

Retraction Notice

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History

Expression of Concern:

- yes, date: yyyy-mm-dd
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Correction:

- yes, date: yyyy-mm-dd
- no

Comment:

This article has been retracted to straighten the academic record. In making this decision the Editorial Board follows COPE's Retraction Guidelines. The aim is to promote the circulation of scientific research by offering an ideal research publication platform with due consideration of internationally accepted standards on publication ethics. The Editorial Board would like to extend its sincere apologies for any inconvenience this retraction may have caused.

Editor guiding this retraction: Prof. Peter Walla (EiC of PSYCH)

Functional Perpetual Resilience in Japanese Adults with Type 1 Diabetes: A Grounded Theory Study

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Abstract

Resilience strategies are what we do to avoid and recover from error. In this study, we used the grounded theory approach to evaluate resilience in Japanese patients with type 1 diabetes. Semi-structured interviews were conducted with 15 adults with type 1 diabetes. Then, using grounded theory, we created a new model of resilience in this population. The results suggested a core category, “functional perpetual resilience”, comprising ten concepts classified into five stages. These ten concepts were as follows: “avoiding death due to an injection”, “suffering from treatment”, “avoiding being seen”, “building walls around others”, “being branded as sick”, “awareness of supporters”, “active effort”, “bridging gaps”, “acquiring self-protection skills”, and “strategies to manage change”. Individuals with type 1 diabetes used difficult experiences to motivate their resilience and to improve their situations. Additionally, resilience was an important contributor to these individuals’ beliefs in their ability to face difficulties, accept their illness and insulin therapy, and control their illness; it was also important to these individuals’ faith in the future and in medical care. Our results are applicable to clinical care and research, such as in the development of preventive interventions aimed at building or strengthening protective skills related to diabetes and its management. Ultimately, our goal is to equip adults with type 1 diabetes with the tools to obtain sufficient behavioral and health-related resilience. Furthermore, these results highlight that maintaining resilience-related coping skills is important for adults and indicate that different psychological processes underlie resilience across the lifespan.

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Keywords

Adult, Comparative Analysis, Grounded Theory, Resilience, Type 1 Diabetes

1. Introduction

Type 1 diabetes (T1D) is a disease characterized by deficient insulin production and requires daily insulin administration (American Diabetes Association, 2015; World Health Organization, 2010). Patients with T1D require lifelong self-care, including daily management of their blood glucose levels to maintain their health and prevent future complications. Patients with T1D must suitably modify their behavior after diagnosis, and it is important they learn to self-manage their condition.

Good self-managers have been defined as individuals who have learned the skills to cope with their illness, know how to continue with their daily activities, and can regulate their ever-changing emotions related to their chronic illness (Lorig et al., 2006). For patients with T1D, self-management can be difficult because they experience physical, emotional, and social distress and often need to communicate this with co-workers and supporters. Notably, however, while some T1D patients who face such distress struggle to manage it, others excel in doing so. This phenomenon is evident across the academic, social, and developmental domains. Those who excel in dealing with distress related to their disease are considered “resilient”, and these individuals are the focus of the present study. Resilience has been studied both domestically and internationally, and many studies on it have been considered to support “positive health” approaches. Thus, it is important to promote knowledge of resilience among both the research and lay populations.

1.1. Literature Review

Previous studies on patients with T1D have focused on the negative psychological aspects of their disease, such as anxiety, depressive symptoms, or feelings of struggle (Patel, Eborall, Khunti, Davies, & Stone, 2011; Polonsky et al., 2005; Rasmussen, Ward, Jenkins, King, & Dunning, 2011; Zoffmann & Kirkevold, 2007). Therefore, we focused on a positive aspect—namely, their resilience. Resilience has been defined as the capacity to deal with, overcome, learn from, or be transformed by life’s inevitable adversities (American Psychological Association, 2011; Grotberg, 2003; Rutter, 1985; Werner, 1993). Resilient youths overcome challenges expected to derail them from their expected progress and demonstrate competence at or above common levels of functioning (Hilliard & Harris, 2012; Jaser & White, 2011; Livingstone, Mortel, & Taylor, 2011). People with chronic diseases often talk about how their diagnosis helped them recognize their own resilience namely, they felt able to tap into sources of strength and to be resourceful in ways that they had never thought possible. At the same time, one of life’s “curveballs”, or a series of curveballs, can leave anyone feeling depleted.

