

Perception of diabetes management and cardiovascular disease risk among men with type 2 diabetes: A qualitative study

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Abstract

Aim: The aim of this study was to explore the perception and understanding of men with type 2 diabetes about their illness control, risk for CVD and their adherence to healthcare management plans in Jordan.

Design: A qualitative descriptive design was used, recruiting a purposive sample of 13 men diagnosed with type 2 diabetes.

Methods: Data were collected between February and April 2019 through in-depth semi-structured interviews and analysed using content analysis.

Results: Data analysis revealed four themes: (a) Perception of diabetes control; (b) Perception of cardiovascular disease risk; (c) Coping with disease-imposed limitations; and (d) Information validation.

Conclusion: The study concludes that the perception of disease control does not necessarily coincide with actual disease control. Examining patients with diabetes perception and knowledge of their healthcare management and increased CVD risks is essential. An individualized culture and gender-sensitive health education and counselling involving spouses are recommended. Social media to disseminate scientific valid health instructions can enhance adherence.

KEYWORDS

adherence, cardiovascular diseases, diabetes, perception, qualitative, social media, spouse

1 | INTRODUCTION

Diabetes mellitus (DM) is a lifelong chronic disease that is spreading worldwide and affects the individual, family and community, causing a substantial increase in morbidity and mortality. There is an increase in the incidence and prevalence of DM in developed and developing countries such as Jordan and other countries in the Arab region (International Diabetes Federation (IDF), 2017). With the rapid increase in the prevalence of diabetes, it is expected that some countries will be facing a widespread epidemic (IDF, 2017; WHO, 2018).

Like other countries, the primary causes of death in two out of three patients with diabetes in Jordan were found, coronary heart disease (31.9%) and stroke (19.0%) (Centers for Disease Control & Prevention, 2011). Additionally, when patients with diabetes develop CVD, they have a higher mortality rate than CVD patients without diabetes (Hu, 2019). At least 68% of people >65 years of age with DM die of some form of heart disease and 16% die of stroke (Go et al., 2014). Heart disease death rates among adults with DM are two to four times higher than the rates for adults without DM (Go et al., 2014). Controlling blood glucose levels and cardiovascular preventive treatment are essential to reduce CVD complications of

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diabetes (Ferwana et al., 2015). However, in Jordan, more than half of the patients with diabetes have poor glycaemic control (Khattab, Khader, Al-Khawaldeh, & Ajlouni, 2010; Zerriouh & Khader, 2018).

Patients with diabetes are a potentially important target for health promotion about cardiovascular risk factors. Patients' perceptions of their risk for CVDs can significantly influence their decision-making process about self-management. This study intends to explore patients' perceptions of their illness to understand the factors that influence the integration of diabetes management in their daily lives.

1.1 | Background

Diabetes mellitus is a chronic complex metabolic disorder characterized by elevated blood glucose level that might lead to micro- and macro-vascular complications. As the prevalence of diabetes increases, so does its complications. Poorly managed diabetes leads to serious complications that considerably increase mortality rate and impair the quality of life, even causing loss of productivity at a young age. It also presents a high burden on both individuals and society in terms of morbidity and socioeconomic costs (Chiha, Njeim, & Chedrawy, 2012).

CVD is the leading cause of death among men, and diabetes is a major risk factor for CVD in both men and women (Zeber & Parchman, 2010). The risk of developing CVD is greatly elevated in patients with type 2 diabetes compared with the general population (Udell et al., 2012). Type 2 diabetes is the most common form of diabetes that most often occurs after the age of 40. The CVD that might accompany diabetes includes angina, myocardial infarction (heart attack), stroke, peripheral artery disease and congestive heart failure.

Several published studies examining the relationship between diabetes and CVD have emphasized the significance of controlling diabetes through screening, management and patients' education (Chiha et al., 2012; Fleming et al., 2013; Nanchen et al., 2012). Furthermore, the literature contends that there is still lack of awareness among patients with diabetes about their high risk to CVD and diabetes self-management support (Rendle et al., 2013; Tshiananga et al., 2012). A survey of people with type 2 diabetes in the Middle East and North Africa found that most participants had knowledge of CVD and its risk factors, but most of them were not aware of their high risk for these diseases as a complication of diabetes. Additionally, most of them reported not being informed about CVD risks by their healthcare providers (IDF, 2018).

