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Influence of Self-Care for Clients' with Type II Diabetes Mellitus on Quality of Life

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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تَكُن تَعْلَمُ ۚ وَكَانَ فَضْلُ اللَّهِ عَلَيْكَ عَظِيمًا))

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DEDICATION

To:

- *My Father and Mother with love and respect forever.*
- *My Wife, Brother, Sisters, and all Friends with love and respect for their support and assistance to pursue my study.*

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Abstract

Type II Diabetes is a chronic and complex condition that affects the entire body. Diabetes requires daily self-care, and failure to do so can lead to complications that significantly affect health and quality of life. This study aimed to assess self-care for clients with type II Diabetes Mellitus and to find out the influence of self-care on quality of life with their sociodemographic characteristics. A descriptive study used an assessment approach conducted at the Diabetes and Endocrinology Center in Al-Diwaniyah city for the period from 15 October 2023 to 27 June 2024. Non-probability convenience sample of (150) clients with type II Diabetes who visit the diabetic center were selected.. The study results have been indicated 42% that the average age (56 ± 5 years) with high age group 50-59 years. The male more than female (58%, 42%) respectively, also the majority of sample 80% were married. While, less than half of participants 42.6% with low educational level and more of them 43.3% were housewives with 81.3% insufficient monthly income. The residency refers that 71.3% of clients were resident in urban area. The findings of study showed 65% good level of self-care behavior ($M\pm SD= 106.86\pm 10.252$). While, majority of sample 90% with moderate level for quality of life ($M\pm SD= 81.12 \pm 10.529$). There was significant relationship between client's self-care behavior with their level of education and occupation at p -value= 0.029 and 0.00, respectively. Also, statistically significant between client's quality of life with their sex, level of education, occupation, and monthly income p -values 0.013, 0.001, 0.001, and 0.031, respectively. The study concludes more than half sample more adherence level for self-care behavior and majority of them with moderate level of quality of life. The study recommends in development educational programs to meet the needs of client's with type II Diabetes Mellitus, especially those who are illiterate or low educational level.

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جامعة كربلاء

List of Abbreviations

Items	Meaning
&	And
<	Lower than
=	Equal
>	More than
ADA	American Diabetes Association
APEG	Australian Pediatric Endocrine Group
CDC	Center for Diseases Control and Prevention
CDSSs	Clinical Decision Support Systems
CE	Century
CVDs	Cardiovascular Diseases
DF	Degree of Freedom
DSME	Self-Management Education
DHPB	Diabetes Health-Promoting Behaviors
DM	Diabetes Mellitus
E.g.	Example
F	Frequency
MENA	Middle East and North Africa
NCDs	Non-Communicable Diseases
NICE	National Institute for Health and Clinical Excellence
IDF	International Diabetes Federation
IGT	Impaired Glucose Tolerance
KCL	Potassium Chloride
LDL	Low-Density Lipoproteins
P	Probability Value
PA	Physical Activity
PAI-1	Plasminogen Activator Inhibitor-1
QOL	quality of life
SD	Standard Deviation
SE	Socio- Economic
Sig.	Significance

SMBG	Self-Monitoring Blood Glucose
SPSS	Statistical Package for Social Science
T2DHPS	Type II Diabetes and Health Promotion Scale
T2DM	Type II Diabetes Mellitus
US	United States
WC	Waist Circumference
WHO	World Health Organization





Chapter one

Introduction

Chapter One

Introduction

1.1. Introduction

Diabetes self-care is a cornerstone for optimal diabetes care according to the American Diabetes Association (ADA). The importance of Diabetes Self-Management Education (DSME) due to the complexity of controlling type II Diabetes. Client is assigned a variety of responsibilities, including attending medical visits on a regular basis, adhering to verified prescription regimens, and engaging in self-care behaviors such as at home blood glucose monitoring, healthy food adjustments, and increased physical exercise (American Association of Diabetes Educators., 2020).

