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Diabetes Management Self-Efficacy and Quality of Life in Patients Type 2 Diabetes

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Approval form

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DECLARATION

This is to certify that the dissertation entitled **(Diabetes Management Self-Efficacy and Quality of Life in Patients Type 2 Diabetes)**, is the original work of **Romans Asad Eshtaya**, a nursing master's student at the Faculty of Graduate Studies at the Arab American. This study is according to the faculty's rules and regulations for the award of a Master degree in Adult Nursing under the guidance and supervision of **Dr. Ahmad Ayed.**

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DEDICATION

In the name of Allah, the Most Gracious, the Most Merciful.

All praise is due to Allah, who facilitated and guided me. I extend my sincere thanks to my esteemed professors in the dissertation committee for accepting to discuss my master's thesis, with special mention to Dr. Ahmed Al-Aydi for his dedicated efforts with me. You are capable of filling its gaps and straightening its curves.

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Abstract

Introduction

Diabetes management self-efficacy emerges as a crucial element that impacts how patients with type 2 diabetes engage in self-care activities. The perception of one's own diabetes management self-efficacy played a significant role in the development of patient education initiatives aimed at enhancing self-management practices in diabetes care and improved quality of life.

Objectives

The purpose of this study was to assess the diabetes management self-efficacy and quality of life among patients with type2 DM who are attending the primary health care clinic in the north districts of Palestine.

Methods

A descriptive cross sectional study was conducted on convenience sample of 397 patients with diabetes mellitus type 2 who attending diabetic clinics of Palestinian Ministry of Health in North West Bank. Data was collected through self-administered questionnaire composed of the RVDQOL-13 Malay version scale to assess the quality of life and self- efficacy diabetes management scale.

Results

Three hundred and ninety seven patients with diabetes mellitus type 2 participated in the study. The participants' overall diabetes management self-efficacy in the current study was moderate (M=73.6 ±14.5). Also, the analysis revealed that the quality of life mean was moderate (M=47.6± 13.1). Furthermore, the findings showed that self-

efficacy, HbA1c, duration of diabetes mellitus were predictors of quality of life (β= 0.472, $p < 0.01$; β= -1.346, $p < 0.01$; β=0.195, $p < 0.05$) respectively.

Conclusions

The study indicated that diabetes management self‑efficacy and quality of life of the patients for diabetes mellitus type 2 were at moderate levels. Also, the results of the current study indicated that self-efficacy, duration of diabetes, and HbA1c have been identified as predictors of T2 DM- QOL.

Keywords: diabetes management self-efficacy, quality of life, diabetes mellitus type 2, cross sectional study

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List of Abbreviation

ADA	American Diabetes Association
HRQOL	Health Related Quality of Life
WHO	"World Health Organization"
QOL	"Quality of life"
WHOQOL	"World Health Organization quality of life"
SES	Self-efficacy scale
MoH	Ministry of Health
PHC	Primary Health Care
DM	Diabetes mellitus
IDF	International Diabetes Federation
RVDQOL	Revised version diabetes quality of life
BMI	Body Mass Index
T2 DM	Type 2 Diabetes Mellitus

Chapter One

Introduction

1.1 Background

Type 2 Diabetes Mellitus is a chronic metabolic disorder characterized by the body's inability to effectively utilize insulin or produce enough insulin to regulate blood glucose levels. This condition leads to prolonged elevated blood sugar levels, potentially resulting in various health complications affecting different organs and systems in the body (American Diabetes Association, 2022). Approximately 463 million adults (20 to79 yrs.) worldwide were predicted to have diabetes; by 2045, this number was projected to reach 700 million. Adults with diabetes made up roughly 79% of the population in middle- and low-income nations (International Diabetes Federation [IDF], 2021) and according to the World Health Organization (WHO), diabetes causes 1.5 million fatalities annually that are directly attributable to it. Therefore, managing diabetes is a global health issue that transcends particular geographic or racial groups (World Health Organization [WHO], 2019).

According to the World Bank Group of Development Indicators, the prevalence rate of diabetes type 1 and 2 in Palestine in 2021 was 9.2% in the age group 20-79 years (IDF, 2015). The American Diabetes Association states that more than 98% of diabetes management is self-management, the main objectives in managing type 2 diabetes are to prevent complications of micro-vascular and macro-vascular diseases by closely monitoring blood glucose levels and to lower the fatality rate and costs of treating diabetes by slowing the progression of complications, ultimately improving the quality of life (American Diabetes Association [ADA], 2022).

Since a chronic illness may affect a patient's ability to function in various areas of their life, diabetes mellitus patients' quality of life is a crucial problem. The word "quality of life" refers to a person's overall health, including their physical, mental, social, and environmental conditions (WHO, 2019).

Self-efficacy (SE) is the belief in one's capacity to carry out goal-directed behaviors in the face of obstacles (Bandura, 1986). The concept of self-efficacy draws upon Bandura's social cognitive theory, which outlines the interplay between behavioral, personal, and environmental elements (Bandura, 1977). Therefore, self-efficacy pertains to patients ' convictions regarding their capacity to achieve specific performance levels, encompassing patients' emotions, thoughts, and motivation towards physical therapies and associated tasks. Concerning glycemic control, self-efficacy involves a person's confidence in their capability to plan and execute behavioral changes, reflecting the belief in their capacity to enact change and their perceived competence in adhering to diabetes care routines (Oluma et al., 2020)

Self-management behavior is a type of health behavior which is necessary for those with diabetes type 2 (T2DM) to achieve sufficient glucose control. Self-efficacy is one of the variables that affect managing T2DM successfully. Self-efficacy is a critical component for patients with type 2 diabetes in determining self-care behavior. The initiatives of patient education concentrate at diabetes self-management which was aided by perceived self-efficacy and the prediction of diabetic patient health outcomes, such as hospital admissions and quality of life (Kong & Cho, 2020; Spasić et al., 2014).

Assessing self-efficacy played a pivotal role in the management of chronic conditions such as diabetes mellitus. Self-efficacy emerges as a crucial element that impacts how patients with type 2 diabetes engage in self-care activities. The

perception of one's own self-efficacy played a significant role in the development of patient education initiatives aimed at enhancing self-management practices in diabetes care and improved quality of life (Chindankutty & Devineni, 2023).

Within the context of diabetes management, existing research underscores the effectiveness of a multifaceted approach involving both medication and sustained engagement in long-term self-care behaviors. These behaviors encompass adhering to recommended dietary guidelines, incorporating regular exercise routines, monitoring blood sugar levels, attending to foot care, and embracing smoking cessation efforts (ADA, 2022). The pivotal role of self-care practices in shaping the outcomes of diabetes management is evident, with patients being accountable for nearly 95% of these self-care activities (Bonger et al., 2018). A co-Influence of factors, encompassing self-care competencies, diabetes-related knowledge, psychological well-being, self-efficacy, social support networks, communication with healthcare providers, stress management, and environmental circumstances, collectively shape the extent of adherence to these self-care practices (Gurmu et al., 2018).

1.2 Problem Statement

In terms of its biological, psychological, and socioeconomically consequences, diabetes is an important issue for world public health. It has an impact on people's entire lives and on their quality of life. Due to complications, such as an elevated cardiovascular disease, stroke, and amputation risk, as well as kidney damage and blindness, the expense of treating diabetes is rising substantially. Today's rising prevalence of chronic diseases around the globe highlights the significance of proper chronic disease management.

In light of the devastating complications of diabetes that effect on most aspects of diabetic patients lives (biological, psychological and socioeconomically), avoiding

these complications requires ongoing medical care along with self-efficacy management to reduce the risk of acute and long-term problems and improve quality of life.

Previous research found that many different factors that correlated with self-efficacy as, control of blood sugar levels, medication, solving of problems, satisfaction, specific and healthy nutrients, supporting social environment, eating less fat, reducing depression improved adaptation, exercise, varied behaviors for managing diabetes (Sharoni, & Wu, 2012; Wichit et al., 2017).

In Palestine, up to our knowledge, after searching different data base there are lack of studies that regarding the effect of SE management on QOL among patients with diabetes. Therefore, this study was to assess the SE management and quality of life (QOL) among Palestinian patients with DM type2 who are attending the primary health care clinic in the north districts of Palestine

1.3 Purpose of the study

The purpose of this study was to assess the diabetes management self-efficacy and quality of life among patients with type2 DM who are attending the primary health care clinic in the north districts of Palestine.

1.4 Research Questions

1. What is diabetes management self-efficacy mean scores of patients with type 2 DM who are attending the primary health care clinic in the north districts of Palestine?
2. What is the quality of life mean scores of patients with type 2 DM who are attending the primary health care clinic in the north districts of Palestine?
3. Is there association between quality of life and diabetes management self-efficacy among patients with type2 DM who are attending the primary health care clinic in the north districts of Palestine?

4. What are the predictors of the quality of life of patients with type2 DM who are attending the primary health care clinic in the north districts of Palestine?

1.5 Significance of the Study

The current study could encourage national health policy makers to create management self-efficacy approaches that encourage patients to change their behavior in order to build strong perceptions of their effectiveness in controlling their blood glucose levels more confidently.

The findings of the current study may pave the way for developing a psychological support program to help diabetic people live better lives by changing their attitudes toward diabetes and supporting self-efficacy management to enhance quality of life of patients. .

1.6 Study Variables

The dependent and independent variables can be identified as follows:

Dependent Variable: Quality of Life (QOL).

Independent Variable: Self-efficacy, age, gender, marital status, income, occupation, HbA1c, duration of diabetes mellitus, drugs used to manage DM, physical activity, and smoking.

