



# Personal Accounts of the Negative and Adaptive Psychosocial Experiences of People With Diabetes in the Second Diabetes Attitudes, Wishes and Needs (DAWN2) Study

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## OBJECTIVE

To identify the psychosocial experiences of diabetes, including negative accounts of diabetes and adaptive ways of coping from the perspective of the person with diabetes.

## RESEARCH DESIGN AND METHODS

Participants were 8,596 adults (1,368 with type 1 diabetes and 7,228 with type 2 diabetes) in the second Diabetes Attitudes, Wishes and Needs (DAWN2) study. Qualitative data were responses to open-ended survey questions about successes, challenges, and wishes for improvement in living with diabetes and about impactful experiences. Emergent coding developed with multinational collaborators identified thematic content about psychosocial aspects. The  $\kappa$  measure of interrater reliability was 0.72.

## RESULTS

Analysis identified two negative psychosocial themes: 1) anxiety/fear, worry about hypoglycemia and complications of diabetes, depression, and negative moods/hopelessness and 2) discrimination at work and public misunderstanding about diabetes. Two psychosocial themes demonstrated adaptive ways of coping with diabetes: 1) having a positive outlook and sense of resilience in the midst of having diabetes and 2) receiving psychosocial support through caring and compassionate family, friends, health care professionals, and other people with diabetes.

## CONCLUSIONS

The personal accounts give insight into the psychosocial experiences and coping strategies of people with diabetes and can inform efforts to meet those needs and capitalize on strengths.

Diabetes can have a detrimental impact on well-being and psychological functioning (1–5). Emotional distress, depression, and anxiety are common in people with diabetes (2,6–9), and time of diagnosis can be particularly emotional (10,11). However, improved psychosocial functioning may lead to better glycemic control

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(12–16), and positive psychosocial health may facilitate self-management and improved health outcomes (17).

The original Diabetes Attitudes, Wishes and Needs (DAWN) study revealed that 41% of adults with diabetes had poor psychosocial well-being (18,19). The second DAWN study (DAWN2) is the first large-scale, multinational study to examine both the adaptive and negative psychosocial aspects of living with diabetes in adults. In both studies, “psychosocial” is defined as the emotional, psychological, or social aspects of diabetes. Quantitative data from DAWN2 revealed that 46% of people with diabetes had negative psychosocial well-being, and 27.7% reported a positive impact of diabetes on at least one life dimension (20). The aim of this article is to provide qualitative descriptions of the negative psychosocial accounts and adaptive ways of coping with diabetes in a multicultural context. We are able to use the accounts of people in their own words from around the world to give meaning to the statistics reported in the DAWN and DAWN2 data.

**RESEARCH DESIGN AND METHODS**

Details of the DAWN2 methodology and results have previously been published (20). In brief, each of the 17 countries had a sample quota of 500 adults with diabetes (80 and 420 with type 1 [T1D] and type 2 [T2D], respectively). Those with T2D were stratified by treatment (100 diet/exercise only, 170 noninsulin medicated, and 150 insulin treated). The study was a cross-sectional survey in which questionnaires were administered

via the internet, telephone, or in-person interviews.

The questionnaire asked open-ended questions regarding the following: 1) an experience that had an impact on how participants managed diabetes, 2) challenges participants have faced, 3) successes of participants, and 4) wishes for diabetes-related improvements (Supplementary Data). An independent research company deidentified comments in the native languages, and professionals translated the data into English. English transcripts were the basis for coding responses with qualitative software (NVivo 10; QSR). The mean/median length of each coded text was 24/17 words (SD 18; range 5–134). The analysis sought to identify commonalities that existed within the entire sample rather than differences between subgroups (e.g., type of diabetes, sex, country). Supplementary Table 1 presents the conceptual map of the analysis, i.e., the organization of the qualitative coding structure. Quotes in the table were not chosen to represent particular participant subgroups but to illustrate the wide range of countries and types of people with diabetes represented. Of the 213 coding categories used in the analysis, 27 (13%) represented psychosocial experiences and were chosen for further analysis here.