Hilliard and Harris (2012) performed a study on resilience theory regarding T1D management and control, wherein they constructed a theoretical model of pediatric (i.e., adolescent) T1D resilience. However, very little qualitative research is available on resilience among people diagnosed with T1D, and none of it was conducted in Japan.

1.2. Study Aim

The aim was to clarify the process of resilience in adult Japanese patients with T1D and devise a model of resilience in this population.

2. Method

2.1. Design

To ascertain a model of the resilience process in adults with T1D, we used the grounded theory method (Glaser & Strauss, 1967; Strauss & Corbin, 1990). The grounded theory method was used because it focuses on exploring processes and generating new understandings of them from available data (Glaser & Strauss, 2006). This was suitable because it allowed us to use the participants’ own words to understand the effects of a T1D diagnosis on the meaning of resilience.

2.2. Participants

Inclusion criteria were being a Japanese speaker with T1D and being aged 20 years or over. All participants resided in Tottori Prefecture, Japan and were recruited from two diabetes outpatient clinics that specifically served adults with T1D. All patients were recruited from the short-term wards (i.e., wards for short-term care) in these clinics. Approximately 5% of patients who visit these wards have a diagnosis of T1D with hypoglycemia or hyperglycemia symptoms, and nurses in these wards provide self-care management and group therapy with a goal of discharge. We recruited 15 individuals with T1D who were recommended by health professionals, and whose reactions, behaviors, and facial expressions we had observed before conducting the study. Sampling was then used to continue recruitment until data saturation occurred. Sampling involved having participants recommend other participants to join the study because it was difficult to identify appropriate and willing participants. Details of the study were explained to all clinic patients, after which they were invited to participate; interested patients who agreed to participate contacted the researchers for further information.

2.3. Ethical Considerations

This study was approved by the ethics committee of our university (Record Number 2307, January 2013). Informed consent was obtained from all patients using the procedure approved by the ethics committee, and the confidentiality of the participants' information was protected. Furthermore, they were told that they could stop the interview at any time they wished and could refuse to answer any unwanted questions. Pseudonyms were allocated to all the patients to ensure confidentiality and all data were stored securely during the research process.

2.4. Data Collection

Data were collected from 15 patients with T1D between July 2013 and March 2014 via in-depth semi-structured interviews that took place in the clinic waiting rooms. The author conducted all interviews using a standardized interview schedule.

Participants were asked to share their experiences, since being diagnosed, of coping with self-management and diabetes control issues, the meaning of living with diabetes, and their support from family and friends. The participants were initially informed of the topics and then were asked to freely reflect on and discuss their experiences of living with T1D. Follow-up questions were posed to obtain more detailed descriptions or explanations. The interviews (which each lasted for 60–75 minutes) were audio-recorded, transcribed verbatim, and stored for analysis. Data collection was stopped when we reached saturation—namely, when no new findings or themes were extracted from newly collected data.

2.5. Data Analysis

In grounded theory, data analysis follows a constant comparative method of simultaneous interviewing, transcribing, and analysis until data saturation occurs (Glaser & Strauss, 1967; Strauss & Corbin, 1990). Constant comparison methods (Glaser, 1978) involve concurrently asking questions, creating memos and diagrammatic records, and reading literature from data collection commencement until achievement of theoretical saturation (Glaser, 1992). Before coding each interview, the first author listened to the interview tape several times and read the typed transcripts through completely. This ensured a full understanding of the raw data. The verbatim translations were then coded and analyzed in the same way as the interview transcripts. All transcripts were translated into English and subjected to the same coding and analysis process as the Japanese interview transcripts were. The results did not differ from the Japanese language analysis. The next step was line-by-line in vivo coding. The codes were then compared according to their differences and similarities and sorted into categories and subcategories. Subsequently, we identified the linkages among these categories and subcategories.

Finally, the core category was identified, which allowed us to build a new resilience model for T1D (Figure 1). In other words, the core category—namely, the category to which all other subcategories are related—was named and used to build a conceptual framework of resilience in adult T1D patients. The core category was established upon completion of the 15th interview; this was confirmed in later interviews with participants who were interested in discussing the research, during which we explained the categories and subcategories to them. Data analysis was undertaken using QSR NVivo 10 software.