1.7 Conceptual and operational definitions

1.7.1 Conceptual definitions

Quality of life: The World Health Organization (WHO) defined QOL as “an patients ' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” (WHOQOL Group, 1997). Also, quality of life is the degree to which a person is healthy, comfortable, and capable of participating in or enjoying life events (Mc Bride et al., 2021).

Diabetes management Self-efficacy: Self-efficacy refers to an individual's belief in their own capabilities to successfully perform specific tasks, overcome challenges, and achieve desired outcomes, even in the face of obstacles. It is a psychological construct that reflects a person's confidence in their ability to effectively execute actions that lead to desired goals (Bandura, 1977).

Type 2 Diabetes Mellitus: often referred to as type 2 diabetes, is a chronic metabolic disorder characterized by the body's inability to effectively utilize insulin or produce enough insulin to regulate blood glucose levels. This condition leads to prolonged elevated blood sugar levels, potentially resulting in various health complications affecting different organs and systems in the body (**American Diabetes Association, 2022**).

1.7.2 Operational definitions

Quality of life was measured using the RVDQOL-13 comprising 13 items with three domains measuring diabetic patients' QOL (DQOL)

Diabetes management Self-efficacy care management was measured using the diabetes management self-efficacy scale (DMSES) composed of 20 items five‑point Likert type scale with responses that range from one (absolutely never) to five (absolutely yes).

Chapter Two

Literature Review

2.1 Introduction

This chapter serves as a comprehensive exploration into various critical facets surrounding the diabetes management self-efficacy of patients engaged in Type 2 Diabetes Mellitus (T2DM) and its profound implications for their quality of life (QOL). Through an in-depth examination of pertinent literature, drawn from reputable sources such as scholarly articles, Cochrane reviews, PubMed, and other academic databases, this chapter aims to elucidate the intricate interplay between self-efficacy, diabetes management, and the overall well- being of patients attending Primary Health Care clinics in Palestine.

2.2 Elaboration on Bandura's theory of self-efficacy and its application to diabetes management

Bandura's (1997) Social Cognitive Theory, which underpins this study, asserts that cognitive processes, particularly self-efficacy, play a pivotal role in shaping behavior. Self-efficacy refers to an individual's belief in their capacity to perform specific tasks or behaviors. In the context of diabetes management, this theory proposes that one's confidence in effectively managing their condition is influenced by various sources of information (Jiang et al., 2019)

Bandura identifies four key information sources, known as antecedents that contribute to the development of self-efficacy beliefs. The most significant of these is Enactive Attainment (EA), derived from an individual's past experiences in dealing with diabetes-related situations. Research has consistently shown that learning from past experiences significantly impacts one's confidence levels. The more successful

experiences an individual has in managing their diabetes, the more confident they become in their abilities (Maine et al., 2017).

Furthermore, the Social Cognitive Theory emphasizes that behavior is shaped by cognitive processes facilitated through the acquisition of knowledge, often gained through social interactions. This perspective underscores the importance of social learning in diabetes self-management. In the context of diabetes management, patients ' self-efficacy beliefs serve as powerful determinants of their behaviors. When patients have high levels of confidence in their ability to effectively manage their diabetes, they are more likely to engage in proactive self-care activities. This includes adhering to prescribed medication regimens, monitoring blood glucose levels, adopting healthy dietary practices, and incorporating regular physical activity (Sell et al., 2016).

Conversely, patients with lower self-efficacy may be more prone to experiencing challenges in adhering to diabetes management routines. They may exhibit reluctance in making necessary lifestyle modifications or adhering to recommended treatment plans. This can lead to suboptimal diabetes control and potentially exacerbate the progression of the condition (Williams et al., 2014).

By understanding the pivotal role of self-efficacy in diabetes self-management, healthcare professionals can implement targeted interventions to enhance patients' confidence and skills in effectively managing their diabetes. This may include providing tailored education, offering behavioral support, and fostering a supportive environment that empowers patients in their self-care efforts. Ultimately, bolstering self-efficacy can significantly improve the overall quality of life for patients living with diabetes (Camargo-Plazas et al., 2023).

2.3 Importance of effective diabetes management for improved quality of life

According to the review that conducted by (Tran et al., 2020) spanning from 1990 to 2018 examined a substantial body of research, totaling 700 papers, devoted to enhancing the Quality of Life (QOL) for patients with diabetes. This analysis revealed a growing trend in research output, with noteworthy disparities in contributions between countries of varying income levels. Predominant strategies included community- and family-centered interventions, integrating lifestyle adjustments and digital technologies, alongside an increasing focus on comorbidity management. These findings underscore the urgency of translating clinical evidence into community-based interventions and the importance of collaborative research, particularly given the projected surge in diabetes cases in low- to middle-income countries. Effective self-management and metabolic control are critical for ameliorating the QOL of patients with diabetes. Interventions, ranging from pharmacotherapy to surgery and educational/lifestyle approaches, delivered via online or offline channels, play pivotal roles. With the mounting global prevalence of diabetes, community, family, and online interventions have become increasingly vital. Most studies aim to bolster self-management skills, enabling patients to monitor and control blood glucose levels and avert complications. Lifestyle modifications, including a balanced diet and regular physical activity, significantly contribute to improved diabetes outcomes and QOL. Previous research highlights the superiority of lifestyle interventions over pharmacotherapy in managing diabetic symptoms and preventing complications (Jing et al., 2018; Smith-Palmer et al., 2016)

Other study investigated the impact of self-management education delivered through weblogs on the quality of life of diabetes patients. It was conducted among 98 diabetes patients attending the Talghani hospital in Kermanshah during the winter of

2018 and spring of 2019. The participants were randomly assigned to either the study or control group. Self-management education was conducted through a specially designed weblog comprising 60 sessions. The results indicated significant differences in anthropometric variables and metabolic indicators between the test and control groups post-intervention. Specifically, waist circumference, FBS levels, and BMI showed notable improvements in the test group. Moreover, the quality of life score was significantly higher in the test group compared to the control group after the intervention. These positive outcomes suggest that weblog-based self-management has a beneficial effect on diabetes patients, potentially contributing to enhanced awareness and improved control of the condition (Rasoul et al., 2019).

In a cross-sectional study conducted by Al-Khalidi et al. (2018) to evaluate the health-related quality of life (HRQOL) in adult patients with diabetes attending primary healthcare diabetes clinics in Kuwait. A sample of 503 patients from 26 clinics participated, providing information on socio-demographic and clinical characteristics. The Diabetes Self-Management Questionnaire (DSMQ) assessed patients' diabetes self-management (DSM), while the SF-12 was used to measure HRQOL, yielding two outcomes: physical health composite (PHC) and mental health composite (MHC). The findings indicated that male participants exhibited higher DSM scores compared to females. The overall HRQOL score was moderate (61.7/100), with a higher median PHC score than MHC (66.7/100 and 56.7/100, respectively). Multivariate analysis highlighted a positive relationship between DSM and both PHC and MHC scores. Additionally, female gender and reporting two or more diabetic complications were associated with lower PHC scores. The study suggests the importance of considering patients' HRQOL, DSM, and gender in

diabetes management, advocating for further research on the impact of effective DSM on HRQOL enhancement.

2.4 Diabetes management Self-Efficacy

In accordance with the American Diabetes Association (ADA, 2019), the assessment of diabetes self-management (DSM) is integral to routine nursing care, encompassing its impact on therapeutic outcomes, overall health status, quality of life, and psychosocial aspects influencing DSM practices. DSM involves various behavioral activities, including dietary control, glucose monitoring, medication adherence, physical activity, and physician contact, all recommended for patients with Type 2 Diabetes Mellitus (Li et al., 2018).

Despite these recommendations, studies reveal suboptimal adherence to DSM among Chinese adults with Type 2 Diabetes Mellitus (Cui et al., 2020; Ji et al., 2020; Yao et al., 2019), and the underlying reasons for this lack of adherence remain unclear (Luo et al., 2015). Traditional Chinese cultural values, particularly strong family bonds, significantly impact DSM practices beyond individual efforts (Liu, 2012).

Drawing on Ryan and Sawin's Individual and Family Self-Management Theory (IFSMT, 2009), three key dimensions—family and individual characteristics, perspective, and self-efficacy—can influence DSM outcomes. These dimensions encompass factors such as knowledge, social support, and fatalism. However, previous research has yielded contradictory findings regarding diabetes knowledge, perceived self-efficacy, fatalism, and social support.

Diabetes knowledge reflects a patient's understanding of the physiological aspects of diabetes and treatment principles (Yin et al., 2008). Limited knowledge can hinder proper DSM, particularly in areas such as diet and exercise (Adu et al., 2019). Nevertheless, studies investigating the relationship between diabetes knowledge and

DSM have produced inconsistent results (Bezo et al., 2020; Hu et al., 2013). Perceived self-efficacy denotes an individual's confidence in their ability to manage various situations, both normal and stressful (Ryan & Sawin, 2009). A higher level of perceived self-efficacy positively impacts DSM evaluations, aiding patients in overcoming obstacles and sustaining long-term health improvements (Adu et al., 2019). Despite its importance, uncertainties persist regarding the connection between DSM and perceived self-efficacy (Kurnia et al., 2017; Lin et al., 2017).

