



## “No-one realises what we go through as Type 1s”: A qualitative photo-elicitation study on coping with diabetes

J.A. Nettleton, A.E. Burton<sup>\*</sup>, R.C. Povey

Staffordshire Centre for Psychological Research, School of Health, Science and Wellbeing, Staffordshire University

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### ABSTRACT

**Aims:** Type 1 diabetes (T1D) has physical, emotional, and social consequences and little is known how adults cope with the condition long term. This research aimed to use a novel photo-elicitation technique to gain in-depth insight into the personal coping experiences of adults living with T1D.

**Methods:** In-depth photo elicitation interviews were employed to collect data and transcripts were analysed using thematic analysis.

**Results:** Participant-led data revealed an overarching theme of the relentlessness of the condition. Continuous self-management tasks infiltrated participants' lives and had a significant impact on coping experiences. A range of techniques and resources were used to cope including using alarms and reminders, diabetes technology, interpersonal relationships, supportive healthcare services and seeking a mind-body balance.

**Conclusions:** Technology shows promise for easing the burden of the condition, expert-led online support would be of benefit, and peer support should be prioritised within interventions for adults with T1D.

### 1. Introduction

Type 1 diabetes (T1D) has physical, emotional, and social consequences with patients reporting psychological distress, mood swings, cognitive challenges, and issues with self-image, confidence, and interpersonal relationships [1,2]. There is now substantial evidence demonstrating the importance of keeping blood glucose levels to as close to normal as possible [3]. Although blood glucose levels can be affected by both internal and external factors, active management of diabetes, is considered core to achieving this [4]. Self-management activities may include blood glucose monitoring and insulin administration, as well as other self-care activities such as healthy eating, physical activity and health-care use [5]. This daily management can be overwhelming and frustrating [6], with many struggling to cope [7]. Long-term management has been linked to burnout [6], which may lead to detachment from diabetes care [8,9]. Wide gaps exist in the understanding of T1D in relation to supporting patients and managing diabetes-related complications and burdens [10].

Due to the common perception of T1D as a condition which is diagnosed in childhood, research exploring coping in diabetes has largely focused on children or adolescents [11,12]. Adolescents with avoidant coping styles are at greater risk of diabetes-related stress and

poorer self-management and glycaemic control than those with more adaptive coping styles [13]. Exploration of the coping experiences of adults with T1D are lacking [14]. Due-Christensen and colleagues [12] explored adult coping by conducting longitudinal narrative interviews with 30 newly diagnosed adult patients in the UK and Denmark. Participants viewed diagnosis as a significant life disruption characterised by fear and distress, which led to challenges managing relationships, and suboptimal self-management. Although an interesting insight into coping experiences during diagnosis and early adaptation, little is known about the day-to-day lived experience of coping with the condition in adulthood long term.

Qualitative research is well placed to explore this phenomenon, however in-depth interviews, most used in this type of research, create an inevitable power imbalance with the researcher leading discussions about health and illness [15,16]. Photo-elicitation is a novel approach that can facilitate participant-led discussions, particularly when participants themselves take and select images for discussion [17]. Photo-elicitation has been successful for understanding adolescents' and parents' experiences of T1D [18], but to date, has not been used with adults. Exploration of adult coping is beneficial to gain an understanding of how to improve mental wellbeing in those who need it. This research will employ photo-elicitation interviews to explore adult coping with T1D

<sup>\*</sup> Corresponding author at: Psychology Department, School of Health, Science and Wellbeing, Staffordshire University, Leek Road, ST4 2DF, UK.

E-mail address: [amy.burton@staffs.ac.uk](mailto:amy.burton@staffs.ac.uk) (A.E. Burton).

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and addresses the question “How do adults cope with living with Type 1 diabetes?”.

## 2. Materials and Methods

### 2.1. Design

Photo-elicitation [17,19] qualitative interviews were used to facilitate visual storytelling [20] and develop in-depth insight into experiences of coping with T1D. Ethical approval was obtained from Staffordshire University Psychology Departmental Ethics Committee.