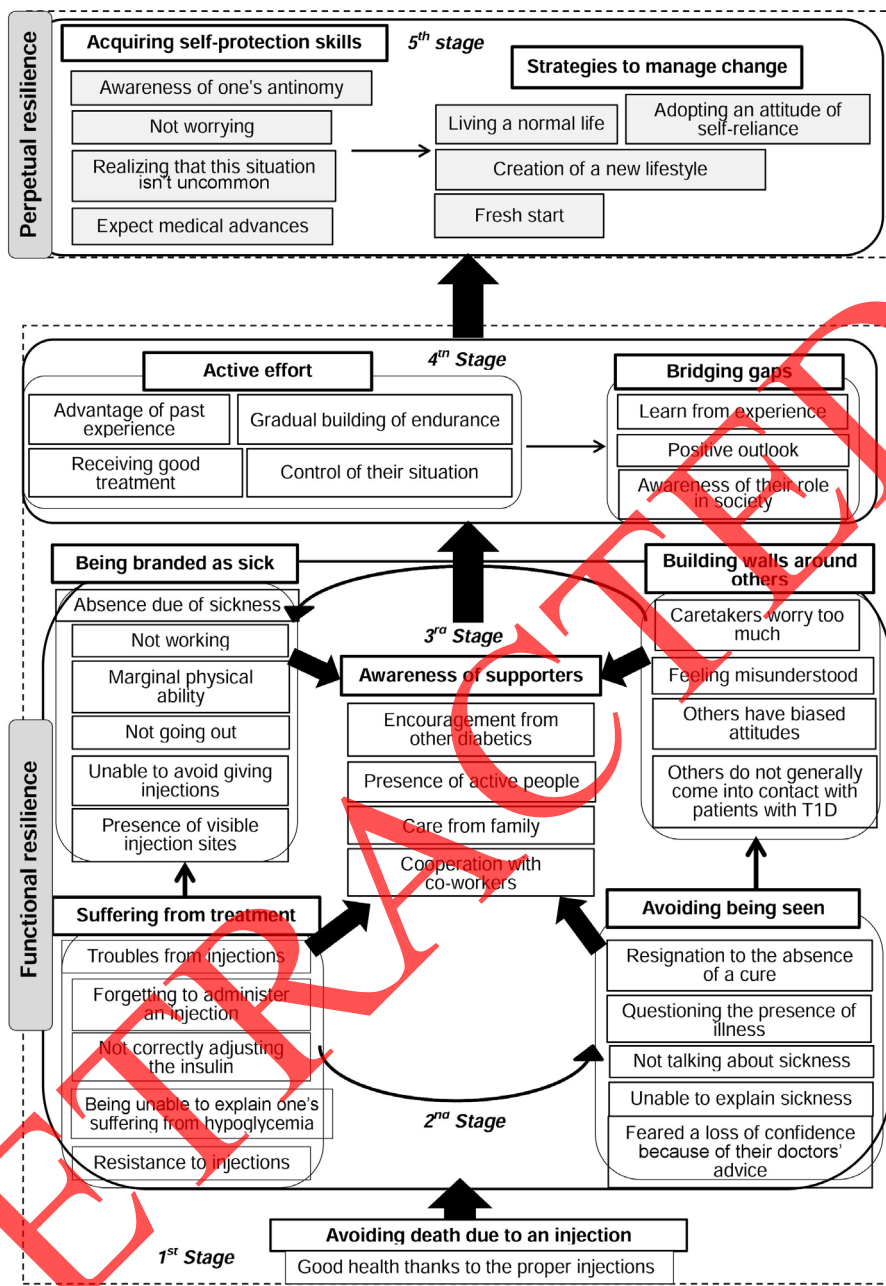


Figure 1. A model of functional perpetual resilience in adults with type 1 diabetes (T1D).