Self-care is a treatment carried out independently by patients to observe their own needs without depending on the surrounding environment. Self-care of type II Diabetes patients consists of adhering to a diet program, physical exercise, controlling blood sugar levels, medication, and foot care to prevent further complications and control blood glucose (Majeed et al.,2021).

Adequate self-care practices in terms of diet, medication, and exercise help in maintaining normal level of blood glucose in patients with diabetes. Moreover, regular foot-care practice helps to protect against diabetic foot ulcers and amputation (Basu et al.,2018).

Self-care is one of the most important elements in managing diabetes and preventing its complications. Adhering to a dietary plan, exercising, and monitoring blood sugar levels helps promote proper glycemic control (Shrivastava et al., 2013).

The importance of self-care activities that include changes in life habits and metabolic control, such as dietary reeducation, introduction of physical activity, care for the body and mind, reduction of harms related to alcohol or tobacco use, and adequate use of drug therapy with oral hypoglycemic agents associated or not with the use of insulin (Souza and Brawn.,2011).

Behaviors pertinent to diabetes encompass the act of regularly checking one's blood glucose levels, maintaining a nutritious diet, participating in consistent physical exercise, adhering to recommended medication regimens, and utilizing healthcare facilities, such as visiting healthcare professionals and undergoing eye and foot examinations. (McSharry et al., 2020).

Self-care practices enable the maintenance of optimal glycemic control for patients with diabetes through a comprehensive lifestyle, medication adherence, and monitoring of blood glucose levels, preventing the complications of diabetes. The goal is to address and deal with the requirements and desires of individuals struggling with diabetes through these self-care practices, which lead to a better quality of life (Ahmad et al., 2023).

A high percentage of the world's diabetes cases belong to type II Diabetes (T2D) with modifiable risk factors such as unhealthy diet, being obese or overweight, sedentary lifestyle, and smoking. These factors can be modified through behavioral and environmental changes (Adhikari Baral, I., & Baral., 2021).

Type II Diabetes Mellitus (T2DM) is the most common form and is common among older adults with family history of diabetes, obese, and those with lack of exercise. There are two main forms of type II Diabetes late onset associated with obesity and late onset not associated with obesity. Overweight individuals may be treated at the onset with dietary control alone, or with tablets, but may eventually have to progress on to insulin in the end when the tablets fail to work (Kalangadan et al., 2020).

Although the symptoms of both types of diabetes may be the same type II Diabetes symptoms are frequently absent or milder. Hence, it might be a silent disease for a very long time before issues arise. This type of diabetes was previously exclusively seen in adults, but according to current World Health Organization (WHO) data, it is increasingly showing up in youngsters as well (Galicja et al., 2020).

Type II Diabetes can be managed with diabetes self-management skills. Self-care is the ability of the patient with the family, and the community to promote health, prevent illness, maintain health, and deal with the disease and disability with or without the help of health care providers (Amelia et al.,2018)

Furthermore, numerous studies have shown a positive correlation between the level of self-care and health-related quality of life in diabetic client. The higher the adherence to self-care behaviors, the better the overall quality of life (Abd-El Salam et al., 2020).

Global Burden of Disease Study 2017, it was estimated that worldwide about 476 million people live with diabetes mellitus, of whom 463 million live with Type II Diabetes Mellitus (James et al., 2018) People in the Middle East an increasing prevalence of diabetes, the prevalence is projected to increase from 18.4% in 2015 to 21.5% in 2030 (AbuRmeileh et al., 2014).

The quality of life of Type II Diabetes patients is an essential outcome used to evaluate the impact of the disease, treatment, and health care costs. Continuous daily treatment requirements affect the quality of life; a positive association between high perceived quality of life and good glycemic control has been reported (Malini et al.,2021).

Moreover, quality of life (QoL) in relation to health plays a crucial role in the health outcomes of clients with diabetes and is thought to be the psychological indicator for controlling the disease; because people make their own judgments regarding their health and wellbeing (Bujang et al., 2021).

