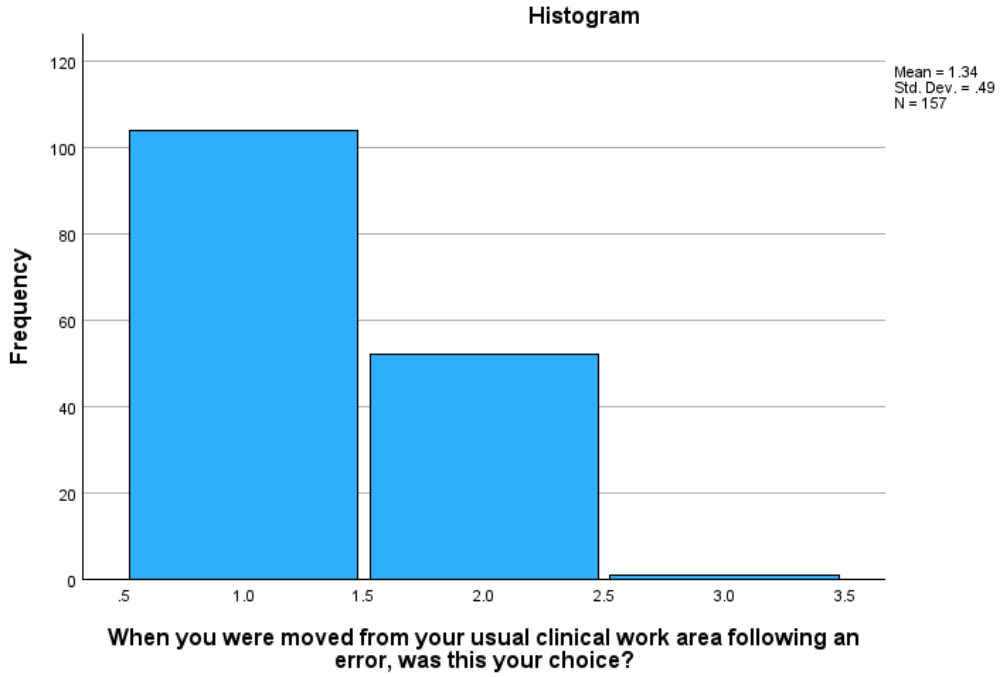
Descriptives

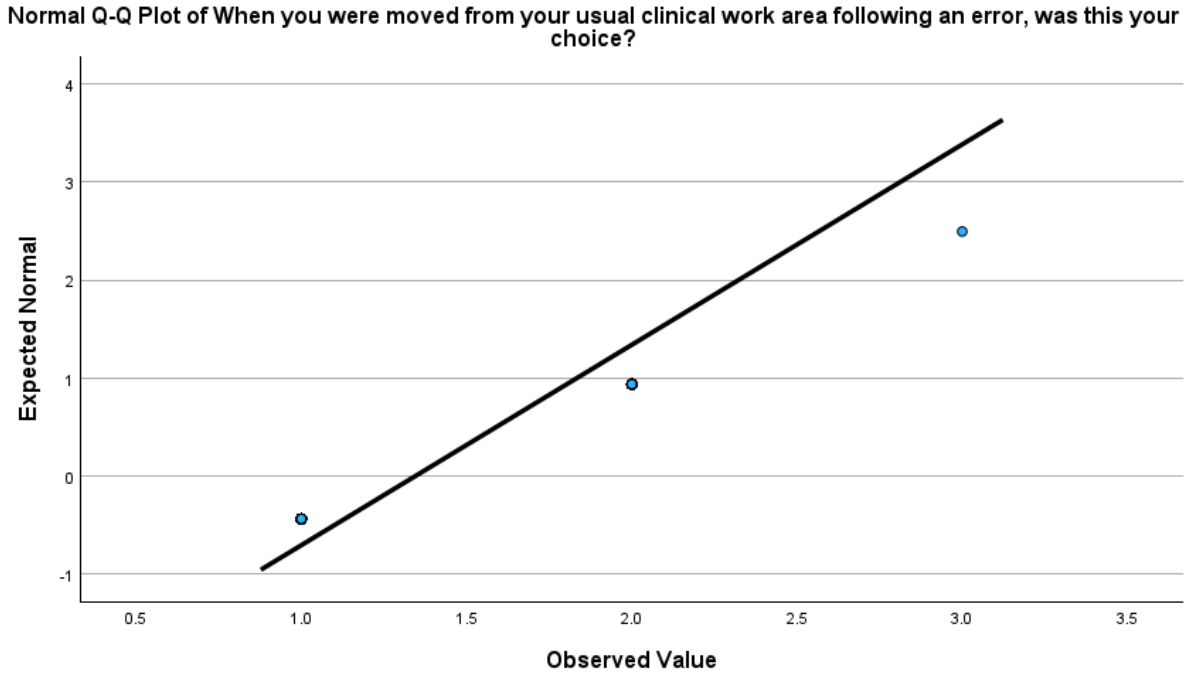
			Statistic	Std. Error
When you were moved from your usual clinical work area following an error, was this your choice?	Mean		1.34	.039
	95% Confidence Interval for Mean	Lower Bound	1.27	
		Upper Bound	1.42	
	5% Trimmed Mean		1.32	
	Median		1.00	
	Variance		.240	
	Std. Deviation		.490	
	Minimum		1	
	Maximum		3	
	Range		2	
	Interquartile Range		1	
	Skewness		.828	.194
	Kurtosis		-.905	.385