3. Results

Table 1 shows study participants' basic attributes. The core category identified was "functional perpetual resilience," which comprised two categories: "functional resilience" and "perpetual resilience." These categories, in turn, comprised ten subcategories (or concepts) in five stages related to participants' attempts to reduce stress and develop resilience in the face of adverse experiences from T1D. The concepts were as follows: "avoiding death due to an injection", "suffering from treatment", "avoiding being seen", "building walls around others", "being branded as sick", "awareness of supporters", "active effort", "bridging gaps", "acquiring self-protection skills", and "strategies to manage change". Figure 1 shows the model of T1D resilience comprising "functional perpetual resilience" and concepts related to it. The aforementioned processes formed five stages of coping with T1D.

Table 1. Demographic characteristics of the 15 study participants with type 1 diabetes.

Participant characteristics		n
Gender	Female	13
	Male	2
Employment status	Full time	7
	Part time	3
	Unemployed	5
Age groups (years)	<30	1
	31 - 40	7
	41 - 50	3
	51 - 60	2
	>60	2
Time living with type 1 diabetes (years)	<5	8
	6 - 10	6
	11 - 20	0
	>21	1
Living	Alone	6
	Cohabiting with partner	9
[†] HbA1c ([‡] NGSP) (%)	5.3 - 9.0 (7.1 ± 1.1)	
Insulin therapy	[§] MDI	13
	[^] CSII	3

Note: [†]glycated haemoglobin; [‡]National Glycohemoglobin Standardization Program; [§]multiple daily injections; [^]continuous subcutaneous insulin infusion.

3.1. First Stage: Avoiding Death Due to an Injection

This concept involved participants' experiences in having "good health thanks to the proper injections":

When I was diagnosed with T1D, I was very happy because I knew I could get treatment. If an insulin injection enables me to work, that's a good thing. (Participant J)

3.2. Second Stage: Suffering from Treatment, Avoiding Being Seen, Building Walls around Others, and Being Branded as Sick

This stage comprised four concepts describing how patients with T1D had strong negative feelings about their disease because their numerous exhausting experiences related to it. However, they had no other choice but to endure these negative feelings, which gave them additional inner strength and led to "functional resilience".

3.2.1. Suffering from Treatment

This concept reflected participants' experiences such as "troubles related to injections", "forgetting to administer an injection", "not correctly adjusting the insulin dose", and "being unable to explain one's suffering from hypoglycemia". Furthermore, although patients with T1D understood that they had to continue with insulin therapy for the rest of their lives, they experienced a "resistance to injections":

I just hated injections. I didn't like that I had to take a break from work to inject in the restroom. (Participant B)

I often forgot about it [the insulin injection]. When I forgot the [insulin] injection, something went wrong with

me and I began feeling tired and thirsty. I started to realize that I wasn't doing well. (Participant G)

Adjusting my insulin dose according to the volume I eat is a little stressful. The pain of injecting [insulin] hasn't been a problem. I worry [instead] about the numbers [blood sugar levels] and about messing up the dose because I don't quite know how to adjust it. (Participant K)

3.2.2. Avoiding Being Seen

Patients with T1D experienced various poor health conditions. The concept of "avoiding being seen" refers to the phenomenon in which patients endured increased suffering because of "resignation to the absence of a cure" and having to live with the disease. Patients with T1D often thought of "questioning the presence of the illness". Furthermore, they could not perform the same daily activities as they had before their diagnosis, although others in their lives regarded them as if they were healthy. This led to embarrassment and feelings of despair because of "not talking about their sickness" and being "unable to explain their sickness", as follows:

Well, I felt comfortable [talking about the disease] with some people at work. One day, I casually mentioned my condition. This person I talked to advised me to tell our boss. I was told that he should know so that he could prepare for when something happens. I simply couldn't tell our boss. (Participant B)

When patients could not adhere to their family doctors' advice, these doctors typically reiterated that advice, which often made patients feel depressed. In other words, they "feared a loss of confidence because of their doctors' advice," and questioned themselves about why their primary care physician had to repeat warnings on poor blood sugar control each time they visited the clinic. Participants reported that doctors and other health professionals often did not understand how they suffered from T1D:

My job kept me so busy that I had no time for it [the insulin injection]. I didn't even have time to eat. Therefore, results were always bad on my regular [clinic] visits. I couldn't do anything about it. It became a kind of dilemma for many years. I was sometimes reluctant to go to the clinic knowing that I would be told something bad [by the doctor] or get scolded again. (Participant J)

3.2.3. Building Walls around Others

Some participants had negative experiences in disclosing their feelings to others because these others reacted poorly to participants' disclosures. This led to participants unconsciously building walls around these others and shutting them out. Often, participants reported feeling emotionally unstable for a number of reasons: "caretakers worry too much", "feeling misunderstood", "others have biased attitudes", and "others do not generally come into contact with patients with T1D". Notably, some disclosed their private experiences about coping with T1D to members of patient-support programs and received considerable sympathy for having done so.

