

Disease burden and symptom management in type 2 diabetic patients: A phenomenological study

Sevdi Demir Çam, Lecturer¹ | Sevda Uzun, Associate Profesör²

¹Artvin Çoruh University, Şavşat Vocational School, Artvin, Turkey

²Department of Psychiatric Nursing, Gümüşhane University Faculty of Health Sciences, Gümüşhane, Turkey

Correspondence

Sevda Uzun, Department of Psychiatric Nursing, Gümüşhane University Faculty of Health Sciences, Gümüşhane, Turkey.
Email: sevdauzun50@gmail.com

Abstract

Aim: This study was conducted to address the experiences of diabetic patients from a psychosocial perspective, examine the burden of disease, and determine their practices for symptom management.

Materials and Methods: In this study, a phenomenological research design, a qualitative research design, was used. The study included 20 diabetic patients. Individual and face-to-face interviews were performed, and Colaizzi's phenomenological analysis method was used to analyze the data.

Results: As a result of the data analysis, four categories (challenges with care and treatment, coping with the disease, effects, and healthy life behaviors) and eleven main themes (knowledge, application, symptoms, support resources, spiritual coping methods, physical coping methods, physical effects, spiritual effects, social effects, physical practices, and psychological practices) emerged.

Conclusion: It was concluded that the disease burden of diabetic patients is intense and that the participants of the study were not effective in coping with the disease through symptom management and found spirituality important in coping.

KEYWORDS

symptom management, Type 2 diabetes, qualitative study

1 | INTRODUCTION

The incidence of diabetes is increasing rapidly worldwide and is estimated to affect 693 million adults by 2045. The devastating macrovascular complications of the disease (cardiovascular disease) and microvascular complications (diabetic kidney disease, diabetic retinopathy, neuropathy, etc.) result in increased mortality, blindness, and kidney failure. Diabetes also negatively affects the quality of life of individuals (Chung et al., 2021; Florez et al., 2020).

Diabetes is a metabolic disease characterized by carbohydrate, lipid, and protein metabolism disorders evidenced by hyperglycemia caused by absolute or relative insulin insufficiency or insulin resistance. Type

2 diabetes is the most common kind of diabetes, accounting for more than 87% of all cases. The prevalence of type 2 diabetes, which usually occurs after the age of 30, increases even more in childhood or adolescence due to obesity. Type 2 diabetes is an important public health concern that has been discussed and tried to be eliminated in recent years due to the faster-than-expected increase in the number of individuals diagnosed in Turkey and around the world, high mortality and morbidity, and increasing socioeconomic burden (Bozkaya, 2022; Karakoç Kumsar et al., 2019).

Diabetes is characterized by visible symptoms such as polyuria, polydipsia, polyphagia, or loss of appetite, weakness, fatigue, dry mouth, and nocturia, and less visible symptoms such as blurred vision,

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial](https://creativecommons.org/licenses/by-nc/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.

© 2024 The Author(s). *Public Health Nursing* published by Wiley Periodicals LLC.

unexplained weight loss, chronic infections, and non-specific itching. These symptoms are indicative of a fluctuating blood glucose level caused by hyperglycemia or hypoglycemia, which can lead to long-term consequences such as kidney or cardiovascular disease and nerve damage. Raising awareness among individuals with diabetes, especially in knowing the effects of symptoms and how to recognize them, is important for the management of diabetes (Bellary et al., 2021; Bozkaya, 2022; Ma et al., 2022; Yilmaz et al., 2019).

Disease burden is defined as “the personal workload of health services, including chronic disease treatment and self-management, and the impact of this workload on the patient’s functioning and well-being.” Individuals have difficulties applying the therapy and care demanded by the condition as they feel inadequate under the burden of the disease, which lowers their quality of life and causes them not to cope effectively with the disease (Ahmad et al., 2022; Espinoza et al., 2020; Whittemore et al., 2019).

According to Jia et al. (2019), the burden of disease in diabetic patients is high, and a control and prevention strategy that addresses risk factors should be created to lessen this burden (Liu et al., 2019). Bour et al. (2022) found that the perception of diabetes burden differs by geography in their study conducted in various parts of the world. Diabetes displays sadness in certain areas while expressing anxiousness in others. This situation is believed to be related to situations such as culture, tradition, and economic factors (Bour et al., 2022).

After all these considerations, it is concluded that diabetes harms individuals in social, physical, and mental aspects. In this context, this study, which was done to address the psychological problems experienced by diabetic patients, and analyze the disease burden and symptom treatment strategies, is expected to contribute to the literature.

2 | MATERIAL AND METHOD

2.1 | Study design

The phenomenological study design, a qualitative research approach, was utilized to address the psychosocial experiences of diabetic patients, analyze the burden of disease, and examine their symptom management techniques. This format was chosen because it allows for a great deal of flexibility in expressing a new phenomenon (event or experience) from the participant’s point of view while also providing rich data and outlining their experiences (Yıldırım & Şimşek, 2016). A descriptive phenomenological method was used to address the psychosocial perspectives of diabetic patients, investigate disease burden, and evaluate symptom management strategies. This technique focuses on disclosing the essence of the phenomenon under inquiry and conveying the experience exactly as it is (Morrow et al., 2015; Willig, 2013). The fact that the researcher lives in the same socio-cultural environment as the study participants and has a degree in internal medical nursing is proof that this study is epistemologically constructivist (Merriam & Grenier, 2019).