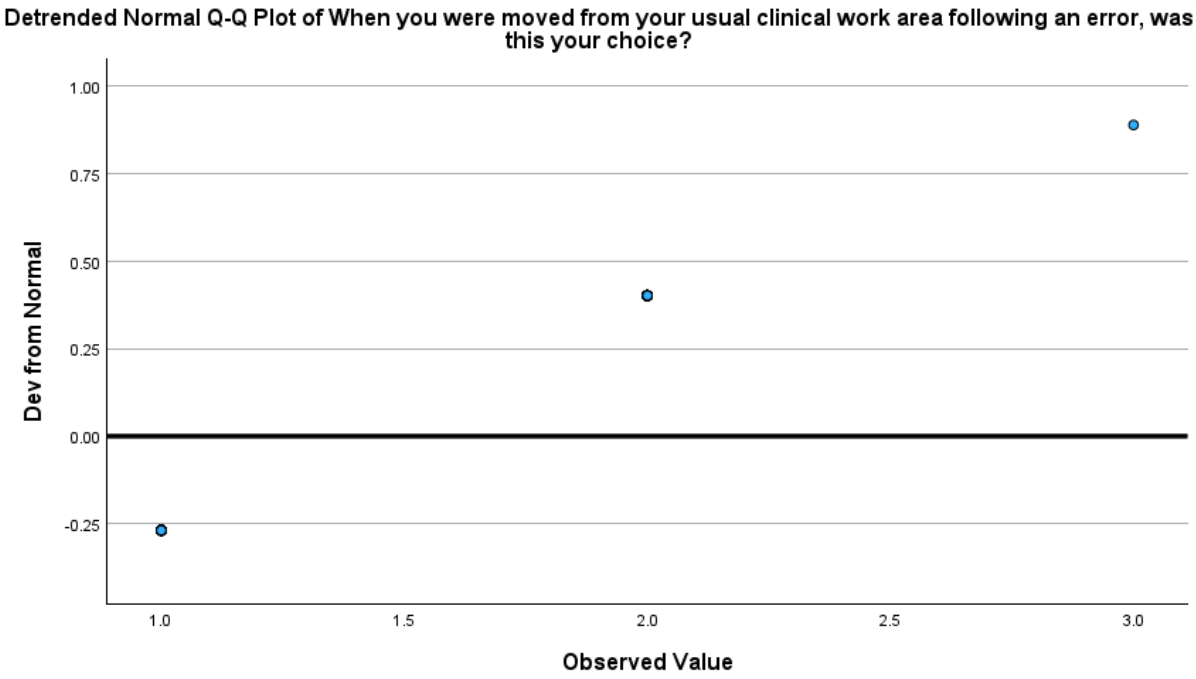
Tests of Normality

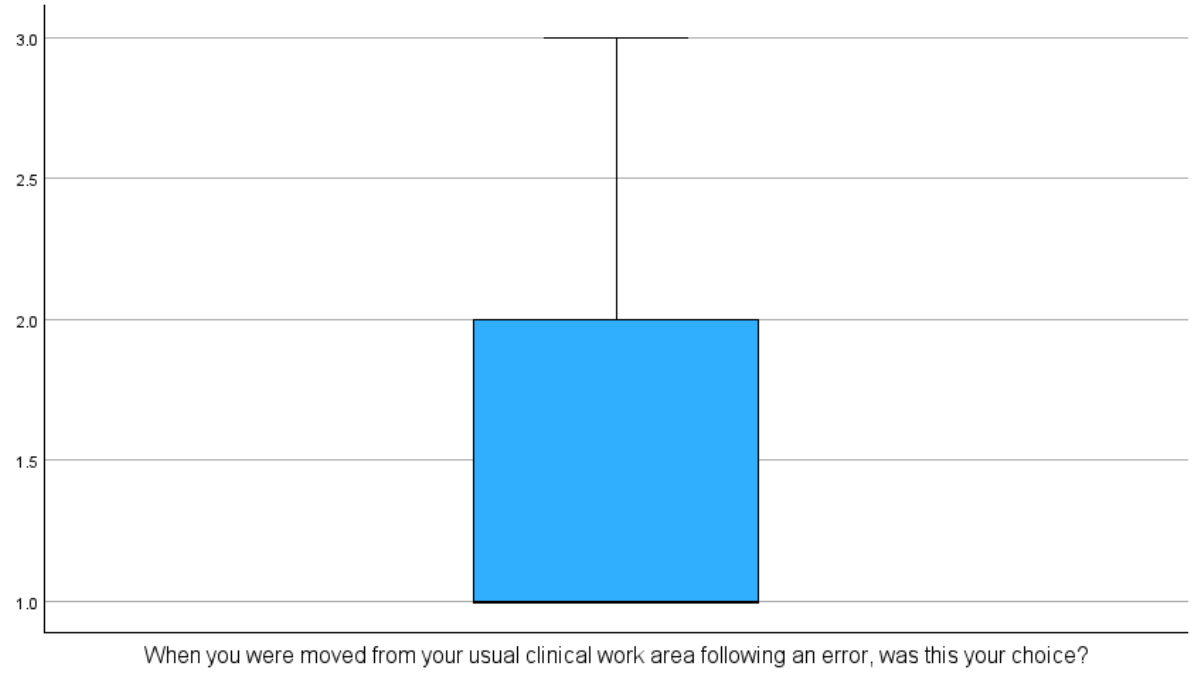
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
When you were moved from your usual clinical work area following an error, was this your choice?	.421	157	<.001	.618	157	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.34
Std. Dev. = .49
N = 157
Frequency
120
100
80
60
40
20
0
.5
1.0
1.5
2.0
2.5
3.0
3.5
When you were moved from your usual clinical work area following an error, was this your choice?


Normal Q-Q Plot of When you were moved from your usual clinical work area following an error, was this your choice?
Expected Normal
4
3
2
1
0
-1
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Observed Value





Continued distress

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
When you were moved from your usual clinical work area following an error, was this your choice?	157	30.6%	356	69.4%	513	100.0%