Health-related risk perception is defined as a subjective assessment of the susceptibility of a person to a threat (Sjöberg, 2003). It is central to health behaviours that highly influence self-management in long-term illnesses (Kucukarlan, 2012). Health risk perception takes into account three factors: knowledge about the risk, personal meaning of risk and preventive management of risk (Zambrano-Cruz, Cuartas-Montoya, Meda-Lara, Palomera-Chávez, & Tamayo-Agudelo, 2018). Understanding the patients' perceptions of prevention and management highly influences self-management

and adoption of healthy behaviours. Studies agree that interventions targeting changing health risk perception improve health behavioural outcomes (Ferrer & Klein, 2015; Kucukarlan, 2012; Leventhal, Brissette & Leventhal., 2003). Learning how diabetes is represented to patients and uncovering their beliefs and cognition about the disease and disease control provide opportunities for healthcare providers to enhance their healthcare management. The purpose of this study is to explore the perception and understanding of men with type 2 diabetes about their illness control, risk for CVD and adherence to healthcare management plans in Jordan.

2 | METHODS

2.1 | Research design

A qualitative descriptive approach was used to describe the "subjective reality" as perceived by patients with diabetes.

2.2 | Setting and sample

A purposive sample of 13 men diagnosed with type II DM and with no complications of diabetes was recruited. The participants were recruited from the diabetic clinic at a university hospital in Jordan. The sample was recruited from patients who met the following criteria: (a) diagnosis of type 2 or adult-onset diabetes; (b) time since diagnosis more than 1 year; (c) age between 25–70 years; (d) absence of diabetic complications such as proliferative retinopathy, stroke or coronary artery disease, renal insufficiency, amputations within 12 months; and (e) consent for participation in the study. Data were collected and analysed simultaneously until data saturation was achieved.

2.3 | Data collection

Data were collected using semi-structured face-to-face interviews between February–April 2019. Interviews were conducted in a private room at the outpatient clinic. The researcher trained two research assistants to conduct the interviews and did the two pilot interviews together. Each interview lasted for an average of 1 hr. Interviews were initiated with open-ended questions such as "Please tell me why you came to the outpatient clinic" and "Please tell me about your illness (diabetes)".

2.4 | Data analysis

The interview discussions were in Arabic and were audiotaped and transcribed verbatim. Content analysis (Elo & Kyngäs, 2008) was conducted to identify the underlying meanings and the relationship aspects of the participants' responses. Data analysis was conducted

as each interview was completed. Interviews were analysed sentence by sentence to categorize the meaning units. Statements or words related to the same central meanings common to all groups, implying a theme, were emerged in the first interviews, which were verified by the succeeding data collection. The interpreted themes were re-examined, validated and reformulated according to participants' comments. The themes and interviewee transcripts were translated into English and checked by Arabic and English language translator.

2.5 | Trustworthiness and rigour

The researcher engaged in the recurrent reading of transcripts and constant comparison of categories and meaning units to enhance the dependability of the results. Respondent validation of the themes and their congruency with the participants' experiences was checked by asking six participants if it reflected their experience to ensure data credibility. Transferability was ensured by providing a rich description and verbatim transcription of the interview to allow readers to assess the relevance of the analysis and evaluate the applicability of the research findings to other contexts (Koch, 2006).

2.6 | Ethical issues

Research Ethics Committee approval, including institutional review board (IRB) approval, was obtained before beginning the study. Furthermore, participation was voluntary; each participant signed informed consent after receiving an explanation of the aim and process of data collection. Participants were assured of the confidentiality of the interviews. The audiotapes and transcribed interviews were saved in a locked cabinet and destroyed after the completion of the study.

3 | RESULTS

The analysis of the data revealed four themes representing patients' illness perceptions: (a) Perception of diabetes control; (b) Perception of cardiovascular disease risk; (c) Coping with disease-imposed limitations; and (d) Information validation.