2.2 | Study group

Between October 15 and December 15, 2022, the study was carried out in a training and research hospital in a province in southern Turkey.

The criterion sampling approach, one of the purposeful sampling methods, was utilized to determine the research study group. The formation of a sample from people, events, objects, or circumstances with the qualities identified as connected to the topic is proof that this study is an epistemologically constructivist paradigm (Altunay et al., 2014). The sample included diabetic individuals with type 2 diabetes at the education and research hospital who matched the inclusion criteria and agreed to participate. Patients with type 2 diabetes who had been on therapy for at least 5 years and who volunteered to participate in the study were eligible. Patients with type 1 diabetes who refused to participate in the trial and had been on diabetic therapy for less than 5 years were excluded. All patients who fulfilled the inclusion criteria at a teaching and research hospital in the country’s south were invited to be interviewed. The sample size was determined using data saturation (Yıldırım & Şimşek, 2016), and 20 participants were questioned. Furthermore, the study was reported in accordance with the requirements of the Consolidated Criteria for Reporting Qualitative Research (COREQ) (Tong et al., 2007) (Table 1).

2.3 | Data collection tools

Patients with type 2 diabetes were interviewed at a state hospital. The study employed an in-depth individual interview strategy. A voice recorder was used in the interviews with the patients in a suitable location (bright, well-lit, and ventilated). The interviews were performed using a semi-structured interview form designed by the researchers based on the literature and revised in accordance with the opinions of three experts using the qualitative research approach. The interviews included eight major topics and sub-questions about illness burden and symptom management.

The questions in the semi-structured interview form are as follows:

1. What does the word “diabetes” mean to you?
2. What do you think about the diabetes diagnosis process?
3. What do individuals with diabetes experience? What are the effects of diabetes on the health of individuals? (What are the mental, physical, and social effects?)
4. Do you think you cope effectively with diabetes? What are your sources of support in this process? Which methods do you apply?
5. How does someone with diabetes feel? Which symptoms do you have? How do you deal with these symptoms?
6. What healthy lifestyle habits do you follow? Do you believe they are effective?
7. If diabetes education were to be provided, what topics would you prefer to see covered?

TABLE 1 Combined criteria for reporting qualitative research (COREQ).

Alan 1: Research team and reflexivity			
Personal Characteristics			
Number	Characteristics	Guiding questions	Explanations
1	Interviewer/facilitator	Which author/authors conducted the interview or focus group?	The first author conducted the interview
2	Credentials	What were the credentials of the researcher? e.g., Ph.D., MD	First author: Ph.D. Second author: Ph.D
3	Occupation	What was their occupation at the time of the study?	First author: Ph.D. faculty Member Second author: Ph.D., psychiatric nurse
4	Gender	What was the sex of the researcher?	Two researchers: Female
5	Experience and education	What experiences and educational level does the researcher have?	The first author has taken qualitative courses, and the second author has taken qualitative courses, and published qualitative studies in international journals
Relationship with participants			
6	Relationship status	Was there a relationship between the researcher and the participants before the training?	There was no relationship before starting the study
7	Interviewee's information about the interviewer	What did the participants know about the researcher, e.g., personal goals, and reasons for doing the research?	The nurses knew that the researcher had a Ph.D. in internal medicine and diseases and was interested in the field of diabetes
8	Interviewee characteristics	What characteristics of the interviewer/facilitator were reported? e.g., bias, assumptions, reasons, and interests in research	At the beginning of each interview, the participants were informed about the purpose and objectives of the study
Domain 2. Study design			
Theoretical framework			
9	Methodological orientation and theory	What methodological orientation was identified to support the study, e.g., discourse analysis, ethnography, phenomenology, or content analysis?	This study was phenomenological
Sample selection			
10	Sampling	How were the participants selected? e.g., purposeful, convenience, consecutive, snowball	The criterion sampling method, one of the purposive sampling methods, was used
11	Approach method	How were the participants reached? e.g., face-to-face, telephone, mail	Face-to-face interviews were conducted with the patients before starting the study. The interviews were scheduled by the patients, who voluntarily agreed to participate in the study
12	Sample size	How many participants were there in the study?	Twenty patients were included in the study
13	Exclusion	How many people refused to participate or dropped out? Reasons?	Two patients refused to participate in the study due to a lack of time
Setting			
14	The setting of data collection	Where were the data collected? e.g., home, clinic, or workplace	Detailed information is given in the data collection section of the study
15	Presence of non-participants	Was there anyone else other than the participants and the researchers?	Apart from the researchers, a physician working at the relevant hospital was an observer
16	Description of the sample	What are the important characteristics of the sample? e.g., demographic data, date	Patients who agreed to participate in the study and who had been treated for diabetes for at least 5 years were included in the study
Data collection			
17	Interview guide	Were questions, prompts, and guidelines provided by the authors? Were they tested in a pilot study?	Detailed information is given in the methods section
18	Repeat interviews	Were repeated interviews conducted? If yes, how many?	No
19	Audio/visual recording	Was audio recording or visual recording used to collect data in the research?	Interviews were recorded with a voice recorder

(Continues)

TABLE 1 (Continued)