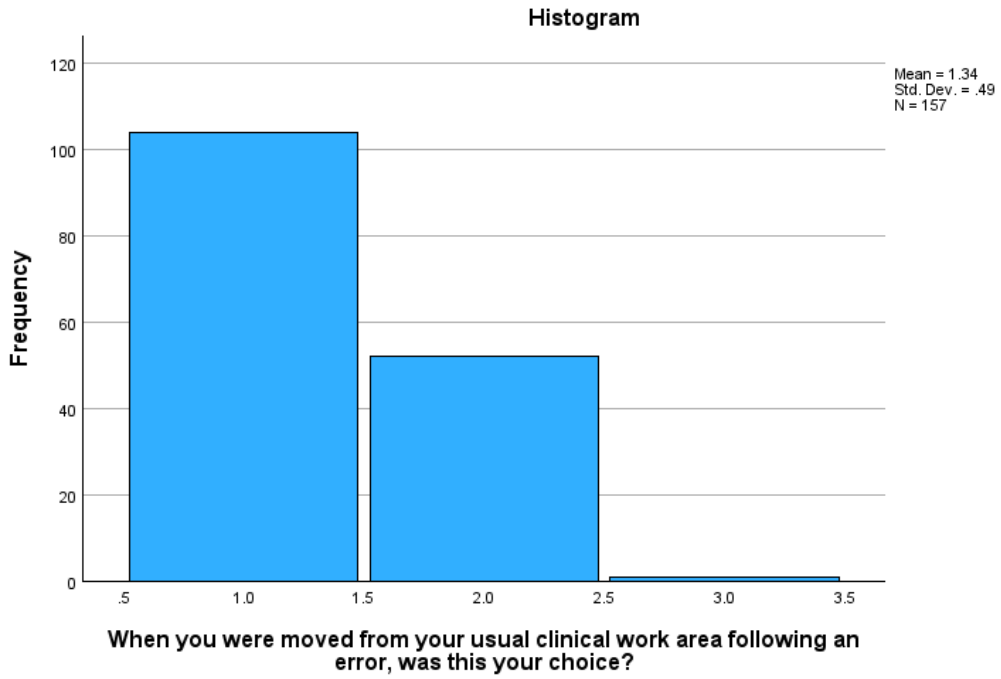
Descriptives

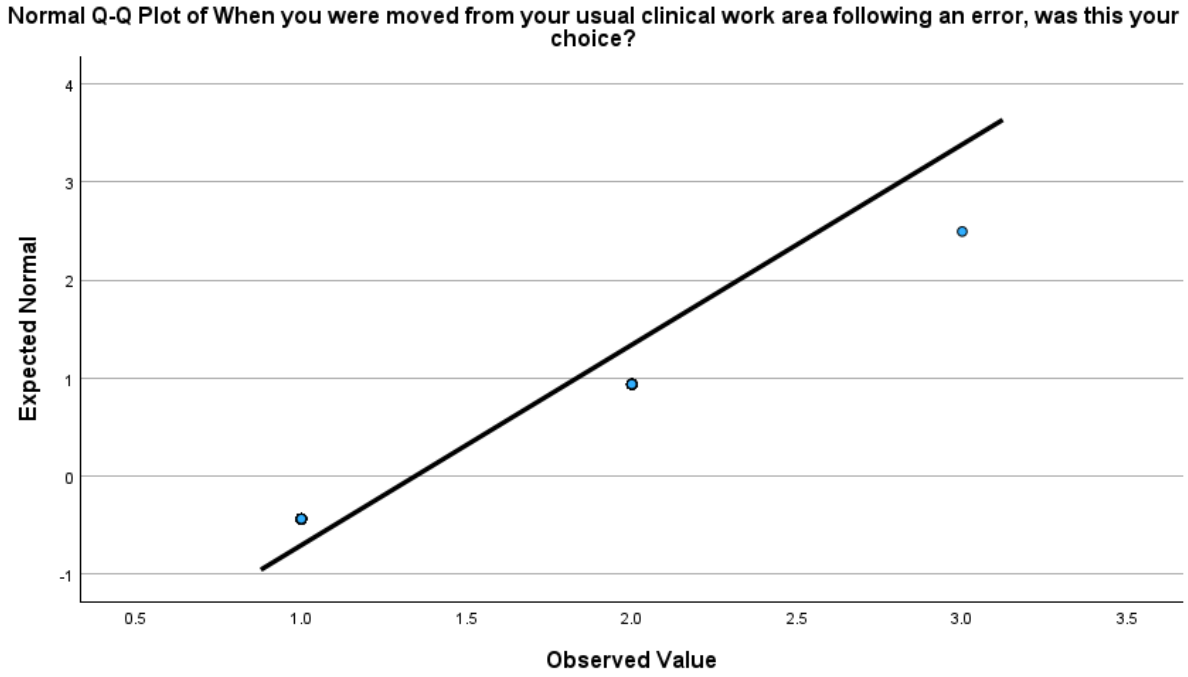
			Statistic	Std. Error
When you were moved from your usual clinical work area following an error, was this your choice?	Mean		1.34	.039
	95% Confidence Interval for Mean	Lower Bound	1.27	
		Upper Bound	1.42	
	5% Trimmed Mean		1.32	
	Median		1.00	
	Variance		.240	
	Std. Deviation		.490	
	Minimum		1	
	Maximum		3	
	Range		2	
	Interquartile Range		1	
	Skewness		.828	.194
	Kurtosis		-.905	.385