In a cross-sectional study conducted during COVID 19 to assess the impact of COVID-19-related social distancing and emotional stress on the self-care management and quality of life of individuals with type 2 diabetes mellitus (T2DM). The study encompassed 89 respondents, utilizing the WHO Quality of Life-BREF and Summary of Diabetes Self Care Activities as assessment tools. The findings revealed that a noteworthy association ($p = 0.000$) between self-care management and the quality of life of T2DM patients, displaying a moderate-strength positive correlation. The results suggest that patients with diabetes demonstrated effective disease management, likely facilitated by the support of family members and healthcare professionals. The study underscores the significance of ongoing health education and encouragement for both patients and their families, fostering consistent self-care practices to enhance the quality of life for patients living with type 2 diabetes mellitus (Malini et al., 2022)

2.5 Quality of Life among Patients with Diabetes Mellitus

It has been repeatedly demonstrated that DM negatively impacts QOL. There is general agreement on the substantial decline in scores with the onset of complications, even though the majority of reports only show a slight decline. Diabetes complications have been shown in numerous studies to be a reliable

indicator of a poor quality of life. According to a study conducted in the UK, there are significant correlations between a number of health-related quality of life (QoL) subsets, including mental and emotional well-being, physical functioning, and social functioning, and complications such as peripheral neuropathy and cardiovascular disease. Regretfully, a lot of patients with inadequate care receive a diagnosis only after problems have started, which makes the decline in quality of life irreversible (Jing et al., 2018).

Because diabetes cannot be completely cured, as with other chronic diseases, the ultimate goal of diabetic care has been to ensure that people with diabetes have a good quality of life (QOL) and can function adequately. Research is increasingly looking to QOL as a favorable outcome of interventions focused on diabetes; However, QOL is a multidimensional concept without a single definition. The World Health Organization defines QOL as "an individual's perceptions of their position in life, in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns." Therefore, measuring QOL can reflect patients' different experiences or perceptions of treatments and syllable conditions (Tran et al., 2020.(

In previous Indian cross-sectional study conducted to assess the quality of life (QoL) among individuals with type II diabetes attending an outpatient clinic, revealed that the prevalence of 51.7% with good QoL. Despite the absence of a correlation between good QOL and medication compliance, factors such as higher education, absence of medication for complications, and reduced general random blood sugar monitoring frequency were associated with better QOL. The observed decline in QOL, possibly influenced by the post-COVID scenario, underscores the need for

tailored healthcare interventions, emphasizing socio-economic considerations in dietary and treatment plans for type II diabetes patients (Thomas et al., 2022).

Another, cross sectional study conducted by Puspasari & Farera (2021) reveled that majority of patients with DM2 reporting poor quality of life in the physical (64.4 %), psychological (53.4%), and environmental (52.1%) domains, while the social domain was considered good by 54.8%, this study also emphasizing the need for enhanced disease management to ameliorate the overall quality of life in these patients.

Also, a prospective study of 250 Type II diabetes mellitus patients in India, with a diabetes history of over 10 years and HbA1c > 8% revealed that the average of the quality of life (QOL) score was 65.47 ±15.07, with a majority having a QOL score between 70 and 50. Also, the study revealed that patients without complications had a better QOL, and as the number of complications increased, there was a corresponding decrease in QOL. Additionally, the presence of comorbidity also contributed to a reduced QOL. Statistical analysis indicated a significant correlation between various parameters such as age, duration of diabetes history, HbA1c, number, and type of complications with the QOL of diabetic patients ($p<0.05$), emphasizing the importance of proper management and strict glycemic control to preserve a better QOL in diabetes patients (Prajapati et al., 2018).

Similar results in a cross-sectional study conducted in Tamil Nadu, India, conducted by Manjunath et al. (2014) which utilized World Health Organization (WHO) QOL BREF tool to evaluate the influence of diabetes on patients' quality of life. Their findings disclosed that diabetes does indeed have an impact on patients' QOL, albeit not to a significant degree, with the mean total QOL score standing at 58.05 (95% CI, 22.18–93.88). In terms of specific domains, 63% exhibited good

physical QOL, 69% demonstrated good psychological QOL, 27% displayed good social QOL, and 85% indicated good environmental QOL. Notably, males' patients who were currently married, and those with a BMI exceeding 25 exhibited notably superior QOL compared to their respective counterparts. The study underscores the importance of addressing the QOL of certain subgroups, including women, widowed or separated patients, and non-obese diabetics, who are identified as being potentially at risk for experiencing a lower QOL. Consequently, the authors recommend the routine incorporation of QOL assessments into diabetic clinics.

In addition, a study conducted by Gupta et al. (2021) to assess the quality of life (QOL) and its determinants among diabetes mellitus (DM) patients in health institutions serving the rural population of the sub-Himalayan region. Results revealed that about 10% of patients had very poor QOL, 13% had poor QOL, 11% had average QOL, 16% had good QOL, and 50% had very good QOL. The domains most affected were general health and treatment satisfaction, with fatigue being the most common symptom reported, and predictors of poorer QOL included age over 55 years, a rural background, and a Patient Health Questionnaire-9 (PHQ-9) score exceeding 7. The findings underscore the importance of comprehensive care for DM patients to maintain a good health-related quality of life and emphasize the need for depression screening, addressing fatigue, and regular QOL assessments.

Furthermore, a study conducted by Abu Alhommos et al. (2022) to evaluate the quality of life (QOL) of patients with type 2 diabetes in the Al-Ahsa region of Saudi Arabia, considering the significant impact of diabetes on overall well-being, especially in the presence of comorbidities. Using the EQ-5D-5L tool, the cross-sectional study, carried out from September 2020 to May 2021, included 321 participants aged 18 years and older who had been diagnosed with type 2 diabetes.

Results indicated that only 8.4% of participants felt their disease completely hindered their daily activities. The most prevalent issues related to diabetes affecting QOL were pain/discomfort, with approximately 68.0% of patients reporting some form of problems in this aspect, followed by challenges in mobility, as well as feelings of depression and anxiety. Significantly different experiences in terms of QOL were observed between males and females, specifically in the domains of self-care, pain/discomfort, and depression/anxiety ($p<0.05$). Furthermore, patients of varying marital statuses, educational backgrounds, employment statuses, and disease durations exhibited notable distinctions in their QOL, except in the dimension of depression and anxiety ($p>0.05$). The study concludes that pain/discomfort, mobility, and depression/anxiety are the primary dimensions impacting the QOL of diabetic patients. It recommends future research to explore personalized interventions aimed at mitigating the adverse effects of these dimensions on QOL, providing tailored support for patients with diabetes.

2.6 Diabetes management Self-efficacy in Type 2 Diabetes and quality of life

Diabetes mellitus (DM) is a severe global public health issue that has an impact on people's biological, psychological, and social well-being throughout their entire lives. Diabetes increases the risk of heart attacks, strokes, lower extremity calculations, blindness, and kidney damage, all of which are very expensive to treat. Diabetes issues due to type 2 diabetes have a psychological effect that increases hospitalizations by 1.5–3 times compared to people without the condition. Differentiation in ideas, beliefs and attitude of patients about their disease, patients who learn how to control their diseases through self-care do not always adopt the needed behavioral adjustments that call for significant counseling skills and require careful supervision (Oluma et al., 2020).

Self-efficacy influences self-management, particularly when administering insulin injections, taking prescription drugs as directed, and checking blood glucose levels on one's own (Madran & Jassim, 2022). Another perspective suggests that low self-efficacy in type 2 diabetics' results in a lack of confidence in one's own ability to take care of oneself, which can lead to complications (Bolaños-Medina & Núñez, 2018). Moreover, a number of studies have found a connection between self-efficacy and quality of life in type 2 diabetics. A study on type 2 diabetes patients' self-efficacy provides an explanation for this, indicating that patients with low levels of self-efficacy will experience a lower standard of living (Wander et al., 2020).

According to a review of the literature on self-efficacy, the majority of studies demonstrate how effective self-efficacy is at helping type 2 diabetes patients manage their condition and improve their quality of life, particularly when it comes to drug regulation or taking diabetes medications (Kav et al., 2017). However, other studies have found no evidence of a significant relationship between self-efficacy and type 2 diabetes patients' quality of life, particularly when it comes to their physical health (Walker et al. 2020)

In cross-sectional study that conducted by Abu baker,(2018), which involving 380 type 2 diabetes patients in Nablus/Palestine, 82.4% exhibited poor glycemic control (HbA1c > 6.5%), with higher education level being a significant predictor of good self-efficacy behaviors. While no significant association was found between self-care/self-efficacy and glycemic control, the study highlights the need for healthcare providers to encourage increased physical activity, regular feet-care examination, and blood glucose monitoring among patients, emphasizing the importance of effective Patient-physician communication to enhance knowledge about diabetes and its management (Abu baker, 2018).

In a systematic review involving nine studies, it was found that a higher level of self-efficacy in type 2 Diabetes Mellitus (DM) patients is associated with increased adherence to diabetes self-management, and as self-efficacy increases, the quality of life for these patients also improves, emphasizing the crucial role of self-efficacy in enhancing both self-management practices and overall quality of life in type 2 DM patients (Akoit, 2023)

According to a cross-sectional study conducted by Spasić et al. (2014), the best QOL was shown in patients diagnosed with diabetes less than 10 years prior ($p < 0.05$). Quality of life was poorer in older patients and was affected by a variety of factors. Type 2 diabetic patients exhibit a low QOL in all domains. Because women engage in less physical activity and experience worse social situations, they have a lower QOL than men. Patients with uncontrolled diabetes had a worse quality of life than those with managed diabetes. It's critical to raise diabetic patients' quality of life.

Also, a longitudinal study was undertaken by Feng and Astell-Burt (2017) to investigate the effects of type 2 diabetes on mental health, quality of life, and social contacts. The study revealed negative effects of type two diabetes on QOL and social contacts. These effects could, in the long run, raise the risk of poor mental health accompanying type two diabetes if they are not addressed.

According to previous studies, diabetes and its complications have negative effects on the QOL for diabetic patients, and this led the authors to conduct studies to search for ways to improve the quality of life. In a descriptive study conducted by Cho et al. (2022) among 180 type 2 diabetic patients in South Korea to evaluate the impact of diabetes knowledge, self-stigma, and self-care behavior on the quality of life of diabetes patients, this study revealed that self-care behavior had a significant positive Correlation with diabetes knowledge ($r = 0.29$, $p < 0.001$).