Alan 1: Research team and reflexivity			
Personal Characteristics			
Number	Characteristics	Guiding questions	Explanations
20	Field notes	Were field notes taken during and/or after the interview or focus group?	All patients' responses and researcher observations were recorded
21	Duration	How long were the interviews or focus groups?	Each interview lasted between 35 and 45 min
Domain 3: Analysis and findings			
24	Number of data coders	How many data coders coded the data?	Two researchers and a third individual coded the data
25	Description of the coding tree	Did the authors describe the coding tree?	The titles and subtitles in the results section represent the final coding tree
26	Derivation of themes	Were the themes predetermined or derived from the data?	Themes were derived from the data
27	Software	If any, what software was used to manage the data?	The data were analyzed manually
28	Participant control	Did participants provide feedback on the findings?	No
Reporting			
29	Quotations provided	Are participant quotes cited to illustrate themes/findings? Is each quote identified, e.g., participant number?	Yes. Participant quotes are cited to illustrate themes/findings. e.g., participant number
30	Data and findings consistent	Was there consistency between the data presented and the findings?	Yes
31	Clarity of main themes	Are the main themes presented in the findings?	Yes
32	Clarity of subthemes	Is there a description of the different cases or a discussion of minor issues?	Yes

A preliminary interview was conducted with a patient to test the comprehensibility and suitability of the questions and to experience the interview process with the researcher. Data from this 25-min preliminary interview was not included in the analysis. The duration of the interviews in the study varied according to the statements of the patients and lasted between 35 and 45 min.

Bias is a very important issue in qualitative research. The interviewer should not pose leading questions or fail to follow up or omit topics introduced by the interviewer (Qu & Dumay, 2011). In this study, in order to prevent bias, the researcher avoided asking direct questions while asking questions to individuals, and the interviewers of the participants were written down exactly. In addition, the analyses were carried out by two researchers. All these can be listed as measures taken to prevent bias in the research.

2.4 | Data analysis

In the analysis of the qualitative data obtained from the interviews, the 7-stage analysis method devised by Colaizzi (1978) for phenomenological studies was used (Morrow et al., 2015). In this context, the interview texts were first read independently and repeatedly by three researchers to understand what was explained in the data. Significant statements in the interview texts were selected, rearranged, and expressed in general terms. The data intended to be explained in the claims were then identified and analyzed. The meanings were devel-

oped and confirmed by the researchers through discussion until they reached an agreement. The researchers then discovered and organized the ideas into the main and sub-themes they developed with clarity. The accuracy of the themes and content was improved by presenting the research findings to the participants. Furthermore, by including the participants' remarks, the reader could check the interpretation and analysis of the data.

2.5 | Ethical considerations

The Gümüşhane University Scientific Research and Publication Ethics Committee (E-18457941-050.99-72816) approved this study. Before the interview, participants provided informed consent. Transcripts and recordings were saved on a password-protected device. The study was carried out in conformity with the Helsinki Declaration of 1964 and the National Research Committee's ethical standards.

3 | RESULTS

Sixteen of the participants were married, twelve were women, and seventeen had had diabetes for 10 years. Almost all the individuals had a comorbid disease. The mean age of the patients was calculated as 56.45 ± 11.99 (min 36, max 72). All of the participants were taking Type 2 Diabetes medication, and eleven of them were using it in oral and injection form.

TABLE 2 Descriptive characteristics of the participants.

Participant Number	Age	Gender	Marital status	Education level	Duration of the Type 2 Diabetes	Comorbid disease	The type of medication he uses (oral, injection)
P1	65	Female	Single	Primary school	20 years	Hypertension	Oral
P2	45	Female	Married	Illiterate	25 years	Hypertension, heart failure, and chronic renal failure	Oral
P3	65	Male	Married	Primary school	20 years	Hypertension	Oral and injection
P4	67	Female	Married	Primary school	8 years	Hypertension	Oral and injection
P5	36	Female	Single	Primary school	10 years	–	Oral
P6	66	Male	Married	Secondary school	30 years	Heart failure	Oral and injection
P7	58	Male	Married	Primary school	12 years	Stomach ulcers and hypertension	Oral and injection
P8	43	Female	Single	Undergraduate	8 years	Hypertension	Oral
P9	63	Female	Married	Illiterate	20 years	heart failure	Oral and injection
P10	72	Male	Married	Primary school	20 years	Hypertension and asthma	Oral and injection
P11	44	Female	Married	Illiterate	20 years	Hypertension	Oral
P12	68	Male	Single	Lise	10 years	Hypertension and heart failure	Oral and injection
P13	67	Female	Married	Primary school	15 years	Hypertension and heart failure	Oral
P14	58	Male	Married	Primary school	10 years	Hypertension	Oral and injection
P15	71	Male	Married	Illiterate	35 years	Hypertension and heart failure	Oral and injection
P16	49	Male	Married	Illiterate	3 years	Hypertension	Oral
P17	45	Female	Married	Illiterate	25 years	Hypertension, heart failure, and asthma	Oral and injection
P18	65	Male	Married	University	25 years	Hypertension	Oral
P19	38	Male	Married	Primary school	10 years	Renal failure	Oral
P20	44	Female	Single	Primary school	15 years	Renal failure and hypertension	Oral and injection

The demographic and occupational characteristics of the participants are presented in Table 2.

As a result of the analysis of the semi-structured interview data, categories, themes, and sub-themes were identified (Table 3).