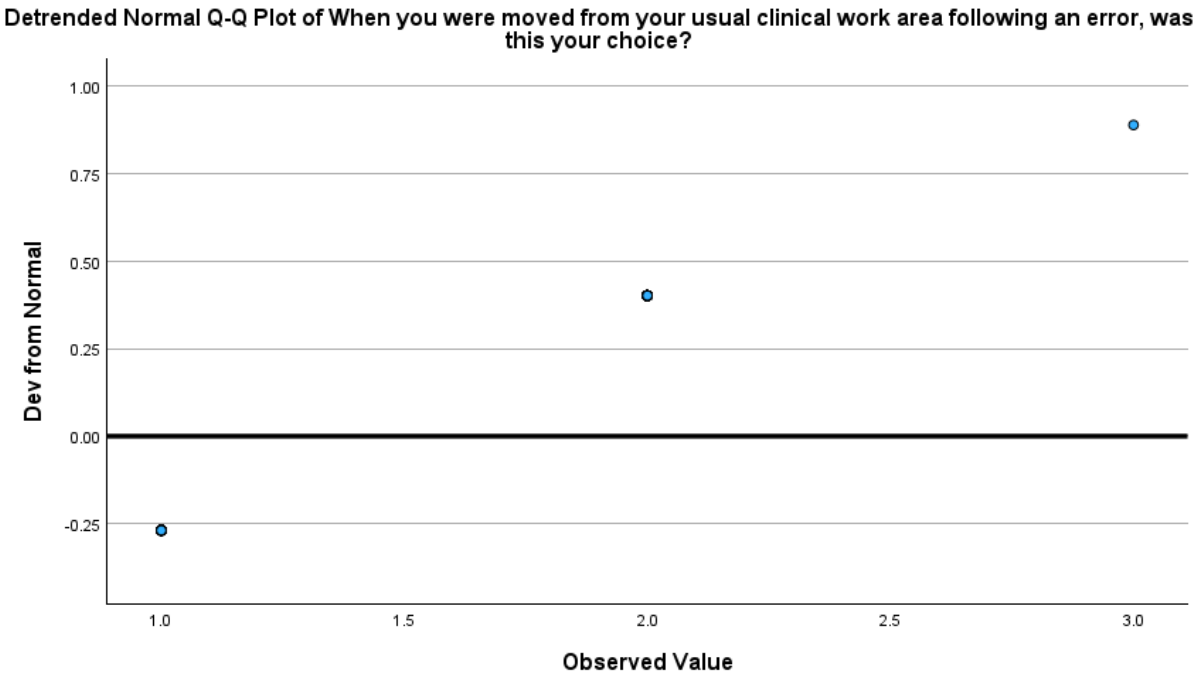
Tests of Normality

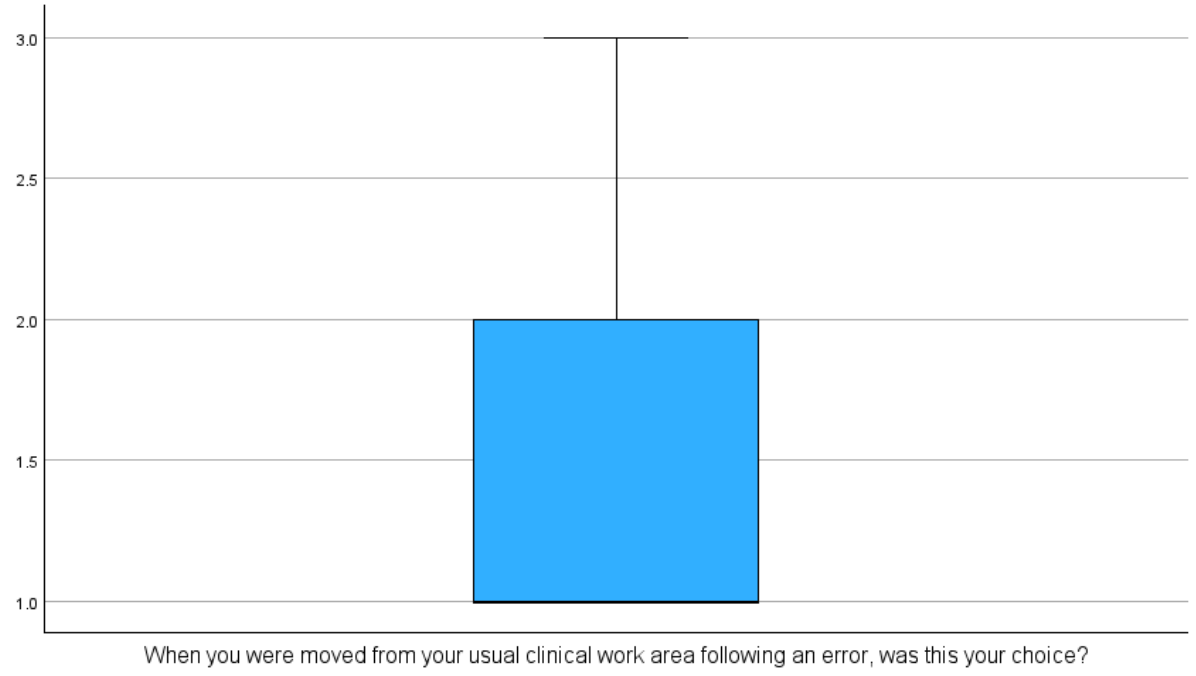
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
When you were moved from your usual clinical work area following an error, was this your choice?	.421	157	<.001	.618	157	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.34
Std. Dev. = .49
N = 157
Frequency
120
100
80
60
40
20
0
.5
1.0
1.5
2.0
2.5
3.0
3.5
When you were moved from your usual clinical work area following an error, was this your choice?