Additionally, ÇAĞAN et al. (2021) referred to a cross-sectional study that was conducted in Turkey among 342 patients with type 2 diabetes and that aimed to assess the relationship between patients' self-efficacy and quality of life, as well as the levels of patients with type 2 diabetes' self-efficacy with regard to their treatment and the factors impacting them. Patients who do not have diabetes complications have higher levels of self-efficacy, and there is a strong and positive relationship between SE and QOL in several fields, containing physical health, social interactions, psychological health, and the environment.

To determine the association between patient characteristics, self-efficacy, and quality of life domains in Indonesian patients with type 2 diabetic mellitus, Winahyu et al. (2019) conducted a cross-sectional study that revealed that self-efficacy had a positive correlation ($r = 0.31$; $p = 0.01$) with quality of life. Additionally, the domains of nutrition habits, energy, and financial elements were linked to self-efficacy.

An Indonesian study which conducted via cross-sectional design among 83 patients with type 2 diabetic in Medan city revealed a significant correlation between SE and QOL; While 66 people with low SE have a high QOL for just about 47 patients, all patients who have good SE have a good QOL for as many as 17.The chi-square test yields a p-value of 0.012 ($p = 0.05$) for its analysis (Amelia et al., 2018).

Moreover, a review study that used data from 12 previous studies to assess the efficacy and factors influencing the performance of diabetic self-management education (DSME) programs in T2DM patients residing in Middle Eastern (ME) countries found that, in at least 60% of the studies included, patients in the intervention group showed a significant improvement in all clinical glycemic outcomes (glycosylated hemoglobin, fasting and non-fasting blood glucose), lipid profile (total cholesterol and triglycerides), body mass index, and body mass index

when Compared to patients in the control group, the DSME program significantly improved all patient-reported outcomes (medication adherence, self-management behavior, knowledge, self-efficacy, and quality of life) (Mikhael et al., 2020).

Huayanay-Espinoza et al. (2021), his study in a Peruvian public hospital to discuss the QOL and SE of people with type 2 DM, as well as the relationships between these traits and clinical, metabolic, and demographic factors. They discovered that better QOL was significantly associated with age greater than 65 ($p = 0.01$) and the absence of microvascular diabetic complications ($p = 0.01$).

Moreover, the effect of self-efficacy on the management of DM type 2 in low-income, minority groups, as well as the self-care practices they engage in and their QOL. SE had modest correlations with mental health related QOL (r 0.137, $p = .017$). In the regression model, self-efficacy was significantly associated with mental health related quality of life ($\beta=0.112$, 95% CI: 0.051; 0.173), and improved glucose control, medication adherence factors, self-care behaviors, and quality of life related to mental health were all associated with higher levels of self-efficacy (Walker et al., 2014).

In a cross-sectional study involving 60 young patients with type 2 diabetes, it was found that glycated hemoglobin (HbA1c) and diabetic distress were positively correlated, while self-efficacy showed a negative correlation with both HbA1c and diabetic distress. The hierarchical multiple regression analysis revealed that, among various factors, only the duration of illness and self-efficacy remained significant predictors, with self-efficacy alone explaining 30% of the variance. Moreover, 31.6% of the participants exhibited extremely high levels of psychological distress, underscoring the complex nature of diabetes management in young patients with type 2 diabetes (Lin et al., 2021).

Among 400 type II diabetic Iraqi patients studied, 72.5% exhibited a moderate level of self-efficacy, and 59.8% demonstrated inadequate self-care. The analysis revealed a significant correlation positive (r=0.126; p=0.012) between self-efficacy and self-care, with the simple linear regression test confirming the significant impact of self-efficacy on self-care among type II diabetic patients (p =0.012), emphasizing the need for further exploration of factors related to self-efficacy and self-care to prevent complications in diabetes management (Madran & Jassim, 2022).

For examining the connection between blood glucose control and diabetes knowledge, diabetes management self-efficacy, and diabetes self-management in Thai patients with type 2 diabetes mellitus (T2D), a cross sectional study showed that where 52.4% of patients had uncontrolled blood glucose, diabetes management self-efficacy (DMSE) emerged as the predominant factor associated with blood glucose control, with an adjusted odds ratio of 2.67 (95%CI: 2.20, 3.25), highlighting the need for a shift in diabetes interventions in Thailand towards enhancing patients' disease management self-efficacy to improve both diabetes self-management and blood glucose control, ultimately mitigating the risk of chronic complications (Hurst et al., 2020).

In a cross-sectional study involving 398 participants with diabetes in western Ethiopia, 52.5% demonstrated a high level of perceived self-efficacy, with factors such as being married, engaging in home blood glucose tests, regular exercise, maintaining a good appetite, following a special diet, and exhibiting good self-care behavior significantly associated with higher perceived self-efficacy, emphasizing the importance of targeted interventions to promote behavioral changes and enhance self-efficacy in diabetes management (Oluma et al., 2020).

In a cross-sectional study involving 321 elderly patients with type 2 diabetes on polypharmacy, a higher self-efficacy in medication understanding (MUSE) was inversely correlated with a better quality of life (QOL), with MUSE scores, low-income status, and medication duration ≥240 days associated with improved QOL, while medication quantity ≥10 and the use of both pills and insulin were linked to poorer QOL, underscoring the importance of emphasizing self-efficacy in medication understanding for enhancing QOL in this population (Rosli et al., 2022).

Summary

The literature review regarding diabetes management self-efficacy and quality of life in patients with diabetes highlight the interconnected aspects of diabetes care. Self-efficacy, the belief in one's ability to manage the condition, plays a crucial role. Studies emphasize its positive correlation with self-care behaviors, adherence to treatment, and overall well-being, underscoring its potential as a predictor for anxiety and depression.

Quality of life assessments in diabetes patients, often measured through various scales, reveal the impact of the disease on physical, psychological, and social aspects. Factors influencing quality of life include age, complications, depression, and self-efficacy levels. The relationship between self-efficacy and quality of life becomes evident, with higher self-efficacy associated with improved quality of life.

Additionally, the literature underscores the importance of healthcare interventions tailored to the specific needs of diabetes patients. Factors like education, medication compliance, and lifestyle choices are intertwined with self-efficacy and, consequently, impact the quality of life. Moreover, the relationship between glycemic control, self-efficacy, and diabetes distress emphasizes the need for comprehensive care strategies.

In summary, the collective evidence highlights the intricate connections between self-efficacy, quality of life, and self-management in patients with diabetes. Understanding and addressing these factors can contribute significantly to enhancing overall health outcomes and well-being for patients with diabetes. Since it will be the first study in the Palestinian context that will examine the association between SE and the QOL of type 2 DM patients, the results of the study that we will conduct will provide a review for decision makers in order to create initiatives that can aid patients in efficiently managing their type 2 diabetes to enhance their QOL and without negative impacts on their QOL.

Chapter Three

Methodology

3.1 Introduction

This chapter illustrates the research methods employed in the study, including the research design, questionnaire design phases, population for the pilot study, sampling frame, data collection and analysis plan. Research methods must address the research questions and subsequently lead to the achievement of the research objectives.

3.2 Study design

The study design was quantitative, cross sectional study. Data was collected by utilizing a self-administered questionnaire. Using this design to achieve the purpose of the study which is to examine the main objective of this study which was to assess the diabetes management self-efficacy and quality of life among patients with type2 DM who are attending the primary health care clinic in the north districts of Palestine.

They are characterized by being an effective way of gathering large amounts of data related to the issue under investigation (Polit & Beck, 2018).

3.3 Study setting

The study was conducted in the Palestinian Ministry of Health Primary health care centers (PHC) in the governorates of Tulkarem, Nablus, Jenin, salfit and Qalqilya (North West Bank). The targeted diabetic care centers are suitable for the collected data because they are accessible for the researcher and contains suitable number of diabetes patients with type 2 for the achievement of quantitative research requirements.

3.4 Study period

The study was conducted in the period of June 1 to September 1, 2023.

3.5 Study population and sample

The population of the study was all type 2 diabetic patients in Palestine that affiliated to the Palestinian Ministry of Health in the governorates of Tulkarem, Nablus, Jenin, salfit and Qalqilya (North West Bank). The records of primary health centers showed that 28464 patients with diabetes mellitus type 2 attending these centers.

The sample size was calculated using Raosoft program with a confidence level of 95%, a margin of error of 5%, and a response rate of 50%. A total sample of 380 participants is needed to conduct this study. A convenience sample of 420 participants was recruited proportionally from the diabetes clinics of Palestinian Ministry of Health in North West Bank.

3.5.1 The inclusion criteria

- All adult patients aged 20 years and above diagnosed with DM type 2.
- Who agree to participate
- Ability to read and write Arabic language

3.5.2 The exclusion criteria

- Diabetic patients who diagnosed with type one DM.
- Diabetic patients diagnosed with type 2 DM below age 20 y.

3.6 Study instrument

The questionnaire composed of three parts:

Part one: demographic characteristics composed of age, gender, marital status, level of education, occupation, residence area, monthly income, BMI.

Part Two: Medical history: smoking, Diabetes duration, diabetes medication, physical activity, complications of diabetes, HbAc1, knowledge of diabetes.