3.1 | Category 1. Challenges with care and treatment

3.1.1 | Theme 1. Knowledge

The data from the interviews revealed that the patients lacked understanding about diabetes, complications, exercise, food, and the treatment procedure and that they required more information on the subject.

"I wonder what else will occur in my body due to diabetes." (P2).

"What else should I be concerned about at home, and how will the disease affect my body?" (P16).

3.1.2 | Theme 2. Application

According to the interview data, patients need information about insulin administration, diabetic foot care, and infection prevention, especially urinary tract infections. It was also found that some patients had problems complying with the diet.

"How should the drugs be used? I sometimes overuse insulin and I can't manage it; I have little knowledge about dose adjustment..." (P7).

"My blood sugar level is dropping very fast, I don't know what to do, it would be very good if I could be informed about what to do about this..." (P3).

TABLE 3 Diabetes and psychosocial dimension.

Categories	Themes	Subthemes
1. Challenges with care and treatment	A. Knowledge	A1. Complications
	B. Application	A2. What to do in hypoglycemia
	C. Symptoms	A3. Nutrition
		A4. Exercise
		B1. Insulin dose/application
		B2. Infection prevention
		B3. Diabetic foot care
		B4. Having trouble following a diet
		C1. Fatigue
		C2. Weakness
		C3. Anxiety
		C4. Headache
2. Coping with the disease	A. Support resources	C5. Depression
	B. Spiritual coping methods	C6. Bone pain
	C. Physical coping methods	C7. Muscle pain
		C8. Diabetic wounds
		C9. Hypoglycemia
		C10. Itching
		C11. Vision problem
		C11. Infection
		C12. Tingling in the hands
		A1. Spouse
		A2. Family
		A3. Children
		A4. Health personnel
		B1. Perform prayers
		B2. Praying
		B3. Chatting with family members
		B4. Prayer beads
		B6. Talking with patients and health personnel
		B6. Accepting the disease
		B7. Fostering hope
		B8. Believing in destiny
		C1. Watching TV
		C2. Resting
		C3. Exercising
		C4. Paying attention to nutrition
		C5. Regular use of medicines
		C6. Administering insulin at the proper time and dose

(Continues)

TABLE 3 (Continued)

Categories	Themes	Subthemes
3. Effects	A. Physical effects	A1. Difficulty walking
	B. Spiritual effects	A2. Fatigue/weakness
	C. Social effects	A3. Wounds on the feet
		A4. Pain
		A5. Hypoglycemia
		A6. Itching
		B1. Loneliness
		B2. Anxiety
		B3. Depression
		B4. Sadness
		B5. Unhappiness
		B6. Desperation
4. Healthy life behaviors		C1. Social isolation
		C2. Decreased quality of life
		C3. Difficulty in leisure time activities
		C4. Difficulty in making friends
		C5. Decreased social support
	A. Physical practices	A1. Paying attention to your diet (sugar-free diet, low-fat diet)
	B. Psychological practices	A2. Hiking
		A3. Regular use of medicines
		A4. Exercising
		A5. Blood glucose monitoring
		A6. Regular outpatient clinic control
		A7. Protection against trauma
		A8. Infection prevention
		B1. Applying techniques to cope with stress
		B2. Family support
		B3. Breathing and relaxation exercises

3.1.3 | Theme 3. Symptoms

Patients complained of weakness, exhaustion, itching, cramping, headache, hypoglycemia, bone pain, and back pain, according to interview data.

"My feet are extremely bad; my hands are tingling; I had a cardiac angioplasty, there is a constriction in the veins; when my sugar drops, I feel weak, I take a shower and eat something sour." (P2)

"I have a headache, I get weak when my blood sugar drops, and I want to sleep." (P6).

"The itching infection is too much, my genital area itches a lot; I wash it..." (P11).

3.2 | Category 2. Coping with the disease

3.2.1 | Theme 1. Support resources

According to the findings of the study, some of the patients' sources of support were their spouses, children, relatives, and friends.

"Without my husband's support, it would be very difficult for me to cope..." (P17).

"My children have taken me to the polyclinic control." (P10).

3.2.2 | Theme 2. Spiritual coping methods

Spirituality is an essential component of health and offers meaning to patients' lives. This can help many people with chronic and life-threatening illnesses cope with their challenging situations by providing support and meaning in their lives. Many studies over the last decade have demonstrated the role of spiritual resources in improving health outcomes in a wide range of patients (McMahon et al., 2014).

Patients were found to use behaviors such as praying, performing prayer, using prayer beads, talking to other patients about their sickness, embracing their illness, and wishing to get better.

"I used prayer beads, I pray, it is good for me..." (P9).

"God gives illness to whom He wills and heals whom He wills... Everything is fate...I think that Allah knows and plans everything... A believer and Muslim must submit to His will."

"Diabetes is a severe disease, similar to cancer, and I pray a lot to get through it..." (P11)

"We are weak and powerless, and in the end, we will die and return to him... He is the source of both illness and health... So, he wanted me to have diabetes, and I did..." (P18).

3.2.3 | Theme 3. Physical coping methods

It was found that patients coped with the process by doing things like watching TV, resting, and exercising.

Individuals who exercise reduce their tensions, reinforce their confidence in their body image, feel their fitness, and experience pride in having achieved a goal (Sarkan, 2021).

"I take my medication regularly, and I try to walk..." (P6)

"I exercise, I walk for at least half an hour, I feel better when I walk..." (P5).