Normal Q-Q Plot of When you were moved from your usual clinical work area following an error, was this your choice?
Expected Normal
4
3
2
1
0
-1
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Observed Value





Continued distress

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Are you experiencing continued distress following the error you made?	468	91.2%	45	8.8%	513	100.0%

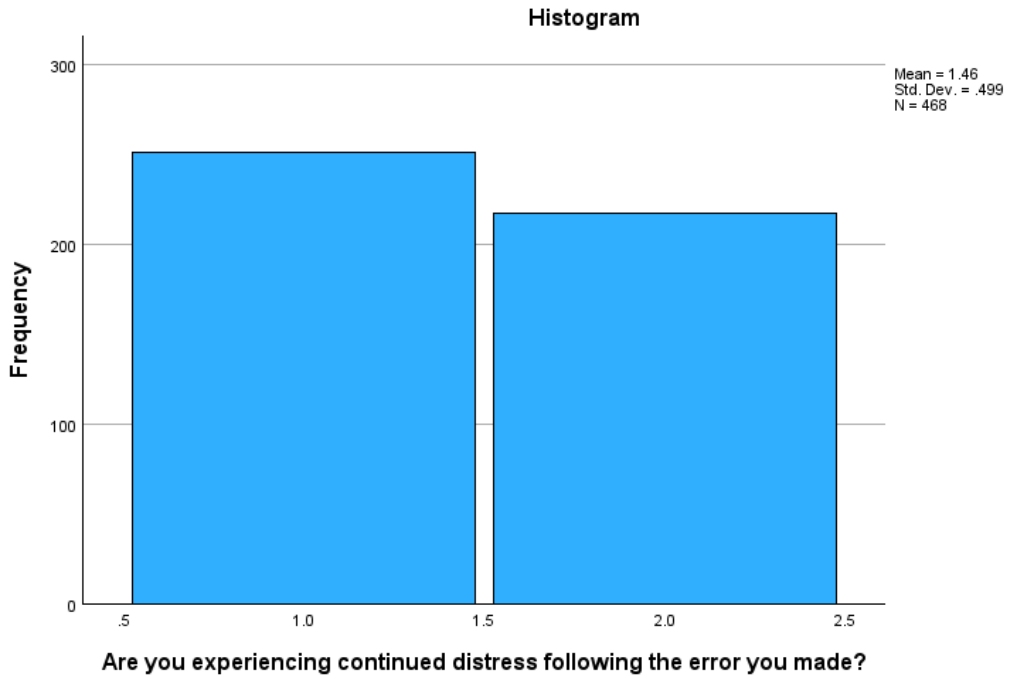
Descriptives

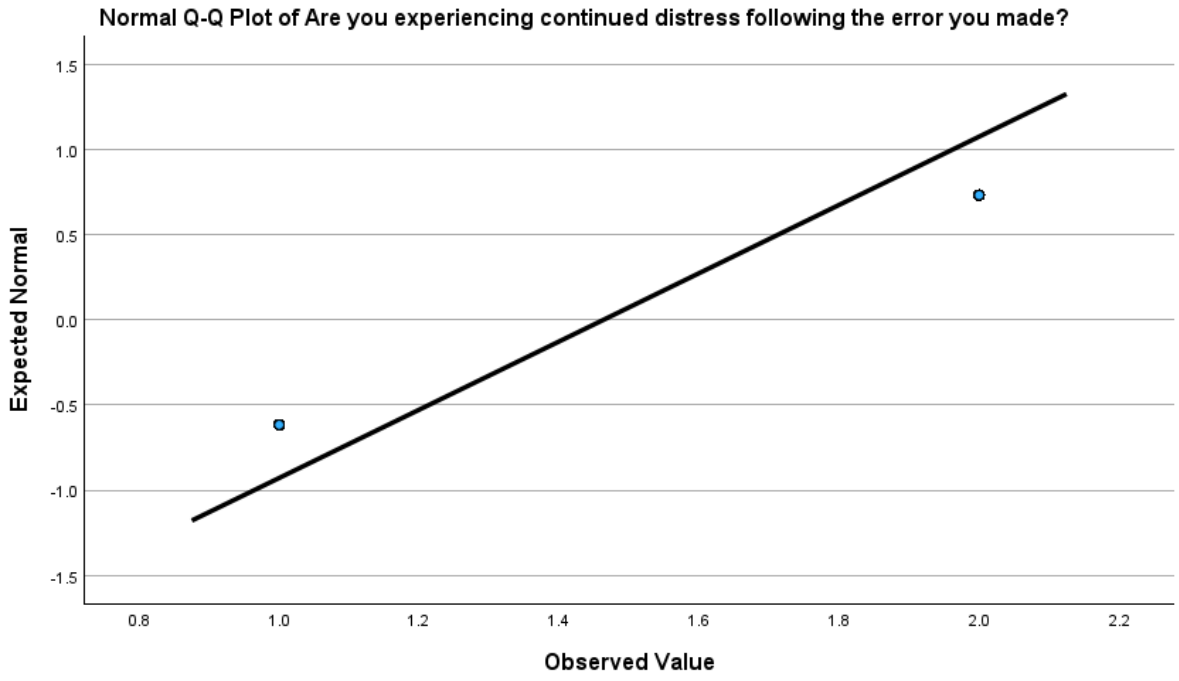
			Statistic	Std. Error
Are you experiencing continued distress following the error you made?	Mean		1.46	.023
	95% Confidence Interval for Mean	Lower Bound	1.42	
		Upper Bound	1.51	
	5% Trimmed Mean		1.46	
	Median		1.00	
	Variance		.249	
	Std. Deviation		.499	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		.146	.113
	Kurtosis		-1.987	.225