### 2.2. Procedure

Participants were asked to spend one week taking photographs to capture day-to-day experiences [21,22]. In the information provided, participants were advised that photographs should illustrate “personal everyday lived experiences with coping with living with the condition” and could “reflect things/experiences which you find either help or hinder your coping”. Coping was not further defined to ensure that participants were led by personal definitions in their choice of photographs. Photographs were only used for the purposes of conducting the interview and therefore participants were free to capture images of anything they wished.

Replicating the approach of previous photo-elicitation research [21,22], participants were asked to choose 6–7 of the photographs taken over the week that best represented their everyday experience of coping with T1D. Chosen photographs were emailed to the researcher prior to the arranged interview time to facilitate discussion and guide the semi-structured interviews. Each interview started with “Can you tell me a little bit about your background with Type 1 diabetes?”. Generic prompt questions such as “How does this photograph represent your coping experiences?” were then used to discuss each photograph in turn, allowing open discussion of the importance of each image. Interviews ranged from 20 min to one hour, were conducted via Skype due to geographical variability, and were audio recorded before being transcribed verbatim. All identifying information was removed from the transcripts.

### 2.3. Participants

The research aim was to develop in-depth and detailed examination of coping experiences through the examination of individual cases. To achieve this form of detailed data a relatively small sample is appropriate and preferable [23] and offers sufficient information power [24]. In line with this, a total of nine participants were sourced, seven using volunteer sampling after advertising the study on social media, and two through acquaintances of the first author. Inclusion criteria stated that participants must be over 18 with T1D diagnosed for at least two years. All participants were living in the UK. Participants provided informed written consent and were debriefed. Demographics are displayed in Table 1.

**Table 1**  
Participant demographics.

Age	23 – 61 years ( $M = 39.78, SD = 12.89$ )
Gender	4 female, 5 male
Relationship status	5 married, 3 in a relationship, 1 divorced
Employment status	6 employed, 1 self-employed, 1 retired, 1 student
Age at diagnosis	4 – 40 years ( $M = 22.11, SD = 12.67$ )
Length of time living with T1D	5 – 35 years ( $M = 17.56, SD = 10.20$ )
Technology used	4 MDI (3 using FGM), 5 Pump (2 using CGM, 3 using FGM)

### 2.4. Analysis

A phenomenological and experiential approach to Thematic Analysis [25] was employed to generate patterned meaning across the data set, whilst sustaining a focus on participants’ individual experiences. Inductive thematic analysis was conducted following the six stages outlined by Braun and Clarke [25]. Firstly, transcripts were read multiple times for familiarity. Secondly, the first author completed semantic coding. Codes were reviewed, with similar codes grouped together to form themes. Themes were reviewed across the whole data set, as well as checking correspondence to the research question.

### 2.5. Reflexive analysis

The first author has T1D and at the time of conducting interviews had been diagnosed for 18 months and had prior knowledge of diabetes technologies. It is acknowledged that her own personal experiences may have impacted the data collected and interpretation of the findings, however she kept reflexive notes throughout the process, and regular discussions were held with the second author to interrogate the analysis and ensure themes were grounded in the data. Both researchers reflected on the effect of their own experiences, backgrounds and contexts on their interpretation of the data.

## 3. Results

Participants depicted T1D as a relentless condition that infiltrated all elements of their lives. This narrative underpinned discussions around a range of coping strategies that could be grouped into five themes: using alarms and reminders, interpersonal relationships, supportive health-care services, diabetes technologies, and mind–body balance (Fig. 1).

### 3.1. The relentlessness of diabetes self-management

Daily self-care is essential to living and coping with T1D. However, the relentlessness of management, and the feeling that this should be hidden to prevent discomfort in others caused frustration.