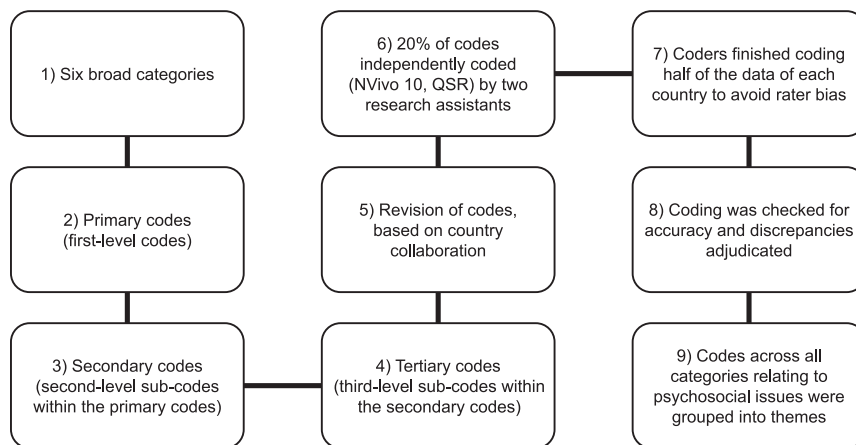
**Method of Qualitative Analysis**

Data were organized into seven primary categories, beginning with three from the survey: 1) challenges, 2) wishes for improvement, and 3) successes with diabetes. Additional categories from

emergent coding were 4) advice or statements about diabetes, 5) diagnosis stories, and 6) positive and negative turning points. A residual category was established for responses that were not understandable or too vague to code. We used an emergent coding strategy where categories were established after an initial examination of 20% of the data in each country by the lead author (H.L.S.) to develop the coding scheme (Fig. 1). For establishment of the cross-cultural validity of the codes, a collaborator in each country reviewed the coding scheme in original and English versions of the text and provided feedback. The initial responses were independently coded by two research assistants with “substantial” (21) agreement between them ( $\kappa = 0.72$ ) prior to final coding. The Supplementary Data list the categories and codes, the number of occurrences, and an illustrative quote for each code. A thematic analysis was completed to “identify, analyze, and report patterns (themes) within data” (22). In line with thematic analysis, we selected vivid, compelling extract examples and related the themes back to the research question and literature.

**RESULTS**

Of the 8,596 participants (Table 1), those with T2D were an average of 18 years older and had diabetes for a shorter time (8 years) than those with T1D (21.5 years). The numbers of men (48%) and women (52%) were approximately equal. Nearly 72% of all participants with diabetes had some type of complication or comorbidity.



**Figure 1**—Overview of method for developing codes and thematic content.

**Table 1—Select characteristics of people with diabetes**

	Type 1 diabetes	Type 2 diabetes	Total
<i>n</i>	1,368	7,228	8,596
Age (years), median (IQ range)	41.0 (31–52)	59.0 (48–65)	57.0 (45–64)
Sex, <i>n</i> (%)			
Men	651 (47.6)	3,872 (53.6)	4,523 (52.6)
Women	717 (52.4)	3,356 (46.4)	4,073 (47.4)
Diabetes duration (years), median (IQ range)	21.5 (11.0–34.0)	8.0 (4.0–14.0)	9.0 (4.0–16.0)
Glucose-lowering treatment, <i>n</i> (%)*			
Diet and exercise	724 (52.9)	4,588 (63.5)	5,312 (61.8)
Alternative medicine	83 (6.1)	560 (7.8)	643 (7.5)
Oral hypoglycemic agents	204 (14.9)	4,038 (55.9)	4,242 (49.4)
Insulin	1,368 (100.0)	2,591 (35.9)	3,959 (46.1)
Other diabetes medication by injection	36 (2.6)	286 (4.0)	322 (3.8)
Other	23 (1.7)	170 (2.4)	193 (2.3)
None of these	0 (0.0)	123 (1.7)	123 (1.4)
Complications/comorbidities, <i>n</i> (%)*			
No complications/comorbidities	387 (28.3)	1,997 (27.6)	2,384 (27.7)
With complications/comorbidities	981 (71.7)	5,231 (72.4)	6,212 (72.3)
Work situation, <i>n</i> (%)			
Full-time	630 (46.1)	2,284 (31.6)	2,914 (33.9)
Part-time	154 (11.3)	601 (8.3)	755 (8.8)
Not working full-time owing to diabetes	145 (42.9)	283 (19.3)	428 (23.7)
Not working	580 (42.5)	4,327 (60.0)	4,907 (57.2)
Living area, <i>n</i> (%)			
Large city	785 (57.4)	3,756 (52.0)	4,541 (52.8)
Small city or a large town	350 (25.6)	1,835 (25.4)	2,185 (25.4)
Suburban area	89 (6.5)	579 (8.0)	668 (7.8)
Village or rural area	144 (10.5)	1,050 (14.5)	1,194 (13.9)
Level of education, <i>n</i> (%)			
No college education	513 (39.9)	3,729 (53.5)	4,242 (51.4)
At least some college education	772 (60.1)	3,245 (46.5)	4,017 (48.6)