The quality of life (QoL) is a highly subjective measure of happiness and shows how much an individual is healthy, comfortable, and can participate in or enjoy life events (Mokhtari et al.,2019).

They have to adhere to the advice for exercises on a daily basis to lose the weight so that blood sugar levels are under control, thereby preventing complications. QoL is a very important factor that is positively

related to treatment adherence, and a good QoL motivates the patient to manage the disease and achieve health and happiness in the long terms (Stringhini et al., 2023)

In addition, quality of life is considered as an important construct as an individual think according to one's own cultural patterns and customs based on culture related value system, life targets, cultural opportunities and credentials (WHO., 2015). Diabetes substantially effect QOL causing impairment in all functioning aspects of client. Other aspect of QOL like physical, social and psychological are influenced greatly as a result of diabetes (Basit et al., 2015).

As a chronic incapacitating illness, diabetes necessitates the need for proper checkup of client to evaluate the (QoL). Complexities related with diabetes influence all body systems and result in increased death rate. In chronic illness the only outcome to control the illness is through QoL in client who are considered as important tool to lead the life and prevent morbidities (Echouffo et al., 2018).

Clinically, to build a trustable client and caregiver relationship, it is mandatory to carryout regular evaluation of QoL in diabetes affected individuals. Routine assessment helps to monitor disease status, to identify early complication of disease and to observe the result of treatment regimen disease (Ali et al., 2012).

Furthermore, QoL is closely linked with Diabetes as this disease significantly affects a persons' life quality. Impact of illness is evident in various aspects of QoL. Diabetes demolishes a persons' life by impairing dietary habits, causing nutritional deficiencies, disturbing self-concept and thinking process. Feelings of being a diabetic mentally upset a person resulting in social isolation and poor relations. Diabetes leads towards various malfunctions in body & permanent disorders (Colberg et al., 2010).

Type-II diabetics exercise and have physical activity was found in present study that only 27.2%. Although exercise is a vital intervention to control diabetes. A study conducted to assess the impact of type-II diabetes

on QoL showed negative effects. Finding depicted strong relationships in physical and psychological domain as compared to social and environmental in type-II diabetics. Domains of QoL are indirectly related with diabetic complications. As complications increase, QoL decreases (Sepulveda et al., 2015).

Results of study depict considerably low score in environmental domain of QoL which suggest the ill effects of environment on life quality of type-II diabetics. Similar results were found in study of (Garg et al., 2017). Depicting mean score much lower in environment domain than other domains of QoL. In another study, findings show lower scores in environmental domain than other QoL domains (Mahesh et al., 2016).

Prevention and cure of efficient strategies are needed to reduce the burden of the medical and economic. However, the problem of clients with diabetes can be solved with self-care. Self-care will improve the quality of life and prevent acute and chronic complications of diabetes. In self-care, client is responsible for managing day-to-day care for their illness (Laxy et al., 2014; Vazini & Barati, 2014).

Diabetes is a health issue since it can lead to complications like poor eyesight, renal failure, and other issues. It is advised to accept the disease and interact with it on a chronic basis to be effective and flexible because of the risks, complications, and serious effects it also has on the lives of those suffering of these clients (Kumar et al.,2023).

1.2. Importance of the Study:

In high-income countries the premature mortality rate is due to diabetes decreased from 2000 to 2010 but then increased in 2010-2016. In lower-middle-income countries, the premature mortality rate due to diabetes increased across both periods. Between 2000 and 2016, there was a 5% increase in premature mortality from diabetes (WHO, 2020).

Diabetes is one of the leading causes of death. It can lead to many life-threatening complications. In Europe around 60 million people, or 10.3% of men and 9.6% of women aged 25 years and over, are

diagnosed with diabetes. According to the WHO, about 347 million adults in the world are diagnosed with diabetes, and deaths caused by diabetes will double between 2005 and 2030 (WHO, 2023).