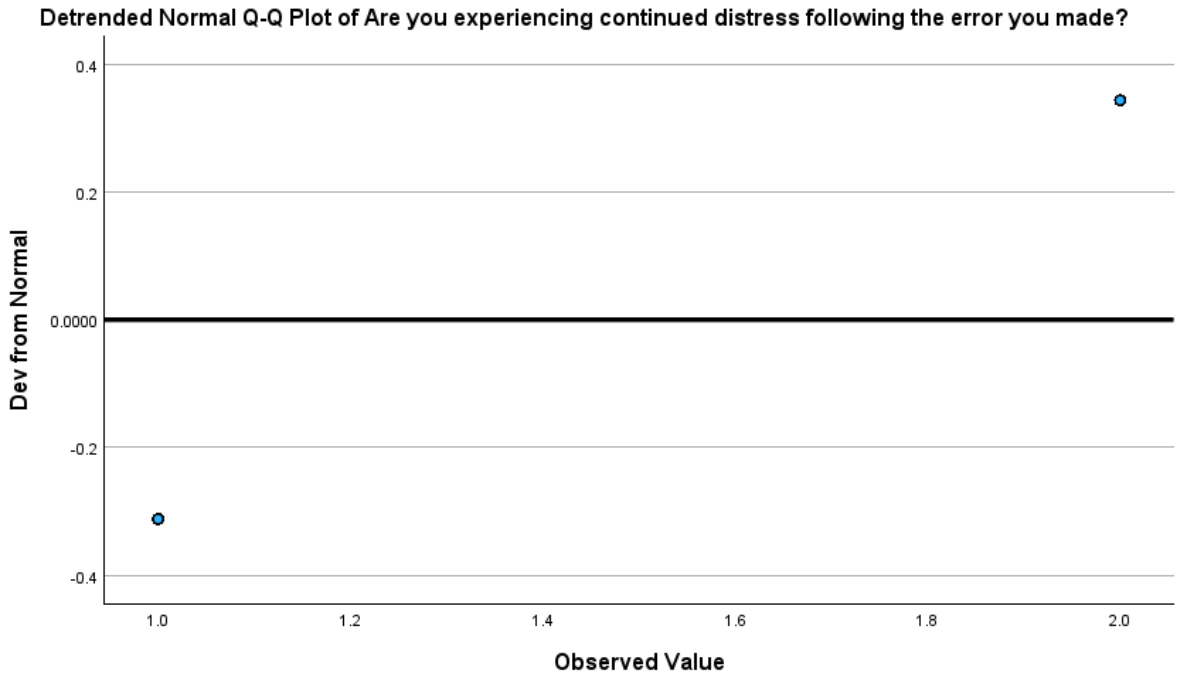
Tests of Normality

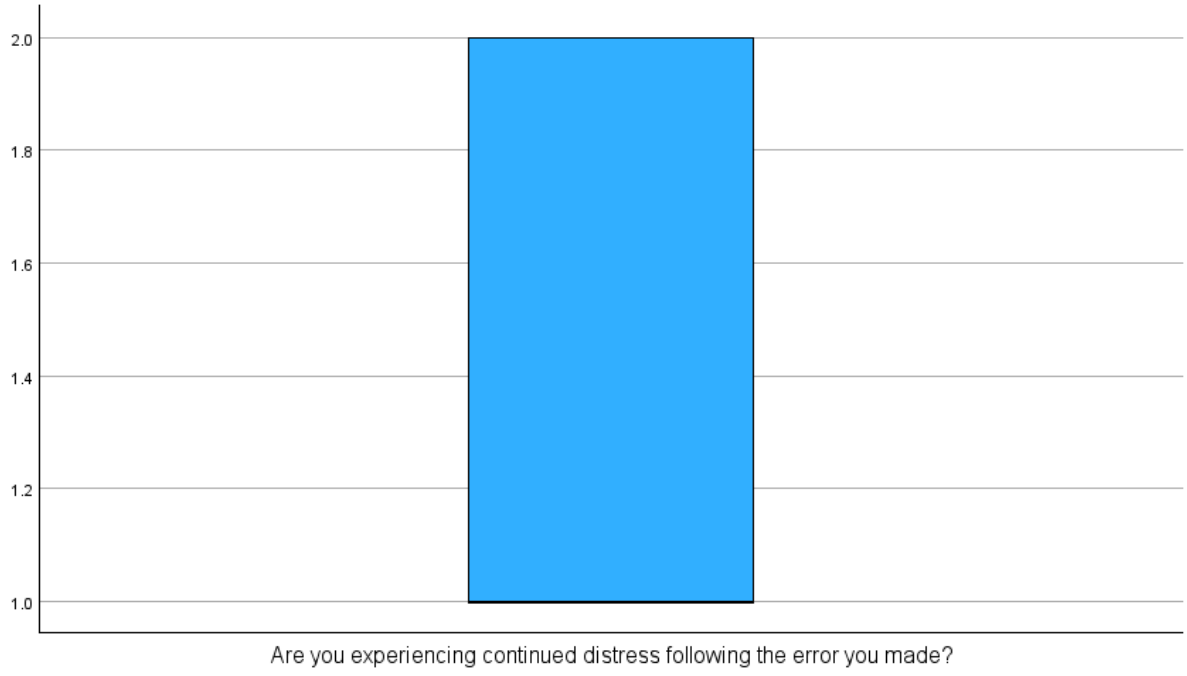
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Are you experiencing continued distress following the error you made?	.360	468	<.001	.635	468	<.001

a. Lilliefors Significance Correction


Histogram
Mean = 1.46
Std. Dev. = .499
N = 468
Frequency
300
200
100
0
.5
1.0
1.5
2.0
2.5
Are you experiencing continued distress following the error you made?


Normal Q-Q Plot of Are you experiencing continued distress following the error you made?
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
Observed Value


Detrended Normal Q-Q Plot of Are you experiencing continued distress following the error you made?
Dev from Normal
0.4
0.2
0.0000
-0.2
-0.4
1.0
1.2
1.4
1.6
1.8
2.0
Observed Value


2.0
1.8
1.6
1.4
1.2
1.0
Are you experiencing continued distress following the error you made?