Part three: The RVDQOL-13 Malay version is a self-administered questionnaire comprising 13 items with three domains measuring diabetic patients' QOL (DQOL)

(Bujang et al., 2018). The three domains include 'satisfaction', 'impact', and ‘worry’. The Malay version of RVDQOL-13 has good composite reliability for each domain; the “satisfaction” domain showed the highest composite reliability of 0.922, followed by the “worry” domain (0.794) and the “impact” domain (0.781). Response choices of satisfaction are rated on a five-point Likert scale from very satisfied (1) to very dissatisfied (5), with a range score from 6 to 30. The worry domain is scored on a five-point Likert scale from never (1) to always (5) and the “impact” domain is scored from never (1) to always (5), with range scores from 3 to 15 and 4 to 20 and respectively, giving a total score ranging from 13 to 65. Higher total scores pointed a poorer quality of life.

Part four: The diabetes management self-efficacy scale (DMSES) is a self-administered scale developed by Bijl et al. (1999) in order to detect the perceptions of diabetic patients for their own power in undertaking their own care activities. The scale composed of 20 items rated on five‑point Likert type scale range from absolutely never (1) to absolutely yes (5). The total scale ranged between 20 to 100. The scale composed of four subscales including nutrition and weight, physical exercise, blood glucose and overall nutrition, and medical treatment control. Based on the mean results from all subscales, patients with score below the mean were deemed to have poor self-efficacy, while those with a score above the mean were deemed to have strong self-efficacy overall (Bijl et al., 1999). The scale is valid and reliable, Cronbach’s alpha level of scale was found to be 0.89 (Kara et al., 2006).

Following the translation protocol of the World Health Organization (WHO), the instruments have been translated into Arabic in order to overcome any language difficulties and preserve the validity of the content. The reliability of the final version obtained after the translation process was further checked on 30 participants by alpha

Cronbach through the pilot study. The Cronbach's Alpha Coefficient is the most widely used reliability measure (Polit & Beck, 2018). Cronbach's alpha of quality of life was 0.86 and self- efficacy of diabetes management scale was 0.94, which is highly reliable, and the scale was approved to be used in the study. The coefficients of 0.80 or greater according to (Polit & Beck, 2018) are highly desirable. Cronbach's alpha of quality of life was 0.88 and self- efficacy of diabetes management scale was 0.92 in the current study.

3.7 Validity and Reliability of the study

The questionnaire was sent to five experts with covering letter concerning instruction about the study, main aim, objectives, the field of the study, and other relevant information. The experts are experienced and expert in the field of public health. They were asked to estimate and revised the items in the questionnaire in terms of sufficiency to study, accuracy, and its relevancy. Feedback was obtained from experts and modification accordingly was done by the researcher and supervisor; their opinion was taken into consideration. Cronbach's Alpha of the quality of life and diabetes management self-efficacy were 0.86, 0.88, respectively. Cronbach's Alpha coefficient is the most commonly used measure of reliability (Polit and Beck, 2018).

3.8 Pilot study

Pilot studies are often used to pre-test or try out a research instrument to resolve factors before the main study (Polit & Beck, 2018). The reason is to identify problems with the research design, clarify sampling techniques and representation of the population, check the reliability, as well as the validity of the instrument, and strengthen the major study design (Gray et al., 2016). Therefore, the pre-test was conducted before the main study on 30 patients with diabetes type 2. The participants

used in the pilot were excluded from the actual study.

3.9 Ethical consideration

Ethical approval and permission was obtained from the IRB committee of the Arab American University and Palestinian MoH to conduct the study. The researcher explained to the patients the purpose of the study and participation is voluntary. Data collected anonymously and stored on a password protected computer. Patients who agreed to participate in the study asked to assign the informed consent and to complete the questionnaire.

3.10 Data collection

After the researcher obtaining the permission from the ministry of health, the researcher visited the targeted diabetic clinics and meet the nurses who work in the targeted settings. The researcher explained to them the purpose of study and asked them to take look on the registered list of the patients with diabetes type 2. The researcher contacted the patients in the clinics and explained to them the purpose of the study. The researcher invited them to participate in the study. The participants completed the questionnaire face to face and in Arabic.

3.11 Data Analysis

The data analyzed by using the Statistical Package for Social Science (SPSS, 23) software. A *p*-value of 0.05 is considered statistically significant. Descriptive statistics, including frequencies, percentages, means, and standard deviations were used. Also, Pearson correlation and multiple linear regression were used.

Chapter four

Results

4.1 Introduction

In this chapter, the results of the study are presented. The purpose of this study was to assess the diabetes management self-efficacy and quality of life among patients with type2 DM who are attending the primary health care clinic in the north districts of Palestine. The Statistical Package for Social Science (SPSS, version 23) was used to analyze the data. Descriptive and inferential statistics were used to test the study research questions. Descriptive statistics (mean, median, standard deviation) were used to describe the characteristics of the participants. The inferential statistics (Pearson correlation and multiple linear regression) were utilized to test the research questions.

4.2 Participants' Characteristics

Three hundred and ninety seven participants participated in the current study. The findings revealed that the average of the partcipants age was 55.2±12.8 years old. Also, the majority of them 247 (62.2%) were females and 177(44.6%) have secondary school. Approximately, half of them (49.4%) live in Village and 242(61.0%) reported that they don't work. Furthermore, 210(52.9%) of them their monthly income is less than 2000 NIS, as seen in Table (4-1).

Table 4-1: Demographic characteristics of the participants (N=397)

Characteristics		N %	M(SD)
Age			55.2(12.8)
Gender	Male	150(37.8)	
	Female	247(62.2)	

Level of education	Primary	117(29.5)	
	secondary	177(44.6)	
	Bachelor	95(23.9)	
	master and above	8(2.0)	
Residence area	Town	76(19.1)	
	Village	196(49.4)	
	City	125(31.5)	
Marital status	Single	47(11.8)	
	Married	327(82.4)	
	Other	23(5.8)	
Occupation	Work	155(39.0)	
	Don't Work	242(61.0)	
Monthly income	Less than 2000 NIS	210(52.9)	
	2000 -4000 NIS	135(34.0)	
	More than 4000 NIS	52(13.1)	

NIS (New Israel shekel)

According to BMI level, the analysis revealed that 177 (44.58%) of the participants were obese, 148(37.28%) were overweight, and 72(18.14%) were normal weight, as seen in Figure 4-1.

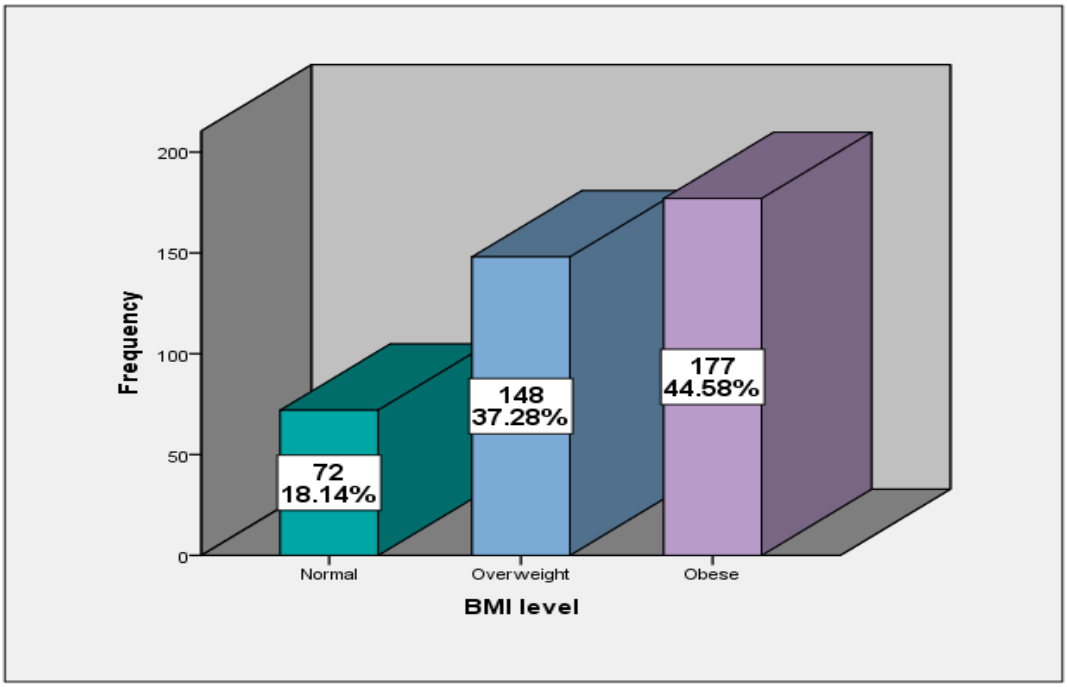

Figure 4-1: Distribution of the participants regarding BMI level

4.3 Medical history

The average of HbA1c was 8.1± SD 1.6 and the average of duration of diabetes among the participants was 9.3± SD 6.9 years. Also, most of the participants 304 (76.6%) are not smokers. The majority of them 259 (65.2%) use Metformin drug in management diabetes mellitus. Furthermore, 279(70.3%) of the participant's don't perform physical activity, as seen in Table 4-2.

Table 4-2: Medical history of the participants (N=397)

Variable		**N(%)**	**M(SD)**
HbA1c			8.1(1.6)
Duration of diabetes/ year			9.3(6.9)
Smoking	Yes	74(18.6	
	No	304(76.6	
	Previous -smoker	19(4.8	
Drugs used for DM	No medication	21(5.3	
	Insulin	115(29.0	

	Metformin	259(65.2	
	Sulfonylurea	2 (0.5)	
Physical activity	yes	118(29.7	
	no	279(70.3	

M= Mean, SD= standard deviation

Also, the analysis revealed that 68% of the patients have hypertension, 48% have high cholesterol level, and 34% have cardiovascular disease, as seen in figure 4-2.