3.3 | Category 3. Effects

3.3.1 | Theme 1. Physical effects

Diabetes causes symptoms such as trouble walking, fatigue/weakness, wounds on the feet, itching, pain (muscle, bone, and waist), and hypoglycemia, according to patient interviews.

"I can't walk because of a foot wound that has affected my entire body; I'm in psychological distress" (P9).

"I can't walk because of a hip fracture; my diabetes is bad, life is difficult, and I don't want anyone with me." (P12)

3.3.2 | Theme 2. Spiritual effects

According to the interviews, diabetes patients had a poor emotional impact. It was determined that sensations of loneliness, anxiety, depression, sadness, discontent, and helplessness were experienced.

"Psychologically, I am tired and overwhelmed..." (P16).

"Psychologically, I am very bad, my legs ache a lot, I only walk inside the house, I am not happy, I appear to be resigned to live..." (P3).

3.3.3 | Theme 3. Social effects

According to the data gathered from the interviews, it was established that diabetes treatment had a detrimental social impact on the patients.

"It's bad mentally, physically, I can't move much; I don't see my friends; I don't want to go anywhere..." (P5)

3.4 | Category 4. Healthy life behaviors

3.4.1 | Theme 1. Physical practices

According to the interview data, patients stated that they use practices such as paying attention to nutrition (sugar-free diet, low-fat diet), walking, using medications on a regular basis, monitoring blood sugar, avoiding trauma, and exercising to effectively cope with the diabetes management process and disease.

"I pay attention to my nutrition; when I do, I feel well and my blood sugar does not rise... (P4) "I walk, and I don't eat sugary foods." (P5)

"I protect myself from injuries; I have a wound on my foot and am afraid it will get worse." (P9)

"I try to monitor my blood glucose levels frequently and go to my outpatient clinic visits regularly (P13)." (P8)

3.4.2 | Theme 2. Psychological practices

In the interviews with the patients, it was discovered that some patients tried to cope with stress by doing breathing and relaxation exercises to cope effectively with the burden of diabetes.

"I try to cope with stress by having hobbies, reading books, listening to music, and occasionally trying to do breathing and relaxation exercises..." (P8).

4 | DISCUSSION

This study was conducted to address the psychosocial dimension of diabetes patients' experiences, investigate the burden of disease, and determine their practices for symptom management. The psychosocial dimension of diabetes, the burden of disease, and symptom management were discussed in four categories.

4.1 | Challenges with care and treatment

Type 2 diabetes is a complex, chronic, lifelong physical condition that manifests itself as hyperglycemia in the blood as a result of insulin release, insulin action, or an imbalance in protein, carbohydrate, and fat metabolism. When hyperglycemia caused by diabetes cannot be

avoided, it can lead to acute (ketoacidosis, lactic acidosis, etc.) and chronic (retinopathy, nephropathy, neuropathy, cardiovascular diseases, etc.) complications such as myocardial infarction, amputation, and even death (Turkish Diabetes Foundation, 2017; Wykes et al., 2017). Obesity, lack of physical exercise, old age, unhealthy eating and malnutrition, and a family history of diabetes are all risk factors for diabetes (İstek & Karakurt, 2018). Therefore, diabetes care aims to prevent possible complications by maintaining blood glucose levels within normal limits. In this context, the five elements of diabetes care are providing diabetes-specific nutrition, increasing physical activity, monitoring the patient's blood glucose level, educating the patient about diabetes self-care, and regular continuation of drug treatment. Diabetes self-care activities include diabetes-specific nutrition, physical activity, monitoring blood sugar, adhering to diabetic therapy, visiting diabetes controls regularly, and foot care (Çelik İnce & Partlak Günüşen, 2020). The use of many drugs in the treatment plan, pharmacological side effects, and the complex nature of the treatment regimen all make patient compliance challenging (Çalık and Kapucu, 2017). Dugani et al. reported that the prevalence of diabetes was higher in rural parts of the United States than in metropolitan areas (Dugani et al., 2021). According to Bukhsh et al., type 2 diabetes patients struggle with difficulties such as hypoglycemia control and using a glucometer. The problems encountered by the patients in this study are consistent with the literature, and the disease burden of diabetes has a detrimental impact on the process of disease adaptation.

4.2 | Coping with the disease

According to Bukhsh et al., type 2 diabetes patients struggle to cope with the disease. Furthermore, patients expressed concerns about not being able to eat their favorite foods and being offered sugary foods in social settings like weddings (Bukhsh et al., 2020). Tong et al. (2015) reported that Type 2 diabetes patients struggled with glycemic management and were anxious about it (Tong et al., 2015). Patients in the study also reported troubles with diet compliance.

Spiritual well-being is emphasized as a unique power that coordinates people's physical, psychological, mental, and social qualities and is seen as a significant predictor of perceived quality of life (Solaimanizadeh et al., 2019). Spiritual well-being has been shown to improve health and disease (Bravin et al., 2019). According to Mahdian and Ghaffari (2016), people with high levels of spiritual well-being live a healthier lifestyle, are happier, and are more content with their lives. Spiritual well-being appears to have a crucial role in adjusting to the disease, enhancing coping skills and physical and mental well-being, and lowering anxiety, depression, substance use, and suicide rates among diabetic patients, according to research (Zara et al., 2022). Moon et al. (2021) claimed that spirituality has a significant impact on an individual's ability to cope well with diabetes and that as spirituality rises, the individual may effectively self-manage diabetes (Moon et al., 2021). In our study, diabetes patients attempted to spiritually relieve themselves and cope effectively with their disease by engaging in

spiritual practices such as praying, praying the rosary, talking with other patients, embracing the disease, and encouraging hope.