Participants described personal responsibility for repetitive and time-consuming self-management tasks as a source of irritation. For example, Effie discussed a photograph of her hand:

*“it’s a drop of blood on one of my fingers that’s been absolutely pricked to*



**Fig. 1.** Diagram of themes.

death and it's just I dunno for me that's just like the relentlessness of diabetes [...] I'm always testing my blood sugar" (Effie).

Self-management required careful planning which added to the relentlessness. Explaining a photograph of a pile of appointment reminders, Amy said:

"you can't get away from it sometimes, you know there's always something to do, to do with your diabetes [...] you're trying to live a normal life aren't you? But with all this extra stuff you have to do as well" (Amy).

Feeling that self-management should be hidden from others was isolating. For example, Effie preferred to hide all visible evidence represented with a photograph of "hidden realities". In the image Effie had one trouser rolled up to reveal bruises and scars from injection sites:

"from the outside no-one sees you, like no-one realises what we go through as Type 1s and all the trouble caused like it is largely a hidden condition [...] [the photograph is] revealing the hidden stuff that you don't see. I'm quite self-conscious about my injection scars" (Effie).

The invisibility of diabetes meant that others were perceived to be unaware of the challenge of self-management. Similarly, Alex spoke about a photograph of his workplace to explain how establishing a diabetes-life balance could be difficult in a workplace where individuals perceived they would be viewed negatively for engaging in self-management activities:

"the discrimination against like you know when you inject insulin [...] It's not fair that every lunch I walk five minutes out of my way, just to inject some insulin and come back you know? [...] I know it sounds daft but it's sort of like it's ten minutes of your life that you shouldn't really have to waste." (Alex).

### 3.2. Using alarms and reminders

Some participants coped with relentless daily tasks by using alarms and reminders. With reference to a photograph of an alarm set for 1:20am labelled "Night BG Test", Alfie discussed how this could be reassuring:

"it's very rare I actually uncover a [blood glucose] level that requires any action, but because every now and again I do, that makes me feel I'm gonna want to carry on [setting the alarm] [...] it's a major reassurance and I'm happier with it" (Alfie).

While useful strategies to cope with the condition, reminders were also not infallible. Missing alarms could cause mistakes and feelings of guilt. For example, Lucy explained a photograph of her insulin pump on a table during a trip out for afternoon tea:

"my insulin pump ran out of insulin, and of all the things I take with me every day I had the tubing sets and everything but I didn't have the insulin cartridge so I'd obviously slept through the alarm that night to tell me that the cartridge was running low [...] I felt really stupid that after ten years I was still in situations where not only was I running out of insulin but I didn't have any spare to replace it with so then done all of that to then sit and eat cake, just felt really guilty about it" (Lucy).

Relentless management activities and tiredness caused by the condition could result in errors. When mistakes were made Lucy described experiencing self-blame and negative emotions for letting 'other life' get in the way of managing diabetes.

### 3.3. Diabetes technologies

Diabetes technologies played an important role in coping with self-management. All but one participant described having experience with technology such as Flash Glucose Monitors (FGMs) and Continuous Glucose Monitors (CGMs). Despite frustrations, technology made living with T1D more manageable. Those who had moved from multiple daily injections (MDI) to pump therapy felt like they now had more control and would not be comfortable going back to MDI.

David and Lucy explained how technology had provided some freedom from the condition to be able to live their lives:

"[FGM] is as helpful to me on a day-to-day level as a wheelchair

would be if I lost a leg. I mean it's hard to describe how useful it is as a technology and how valuable it is to me in terms of enabling me to live my life." (David).

"Technology has really helped me cope with diabetes [...] just being able to have the alarms has been so freeing [...] I just felt like it was such a relief not having to be subconsciously thinking about it all the time" (Lucy).

For these participants, technology removed some of the relentless personal responsibility discussed in the first theme.

New technologies could have physical and psychological benefits in terms of better management of blood glucose ("my numbers have improved very very significantly and if I look back at the sort of trace of my numbers sort of over the last four years it's very clear that it directly coincides with you know a few weeks a few months after I started using [the FGM]"...), and greater feelings of confidence and control ("...in sort of psychological terms the confidence you can have is immeasurably better and it's all because of the piece of magic of being able to predict trends rather than just tell you what's going on", Alfie).