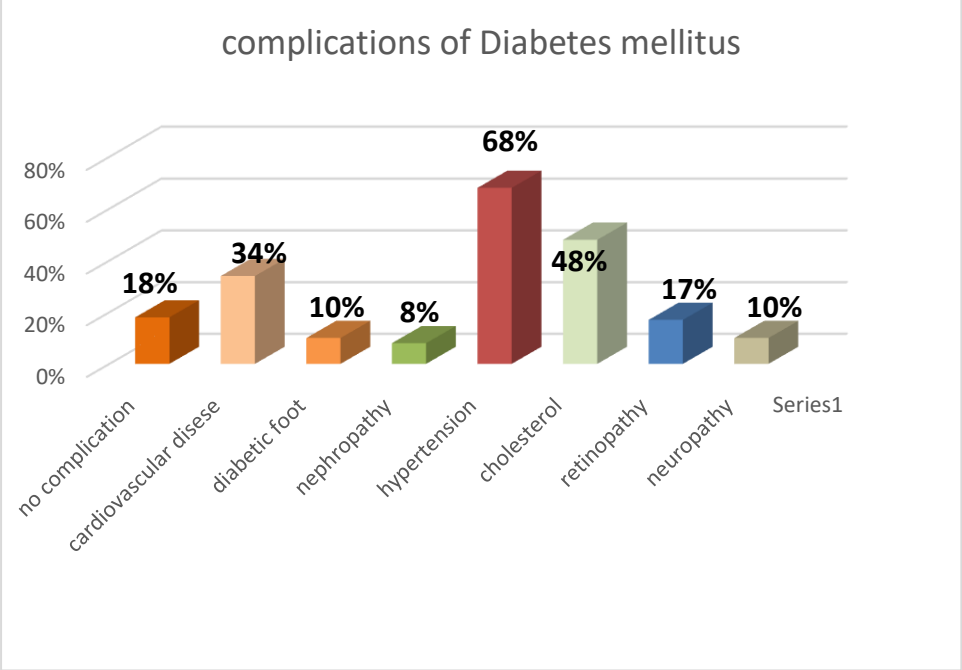

Figure 4-2: Distribution of the participants regarding complications of Diabetes

4.4 Testing research questions

Research question one: What is diabetes management self-efficacy mean scores of patients with type 2 DM who are attending the primary health care clinic in the north districts of Palestine?

The participants' overall diabetes management self-efficacy in the current study was slightly high when evaluated based on the highest score that could be obtained from

the scale (M=73.6 ±14.5). Also, the diabetes management self-efficacy subscales revealed moderate results. The highest score was observed in the monitor subscale (M = 3.8±0.9) and the lowest score was the physical subscale (M = 3.4±0.9), as seen in table 4-3.

Table 4-3. Mean scores of diabetes management self-efficacy scale among the patients

Item	M(SD)	
Diabetes management self-efficacy	73.6	14.5
Diet	3.6	0.8
Monitor	3.8	0.9
Physical	3.4	0.9
Regimen	4.1	0.9

Research question two: What is the quality of life mean scores of patients with type 2 DM who are attending the primary health care clinic in the north districts of Palestine?

The analysis revealed that the quality of life mean was low (M=47.6± 13.1) which mean poor quality of life. The lowest score was in satisfaction subscale (M= 43.2±16.1) and the highest score was demonstrated on worry subscale (M= 54.8±16.7), as seen in table 4-4.

Table 4-4. Mean scores of quality of life scale among the patients

Item	M(SD)	
Quality of life total	47.6	13.1
Satisfaction	43.2	16.1
Impact	48.7	14.4
Worry	54.8	16.7

Research question three: Are there association between quality of life and diabetes management self-efficacy among patients with type2 DM who are attending the primary health care clinic in the north districts of Palestine?

Pearson Correlation test was performed to assess the relationship between the quality of life and diabetes management self-efficacy. The analysis revealed that there was a significant moderate positive relationship between the quality of life scores of the patients with diabetes mellitus and the diabetes management self-efficacy ($P<0.05$). Also, the analysis revealed that there was significant moderate positive relationship between the quality of life domains scores of the patients with DM and the self-diabetes management efficacy subscales ($P<0.05$), as seen in table 4-5.

Table 4-5: Association between quality of life and diabetes management self-efficacy among patients with type2 DM (N=397)

Variable	Diet	Monitor	Physical	Regimen	Diabetes management Self–efficacy total
Quality of life	0.520**	0.394**	0.399**	0.411**	0.545
Satisfaction	0.466**	0.371**	0.418**	0.346**	0.504**
Impact	0.412**	0.376**	0.304**	0.469**	0.470**
worry	0.394**	0.189**	0.199**	0.190**	**0.338****

**Correlation is significant at the 0.01 level (2-tailed).*
***Correlation is significant at the 0.05 level (2-tailed).*

Research question four: What are the predictors of the quality of life of patients with type2 DM who are attending the primary health care clinic in the north districts of Palestine?

The analysis found that occupation, monthly income, level of education, gender, BMI level, and drugs used were correlated with quality of life (p.b.r= 0.143, p< 0.01; p.b.r= 0.137, p< 0.01; p.b.r= 0.137, p< 0.01; p.b.r= 0.120,p< 0.05; p.b.r= 0.100, p< 0.05; p.b.r= 0.103, p<0.05), respectively.

Furthermore, a positive relationship existed between diabetes management self-efficacy, duration of diabetes, HbA1c, were correlated with quality of life (r=0.545, p < 0.01; r=0.157, p < 0.01; r=0.265 p < 0.01) respectively. However, there were no associations between other variables and quality of life (Table 4- 6).

Table 4 -6. Correlating factors of the quality of life

	Quality of life	
	***r**	***p. value**
Self -efficacy	0.545	0.000**
Duration of diabetes mellitus	0.157	0.002**
HbA1c	0.265	0.000**
Age	0.074	0.142
	p.b.r	**p. value**
Marital status	0.031	0.544
Occupation	0.143	0.004**
Monthly income	0.137	0.006**
Level of education	0.137	0.006**
Gender	0.120	0.017*
BMI level	0.100	0.047*
Residence area	0.053	0.292
Smoking	0.044	0.386
Drugs used for DM	0.103	0.041*
Physical activity	0.086	0.086

p.b.r =point biserial correlation, r = Pearson correlation

** Significant at p < 0.05.; ** Significant at p < 0.01*

A multivariable regression analysis was utilized to identify the quality of life predictors in patients with type 2 DM.

As shown in Table 4-7, the variables that correlated with quality of life were entered into the model of predictors, including Gender, Level of education, Occupation, Monthly income, HbA1c, BMI level, Duration of DM, Drugs used for DM, and diabetes management self-efficacy. The overall model was statistically significant ($p \leq 0.001$, $R = 0.607$, $R^2 = 0.369$, adjusted R^2 0.354). This stated that 36.9% of the variance in quality of life was clarified by the whole model.

The findings showed that diabetes management self-efficacy was a positive predictor of work quality of life ($\beta = 0.472$, $p < 0.01$). Additionally, the beta coefficient for diabetes management self-efficacy represented that a one-point increment in self-efficacy was associated with a 0.472 increase in quality of life. Also, HbA1c was a detrimental predictor of quality of life ($\beta = -1.346$, $p < 0.01$), and the beta coefficient for depression was -1.346 illustrating that a one-point increment in HbA1c was associated with a 1.346 decrease in quality of life. Furthermore, duration of diabetes mellitus was another detrimental predictor of quality of life ($\beta = 0.195$, $p < 0.05$) illustrating that a one-point increment in duration of diabetes mellitus was associated with a 0.195 increase in quality of life, as seen in (Table 4-7)

Table 4-7. Predictors of quality of life: Multiple Linear Regression

Predictor	b	Beta	t	P. Value	95.0% CI		Correlations	
					Lower	Upper	Partial	Part
Gender	.084	.003	.069	0.945	-2.302	2.470	.004	.003
Level of education	-1.194	-.072	-1.407	0.160	-2.862	.474	-.071	-.057
Occupation	.092	.003	.068	0.946	-2.554	2.738	.003	.003
Monthly income	-1.342	-.073	-1.535	0.126	-3.061	.376	-.078	-.062
HbA1c	-1.346	.170	3.941	0.000**	.675	2.018	.196	.159
BMI level	.367	.021	.491	0.623	-1.101	1.835	.025	.020
Duration of DM	.195	.103	2.438	0.015*	.038	.352	.123	.098
Drugs used for DM	-.095	-.004	-.103	0.918	-1.911	1.721	-.005	-.004
Diabetes management self-efficacy	.472	-.522	-12.541	0.000**	-.546	-.398	-.538	-.507

CI= Confidence Interval, b= Unstandardized beta, B= Standardized beta

** Significant at p < 0.05.; ** Significant at p < 0.01*

Chapter Five

Discussion, Recommendations, and Conclusion

5.1 Introduction

In this chapter, discussion, conclusions, and recommendations will be explained. The conclusion will be formulated according to the purpose of the study. The purpose of this study was to assess the diabetes management self-efficacy and quality of life among patients with type2 DM who are attending the primary health care clinic in the north districts of Palestine.

5.2 Discussion

In the literature, few studies reported the QOL and diabetes management self-efficacy of patients with Diabetes mellitus. The main advantage of our study were that, to our knowledge, it was the first study describing the QOL and diabetes management self-efficacy in Palestine regarding type 2 DM.