4.3 | Effects

Diabetes ketoacidosis (DKA), hyperosmolar hyperglycemia (HHD), and lactic acidosis are all serious metabolic complications characterized by extreme hyperglycemia caused by insulin deficiency and dehydration. Ketonemia and ketonuria are also prevalent in DKA. It progresses toward coma as a result of metabolic acidosis. Following fluid deficit, neurological findings and seizures are more common in HHD. Cardiovascular disease, diabetic retinopathy, nephropathy, neuropathy, a higher risk of liver, pancreatic, endometrial, colon/rectum, breast, and bladder cancer, and reduced cognitive functioning in middle and old age are all chronic consequences. Complications include nonalcoholic fatty liver disease, dementia, osteoporotic fractures, sleep disturbances, and periodontal disorders. Diabetic foot is one of the most prevalent DM problems (Çevik, 2023; Endocrinology and Metabolism Society of Turkey, 2022). Mental issues such as depression, anxiety, and stress are common in people with chronic conditions (Kendzierska et al., 2021). According to our study, diabetes harmed patients' physical, emotional, and social well-being.

4.4 | Healthy life behaviors

Individuals with diabetes must adhere to diabetes self-care activities such as diabetes-specific nutrition, physical activity, monitoring their blood sugar, adhering to diabetes treatment, attending diabetes controls regularly, and foot care to cope with the burden of diabetes and live a healthy life (Çelik İnce and Partlak Günüşen, 2020). As psychological resilience increases in diabetes patients, it plays an important role in improving disease adaptation, coping skills, physical and mental well-being, and reducing anxiety (Zara et al., 2022). Furthermore, it is believed that diabetic patients can play an active role in symptom management by coping with the burden of the disease through regular outpatient clinic controls and blood glucose monitoring (Şahin et al., 2019; Bozkaya, 2022; Ma et al., 2022). Since diabetes is a life-long chronic disease, the individual needs to cope with many factors to adapt to the disease. Healthy lifestyle behaviors are recognized to be useful in the patient's diabetic adaptation management when dealing with these issues (Çalık ve Kapucu, 2017). To prevent cardiovascular complications in diabetics, it is vital to discover individual risk factors early, raise awareness of these risk factors, and ensure appropriate behavioral change, in addition to illness and risk information. Individuals with diabetes must adopt healthy lifestyle behaviors from the moment they are diagnosed. Healthy lifestyle behaviors are defined as behaviors that help people maintain and improve their level of well-being. Adequate and balanced nutrition, stress management, regular physical activity, effective spiritual growth, strong interpersonal interactions, and accepting responsibility for protecting and improving one's health are examples of these behaviors (Taşkın Yılmaz et al.,

2018). In the study, it can also be said that patients are trying to exhibit healthy lifestyle behaviors in order to cope effectively with the burden of diabetes and to manage symptoms effectively, and some of them, unfortunately, are inadequate in symptom management.

5 | CONCLUSION

In conclusion, our study provides preliminary evidence that the diabetes process negatively affects individuals psychosocially. Patients experience severe physical symptoms due to diabetes, which negatively impacts their mental health. They suffer from physical, psychological, and social problems due to the burden of diabetes, and these problems negatively affect their quality of life. However, the effective methods they used in coping with the disease and symptom management, especially spiritual coping strategies, positively affected the coping process. Patients' psychosocial and social support requirements must be addressed, and spiritual coping practices could have a positive impact on their health.

5.1 | Limitations

The study has several limitations. All participants were from the internal medicine ward of a public hospital in a city in southern Turkey; the results are dependent on the participants and the setting in which the study was conducted, and the small group of participants is not representative of the diabetes patient population.

AUTHOR CONTRIBUTIONS

The authors share the responsibility for the manuscript. *Conception and design:* Sevgi Demir Çam, Sevdâ Uzun. *Data collection:* Sevgi Demir Çam. *Analysis and interpretation:* Sevgi Demir Çam, Sevdâ Uzun. *Manuscript writing:* Sevgi Demir Çam and Sevdâ Uzun.

ACKNOWLEDGMENTS

This research was supported by the Artvin Çoruh University Scientific Research and Publication Ethics Committee. Thanks for the support of the participating patients. The study did not receive any financial support or relationships that may pose potential conflict of interest.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest. The study did not receive any financial support or relationships that may pose potential conflict of interest.

DATA AVAILABILITY STATEMENT

All data generated or analyzed during this study are included in this published article and its supplementary information files.