Participants were highly aware of their worsening relationships with others because of these others' insensitive words and behaviors. Furthermore, they experienced a "distorted view of character building" when others suddenly softened their attitudes toward them:

People built a wall around me. They treated me like a sick person. They felt they should not invite me out. They asked me if I could eat this and that and I would say, "yes, of course!" (Participant D)

When I first developed symptoms of T1D, I told people [around me] about it. But, I gradually shut down because people said things that hurt my feelings when I mentioned the disease. I have learned to hide my condition ever since. (Participant C)

I didn't like it when people treated me like an invalid just because I had this condition. They said things like "Don't you have to get an [insulin] injection?" or "Are you okay?" over and over again. (Participant E)

3.2.4. Being Branded as Sick

Patients with T1D felt that others did not understand the disease and that they had a prejudiced view of those with chronic illnesses. Furthermore, participants had to cope with "absence due to sickness" and "not working", which caused them to feel socially isolated from others. They reported being deeply hurt by others' careless behaviors and shut these others out.

Patients with T1D experienced a range of daily life restrictions, such as "marginal physical ability" and "not going out"; they did not feel free. Participants were also "unable to avoid giving injections" and were highly aware of the "presence of visible injection sites," which reinforced for them the notion that was no cure for their lifelong disease:

The things I used to do without any problems are now difficult because of hypoglycemic reactions; for example,

[it used to be that] when I cleaned, I was able to do it all day long without feeling tired; but now I can't. I have to take that [my condition] into account [when doing anything]. (Participant A)

I was told by my boss that I could not be a caregiver because my body required care. I basically got fired. (Participant B)

Even if you wanted to work, you would still have the monthly clinic visits. That was a disadvantage. I was completely able to work but [I believed that] companies might not want to hire me. I saw that as a disadvantage. (Participant C)

The fact that I had to give myself an insulin injection made me realize that I had a disease. I used to feel that way every time I injected insulin back then.

3.3. Third Stage: Awareness of Supporters

This stage described how participants became aware of the support that they received from others to overcome their difficulties. Participants were able to talk freely about their physical, emotional, and social distress with other patients with T1D (“encouragement from other diabetics”), which helped them become more resilient. Furthermore, the knowledge that famous people also suffered from T1D made participants feel more positive about their future expectations (“presence of famous people”). “Care from family” and “cooperation with co-workers” represented how patients with T1D became conscious of avoiding hypoglycemia and were often given a room wherein they could perform insulin injections privately:

When I got the disease, the doctor and nurses told me about people with diabetes who are famous in society; for example, professional athletes. That kind of information made me realize that I didn't need to change and it was okay to stay the way I was. (Participant G)

When I was hospitalized, my doctor introduced me to another patient in the same generation. We became good friends and this friendship really saved me. (Participant A)

I went [back] to work after I got out of the hospital. People [at work] were worried about hypoglycemia and always gave me sweets. It was a nice environment. (Participant I)

3.4. Fourth Stage: Active Effort and Bridging Gaps

This stage comprised two concepts that outlined how patients with T1D gradually overcame their difficulties.