The incidence and prevalence of type II Diabetes in many parts of the world increased, about 20% -25% of people aged over 65 years in the US and Korea suffer from diabetes. In Indonesia, the number of clients with diabetes increased from 8.4 million in 2000 to around 21.3 million in 2030, which most likely occurs at a young and productive age. The second report shows an increase in the number of people with DM as much as 2-3 times in 2030 (Putra et al., 2019).

The Arab world is also susceptible to the high occurrence of type II Diabetes Mellitus (T2DM). Indeed, the Middle Eastern and North African region exhibits the second greatest global rate of diabetes growth, with a projected 96.2% increase in the number of individuals affected by diabetes by the year 2035. The presence of type II Diabetes poses a significant burden for both individuals with the condition and their careers. Arab governments are particularly concerned about the substantial economic impact of diabetes, including the costs associated with treatment, management of complications, disability, and reduced productivity. (Abuyassin & Laher., 2016).

The International Diabetes Federation (IDF) In 2013, estimated that 7.5 million individuals have diabetes and around 2.2 million have pre-diabetes in Egypt. Furthermore, reports indicate that 43% of clients with diabetes and most clients with pre-diabetes in Egypt are likely undiagnosed. It is alarming that diabetes prevalence in Egypt has increased rapidly within a relatively short period from approximately 4.4 million in 2007 to 7.5 million in 2013 (Hegazi et al., 2015).

The prevalence of diabetes is the highest in Jordan among the world, which makes it an alarming public health burden. The prevalence of diabetes increased from 6.3% in 2002 to 7.4% in 2004 in Jordan's population. A study published in 2008 revealed a 31.5% increase in the

prevalence of diabetes in Jordanians aged 25 years or older compared with a similar survey conducted in 1994 (Alghadir et al., 2016).

In Iraq, the prevalence of diabetes had been increased dramatically over the last four decades to reach around 20%. Moreover, DM is considered as a leading cause of death in most developing countries, especially in Iraq. This may be attributed to uncontrolled hyperglycemia, which is associated with many serious complications such as renal failure and cardiovascular disorders (Mikhael et al., 2019).

Furthermore, in Iraq has one of the highest prevalence rates of Type II Diabetes in the world, at 13.9%, and one of the highest rates of chronic complications. No research has examined whether low adherence is a contributing factor for such poor control in this national population, despite the fact that several studies have identified poor glycemic control as a significant factor behind high complication rates (Abusaib et al., 2020).

Iraq the prevalence in 2007, of type II Diabetes reached epidemic proportions, impacting an estimated two million people or 7.43% of the overall Iraqi population. All forms of diabetes increase the risk of long-term complications. These may develop after many years (10–20 years), but may be the first symptoms in those who have not previously received a diagnosis (Ali et al., 2019).

In the Middle East and North Africa (MENA) Region, diabetes is estimated to be the second leading cause of death for clients under the age of 60, accounting for 373 557 fatalities across 21 countries and territories, including Iraq. This places the region in the highest second level all IDF (Abusaib et al., 2020).

The high incidence of diabetes in the MENA region, little is known about its progression and complications, and just 2.9% of the world's total diabetes spending is directed toward the area (Yuen et al., 2019). The high incidence of diabetes in the MENA region, little is known about its progression and complications, and just 2.9% of the world's total diabetes spending is directed toward the area (Yuen et al., 2019).

Diabetes affects 1.4 million Iraqis. IDF age-adjusted prevalence estimates for type II Diabetes in Iraq range from 8.5% to 13.9%.³ In the city of Diyala, in middle Iraq, a local study with more than 5400 participants discovered a 19.7% age-adjusted prevalence of diabetes in persons aged 19 to 94 years (WHO, 2018).

1.3. Statement of the Problem:

Type II Diabetes is a chronic condition that affects the way body metabolizes sugar (glucose) an important source of fuel for body. With type II Diabetes, body either resists the effects of insulin, a hormone that regulates the movement of sugar into cells or does not produce enough insulin to maintain normal glucose levels (Chatterjee et al., 2017).

Type II Diabetes Mellitus (T2DM) is a prevalent chronic disease requiring rigorous self-management to prevent devastating complications. In the United States alone, over 30 million individuals have T2DM, representing 90-95% of diabetes cases (ADA, 2020).