5.2.1 Quality of life

The result of the current study indicated that the quality of life of the patients with diabetes was poor that could be obtained from the scale, and this finding is consistent with health-related quality-of-life scores reported in other studies conducted in the Middle East region. This result is consistent with conducted in the south of Iran which revealed that health-related quality of life in patients with type 2 diabetes mellitus was low (Zare et al., 2020). Also, in a study performed by Altun et al. (2014) revealed that the overall well-being scores of the diabetics were low. Another study conducted in Peru revealed that patients with type 2 diabetes mellitus have a poor quality of life (Huayanay-Espinoza et al., 2021). Furthermore, this result is consistent with Abd El Latif et al., who found patients with type 2 diabetes in Suez Canal University

Hospitals in Ismailia City had low QOL in physical health domains, psychological health domains, and environmental domains through the World Health Organization Quality of Life Questionnaire (Abd El Latif et al., 2016).

However, this result is inconsistent with study conducted in Iran, which found quality of life of patients with type 2 diabetes was moderate (Mohammadi et al., 2016). Similar result, in a study conducted in two major health centers in the Eastern Province of Saudi Arabia revealed moderate quality of life among patients with type 2 diabetes mellitus (Alshayban & Joseph, 2020). Also, in a study conducted in Malawi found the mean of the QOL score to be satisfied (Chisalunda et al., 2023).

A patient must have a positive sense of general health and be able to take care of themselves in order to control their diabetes. Additionally, wellbeing could act as a barrier to the preservation of health. Because of this, nurses should assess patients' well-being and variables that influence their ability to manage their diseases effectively.

5.2.2 Diabetes management Self-efficacy

The result of the current study indicated that the self-efficacy of the patients for diabetes management was at slightly high when evaluated based on the highest score that could be obtained from the scale. This result was consistent with the study conducted by Gedik and Kocoglu, in which the self-efficacy levels of the patients were found to be at high level (Gedik & Kocoglu, 2018).

However, Calli & Kartal (2021) study found the self-efficacy levels of the patients with type 2 DM were at a moderate level. In another study by Akpunar (2012) that was performed regarding the effect of diabetes training on the management of diabetes, the self-efficacy levels of the study group (67.98 ± 12.74) as well as the control group (69.37 ± 9.64) were found to be at a moderate level before the training.

According to Taha et al. (2016), the self-efficacy levels of the patients for diabetes management were at a low level before the intervention. However, a study has found that Indonesian patients reported higher self-efficacy (88.65 (Wahyuni & Ramayani, 2020).

The strong parallels in these scores occur in spite of the sample disparities. Furthermore, our findings indicated that self-efficacy for managing diabetes was only moderate and needed to be raised. Actually, in order for patients to follow through on and maintain the suggested behaviors for the treatment of diabetes, it is critical that they possess high levels of self-efficacy. According to Pender (1996), patients with poor self-efficacy are less likely to adopt new health habits or modify their current ones. According to Morrison and Weston's (2013) study on diabetic patients, patients with high levels of self-efficacy showed improvements in their blood glucose levels, general health, and psychological well-being, whereas those with low levels of self-efficacy showed higher levels of stress. As a result, self-efficacy levels in managing diabetes should be kept at high level.

5.2.3 Predictors of the quality of life

The results of the current study indicated that diabetes management self-efficacy, duration of diabetes, and HbA1c have been identified as predictors of T2 DM-QOL.

These results were consistent with the Calli & Kartal (2021) study conducted in Turkey, which found that self-efficacy level for diabetes management was the strongest predictor of well-being in patients with type 2 diabetes. This meant that the overall well-being of the patients improved as their overall self-efficacy increased. However, this result was inconsistent with a study in Peru that found no significant association between self-efficacy and the quality of life of patients with DM type 2 (Huayanay-Espinoza et al., 2021).

Also, HbA1c was a predictor of the quality of life of patients with diabetes. This is consistent with Somappa et al.'s study, in which patients with an HbA1c level ≥7 mmol/mol (uncontrolled diabetes) showed poor QOL (Somappa et al., 2014). Another study conducted in Karad, India, found that the HbA1c level of patients significantly affected their QOL (Patil et al., 2021). These findings demonstrate that HbA1c levels are essential predictors of QOL among people with diabetes, and it is crucial to maintain these levels to control T2DM for improved QOL.

Furthermore, duration of disease was one of the main factors that significantly affected patients' QOL in the current study. Previous research found a conflicting relationship between diabetes duration and QOL (Al Hayek et al., 2014). According to a previous systematic review by Jing et al. (2018), the longer the duration, the worse the quality of life (QOL). Another study by Glasgow et al. reported that longer duration of diabetes was associated with reduced QOL in T2DM patients (Glasgow et al., 1997). This could be due to the fact that glycaemic control tended to be worse with longer duration due to a decline in beta cell function and a decline in patients' attitude, adherence, and response to treatment regimens (Daher et al., 2015).

5.3 limitations of the study

There were limitations. First, the study's cross-sectional design would restrict its capacity to demonstrate a temporal association between the variables. Second, a convenience sample may not yield a representative outcome. Furthermore, data were collected through a self-reported questionnaire based on patients with DM type 2 impressions and opinions.

5.4 Recommendations of the study

The findings revealed some suggestions and recommendations in nursing research, service and policy, and education.

- **In research:**
  - Conducting further studies about health behaviors and diabetes management self-efficacy of type 2 diabetes is very important in diabetics' clinics in primary health care centers.
  - Replication of the current study on a long probability sample is recommended to achieve generalization of the outcomes
- **In service and policy:**
  - Establishing a specialized diabetes management self-efficacy protocols in all health centers to guide the patients about preventive measures and caring of diabetes mellitus.
  - Continuous follow up care for patients with diabetes through home visits to improve their diabetes management self-efficacy.
  - A patient-centered approach is needed to improve quality of life, which is as important as glycemic control and complication prevention from the patient's perspective.
  - It may be recommended to plan individual and group training programs to increase self-care and diabetes management self-efficacy levels of patients and to help them cope with diabetes and improve self-management of diabetes.
- **In education**
  - Current health education throughout mass media for teaching preventive measures of diabetes for healthy people, teaching healthy life style and encouraging diabetes management self-efficacy for diabetics, and ways of decreasing diabetic complications.

5.5 Conclusions

The result of the current study indicated that diabetes management self‑efficacy of the patients for diabetes management were slightly high. Also, quality of life of the patients with diabetes was low. Furthermore, the results of the current study indicated that diabetes management elf-efficacy, duration of diabetes, and HbA1c have been identified as predictors of T2 DM- QOL.

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Appendixes

Understanding self-efficacy in Type two Diabetes self-management with its effect on quality of life among patients who attend Primary health care clinics in Palestine

Part one: Socio-demographic, clinical, and medical Characteristics

Gender male female

Age _____

Level of education Primary secondary Diploma Bachelor and above

Place of Residence Urban ☐ Rural ☐ Camp ☐

Marital status single ☐ married ☐ other ☐

Employment Yes ☐ No ☐

Monthly income Less than 2000NIS 2000 -4000 NIS MORE THAN 4000 NIS

- **Clinical and biological measures**

HbA1c: _____

Weight (Kg):_____ Height: _____

BMI: _____

BMI **Underweight** **Normal** **Overweight** Obesity

Years of having Diabetes mellitus _____

- **Medical conditions**

Smoking

Smoking **Ex-smoker** **Non-smoker**

Drugs

No **Insulin** **Metformin** **Sulfonylurea**

Physical activity yes ☐ no ☐

Complications

No complications Cardiovascular disease Diabetic foot Neuropathy

Nephropathy Retinopathy Hypertension Dyslipidaemia

Perceived information given on diabetes management by health personnel

Little or no ☐ Good ☐ Excellent ☐

Part two: The Revised Version of DQOL (RV-DQOL13)

Please read every statement carefully and circle the number that best describe your feeling or situation

	Satisfaction Domain	***Very satisfied***	***Moderately satisfied***	***Neither Satisfied nor Dissatisfied***	***Moderately Dissatisfied***	***Very Dissatisfied***
1.	How satisfied are you with the amount of time it takes to manage your diabetes?					
2.	How satisfied are you with the amount of time you spend getting checkups?					
3.	How satisfied are you with the time it takes to determine your sugar level?					
4.	How satisfied are you with your current treatment					
5.	How satisfied are you with your knowledge about your diabetes?					
6.	How satisfied are you with life in general?					
	Impact Domain	**Never**	**Sometimes**	**Often**	**Frequently**	**Always**

1.	How often do you feel pain associated with the treatment for your diabetes?					
2.	How often do you feel physically ill?					
3.	How often does your diabetes interfere with your family life?					
4.	How often do you find your diabetes limiting your social relationships and friendships?					
	Worry Domain	**Never**	**Sometimes**	**Often**	**Frequently**	**Always**
1.	How often do you worry about whether you will pass out?					
2.	How often do you worry that your body looks different because you have diabetes?					
3.	How often do your worry that you will get complications from your diabetes?					