However, not everybody has free access to diabetes technologies. Amy discussed this in relation to a photograph of her FGM, alongside how her coping experiences have improved since having access to technology:

"What I used to hate [...] is doing the blood test, because it was like waiting for test results every time you did it and whether or not you were doing well or not doing well you were sort of judged by that test result and actually it was very much a moment of isolation a blood test result whereas at least with this [FGM] what you can see is a pattern, so you can see if it's going up or coming down, you can make better judgements about how you then manage that and I definitely think it's massively sad that it's not available to everyone but who knows, hopefully it will in the future." (Amy).

For Amy, technology provided escape from the relentlessness of self-management. Confidence provided by the patterns which could be seen with the technology helped Amy feel more in control.

Technologies did not come without their downfalls. Two participants experienced inaccurate readings which turned them from being helpful coping aids to health risks. For example, Sam explained:

"...it's just not reading right and it's making me make bad decisions [surrounding insulin dosing] which is the opposite of what it's supposed to do" (Sam)

This caused frustration when needing to revert to finger prick blood glucose monitors, prohibiting the freedom that modern technology provided. In addition, Effie explained how some forms of technology could make it even harder to escape from the relentlessness of constantly thinking about the condition:

"One thing about the [FGM] that hasn't really improved my coping is that it does make me want to check [blood glucose levels] more so I've gone from testing me like 8 or 10 times a day to sometimes 20 or 30 times a day because I have that option and it makes me really hypervigilant about my blood sugars [...] so it makes me think about diabetes a lot more I think" (Effie).

### 3.4. Interpersonal relationships

The relentlessness of the condition and a need to hide self-management from others resulted in seeking other options for support including friends and family and the online community.

#### 3.4.1. Friends and family

Friends and family provided practical and emotional coping support. When talking about a picture of her son, Anna stated, "he is my coping mechanism" similarly in discussion of a picture of his wife, Dan said "she is my absolute rock" and went on to explain:

"... [my wife] became quite diabetic savvy as well so she always knows if I'm high or low and is just like "are you feeling ok? have you checked your sugars?" and it's just nice having the support" (Dan).

The presence of others helped participants to feel safe with the knowledge that someone is there for them.

Alex discussed a photograph of a dog and how although he experienced less support from friends and family as an adult with T1D compared to when he was younger, he found comfort in his dog:

*"...he's quite a positive coping mechanism really, cause he does just help [...] I feel like he does genuinely sense low blood sugar and then just sort of like helps me on like an emotional level"* (Alex).

Additional support for participants came from developing relationships with others with T1D, because living with T1D could feel quite lonely: *"the biggest support of all is having the support of people who live with the same condition"* (Alfie).

### 3.4.2. Online communities

For those who were unable to find face-to-face support, online communities were valued, as Alfie explained:

*"being able to compare experiences with other people is hugely, hugely valuable, and in that sense, I know it's much criticised but social media is a wonderful thing"* (Alfie)

However, there were also challenges. For example, Lucy reported comparing her glucose levels with others with the potential for feeling that she was not managing well enough:

*"I would go [online] and see somebody else's HbA1c where previously I would think mine was amazing, it was the lowest I'd ever got it [...] I did beat myself up 'cause I would think 'well if that person can get their HbA1c at like 5.8[%] why can't I get it to 5.8?'"* (Lucy).

Despite this risk, Lucy still valued social media and discussed a photograph of a diabetes event advertised on Twitter:

*"I've found it [social media] really useful in being able to find out what's going on with like latest diabetes research and technology and all those kind of things. I found it really useful to be able to reach out to people especially when I was pregnant to say 'help, has anyone else experienced this?' like what are my options and I think it's just useful to just kind of follow people to see like you're not the only person that experiences this"* (Lucy).