Type II Diabetes is a chronic condition requiring daily self-management of diet, exercise, medication adherence, and blood glucose monitoring. Without proper self-care, clients are at high risk for complications like cardiovascular disease, kidney failure, blindness, and amputations (CDC, 2021).

A Study observed that the overall prevalence of good self-care practices was very low (5.6%). Moderate self-care practices were prevalent in 42% of the study participants whereas the majority (52.4%) of the study population had poor self-care practices. The association between self-care activity with educational status and occupation was found to be statistically significant. Adherence was high for blood sugar testing (75.2%) and medication (70.4%) in the study population whereas adherence for foot care was poor (17.6%) (Karthik et al., 2020).

Non-adherence to self-care by clients with type II Diabetes is associated with enormous economic and health costs. A study conducted in 2017 showed that the total cost of diabetes reached \$327 billion in the

United States, and a large part of these costs are due to complications resulting from poor diabetes control (ADA, 2018).

Another study indicated that diabetes clients who do not adhere to proper self-care are up to 3 times more likely to develop chronic complications such as heart disease, kidney disease, and blindness compared to adherent clients, negatively affecting their quality of life (Song, 2019).

More research is needed to understand barriers to self-care in this population and test interventions to improve self-care skills and behaviors (Smith et al., 2021). The cornerstone of type II Diabetes management is a healthy diet, increased physical activity, stress management, and maintaining a healthy body weight. Oral medication and insulin are also frequently prescribed to help control blood glucose levels (IDF, 2020).

This study effect for client type II Diabetes to improve self-care and quality of life and improving client behaviors. Previous studies have shown that effective educational programs lead to significant improvements in blood sugar levels and quality of life in diabetes clients (Powers et al., 2015) Therefore, it is hoped that this study will help bridge the knowledge gap and provide practical solutions to the problem of poor adherence to self-care.

1.4. Objectives of the Study:

This study aims to:

1. To assess the self-care behavior among clients with Type II Diabetes Mellitus.
2. To find out the influence of self-care on quality of life for diabetic client.
3. To assess the quality of life for client with Type II Diabetes Mellitus.
4. To find out the relationship between self-care and quality of life for clients with diabetes mellitus type II with their socio demographic characteristic.

1.5 Research question

Does self-care for client with diabetes mellitus type II impact their quality of life

1.6. Definitions of Terms:

Self-care

1.6.1. Theoretical Definition:

Self-care in Type II Diabetes involves the knowledge, skills and activities that individuals undertake on a daily basis to manage their condition, maintain health and prevent complications (WHO, 2016).

1.6.2. Operational Definition

daily activities that a person with diabetes takes to manage their blood sugar levels, prevent complications, and improve their overall health and well-being.

Which include: Self-Care related to food, diet and exercise, Self-care related to medication adherence, Self-care related to periodic examinations, Self-care related to foot care and Self-care related to stress coping,

1.7. Quality of Life

1.7.1. Theoretical Definition

Quality of life is “...an individual perception of their position in life in the context of the culture and values systems in which they live and about their goals, expectations, standards, and concern Malinis” (Malini et al.,2022).

1.7.2. Operational Definition

Energy and mobility, diabetes control, anxiety and worry, social strain, and sexual functioning are typical measures of life quality among client with domain of quality of life (Physical quality of life, Psychological Quality of Life, Social Quality of Life and Environmental Quality of Life.

Chapter Two

Review of literature

Chapter Two

Review of Literature

2.1. Diabetes Mellitus: An Historical Overview

The Ebers Papyrus, which dates to around 1550 BC, is claimed to have contained the earliest description of the ailment currently recognized as diabetes (often referring to diabetes mellitus) (Clarke et al., 2012). The history of diabetes begins with Demetrius of Apamea (1st century BC). Traditional Chinese medicine described and treated the illness for a long time. The sweet taste of diabetic urine was initially recognized by Ayurveda doctors in the fifth and sixth centuries BC, who named the ailment madhumeha ("honey urine") (Karamanou et al., 2016).