3.1 | Perception of diabetes control

Lay people in Jordan are familiar with diabetes due to its high prevalence there, so it is common to find a person one knows who has diabetes. The participants perceived diabetes as a chronic disease compared with cancer. Almost all participants explained what diabetes is and described it as "a disease causing

the pancreas not to secrete sufficient insulin." Increased blood glucose was identified as the problem associated with diabetes, causing its clinical manifestations. The participants described several causes for diabetes, such as eating too much sugar, heredity, obesity and stress: "My father and grandfather had diabetes; that's why I had it." (P3).

However, diabetes is not perceived as a life-threatening disease; controlling normal blood glucose is among the perceived disease-imposed challenges in one's daily life. One participant commented, "Although diabetes is not a fatal disease but to me managing and controlling my blood sugar is demanding, stressful and sometimes difficult." (P4).

This response was for the question that asked them to describe their perception of their self-efficacy in managing their health and how they maintain and promote their health. Participants' view of their self-management involved being adherent to prescribed medications to control blood sugar and managing to lower their cholesterol. They mentioned monitoring their fasting blood sugar and feeling frustrated when their blood glucose was above average, even after taking glucose-lowering medication:

I continuously check my fasting blood sugar in the morning and not fasting in the evening, very often I get frustrated when it is high and I regularly take my pills, I know maybe I am not looking after my diet.

(P10)

However, monitoring haemoglobin A1c (HBA1c) is a more accurate test to reflect blood glucose control over a period of 3 months; it is a better indicator than fasting blood glucose level and patients are not aware of this. They did not discuss being committed to manage risk factors such as obesity, sedentary lifestyle and smoking. More than half the participants were overweight and discussed facing barriers to practise exercise regularly and follow a special diet to control blood glucose, weight and blood cholesterol. Four of the participant are current smokers and do not plan to quit smoking, while three quit smoking when they were diagnosed with diabetes and hypertension.

3.2 | Perception of cardiovascular diseases risk

Discussing the long-term effect of diabetes on their health, most participants agree it becomes serious if complications such as vision loss, leg amputation and kidney disease occur that physically disable the person or interrupt their daily activities and affect their socioeconomic status, leading to outcomes such as loss of job:

The complications I am afraid of having are losing my vision or a leg due to diabetes, I don't want to become

crippled and lose my job become unable to support my family.

(P11)

The complications discussed by the participants were based on their experience and knowledge from other patients' stories. Blindness, renal failure and diabetic foot were perceived as the most common serious complications of diabetes.

In addition to diabetes, the participant's clinical data showed multiple risk factors that could increase their susceptibility to CVD, such as hypertension, hyperlipidaemia, overweight, smoking and a sedentary lifestyle. Most of the participants are aware of the importance of maintaining normal cholesterol levels, blood pressure control, quitting smoking and exercises as measures to control diabetes but are unaware of the relevance of these measures for the prevention of CVD. Accordingly, the participants were concerned with controlling their blood glucose to control diabetes complications and seemed to believe in their ability to control it; however, their clinical data showed that most of them had poor glycaemic control.

Participants discussed heart complications such as myocardial infarction but with less sense of perceived susceptibility as individuals with diabetes compared with healthy individuals. None of the participants had any discussion with their health-care providers about CVD as a potential complication of diabetes. However, they seem to know about CVDs as they discussed myocardial infarction and stroke and seemed to believe their high prevalence in Jordan, particularly causing death among more men than women:

If I get a heart disease I will be like anyone else who do not have diabetes, if a person had a heart disease or died of a heart attack it is their fate and the same for me, so it is not because of diabetes.

(P9)

They relate getting a heart disease as destiny. The participants did not realize having DM increases their risk of developing cardiovascular diseases such as coronary heart disease (CHD), heart failure and stroke.