Countries surveyed: Algeria, Canada, China, Denmark, France, Germany, India, Italy, Japan, Mexico, the Netherlands, Poland, Russia, Spain, Turkey, the U.K., and the U.S. IQ, interquartile. \*Participants may have data in more than one category.

Four themes in the data set related to the negative and adaptive psychosocial experiences of diabetes. Table 2 provides a description and reports the number of occurrences of each code comprising these themes.

### Negative Psychosocial Experiences With Diabetes

The negative psychosocial experiences of people with diabetes were distributed across two main themes. People with diabetes experienced negative emotional reactions such as 1) anxiety/fear, worry about hypoglycemia and complications of diabetes, depression, and negative moods/hopelessness and 2) discrimination at work and public misunderstanding about diabetes.

#### Theme 1: People With Diabetes Experience Negative Emotional Reactions Such as Anxiety/Fear, Worry About Hypoglycemia and Complications of Diabetes, Depression, and Negative Moods/Hopelessness

Negative internal states experienced by the people with diabetes included

“anxiety/fear, worry about hypoglycemia” and “worry about complications as well as depression and negative moods/hopelessness.” Other codes included in this category were a “hard or difficult disease or mentally hard to live with,” a “challenging or emotional diagnosis,” people with diabetes’ “stress,” and “never accepting diabetes.”

Some people with diabetes hoped for “less anxiety and worry,” as in “I wish I didn’t have to have my guard up.” One woman said, “This illness makes me very afraid, even if I am used to it.” Others were afraid they would not be able to control their diabetes, and there was a strong fear of hypoglycemia. As one elderly woman with diabetes said, “I was living by myself and I had a hypoglycemic crisis. I was no longer able to understand anything; they told me I did not make sense when I talked and that I wasn’t able to move, to sleep calmly, to recognize my children.”

Fear about complications in both the present and future was also expressed as

worry. One man said, “I guess the main thing I can think of is when I looked at my feet and realized that they looked like my mother’s feet. She had diabetes, as did my grandmother. It scared me into realizing that I do need to be careful what I eat or do.” Many feared they would lose their legs, their vision would be “ruined,” or they would die of diabetes. Fear about diabetes and uncertainty of when complications could occur are evident in statements that people with diabetes wanted to avoid their condition progressing. Participants expressed a fear of having a premature death due to diabetes and a fear of a disease that “erodes my vital organs.” Negative emotions and stress impaired life with diabetes. One man with complications said, “I have a problem in walking around and because of this I cannot attend programs like weddings in the family and I feel very sad about this.”

Many people with diabetes expressed a sense of “depression” and “negative moods/hopelessness” in words such as