ORCID

Sevgi Demir Çam  <https://orcid.org/0000-0002-9728-4294>

Sevdâ Uzun  <https://orcid.org/0000-0002-5954-717X>

REFERENCES

- Ahmad, E., Lim, S., Lamprey, R., Webb, D. R., & Davies, M. J. (2022). Type 2 diabetes. *The Lancet*, 400(10365), 1803–1820. [https://doi.org/10.1016/S0140-6736\(22\)01655-5](https://doi.org/10.1016/S0140-6736(22)01655-5)
- Altunay, E., Oral, G., & Yalçınkaya, M. (2014). A qualitative research about mobbing implications in educational institutions. *Sakarya University Journal of Education*, 4(1), 62–80. <https://doi.org/10.19126/suje.37750>
- Bellary, S., Kyrrou, I., Brown, J. E., & Bailey, C. J. (2021). Type 2 diabetes mellitus in older adults: clinical considerations and management. *Nature Reviews Endocrinology*, 17(9), 534–548. <https://doi.org/10.1038/s41574-021-00512-2>
- Bour, C., Ahne, A., Aguayo, G., Fischer, A., Marcic, D., Kayser, P., & Fagherazzi, G. (2022). Global diabetes burden: analysis of regional differences to improve diabetes care. *BMJ Open Diabetes Research and Care*, 10(5), e003040. <https://doi.org/10.1136/bmjdr-2022-003040>
- Bozkaya, D. N. (2022). *Variables affecting diabetes symptoms, self-management and care dependence in individuals with type 2 diabetes who use insulin*. Hacettepe University.
- Bravin, A. M., Trettene, A. D. S., de Andrade, L. G. M., & Popim, R. C. (2019). Benefits of spirituality and/or religiosity in patients with chronic kidney disease: An integrative review. *Revista Brasileira de Enfermagem*, 72(2), 541–551. <https://doi.org/10.1590/0034-7167-2018-0051>
- Bukhsh, A., Goh, B. H., Zimbudzi, E., Lo, C., Zoungas, S., Chan, K. G., & Khan, T. M. (2020). Type 2 diabetes patients' perspectives, experiences, and barriers toward diabetes-related self-care: a qualitative study from Pakistan. *Frontiers in Endocrinology*, 11, 534873.
- Çalik, A., & Kapucu, S. (2017). Improving healthy lifestyle behaviors in patients with diabetes: Pender's Health Promotion Model. *Hacettepe University Journal of Faculty of Nursing*, 4(2), 62–75.
- Çelik Ince, S., & Günüşen, N. (2020). Diabetes management in individuals with chronic mental illness and the role of psychiatric nurse. *Dokuz Eylül University Faculty of Nursing Electronic Journal*, 13(3), 195–199.
- Çevik, Z. N. (2023). *Tip 2 Evaluation of diabetes mellitus patients' knowledge and self-efficacy about diabetes complaint*. University of Health Sciences /Hamidiye International Faculty of Medicine / Department of Family Medicine.
- Chung, S. M., Moon, J. S., & Chang, M. C. (2021). Prevalence of sarcopenia and its association with diabetes: A meta-analysis of community-dwelling Asian population. *Frontiers in Medicine*, 8, 681232. <https://doi.org/10.3389/fmed.2021.681232>
- Colaizzi, P. (1978). Psychological research as the phenomenologist views it. In Vale RS, King M (Eds) *Existential-Phenomenological Alternatives for Psychology*. Oxford University Press, New York NY.
- Dugani, S. B., Mielke, M. M., & Vella, A. (2021). Burden and management of type 2 diabetes in rural United States. *Diabetes/metabolism research and reviews*, 37(5), e3410. <https://doi.org/10.1002/dmrr.3410>
- Endocrinology and Metabolism Society of Turkey. (2022). *Diabetes Mellitus Complications Diagnosis, Treatment and Follow-up Guideline, 2020*. 14th Edition (Updated Version). Ankara: Bayt.
- Espinoza, P., Varela, C. A., Vargas, I. E., Ortega, G., Silva, P. A., Boehmer, K. B., & Montori, V. M. (2020). The burden of treatment in people living with type 2 diabetes: A qualitative study of patients and their primary care clinicians. *PloS One*, 15(10), e0241485. <https://doi.org/10.1371/journal.pone.0241485>
- Florez, H., Hernández-Rodríguez, J., Muxi, A., Carrasco, J. L., Prieto-González, S., Cid, M. C., Espinosa, G., Gómez-Puerta, J. A., Monegal, A., Gualiabens, N., & Peris, P. (2020). Trabecular bone score improves fracture risk assessment in glucocorticoid-induced osteoporosis. *Rheumatology*, 59(7), 1574–1580. <https://doi.org/10.1093/rheumatology/kez464>
- İstek, N., & Karakurt, P. (2018). A global health problem: type 2 diabetes and self-care management. *JAREN*, 4(3), 179–182.
- Jia, W., Weng, J., Zhu, D., Ji, L., Lu, J., Zhou, Z., Zou, D., Guo, L., Ji, Q., Chen, L., Chen, L., Dou, J., Guo, X., Kuang, H., Li, L., Li, Q., Li, X., Liu, J., Ran, X., Shi, L., ... Chinese Diabetes Society. (2019). Standards of medical care for type 2 diabetes in China 2019. *Diabetes/Metabolism Research and Reviews*, 35(6), e3158. <https://doi.org/10.1002/dmrr.3158>
- Kendzierska, T., Zhu, D. T., Gershon, A. S., Edwards, J. D., Peixoto, C., Robillard, R., & Kendall, C. E. (2021). The effects of the health system response to the COVID-19 pandemic on chronic disease management: A narrative review. *Risk Management and Healthcare Policy*, 14, 575–584. <https://doi.org/10.2147/RMHP.S293471>