3.4.1. Active Effort

Participants completely changed their lifestyles as a result of their T1D diagnosis. Although the diagnosis caused them to experience a loss of pleasure and enjoyment, they eventually became aware that their situation could only improve if they changed their negative mindset. Participants often could only take a step forward due to the “advantage of experience”. Indeed, as time passed, they experienced “gradual building of endurance” and “receiving good treatment”, and were able to find sources of pleasure. By being confronted with an uncertain future, they were forced to perform careful assessments of their present status and capacity in order to “control their situation”:

I was very happy [with this treatment]. I would give it an A++! I've been living with it [T1D] for years. I got it [an insulin injection] when I didn't get to eat and other times I could not get it [an insulin injection] when I was able to eat. It was like that for many years. Now that I have the insulin pump, my condition has been stable. (Participant J)

I wasn't working particularly hard. It wasn't [able to] because I was sick. I did what I could. I asked for help with what I couldn't do. I couldn't work too much on what I wanted to do. (Participant N)

3.4.2. Bridging Gaps

By reflecting on their experiences, participants were able to “learn from experience”. They often understood the necessity of their experience, despite its inherent difficulty. Indeed, many participants gradually came to understand that their painful experiences were necessary for them to overcome their difficulties. In this stage, participants realized that none of their experiences were “pathetic”: instead, they were worthwhile and meaningful because of their “positive outlook” and “awareness of their role in society”:

It made me realize that being able to do normal things is really special. (Participant F)

I told the company about my condition back when I had the job interview. I guess I set the tone then. It was

my wish to work with people with whom I could be frank about my condition. I believe they need to know about my condition since we work together. Yes, I was sick, but if they [the company] didn't want to hire me because of that, I didn't want to work with them either. (Participant B)

3.5. Fifth Stage: Acquiring Self-Protection Skills and Strategies to Manage Change

This stage comprised two concepts and reflected how participants learned strategies to overcome their difficulties from experience and thereby acquire a state of “perpetual resilience”.

3.5.1. Acquiring Self-Protection Skills

Participants experienced a number of complicated emotions, such as “awareness of one's antinomy”, as a result of their experiences. Participants also began supporting others, which helped them to endure their own difficulties. Furthermore, by “not worrying” and “realizing that this situation isn't uncommon”, participants felt more positive and began to “expect medical advances”:

I decided not to let the disease affect the way I lived. Injecting [insulin] was what differentiated me from others but we lived in the same way after all. I just had to be careful of more things [than they did]. I tried not to think about it too much; I thought that this way of thinking was my strength. (Participant M)

I always thought that “it is the way it is,” and I let things go whenever something happened, so that it'd be over. (Participant L)

You know iPS [induced pluripotent stem] cells? I have read news articles that said they might cure the disease. I have really begun to hope that I could be free from having to inject insulin sometime soon. (Participant H)

3.5.2. Strategies to Manage Change

Participants overcame their weaknesses by drawing on their experiences. For instance, they devised coping methods, such as “living a normal life” and “adopting an attitude of self-reliance,” which they used in the “creation of a new lifestyle.” Additionally, by drawing on their past experiences, they could obtain a clearer perspective of their future prospects. Ultimately, participants felt ready for a “fresh start”:

Being aware of my disease, I set short-term goals, like that I should try hard for three months or maintain a 5% (HbA1c) level for that three-month period. I split up the future into short periods and tried to feel happy about short-term goals. (Participant I)

I might not be able to get the kind of job I wish to, but I will and want to work someday. I [also] want to gradually start seeing the friends I stopped seeing again. (Participant E)

4. Discussion

The results of this study indicated that patients with T1D experience five stages in developing resilience to face adversity. These five stages and related concepts formed a model of resilience for adults with T1D, centered on the core concept of “functional perpetual resilience”. The concepts inherent to each stage focused on individuals' development of inner strength via external support and active personal effort. This is reminiscent of the definition of resilience used by Rutter (1985), Werner (1993), and Grotberg (2003): namely, being able to cope with and overcome difficulties and in the process becoming strengthened or transformed by these difficulties. These authors proposed that resilience in coping with diseases (including diabetes) could be organized into the factors of external support, inner strength, and interpersonal and problem-solving skills.

Regarding the structure of “functional perpetual resilience”, previous qualitative research has shown that resilience is not a stable characteristic; rather, it is a constantly changing and developing construct (Earvolino-Ramirez, 2007; Gooding, Hurst, Johnson, & Tarrier, 2012), as reflected in the ten concepts extracted in the present study, which describe how adverse experiences stimulate and forge resilience.