Among the online community there were also healthcare professionals whose presence was largely welcomed. Alfie discussed a photograph of two HCPs met through social media:

*"one of the great things is that is isn't just people with the condition [on social media] it is a significant number of those looking after us as well [...] their presence is hugely welcomed by most of us because it does mean we have very ready access to these people [...]"* (Alfie).

This example highlights the value of the support through social media from healthcare professionals.

### 3.5. Supportive healthcare services

All felt lucky to have free medication through the National Health Service (NHS) and believed this was beneficial for coping with T1D. For example, Effie talked about feeling grateful when discussing a photograph of a bag of diabetes supplies:

*"[the photograph] just reminded me of how grateful I am for the NHS in general like the fact that I get all this stuff for free, this hefty bag of goodies that help me live and you don't have to pay a penny for it."* (Effie).

The avoidance of stress regarding funding self-management helped her to cope. However, despite free access there could still be challenges with obtaining medications resulting in frustration and anxiety. Alex discussed a photograph of his pharmacy:

*"...I've had it where you go to pick it [prescription] up and the pharmacy's rejected your prescription because you've used your blood testing strips too quickly [...] you feel really anxious when you drop a prescription in or you order it online or something because you think 'what if this doesn't turn up?' you know 'have I got enough?'"* (Alex).

For Alex the lack of control over potential access to self-management resources and having experienced failures in the prescription system

resulted in understandable stress and anxiety. Similar experiences were reported in which participants felt they were not viewed as an individual in need of support and instead became a *'part of a machine or a process'*. Amy explained a photograph of a pile of appointment letters:

*"...you feel like you're part of a machine or a process instead of the care is really person-centred around you as an individual [...] when I go to those appointments I try to be really positive about them and make the best out of them but just you know sometimes when I go to my local doctors for my annual review I feel like I know more than the nurse does [...] so sometimes it does feel a bit like a process."* (Amy).

These experiences contributed negatively to coping. Anna spoke about varied experiences with HCPs after discussion of a photograph of a vial of insulin representing a recent change in the type of insulin used:

*"I had a really good DSN [diabetes specialist nurse] to start with [...] then I was kind of put in this limbo and [...] I would feel quite negative, I would leave and even if my A1c was down there'd be something else that was an issue [...] I would always leave feeling very despondent actually and feeling like I'd been told off, so this day when I [...] finally ended up on the pump system was huge because all of a sudden I was seeing the top two [consultants] [...] it was almost like being in a different hospital, they would listen to me, they would understand my point of view and we would discuss stuff and that was far better than being made to feel stupid [...]"* (Anna).

Anna highlighted how communication styles of healthcare professionals could have important implications for how patients feel about diabetes and their ability to self-manage. Poorly perceived appointments could result in negative emotions, while appointments where individuals felt listened to, valued, and involved in their care could leave them feeling empowered and better able to cope.

### 3.6. Mind-body balance

The ability to self-manage and cope with T1D was dependent on maintaining a positive emotional state. On days where participants struggled with the psychological demands of the condition, their ability to self-manage suffered:

*"it totally depends on how I'm feeling that day as to how well I manage to cope with my diabetes"* (Lucy)

The participants explained a strong link between coping and blood glucose levels. When blood glucose was stable, participants could feel in control and less impacted by relentless needs for self-management. Participants reflected on the battle to feel in control, with feelings of guilt when they were unable to accomplish in-range blood glucose. In reference to a photograph of a graph of her blood glucose which had been in range for a lot of the day, Lucy explained:

*"if I'm having like a good morning, so I wake up and my blood sugar's been in range I feel much more motivated and kind of happier to get on with the rubbish aspects of it, whereas sometimes when I wake up if I've been high all night it doesn't really set me up for a good day cos I just feel guilty before I even, even though I was asleep so what was I to do, but it doesn't really help me cope with the diabetes for the rest of the day"* (Lucy).