Being at an increased risk to CVDs, a crucial piece of information that patients with diabetes should have is that people with diabetes usually develop atypical manifestations of heart diseases. When asking about the signs and symptoms of heart disease, it was found they had the laypeople knowledge of CHD and stroke manifestations, emphasizing on chest pain as the only warning sign of heart disease. Such a finding indicates that lack of participants' awareness of the atypical manifestations of CHD among people with diabetes puts them at a high risk of misdiagnosis and seeking late medical help or sudden death; one participant explained the following:

If I have severe pain in the middle of my chest, is a sign of heart attack, I need to go to hospital immediately.

(P12)

3.3 | Coping with disease-imposed limitations

The participants discussed the challenges they faced in managing and living with diabetes. Challenges include modification of their daily lifestyle in terms of food selection and amount, taking medication and monitoring their blood sugar. They commented that it is difficult to adapt to their daily life with limitations compared with their life before diabetes. They often feel successful in managing their illness, but sometimes they feel tired, depressed and not motivated to conform to the imposed restrictions:

It is not easy to keep living with prescriptions for food, activity and pills every day for life. Sometimes I feel frustrated and I want to feel free of these restrictions and I do cheat in my food eat sweets.

(P1)

They described living with diabetes as physically and psychologically demanding. It imposes daily challenges on them and their families that need to be overcome effectively. Being a man in a culture that portrays men as leaders, breadwinners and the support of the family, they strive to be considered normal, healthy people. Their efforts to present themselves as socially normal described as stressful, as one participant mentioned, "Sometimes I fake that I feel well in front of my family, I do not want them to look at me as a patient, but to see me as a healthy, strong man." (P2).

Food restrictions and diabetic diet adherence were tiresome for most participants, particularly at work where healthy food is inaccessible. Jordanian traditional food in social events is usually rice, cooked yogurt and meat (Mansaf) (a meal high in fat, carbohydrate, protein and salt) and the dessert (Kunafa) (high in fat and sugar). The participants explained they eat such food out of courtesy under social pressure and to avoid others labelling them as ill. One participant explained the following:

I like to eat appropriate food for diabetes, but it is sometimes frustrating and annoying to watch family and friends eating mansaf and kunafa and I have to be selective with my food; finally, I decided medication is enough to treat diabetes I want to enjoy my meals without restrictions.

(P5)

The management of diabetes entails several negative impacts on the patients' lives physically, socially and psychologically. It affects their marital, psychosocial and financial status. It imposes several limitations and demands in their daily living, self-confidence, sense of self-worth and self-actualization. Fatigue, lack of energy and sexual dysfunction and work absenteeism were discussed as limitations preventing them from fulfilling their expected roles as men, fathers and husbands:

I feel bad of not being able to take care of the family as I used to, I feel helpless.

I get tired easily; I am unable to perform my usual activities as I used to, I am not pleased with that, my illness is a burden on my family and me.

I am the man at my house and having diabetes does not mean I am weak or useless. I am still the head of my family and responsible for them.

(P8)

Coping with the disease's physical, psychosocial and financial demands is a burden on men trying to protect their masculinity, ego and self-esteem. Men in the Jordanian society attempt to portray themselves to others as healthy and able individuals, fulfilling expected roles even if their actions negatively affect their health. Family support, as discussed by participants, is the primary facilitator for coping with the disease's demands, their understanding of their needs, appreciation of their efforts and the requirement of assistance in controlling diabetes. Wives and children play a statistically significant role in disease management.

Most participants explained that they were keen to adhere to the treatment of diabetes and monitoring their blood glucose. However, they relied on their wives or children to help manage their illness, such as to prepare their medications, testing their blood sugar or deciding their meals. Most of the participants agreed that their wives played a major role in their adherence to treatment:

My wife is very conscious of what I eat, she cooks the right meals, she searches the internet for information about diabetes, does not allow me to eat sweet, reminds me to take my medication, I rely on her a lot.

(P9)

Almost all participants perceived themselves as highly compliant with their medications and the management of their illness. They were aware of their dependence on their wives or family member to manage their illness. Fatigue and feeling tired most of the time, perceived as a barrier to cope with disease limitations and contributed to dependence on family members concerning their daily activities.