**Table 2—Description of frequently reported codes for psychosocial experiences with diabetes**

Category/primary codes and secondary codes (subcategories)	# coded references	Description	
Theme 1: people with diabetes experience negative emotional reactions such as anxiety/fear, worry about hypoglycemia and complications of diabetes, depression, and negative moods/hopelessness			
Challenges for people with diabetes/psychological challenges			
Anxiety/fear	84	Fear, stress, and depression around diabetes. Some participants made a general reference to diabetes being “hard and difficult in general” or “mentally hard” specifically and to a worry about complications. The difference between depression and a negative mood/hopeless is that the participant mentioned the word “depressed or depression” in the former.	
Depression	90		
Negative mood and hopeless	78		
Hard and difficult	84		
Mentally hard to live with diabetes	44		
Never accepted having diabetes	44		
Stress	69		
Worry about complications	71		
Challenges for people with diabetes/hypoglycemia			
Worry about hypoglycemia	43		Fear of unpredictable hypoglycemia and needing help
Wishes for improvement			
Less anxiety or worry	10	Wish for less stress, anxiety, or worry about diabetes	
Diagnosis stories			
Diagnosis was challenging or emotional	192	Diagnosis was a difficult time, full of dread, fear, and sadness	
Theme 2: people with diabetes experience discrimination at work and public misunderstanding about diabetes			
Challenges for people with diabetes/psychological challenges/people do not understand people with diabetes or people with diabetes feel discrimination			
People do not understand diabetes	101	General lack of understanding of diabetes in the public	
Feeling discrimination at work	36	Feeling discrimination at work	
Not being normal	4	Being against societal norms	
Wish for improvement			
Increased public awareness	58	Increased public awareness of insulin and seriousness of diabetes	
Theme 3: people with diabetes have a positive outlook and sense of resilience in the midst of having diabetes			
Successes for people with diabetes/positive outlook affects success/coping with diabetes			
Resilience in overcoming obstacles	130	Resilience was coded in instances where people with diabetes said that even though they feel like giving up, they continue. Coping with diabetes in a positive way or having a general optimistic mood were examples of data.	
Gained appreciation of life	13		
Successes for people with diabetes/positive outlook affects success			
Happy or pleasant overall mood	115	People with diabetes find optimism or a pleasant mood to be a success	
Peaceful life	19	Having a peaceful life	
Hope in the future	17	Having a sense of hope in the future	
People with diabetes “advice” or “statement”*			
Diabetes means living healthy or happy	25	Living happy or healthy or “one needs to have a positive outlook”	
Having positive outlook	24		
Theme 4: people with diabetes receive psychosocial support through caring and compassionate family, friends, health care professionals, and other people with diabetes			
Successes for people with diabetes/adequate support system			
Family members are supportive	274	Support system that was caring, available, and took extra time to listen to problems of diabetes. This includes family, friends, health care professionals, and other people with diabetes.	
Friends and others are supportive	88		
Caring and compassionate health care professionals	61		
Other people with diabetes support people with diabetes	77		

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Table 2—Continued

Category/primary codes and secondary codes (subcategories)	# coded references	Description
Wishes		
Support or education about diabetes	147	People wished for more support about diabetes
Total		
27 secondary codes	1,998	

\*The difference between “advice” or “statement” and the other categories is that the statement could not be directly attributed to a challenge, wish, or success because the quote was given in broad terms (i.e., “I think people with diabetes should be happy and try to have a positive outlook” or “It is important to avoid complications.” This could not be directly attributed to a success because we cannot be certain that it was a success for the person, a wish, or simply advice.

being down in the dumps, having low moods or the blues, and feeling sad. One said, “When everything is going well, I am well and so is the diabetes. On the other hand, however, whenever I have a bout of the blues, or my morale is low, it goes out of whack and the diabetes is like a yo-yo.” Another said, “During the process of dealing with diabetes, sometimes I worry and get so depressed that it’s hard to eat.”

Some stated that they were sad for no reason and mentioned negative emotions together in the same response, such as worry, weakening, anxiety or helplessness, and depression. One woman asked, “How can I not be depressed?” while another hoped to conquer the depression that “buries me more every day in a bottomless well.” Many worked to fight depression and, according to the personal account of diabetes, the disease was a burden. A 39-year-old woman with three young children and T1D did not know what to do when she had a partial amputation of the foot and said, “I would rather be dead, to be honest.”

Some people with diabetes stated that diabetes was a “hard or difficult disease” or “mentally hard to live with.” Aggressive words, such as fighting, overcoming, daily struggling, and battling the disease, were used. One man with T2D said, “The challenges are daily. You have to deprive yourself of a lot of good things. It is very hard at the beginning. You have to be mentally strong.”

Diabetes is tiring for some people, especially the aging population who have been ill their entire lives, and exhausting for others, who say, “This disease tortures me.” A middle-aged woman who struggled with T2D said, “Now I wish that once my children settle down that God should take me back.”

A “challenging or emotional diagnosis” was often mentioned as having a

significant impact on the ability to cope with diabetes. Emotional words included shock, surprise, “fall apart,” traumatic time, scared, nervous, stunned, frozen, and depressed. People with diabetes reported going to the doctor or hospital for one problem and then leaving with an unexpected diagnosis of diabetes. This was a surprise for one man who told about his experience: “After corrective broken neck surgery . . . the nurse said, ‘So, you’re the guy with diabetes?’ That is the true story of how I found out I had type 2 diabetes in November of 2008. I said, ‘I do?’”