Participants discussed behaviours to achieve more control over their blood glucose and thus experience better coping, such as regular exercise or low carbohydrate diets. However, the need to manage multiple behaviours could be challenging as Amy discussed in relation to a photograph of a low carb recipe book:

*"...having the low carb diet definitely helps me cope because having better blood sugars makes me feel better about [T1D], but what I would say is I am struggling I suppose to stay on the diet and that then can make you feel like you're not coping cause then when you look at your blood sugars and they're going up and down you sort of feel like you're not you're not taking the control that you should be of it"* (Amy).

Management of emotional responses could help participants to cope, for example some participants spoke about positive thinking and the use of mindfulness to keep on top of their emotions. Amy emphasised how it

was important to stay in the present when discussing a photograph of a blackboard portraying details of a yoga class:

*“having that level of mindfulness, staying in the present more, not beating myself up about what I’d maybe done in the past that hasn’t helped you know not worrying about what might happen in the future you know, will I lose my sight? will I lose a toe? you know at what point how will the diabetes affect me going forward? trying not to stay in that space but appreciate what is now you know it’s really important actually” (Amy).*

Amy acknowledged that the future may be challenging but remained thankful and positive about her current bodily capabilities. Staying in the present and appreciating her capabilities helped her to cope with the condition. Similarly, participants’ coping was helped by the fact that the condition had not stopped them from living their lives as they wished. For example, Dan said *“nothing can stop you really if you put your mind to it”* in response to a photograph of himself after completing a ‘Tough Mudder’ event (an endurance event where people face different obstacles over the course of 10 miles).

#### 4. Discussion

This study used photo-elicitation interviews to explore adults’ experiences of coping with T1D. The novel photo-elicitation approach facilitated in-depth, participant-led data. Accounts illustrated how self-management of diabetes can be a relentless and inescapable task and a range of coping resources were highlighted including setting alarms, using diabetes technologies, engaging in interpersonal relationships both in person and online, accessing supportive healthcare services, and finding ways to achieve a mind–body balance.

The use of alarms and reminders led to feeling more at ease, with alarms viewed as a safety net to manage drops in blood glucose. Some participants had access to technologies which alerted them to blood glucose levels out of range, however issues surrounding the accuracies were discussed. For alarms and reminders to effectively ease the relentlessness of the condition without adding unwanted frustrations, ensuring that technology available to those who wish to use it are accurate would be the ideal. With diabetes technology ever evolving, and continuous glucose monitors now available on prescription for many people with T1D across the UK, this will hopefully become a reality.

In the past, research has explored experiences of the use of CGMS by children and adults [26] and how CGMs can improve glycaemic control [27]. Some evidence suggests there may be differences in the type of coping approach adopted by adults for whom glycaemic control improves with CGM when compared to those for whom it does not [28]. However, this is the first study to provide an in-depth qualitative exploration using photo-elicitation to focus on coping in adults using CGM. Modern diabetes technology proved helpful in terms of both management and coping. Participants who could see trends in their blood glucose rather than just the snapshot provided by traditional blood glucose meters, improved their decision-making surrounding T1D. Although some raised issues with technology making it harder to switch off from T1D, participants were excited about the future of diabetes technology. If current technical issues can be addressed, then technology could provide people with easier management and improved coping.

Participants experienced the healthcare system to be both helpful and hindering toward their coping. While they expressed gratitude towards the provision of free and easy access to medication, some reported problems with obtaining their medication from pharmacies which led to frustration and anxiety. Participants also experienced variability in the quality of care provided by HCPs, reflecting experiences among children and adolescents [29]. Participants who experienced good quality care

found this helpful for their coping and felt more empowered in relation to managing their condition. Other experiences left participants feeling like part of a process and they expressed the wish to become more involved in their own care. Patient-centred care which is respectful of and responsive to patient preferences and treats everyone as individuals is important [30,31] and could help to improve coping and overcome barriers to engagement in healthcare appointments [32].