3.4 | Information validation

Exploring their information about diabetes management, the participants considered themselves informed about living a healthy lifestyle as an essential factor in diabetes management; however, they are not strictly adherent. The sources of information about disease, complications, a healthy lifestyle and managing their health mainly were peers and family members with previous experience in diabetes, TV, newspaper, social media and healthcare providers. All agreed that they did not join a structured health education programme when they were diagnosed with diabetes. Their healthcare providers only provided them with written

information about diabetes, its treatment, diabetic diet, exercise and the importance of quitting smoking. The lack of designated time to see each patient at the clinic was the explanation participants provided:

During clinic visit they examine my weight BP, blood glucose and other blood tests, based on the findings they tell me if I am controlling my diabetes or not and prescribe medication, always I feel they are in a hurry.

(P1)

The participants reported receiving health information from social media applications and Internet such as home remedies to lower blood sugar level. One participant discussed the following:

I receive several messages on my mobile phone from the ... social media a home remedy to lower blood glucose or natural products to lose weight, I usually try them without consulting it is hard to contact with physicians or nurses to consult them, so I give it a try.

(P7)

Gaining information either from healthcare providers or social media informed the participants' healthcare decisions. However, how reliable and accurate the information they received is an issue not only for educated participants but also for the non-educated who were keener to use remedies without counselling. The lack of access to professional verification of the information or recommendations they received or read on the Internet might expose them to health hazards.

4 | DISCUSSION

This qualitative descriptive study explored the perception of 13 men diagnosed with type 2 diabetes about their illness, its management and the prevention of disease complications, particularly CVDs. The participants' ages range between 43–75 years with a mean of 57.76 years. Approximately 30% of the participants are current smokers, and approximately 60% have BMI ≥ 25 Kgs/m², and most of the participants (92%) are married. The participants' biographical and biochemical data are presented in Table 1.

The goals of diabetes management are to maintain the normal level of blood glucose, reduce risks, prevent or delay complications, decrease mortality and maintain a good quality of life (American Diabetes Association, 2019). In the current study, participants' discussion revealed several health issues related to their perception of illness and its complications and their self-efficacy in diabetes management. The participants comprehend the chronicity of diabetes and its complications and believe that it is not serious as long as it is controlled with the absence of complications. Most complications acknowledged were hypoglycaemia, hyperglycaemia, renal failure and foot ulcers. CVDs were not discussed as an expected complication; this indicates a lack

TABLE 1 Participants' biographical and biochemical data

Cardiovascular risk factors	Mean	Normal values
Age	57.76	–
Duration of DM/year	7.30	–
Cholesterol (mg/dl)	213	150–200
LDL (mg/dl)	145.4	Up to 130
HDL (mg/dl)	61	35–55
Triglyceride (mg/dl)	202.6	<150
HbA1c (%)	7.8	4.2–6.2
Systolic blood pressure (mmHg)	128.0	120–140
Diastolic blood pressure (mmHg)	82.5	60–90
	N (%)	
Marital status		
Married	12 (92.3)	
Widow	1 (7.7)	
Single	0 (0)	
		Categories
Body mass index (kg/m²)		
<25	2 (15.4%)	Normal
25–29.9	6 (46.2%)	Overweight
30–53	4 (30.8%)	Obesity
>35	1 (7.6%)	Morbid obesity
Smoking		
Current	4 (30.8%)	
Past	3 (23%)	
Non	6 (46.2%)	
Do you practise regular exercise		
Yes	6 (46.2%)	
No	7 (53.8%)	

Abbreviations: HbA1C, glycosylated haemoglobin test; HDL, high-density lipoprotein; LDL, low-density lipoprotein.

of awareness that diabetes puts patients at an increased risk for CVDs, particularly CHD and stroke. In the current study, the participants' biographical and biochemical data show increased risk factors for CVD complications.

Several challenges facing patients in the self-management of diabetes are maintaining blood glucose levels, managing complications and risk factors of diabetes and successful preventing complications. In exploring patients' perception of self-care abilities, it was found that they all believe in their ability to control blood glucose level and adherence to glucose-lowering medications and diet; however, their clinical data showed poor glycaemic control. Contrary to the current study, Lange and Piette (2006) found that patients' belief in their ability to control their diabetes was a good indicator of actual glucose control.