Along with this initial shock/surprise, a sense of depression followed with a low confidence level to fight diabetes or a heavy weight on the mind. A man with T1D cried when he told his family about the diagnosis and was “almost inconsolable.” The diagnosis for a man with T2D was likewise emotional, as he said it felt like his “world is ending and you are going to die.” Another said it was a “slap in the face.”

People with diabetes reported that having diabetes-caused “stress” and a stressful event, ranging from the effect of college exams to the death of a spouse, made dealing with diabetes more difficult. Not all people “accepted having diabetes;” one woman with T2D just pushed it aside and said, “[I] did not want to believe I am diabetic.” Others said they did not want to know or found it difficult to accept because they did not feel sick. Regardless of the type of diabetes, the negative impact was felt at diagnosis and in the daily experiences of living with diabetes.

#### **Theme 2: People With Diabetes Experience Discrimination at Work and Public Misunderstanding About Diabetes**

Some negative emotions were a result of external social factors as summarized

in two primary codes: “people don’t understand diabetes” and “feeling discrimination at work.” Some people with diabetes felt uncomfortable giving injections in public and were ashamed to be caught injecting as if a “drug user.” One woman explained that she did not take insulin in front of her boyfriend’s parents because diabetes was viewed as a defect, which was unacceptable. At times, the discrimination was blatant, such as a man with T1D who said, “People make fun of me, not being able to do everything I would wish” or a woman who met with discrimination when others believed diabetes was contagious. Some felt socially isolated because of diabetes and wanted to live like other people without treatments or restrictions and eating the same foods as family members. Others felt shame as a result: “My mother has always been ashamed to tell the people who are close to us that I was diabetic. I, instead, try to avoid telling people because I do not want other people to consider me invalidated by this disease because I live and I want to continue living a normal life.”

The lack of understanding can lead to others telling people with diabetes what to eat or do and others “knowing best” or lecturing them about how they “eat too much sugar.” People with diabetes felt criticized or lectured when they felt it was uneducated people who blamed their disease on personal shortcomings. People with diabetes believed there was a stigma about their being lazy or not wanting to eat well. One man with T2D said, “My children don’t understand. I lie and tell them it is arthritis.” A woman with T1D said, “There doesn’t seem to be an understanding on the differences between type 1 and type 2. I try to use these moments to teach them

about how their comments are misinformed and downright rude, yet I feel it falls on deaf ears."

People with diabetes commented on the embarrassment of having hypoglycemia in public, and some even reported that others assumed that they were drunk. For example, a man had a drop in blood glucose while walking with his 12-year-old son, and passers-by commented on how shameful it was to be drunk in the presence of a child. One man was told that he cost too much to the government.

One further psychosocial challenge was "discrimination related to work." Some people with diabetes were not able to take jobs that required shift work or were required to leave their jobs because of erratic scheduling. One man was given a less stressful but less interesting job because of his diabetes. Others experienced blatant discrimination when looking for, or holding, a job. For example, a man was out of work for 6 months because the physician told him he could not work owing to uncontrolled diabetes and high triglycerides. Even though he was considered disabled, he was fired for an inability to perform. When one man told his employer about having diabetes, after previously having hidden taking his medications, he was fired. Another man indicated that people with diabetes want to work but not all employers are favorably disposed: "When I went to get a job, I was not hired as soon as they found out about my illness. They said that hiring an employee with the disease is not economically justifiable, as it leads to frequent medical leaves."

These experiences of discrimination are set against the "wish for improvement for increased public awareness" to bring an understanding of the seriousness of diabetes and more compassion for people with diabetes. One man said, "I want to have the media widely publicize insulin injections in the society," and others mentioned that increased knowledge about diabetes may reduce prejudice against people with diabetes.

### **Adaptive Ways of Coping With Diabetes From a Psychosocial Perspective**

DAWN2 is unique in that it also examined the positive aspects (or "successes")

of living with diabetes. Two themes reflecting adaptive psychosocial aspects were that many people with diabetes had 1) a positive outlook and sense of resilience in the midst of having diabetes and 2) psychosocial support through caring and compassionate family, friends, health care professionals, and other people with diabetes.