PART three. The diabetes management self-efficacy scale (DMSES)
For each of the following, please choose the answer that best describes how confident at their abilities to manage you are with that area of your life.

	absolutely yes	Probably yes	May be yes May be no	Probably no	absolutely never
Diet (9 item)					
4 I can choose to eat good and healthy foods that are beneficial to my health					
5 I can choose to eat various foods to maintain a healthy diet plan					
9 I can maintain a healthy diet plan in the event that I get sick					
10 I can follow a healthy diet plan regularly					
13 I can follow a healthy diet plan even when I am not at home					
14 I can choose from various foods to maintain a healthy diet plan when I am not at home					
15 I can follow a healthy diet plan during festivals, traditions, or rituals					
16 I can choose to eat various foods to maintain a healthy diet plan when I eat foods at parties					
17 I can maintain a healthy diet plan when I am feeling stressed or worried					

Monitor (4 Items)					
1 I can check blood glucose levels by myself if necessary					
2 I can reduce blood glucose levels when glucose levels in my blood are too high (for example, changing the kinds of foods I eat).					
3 I can increase blood glucose levels when glucose levels in my blood are too low (for example, changing the kinds of foods I eat)					
7 I can attend to my feet (for example, cutting toe nails and taking care of myself not causing wounds).					
Physical (4 Items)					
6 I can control my body weight and maintain appropriate weight ranges					
8 I can exercise and perform sufficient physical activity (for example, walking, aerobic dancing, muscle exercise, etc.)					
11 I can increase the amount that I exercise if a doctor advises me to do so					
12 In the case that I exercise more, I can modify my healthy diet plan					
Regimen (3 Items)					
18 I can schedule an appointment to see a doctor four times a year to check my diabetes					
19 I can take medicines as prescribed by a doctor					
20 I can keep taking medicines continuously when I am sick					

Thank **you for completing this questionnaire**

الكفاءة الذاتية للتحكم الذاتي بالسكري على نوعية الحياة بين مرضى السكري

القسم الأول: الصفات الاجتماعية والديموغرافية والسريرية والطبية

1- الجنس: ذكر أنثى

2- العمر: _____

3- المستوى التعليمي: ابتدائي ثانوي بكالوريوس دراسات عليا

4- مكان السكن: بلدة قرية مدينة

5- الحالة الاجتماعية: أعزب متزوج أخرى

6- الوظيفة: أعمل لا أعمل

7- متوسط الدخل: أقل من 2000 شيكل/شهر 2000-4000 شيكل/شهر أكثر من 4000 شيكل/شهر

- **المقاييس السريرية والبيولوجية:**

فحص السكري التراكمي: _____

الوزن (كغم):_____

الطول (متر):_____

مؤشر كتلة الجسم: تحت المتوسط طبيعي فوق المتوسط سمين

عدد السنوات منذ الإصابة بمرض السكري: _____

- **الحالة الطبية:**

- هل انت مدخن؟ نعم لا مدخن سابق

- هل تتناول أي من الادوية التالية؟ لا الأنسولين ميتفورمين سلفوني يوريا

- هل تمارس الرياضة؟ نعم لا

- هل لديك أي من المضاعفات التالية؟ لا أمراض القلب والشرايين قدم السكري
أمراض الأعصاب أمراض الكلية امراض العين ارتفاع ضغط الدم
تراكم دهنيات الدم

الوعي المعرفي حول ادارة مرض السكري من قبل الطاقم الطبي:

- قليل أو لا شيء - كافي - ممتاز

القسم الثاني:] جودة الحياه عند مرضى السكري

يرجى قراءة كل عبارة بعناية ووضع دائرة حول الرقم الذي يصف شعورك أو موقفك على أفضل وجه:

القسم الثاني: مستوى الرضا	راضٍ جداً	راض إلى حد ما	لا راض ولا غير راض	غير راضٍ إلى حدٍ ما	غير راضٍ جداً
1. ما مدى رضاك عن مقدار الوقت الذي تستغرقه لعلاج مرض السكري لديك؟					
2. ما مدى رضاك عن مقدار الوقت الذي تقضيه في اجراء الفحوصات؟					
3. ما مدى رضاك عن الوقت الذي تستغرقه لفحص مستوى السكر لديك؟					
4. ما مدى رضاك عن علاجك الحالي؟					
5. ما مدى رضاك عن معرفتك بمرض السكري؟					
6. ما مدى رضاك عن الحياة بشكل عام؟					
القسم الثالث: التأثير	أبداً	أحياناً	غالباً	مرارًا	دائماً
1. هل تشعر عادة بآلام يسببها علاج مرض السكري؟					
2. هل تشعر بتعب جسدي بسبب مرض السكري عادة؟					

3. كم مرة يتدخل مرض السكري لديك في حياتك الأسرية؟					
4. كم مرة تجد أن مرض السكري لديك يحد من علاقاتك الاجتماعية وصداقاتك؟					
القسم الرابع: القلق ذو صلة بمرض السكري	أبداً	أحياناً	غالباً	مراراً	دائماً
1. هل تقلق بشأن تغيّبك عن الوعي عادة؟					
2. هل تقلق بسبب اختلاف شكل جسدك بسبب مرض السكري؟					
3. هل تقلق بشأن تعرضك لمضاعفات مرض السكري في المستقبل؟					

القسم الثالث: مقياس الكفاءة الذاتية لإدارة مرض السكري

يرجى اختيار الإجابة التي تصف مدى الثقة في قدراتك على الإدارة في هذا المجال من حياتك لكل مما يلي:

النظام الغذائي	**بكل تأكيد نعم**	**ربما نعم**	**ربما نعم قد يكون لا**	**ربما لا**	**بكل تأكيد لا**
4 يمكنني اختيار وتناول الأطعمة الجيده والصحيه المفيده لصحتي.					
5.يمكنني اختيار وتناول الأطعمة مختلفة للحفاظ على نظام غذائي صحي					
9 يمكنني الحفاظ على نظام غذائي صحي عند اصابتي بمرض.					
10 يمكنني اتباع نظام غذائي صحي بانتظام.					

13 يمكنني اتباع نظام غذائي صحي حتى عندما لا أكون في المنزل.					
14 يمكنني الإختيار من بين الأطعمة المختلفة للحفاظ على نظام غذائي صحي عندما لا أكون في المنزل.					
15 يمكنني اتباع نظام غذائي صحي خلال المناسبات (مثل، الأعراس أو الحفلات أو التقاليد).					
16 يمكنني إختيار تناول أطعمة مختلفة للحفاظ على نظام غذائي صحي عند تناول الأطعمة في الحفلات.					
17 يمكنني الحفاظ على نظام غذائي صحي عندما أشعر بالتوتر أو القلق.					
المتابعة					
يمكنني فحص مستوى السكر في الدم بنفسي إذا لزم الأمر.					
يمكنني تقليل مستوى السكر في الدم عندما يكون مستوى السكر في الدم مرتفعة للغاية (على سبيل المثال، عن طريق تغيير الأطعمة التي أتناولها).					
يمكنني زيادة مستوى السكر في الدم عندما يكون مستوى السكر في الدم منخفضة للغاية (على سبيل المثال، عن طريق تغيير الأطعمة التي أتناولها).					
يمكنني الاعتناء بقدمي (على سبيل المثال، قص الأظافر والحفاظ على القدم من الجرح).					
الجسدي					
يمكنني التحكم بوزن جسمي والحفاظ على					

معدل الوزن المناسب.					
يمكنني ممارسة الرياضة وأداء النشاط البدني الكافي (على سبيل المثال، المشي، الركض، وتمارين العضلات، وما إلى ذلك).					
يمكنني زيادة كمية ممارسة الرياضة إذا نصحني الطبيب بذلك.					
إذا زادت مدة ممارسة التمارين الرياضية التي أمارسها، فسأقوم بتعديل خطة نظامي الغذائي الصحي.					
الحمية					
يمكنني تحديد موعد لرؤية الطبيب أربع مرات في السنة لفحص مرض السكري.					
يمكنني تناول الأدوية على النحو الذي يحدده الطبيب.					
يمكنني الاستمرار في تناول الأدوية عندما أصاب بمرض.					

ملخص

الكفاءة الذاتية وجودة الحياة لدى مرضى السكري من النوع الثاني

مقدمة

تظهر الكفاءة الذاتية كعنصر حاسم يؤثر على كيفية مشاركة الأفراد المصابين بداء السكري من النوع 2 في أنشطة الرعاية الذاتية. لعب تصور الكفاءة الذاتية للفرد دورًا مهمًا في تطوير مبادرات تثقيف المرضى التي تهدف إلى تعزيز ممارسات الإدارة الذاتية في رعاية مرض السكري وتحسين نوعية الحياة.

أهداف الدراسة

كان الغرض من هذه الدراسة هو تقييم إدارة الكفاءة الذاتية وجودة الحياة بين المرضى الذين يعانون من مرض السكري من النوع الثاني والذين يترددون على عيادة الرعاية الصحية الأولية في محافظات شمال فلسطين.

طريقة الدراسة

أجريت دراسة وصفية مقطعية على عينة ملائمة مكونة من 397 مريضا مصابا بداء السكري من النوع 2 والذين يترددون على عيادات مرض السكري التابعة لوزارة الصحة الفلسطينية في شمال الضفة الغربية. تم جمع البيانات من خلال استبيان يعبأ ذاتيًا يتكون من مقياس النسخة الماليزية RVDQOL−13 لتقييم جودة الحياة ومقياس إدارة مرض السكري بالكفاءة الذاتية.

نتائج الدراسة

شارك في الدراسة ثلاثمائة وسبعة وتسعون مريضاً مصاباً بداء السكري من النوع الثاني. كان معدل الكفاءة الذاتية للمشاركين في الدراسة الحالية متوسطه (M = 73.6 ±14.5). كما أظهر التحليل أن معدل جودة الحياة كان متوسطاً (M=47.6±13.1). علاوة على ذلك،

أظهرت النتائج أن الكفاءة الذاتية، ونسبة HbA1c، ومدة الإصابة بداء السكري كانت تنبئ بنوعية الحياة (β= 0.472، p <0.01؛ β= −1.346، p <0.01؛ β= 0.195، p <0.05) على التوالي.

الاستنتاجات

أشارت الدراسة إلى أن الكفاءة الذاتية في إدارة مرض السكري وجودة الحياة لدى مرضى السكري من النوع الثاني كانت عند مستويات متوسطة. كما أشارت نتائج الدراسة الحالية إلى أن الكفاءة الذاتية، ومدة الإصابة بمرض السكري، ونسبة HbA1c قد تم تحديدها كمنبئات لـ T2 DM-QOL.

الكلمات المفتاحية: الكفاءة الذاتية، جودة الحياة، داء السكري من النوع الثاني، دراسة مقطعية