Participants did not have clear treatment goals other than glycaemic control to manage diabetes. Such finding suggests a lack of

awareness of the importance of other strategies to control other risk factors for complications such as high blood pressure, cholesterol, weight, stress and unhealthy diet. Several studies found that patients' clinical and biographical data of risk factors for CVD complications suggest high risk as all their efforts in disease management focused on controlling their blood glucose levels with little attention to CVD risk factor management (American Diabetes Association, 2002; Collins, Bradly, O'Sullivan, & Perry, 2009; Zeber & Parchman, 2010).

Similar to other studies, patients with diabetes were taking the prescribed aspirin and cholesterol-lowering drugs as treatment for CVD risk factors, but their healthcare providers did not explain to them the action and purpose of taking these medications (Baumann, Opio, Otim, Olson, & Ellison, 2010; Homko et al., 2010). Their healthcare provider did not discuss the high risk for CVD and measures to control these risk factors. Accordingly, patients were unable to relate the treatment given to their indications and desired outcomes of disease control that extend beyond glycaemic control to prevent complications. The IDF in the Middle East and North Africa conducted a survey to explore the knowledge of patients with type 2 diabetes of CVD risk and found that about a third of the participants reported being at no or low risk of CVD and almost half considered themselves being at moderate risk. It was also found that approximately 30% of the participants had never discussed CVD risk with their healthcare providers (IDF, 2018).

This study agrees with the literature that lack of knowledge and understanding of the relationship between diabetes CVDs' multiple behavioural risk factors among patients with diabetes and lack of the clear information on managing these risks did not allow patients with diabetes to practise self-protective measures (McKenzie & Skelly, 2010; Zeber & Parchman, 2010). A study in the USA found that approximately 23% of adults over the age of 40 with DM received all the four approved interventions to reduce risk factors recommended for comprehensive DM care in 2009 (Go et al., 2014). Healthcare professionals often do not include disease prevention counselling as a priority in planning care for patients or do not explicitly explain the high risks for CVDs (King & Arthur, 2003).

The other factor for not practising CVD preventive measures as found in this study and the literature is related to the lack of awareness of the seriousness of these complications (Collins et al., 2009). The current study agrees with other studies that lack of perceived seriousness and susceptibility to diabetes complications among patients with type 2 diabetes contributes to poor complication preventive behaviours (Lange & Piette, 2006; Yeong, 2004). In the current study, patients related developing CVD to destiny, which reflects the lack of awareness of the seriousness and threat of the risk involved. Lack of knowledge and awareness of potential risks directly influences emotional and behavioural responses to take preventive measures (Petrie & Weinman, 2006). According to the health belief model (Rosenstock, 1988), the high degree of perceived threat of CVD complications, the combination

of perceived susceptibility and severity and learning the benefit of preventive measures will strengthen the opportunity of the patients to perform and adhere to preventive behaviours. It is the role of healthcare providers to assess the barriers to preventive health behaviour and provide counselling accordingly to optimize self-care (Helduser et al., 2013).

Additionally, the participants were not aware of the atypical manifestations of CHD (Angina and Myocardial infarction [MI]). They seemed to perceive chest pain as the only manifestation of CHD. However, it has been proved in patients with diabetes that CHD symptoms might be mild or even absent which is known as "silent ischaemia" due to neuropathy which puts them at increased risk of sudden cardiac death (Yeung et al., 2012). Hamdan, Shishani, Nabolsi, and Froelicher (2010) in their study found that delay in decision-making to seek medical care was more in patients with atypical manifestations for MI compared with those who experienced classical manifestations. Therefore, the lack of knowledge and awareness of the increased risks for CVDs and the inability to identify the warning signs or symptoms of cardiac origin endanger the lives of such patients. Adding asymptomatic and atypical cardiac manifestations to routine risk assessment can improve CVD risk prediction and early management (Cosson et al., 2011).