#### **Theme 3: People With Diabetes Have a Positive Outlook and Sense of Resilience in the Midst of Having Diabetes**

A positive outlook refers to participants having a generally "happy or pleasant overall mood." People with diabetes often reported that being positive helped them maintain their health, such as one who stated that "having a positive attitude is one-half toward healthiness." Others said that controlling attitude and maintaining optimism made a difference in treatment. One man said, "We are used to having something or having had something. Don't look back, keep looking forward and not dwelling on what you have or have had. You will only short change yourself and those around you." One woman with acute symptoms of hypoglycemia said that the experience did not "diminish my store of optimism."

Having "resilience or overcoming obstacles with diabetes" may be tied to a positive outlook. People with diabetes expressed resilience as taking one day at a time, doing their best, accepting challenges, and "getting on with it." One man with T2D said, "I rule my diabetes, not it me. I therefore live to the fullest." Another with T2D said, "I predict that I will defeat this disease if I maintain balanced nutrition, and I do expect to defeat it. My life is better now." A woman with T1D and complications said, "I have a great family, two healthy children despite the diabetes and thus enough to be happy about. . . . [I] will do whatever it takes to make the best of it and stay positive."

Other forms of adaptive coping were found in the following codes: "gained appreciation for life or taught a positive lesson," having a "peaceful life," or having "hope in the future." Some said they had learned to value life and simple things or made a positive change by controlling their nutrition/exercise and losing weight. One woman used generosity as a way of being happier: "I knit/

donate anonymously to charities 52 times a year just to silently say thank you for having another week of life." One man with T2D said that he thinks of diabetes as the "world's healthiest disease" if he eats reasonably and keeps his body in motion. To such people, a positive outlook on life and the circumstances of diabetes have made a significant impact on the way they view their chronic disease. People with diabetes advised other people with diabetes that "diabetes means living healthy or happy" or "having a positive outlook."

#### **Theme 4: People With Diabetes Receive Psychosocial Support Through Caring and Compassionate Family, Friends, Health Care Professionals, and Other People With Diabetes**

People with diabetes reported that psychosocial support was helpful but receiving support with getting to appointments, meals/nutrition/cooking, and general help was also beneficial. "Family members are supportive" was the most frequently coded way of receiving support and providing relief from the burden of diabetes, with "friends and others are supportive" second. A woman said that her blood glucose became well controlled through the help of family and friends, and "I've been much more relaxed." Another woman received support from her husband for her T2D and said it is a "we" disease, i.e., "if we treat this disease properly, we can get rid of this." Some people with diabetes stated that they had become closer to their partner and family because of their diabetes and cared for each other more. A woman with T2D stated, "They told me that the whole family is diabetic and that we were all going to take care of ourselves and eat well, go for walks, exercise. Everything was to encourage me."

Another element considered helpful in coping with diabetes was "caring or compassionate healthcare professionals" who took the time to address psychosocial experiences. One woman commented on the compassionate way a nurse went the "extra mile to get me help with emotional, mental, diet, and fitness aspects of my disease." Upon diagnosis, a woman with T2D said she was scared because of

complications, but her doctor consoled her. Some said their providers viewed them holistically, but only a few mentioned having psychologists for emotional support. One woman with T1D looked to her endocrinologist for emotional support about depression because “there is no escape or vacation [from diabetes].”

“Other people with diabetes support people with diabetes” is an example of inspiration, such as a man with T2D taking insulin who said he is not scared of diabetes but takes his medication, goes for morning and evening walks, and eats a nutritional diet. He said, “The elder people in the neighborhood also get inspired and stay happy after seeing me. We all explain to the others that we should not be scared of this; rather, we must fight it.” One man with a friend with diabetes said they provided support to each other by talking about how “life is beautiful as it is.”

## CONCLUSIONS

This is the largest qualitative study of the personal accounts of adults with diabetes relating to living with the disease. We have described the difficulties experienced at diagnosis and over the course of the disease and the discrimination and misunderstanding that they experience. The DAWN literature noted the psychological aspects of having limited functional capacity, such as work-related functions (23), but evidence of discrimination was not reported. DAWN2 reported that one out of five people has experienced discrimination due to their diabetes (24). The qualitative findings add context for explaining how and under what circumstances people with diabetes experienced discrimination. We have also described adaptive ways of coping with diabetes in DAWN2 and their importance in the psychosocial experiences of diabetes. Qualitative data collection allowed for investigation of topics that were not established prior to the survey but were salient to the respondent, such as “turning points.”