“Avoiding death due to an injection” was considered the first stage because it reflected how patients with T1D began to appreciate that insulin was beneficial for their lives, which in turn helped build their resilience. The second stage involved their coping with various burdens, such as “suffering from treatment”, “avoiding being seen”, “building walls around others”, and “being branded as sick”. At this stage, patients with T1D expressed negative feelings about their experiences. Nevertheless, insulin benefited their lives, so they endured the treatment. This endurance provided additional inner strength and led to “functional resilience”. This, in turn, resulted in greater emotional stability because of its balance of negative and positive experiences.

In the third stage (“awareness of supporters”), patients with T1D sought the support of others to help them overcome their difficult situation. During this stage, participants became dedicated to working through their crisis. They consulted with trusted others about their thoughts, which helped them feel recognized and supported. Previous research has shown that sympathetic supporters are strong sources of encouragement for coping with difficult feelings (Sjölander & Berterö, 2008; West, Stewart, Foster, & Usher, 2012; Williams & Murray, 2013).

In the fourth stage, the “active effort” concept showed how patients with T1D sought to set work limits and resume hobbies in a realistic way in order to obtain greater pleasure and satisfaction from daily life. They expressed that working and pursuing hobbies made them feel more positive and that they were able to successfully live with T1D. Similarly, the “bridging gaps” concept illustrated how patients with T1D felt a maturation of inner strength, thereby allowing them to escape difficult situations by trial and error, which they would have been unable to do before accepting their disease. In other words, they tried to improve their lives by coexisting with T1D through appropriate management of the disease. These results from the fourth stage were similar to those of other researchers (Steinhard, Mamerow, Brown, & Jolly, 2009; Yi-Frazier et al., 2009) showing resilience in adults with type 2 diabetes.

In the fifth stage, which comprised the concepts of “acquiring self-protection skills” and “strategies to manage change”, patients with T1D felt weak and struggled with the various restrictions of their disease; for instance, they felt “wounded” and experienced despair. Consequently, however, they experienced a state of emotional and mental maturation; by enduring difficulty, they realized the meaning of truly being alive. This process of growth suggested that they had adopted a new mental state in which they could accept their own feelings. Furthermore, they were not confused by others’ opinions. Relatedly, Travellée (1971) reported that acceptance does not differ from optimism; in other words, people who accept their difficulties can overcome them. This was very similar to the process of resilience described herein, where patients with T1D learned to accept their difficulties. Lazarus and Folkman (1984) and Affleck and Tennen (1996) similarly reported the benefits of perceived positive changes in personality, such as the development of greater patience, tolerance, empathy, and courage. Other common benefits are positive changes in values, life priorities, and personal goals.

In this study, a key aspect of participants’ realization of functional perpetual resilience was talking with supporters about their experiences. This is notable because nurses, being closely acquainted with patients, can be directly involved in eliciting patients’ resilience (Steinhard et al., 2009; Yi-Frazier et al., 2009). To do so, however, nurses must first understand the totality of patients’ accumulated experiences of their disease.

Limitations

A main limitation of this study was that participants were only recruited from two clinics in one prefecture of Japan; thus, the results cannot be generalized to the whole country. Furthermore, the study was cross-sectional. Therefore, the impact of the resilience development process on diabetes must be explored in larger longitudinal studies.

5. Conclusion

This qualitative study highlights the process of resilience that patients with T1D experience in managing their diabetes and responding to new social circumstances. By studying resilience and exploring the possibilities presented by resilience-based interventions, practitioners from many fields could capitalize on a number of unique opportunities for promoting positive adaptation (Earvolino-Ramirez, 2007). Functional perpetual resilience underpins other resilience strategies used by patients with T1D to stay well, minimize psychological maladjustment, and improve mental health. Many patients experience T1D as a catastrophic life event, after which they must confront related challenges. Thus, resilience can be considered both a positive and negative consequence of T1D.

Our results indicate that nurses must understand patients’ experience of T1D in terms of both the social and psychological perspectives. Furthermore, the results suggest that providers might consider asking patients with T1D how they manage the disease and accept their disease through insulin therapy, as well as their expectations for medical care and hopes for the future.

In summary, resilient adults with T1D can offer researchers practical, clinically relevant lessons and strategies to support those who struggle with the same condition. Through a synergistic emphasis on both alleviation of symptoms and promotion of positive processes in clinical care and research, we can prepare adults with T1D

to respond well to disease-related challenges and, ultimately, set the stage for resilient behavioral and health outcomes.

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