Healthcare management to control diabetes and to prevent its complications perceived as imposing physical, social, financial and psychological stress on participants and their families. The complex, long-term management of the illness, challenges and barriers to self-care might lead to feelings of loss of control and powerlessness at times (Hummel, 2013). Nouredine, Massouh, and Froelicher (2013) found that patients with diabetes perceived lower control over CVD than their counterparts. However, family support enhanced patients' disease management and a sense of control. Similar to other studies, in this study, spouse support improved adherence to treatment and the lifestyle modifications required to achieve glycaemic control and prevent diabetes complications (Gupta et al., 2019) and their inclusion in patient education help to improve patient outcomes (Moser & Dracup, 2004). Several barriers to maintaining and promoting health were addressed by patients, such as being tired of imposed lifestyle restrictions, poor adherence, financial burden and lack of social, financial and informational support. Gillani, Sulaiman, Sundram, Victor, and Abdullah (2012) emphasized the role of healthcare providers in planning to overcome barriers and working with patients to ensure they understand the benefits of engaging in the behaviour, which can outweigh the barriers.

Cultural and financial issues were also identified in the literature as challenges to maintain a healthy lifestyle (Chun & Chesla, 2004; Davidson et al., 2011; Hu, Gruber, Liu, Zhao, & Garcia, 2012). Limited access to appropriate food, blood glucose testing equipment, medication and educational materials were identified as barriers to diabetes management (Baumann & Dang, 2012). Adherence to diabetic diet seems to be a daily challenge for most patients. Jordanian diet is rich in saturated fat, vegetables and carbohydrate. Healthcare

providers need to incorporate teaching the patients the appropriate selection and accessible diet and food.

The participants accepted having diabetes as a lifelong illness but refused to be labelled or considered ill. Coping with demands to fulfil their expected roles, to protect their ego and preserve their dignity was reported to drain their energy. Having less energy and sexual dysfunction seemed to threaten their self-esteem, such that they often strived to protect their manhood by maintaining normality to avoid being labelled as ill. Publicly, to preserve their socially identified gender role and the traditional portrayals of men's masculine traits as active and energetic occasionally interrupted their adherence to therapeutic regimen. According to Johnston et al. (2017), conserving the sense of normality is a way patients adapt to illness to feel in control to maintain their dignity.

Different sources of information are accessed to learn about diabetes and its management. Healthcare providers were the primary source of information, however, with the increased number of variable sources of information and easy accessibility to the Internet and the use of smartphones overwhelmed and confused patients. Finding reliable sources with professional validation of information became an issue with the spread of health information through social media. There is statistically significant inaccuracy in the information posted on social media, which requires verification to ensure safe and accurate information dissemination (Årsand, Bradway, & Gabarron, 2019). The information disseminated through social media might have positive or adverse health effects as cultural and gender differences affect the body responds to food, home remedies, medication and disease outcomes (Campesi, Franconi, Seghieri, & Meloni, 2017) and the same recipe might not have the same effect on all people. However, evidence shows that health professionals are using social media to improve patients' knowledge about chronic disease self-management (De Angelis et al., 2018).

5 | CONCLUSION

Most people with diabetes do not have the advantage of having continuous assistance and supervision from their healthcare professionals. Effective management of diabetes requires partnership between the person with diabetes and healthcare professionals. Addressing patient's knowledge, perception of illness control and their actual health behaviour necessitates continuous evaluation and monitoring to guide the plan of care that is culture- and gender-sensitive. Therefore, healthcare providers need to maintain an ongoing assessment of the individualized risk factors for CVD and barriers to preventive and healthy behaviours to provide appropriate support and counselling. Using social media to disseminate reliable scientific information and involving the spouse in teaching preventive measures improve self-care management outcomes. Further studies are recommended to examine the effect of educational programmes using social media health messages on self-care management and disease outcome of patients with diabetes.

CONFLICT OF INTEREST

No conflict of interest has been declared by the author.

ETHICAL APPROVAL

Research Ethics Committee approval was sought through The University of Jordan, School of Nursing Ethics Committee, with no approval number.

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