In this study, emphasis was placed on the psychosocial experiences of people with diabetes, as diabetes affects not only the body but also the psyche and spirit (25–28). The novelty of this study is that it investigated not only negative

emotions such as fear, shame, and sadness but also adaptive means of coping with diabetes, such as having a positive attitude and receiving psychosocial support from others. These results add to other studies about coping with diabetes and positive emotional health (17,28,29). The negative experiences of diabetes related to fear, depression, and worry about hypoglycemia and complications are not new (3,14,30,31). This study, however, focuses on the personal accounts for these emotions based on the perspective of the person with diabetes in the largest and most heterogeneous sample available. The concern with discrimination in society and at work was emergent in the qualitative data and has been identified as prevalent in all countries participating in DAWN2 (24).

Some limitations were that the coding was conducted on English translations rather than coding the native language text and the use of written short answers in qualitative research. The answers do not allow for probing of participants' responses or for ensuring participants' full comprehension or explanation of questions. Participants were interviewed via the Internet, telephone, or in person for diversity in methods (i.e., to avoid bias in selecting only those who had Internet access), and it is likely the results varied using these varied techniques. However, strengths include the large sample size, participant heterogeneity, the multinational sample, and the rigorous coding process.

The emotional, psychological, and social experiences that emerged from the personal accounts may help people who live with or care for people with diabetes (and society) to understand and recognize the importance of psychosocial issues for people with diabetes (30,31). Personal accounts of the psychosocial aspects of diabetes can help to increase understanding of the meaning of diabetes for health care professionals in caring for the whole person (32–35). These accounts suggest the importance of taking into account key insights related to 1) the need to better inform and support people with diabetes and those around them about hypoglycemia, 2) the importance for health care professionals to improve their communication

regarding the diagnosis of diabetes by taking into account that people with diabetes still remember that day with anxiety and fear (the positive/negative quality of that experience can strongly affect the way people live with diabetes), 3) the positive effects on diabetic individuals' quality of life as a result of sharing emotions related to their condition, and 4) the value of increasing public knowledge and awareness about diabetes to reduce prejudice and improve diabetic individuals' quality of life. Areas for future research are to investigate discrimination in diabetes specifically. In a subsequent study, we hope to merge qualitative and quantitative DAWN2 data on this topic with an analysis of the policies of the different countries. Other research could include an expansion of the “turning points” data or exploration of the factors that promote positive attitudes and resilience in people with diabetes.

This article examines the perceptions of adults with diabetes regarding the psychosocial challenges, successes, wishes, and needs for improvement in living with diabetes. The participants' accounts increase our understanding of how people are emotionally, psychologically, and socially affected by diabetes and the support needed from health care professionals, family members, and society to enhance their experience of living with diabetes.

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**Author Contributions.** H.L.S. and C.B.M.-J. planned the structure and content of the manuscript, prepared the initial draft, prepared Supplementary Table 1, approved the manuscript plan, reviewed and edited versions of the manuscript, and approved the final draft. M.P. planned the structure and content of the manuscript, prepared the initial draft, approved the manuscript plan, reviewed and edited versions of the manuscript, and approved the final draft. G.R. contributed to the discussion, approved the manuscript plan, reviewed and edited versions of the manuscript, and approved the final draft. K.K.B., N.P., M.V., J.W., I.W., and S.E.S. approved the manuscript plan, reviewed and edited versions of the manuscript, and approved the final draft. H.L.S. is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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## Appendix

The DAWN2 Study Group consists of a national lead investigator from each country and members of the international DAWN2 Publication Planning Committee as well as Novo Nordisk: Rachid Malek, Algeria; Johan Wens, Belgium; João Eduardo Salles, Brazil; Katharina Kovacs Burns and Michael Vallis, Canada; Xiaohui Guo, China; Ingrid Willaing, Denmark; Søren Eik Skovlund and Christine Mullan-Jensen, Novo Nordisk, Denmark; Gérard Reach, France; Norbert Hermanns and Bernd Kulzer, Germany; Sanjay Kalra, India; Antonio Nicolucci and Marco Comaschi, Italy; Hitoshi Ishii, Japan; Miguel Escalante, Mexico; Frans Pouwer, the Netherlands; Andrzej Kokoszka, Poland; Alexander Mayorov, Russia; Edelmiro Menéndez

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