Participants found emotional support to be invaluable. Unfortunately, not all interactions were positive, evidenced in accounts of poor public knowledge of T1D. This led to feeling the need to hide the condition and self-management behaviours, which closely relates to the concept of diabetes stigma [33,34]. Family, friends and pets represented a form of emotional and practical support. It was particularly valuable to know others living with the condition who they could share experiences with, be this in person or online. Online support facilitated engagement with others, provided information and feedback, and opportunity to ask questions. Comparing experiences with others with T1D was valuable in preventing participants from feeling alone and providing them with a space to both receive and give support. Participants also highlighted the value of health care professionals within the forums, illustrating a willingness in these professions to provide online support. However, this form of support is not without dangers including threats of personal data collection, a lack of accountability and no guarantee of authenticity for the information given [35]. In addition, participants highlighted the risk of feelings of guilt if they felt they were not managing their condition as well as others. Opportunities for providing safe and confidential online support, facilitated by trained professionals, should be explored for adults with T1D to maximise benefits and minimise risks.

Continuing to participate in activities that people enjoy and would do in life if they did not have T1D was important for participants’ coping. There was a clear link between blood glucose readings and emotions, with negative emotions presenting a barrier to self-management. Although diabetes persists in the background, finding enjoyment in activities enabled participants to have some space to think away from their condition, manage their emotions, and restore some balance in their lives. Personalised psychological interventions would benefit adults with T1D, ensuring they have support to find ways of coping which work for them and help them to manage the emotional impact of T1D. Participants put across how important positivity is when dealing with T1D and discussed how they would not cope so well if they were to dwell on the negatives and what could happen in the future regarding complications. Mindfulness was expressed as a useful technique, and mindfulness training may be useful for people with T1D as it has benefitted the well-being of people with other long-term conditions such as fibromyalgia [36] and Multiple Sclerosis [37]. While research has explored mindfulness for people with diabetes, evaluations tend to include mixed groups with both Type 1 or Type 2 diabetes and therefore do not address T1D coping specifically [38]. Only one study could be found evaluating effectiveness of mindfulness for patients with T1D. Although a pilot study, results were encouraging, reporting evidence for a reduction in stress at the end of treatment, however no benefits for diabetes management or glycaemic control were demonstrated [39]. More research into the most effective psychological techniques for aiding coping in T1D is needed, particularly those that support and facilitate positive approaches to coping. Certainly, due to the relentlessness of the condition, psychological support in addition to clinical support should be an integrated part of usual diabetes care [30].

Photo-elicitation was a strength of this study, as a useful tool to elicit detailed and inciteful discussions with the participants. The findings presented are intended to be representative of the experiences held by the participants in the study. There were also some limitations to the

study. The study had a limited sample size, and all our participants were recruited via social media or personal acquaintance. This may mean that some experiences, such as the value of social connection online, may not represent the experiences of all adults with T1D. However, even within this small sample we were able to identify several shared experiences. Therefore, we are confident that many of the same ideas would be present in further interviews, especially as the participants were a wide range of ages, had been diagnosed at different ages, and lived with T1D for very differing lengths of time, but still had many of the same experiences. Further research would benefit from a broader recruitment strategy away from social media.

#### 4.1. Conclusion

This photo-elicitation study has allowed us to gain in-depth insight into the personal coping experiences of adults living with T1D. Participant led data revealed an overarching theme of the relentlessness of the condition. With continuous self-management tasks infiltrating participants' lives, this had a significant impact on coping experiences. A range of different experiences revealed how using alarms and reminders, diabetes technology, interpersonal relationships, supportive healthcare services and mind-body balance affected participants in ways which would either help or hinder how they cope with the relentlessness of T1D. Like children and adolescents, adults can struggle with the management of T1D. Technology shows promise for easing the burden of the condition, safe and expert led online support would be of benefit, and peer support should be prioritised within interventions for adults with T1D.

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#### Data availability statement

Due to the sensitive nature of the questions asked in this study, interview respondents were assured raw data would remain confidential and full transcripts would not be shared.

#### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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