- Kumsar, A. K., YILMAZ, F. T., & Gündoğdu, S. (2019). The relationship between the perceived symptom level and HbA1c in individuals with type 2 diabetes. *Cukurova Medical Journal*, 44, 61–68.
- Liu, M., Liu, S. W., Wang, L. J., Bai, Y. M., Zeng, X. Y., Guo, H. B., Liu, Y. N., Jiang, Y. Y., Dong, W. L., He, G. X., Zhou, M. G., & Yu, S. C. (2019). Burden of diabetes, hyperglycaemia in China from 2016: findings from the 1990 to 2016, global burden of disease study. *Diabetes & Metabolism*, 45(3), 286–293.
- Ma, C. X., Ma, X. N., Guan, C. H., Li, Y. D., Mauricio, D., & Fu, S. B. (2022). Cardiovascular disease in type 2 diabetes mellitus: Progress toward personalized management. *Cardiovascular Diabetology*, 21(1), 74. <https://doi.org/10.1186/s12933-022-01516-6>
- Mahdian, Z., & Ghaffari, M. (2016). The mediating role of psychological resilience, and social support on the relationship between spiritual well-being and hope in cancer patients. *Journal of Fundamentals of Mental Health*, 18(3), 130–138.
- McMahon, L., Safari, S., Smith, E., Tesoriero, W., MacGinley, R., & Holt, S. (2014). Sudden blindness in a hemodialysis patient on digoxin. *World Journal of Nephrology and Urology*, 3(2), 100–102.
- Merriam, S. B., & Grenier, R. S. (Eds.). (2019). *Qualitative research in practice: Examples for discussion and analysis*. John Wiley & Sons.
- Moon, J. S., Suh, S., Kim, S. S., Jin, H. Y., Kim, J. M., Jang, M. H., Lee, K. A., Lee, J. H., Chung, S. M., Lyu, Y. S., Kim, J. H., Kim, S. Y., Jang, J. E., Kim, T. N., Kim, S. W., Jeon, E., Cho, N. H., Kim, M. K., Kim, H. S., ... Shon, H. (2021). Efficacy and safety of treatment with quadruple oral hypoglycemic agents in uncontrolled type 2 diabetes mellitus: A multi-center, retrospective, observational study. *Diabetes & Metabolism Journal*, 45(5), 675–683.
- Morrow, R., Rodriguez, A., & King, N. (2015). Colaizzi's descriptive phenomenological method. *The Psychologist*, 28(8), 643–644.
- Qu, S. Q., & Dumay, J. (2011). The qualitative research interview. *Qualitative Research in Accounting & Management*, 8(3), 238–264.
- Solaimanizadeh, F., Mohammadinia, N., & Solaimanizadeh, L. (2019). The relationship between spiritual health and religious coping with death anxiety in the elderly. *Journal of Religion and Health*, 59, 1925–1932. <https://doi.org/10.1007/s10943-019-00906-7>
- Taşkın Yılmaz, F., Karakoç Kumsar, A., & Çelik, S. (2018). The relationship between the level of knowledge of cardiovascular disease risk factors and healthy lifestyle behaviors in individuals with type 2 diabetes. *Education and Research in Nursing*, 15(2), 63–70.
- Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item check list for interview and focus groups. *International Journal for Quality in HealthCare*, 19(6), 349–357. <https://doi.org/10.1093/intqhc/mzm042>
- Tong, W. T., Vethakkan, S. R., & Ng, C. J. (2015). Why do some people with type 2 diabetes who are using insulin have poor glycaemic control? A qualitative study. *BMJ Open*, 5(1), e006407. <https://doi.org/10.1136/bmjopen-2014-006407>
- Whittemore, R., Vilar-Compte, M., De La Cerda, S., Marron, D., Conover, R., Delvy, R., Lozano-Marrufo, A., & Pérez-Escamilla, R. (2019). Challenges to diabetes self-management for adults with type 2 diabetes in low-resource settings in Mexico City: A qualitative descriptive study. *International Journal for Equity in Health*, 18(1), 1–10. <https://doi.org/10.1186/s12939-019-1035-x>
- Willig, C. (2013). *Introducing qualitative research in psychology*, 3rd ed. Open University Press.
- Wykes, T. L., Lee, A. A., Bourassa, K., Kitchen, K. A., & McKibbin, C. L. (2017). Diabetes knowledge among adults with serious mental illness



- and comorbid diabetes mellitus. *Archives of Psychiatric Nursing*, 31(2), 190–196. <https://doi.org/10.1016/j.apnu.2016.09.014>
- Yıldırım, A., & Şimşek, H. (2016). *Qualitative research methods in social sciences*, 10th edn. Seçkin Publishing.
- Yılmaz, F. T., Şahin, A. D., & Türesin, A. K. (2019). The relationship of the level of acceptance of the disease with glycemic control in individuals with type 2 diabetes. *Cukurova Medical Journal*, 44(4), 1284–1291.
- Zara, S., Kruse, J., Leveling, A. M., Schmitz, J., Hempler, I., & Kampling, H. (2022). Capturing diabetes-related distress and burden from the perspective of patients with type 1 or type 2 diabetes: protocol for

an explorative mixed methods study. *JMIR Research Protocols*, 11(8), e38477. <https://doi.org/10.2196/38477>

How to cite this article: Demir Çam, S., & Uzun, S. (2024).

Disease burden and symptom management in type 2 diabetic patients: A phenomenological study. *Public Health Nursing*, 41, 1291–1301. <https://doi.org/10.1111/phn.13404>