The Greek physician Apollonius of Memphis coined the name "diabetes" (meaning "to pass through" in English) in 230 B.C. Even Galen, who had seen only two cases in his entire career, attests to the disease's rarity under the Roman Empire. This might be because clinical symptoms weren't noticed until the sickness had progressed significantly, or it could be a result of the ancient people's food and way of life. The illness was dubbed "diarrhea of the urine" (diarrhea urinosa) by Galen (Poretsky, 2010; Laios et al., 2012).

The Islamic Middle Ages have written on diabetes as well. Early sources frequently described diabetes as a renal condition. Thomas Willis proposed that diabetes might be a blood disorder in 1674 (McIntyre et al., 2019). In 1774, the English physician Matthew Dobson demonstrated the presence of 'saccharine materials' in the urine of clients with diabetes mellitus by evaporating two quarts of urine from such an individual and obtaining a granulated residue that smelled and tasted like sugar (Toelsie et al., 2013).

Following these discoveries, other landmark discoveries followed viz; identification of sulfonylureas in 1942, the radioimmunoassay for insulin, as discovered by Rosalyn Yalow and Solomon Berson, Reaven's introduction of the metabolic syndrome in 1988, and identification of thiazolidinedione as effective anti-diabetics in the 1990s (Piero et al., 2015).

Blood glucose testing and simpler ways to detect sugar in urine both emerged in the 20th century. Stanley Benedict created a less harsh glycosuria test in 1907 by substituting Fehling's hydroxide-based reagent with a copper carbonate base. One of the first blood glucose testing methods was developed by Ivar Bang in 1913. It involved attaching blood proteins to filter paper and then measuring the filtrate's glucose content with the use of copper sulfate and potassium chloride (Kirchhof et al., 2008).

2.2. Theoretical Framework (Orem's Self-Care Theory)

Among the many comprehensive theories of self-care, Orem's model is useful for clinicians in developing and executing strategies for effective self-care. Nurses, according to Orem, can assist patients in regaining the capacity to care for themselves when this capacity is impaired through the provision of direct care and compensating educational support. Nurses, according to Orem, now play a more active role in facilitating and enacting change. (Borgi et al., 2017).

There is no control over self-care, and clients live with DM their whole lives, which has a significant impact on their quality of life. Several factors impact clients' self-care, including age, gender, education level, duration of suffering, knowledge, self-efficacy, stress related to diabetes, and family support. (Lin et al., 2017; Ningrum, Alfatih, & Siliapantur, 2019).

Self-care management is Self-care refers to a therapeutic practice where individuals autonomously assess and address their own needs without relying on external factors. The self-care treatment of patients with Type 2 Diabetes Mellitus (T2DM) involves following a prescribed diet, engaging in regular physical exercise, monitoring and regulating blood sugar levels, taking prescribed medications, and practicing foot care to prevent complications and maintain control over blood glucose levels (Luthfa I & Fadhilah N.2019).

In people with diabetes, appropriate self-care practices related to food, medicine, and exercise help to maintain a normal level of blood glucose. Regular foot care also lessens the risk of diabetic foot sores and amputation

(Basu et al., 2018). Diabetes self-care at home involves doing things like maintaining a good diet, getting regular exercise, taking medicine as prescribed, and taking precautions to avoid foot ulcers and other consequences (Ishwari Adhikari et al., 2021).

Furthermore, out of 123 participants, 62.6% demonstrated inadequate self-care in relation to the indicators for blood sugar monitoring (Kurniawan, Sari, and Aisyah, 2020). In the meantime, 50.4% of diabetic clients in a Chinese study exhibited intermediate self-management behavior, while 33.6% exhibited low self-care (Qi et al., 2021)

Lots of people with diabetes don't take good care of themselves, according to the research. Significantly fewer problems from diabetes can occur when strict glycemic control is maintained by self-care. Tight glycemic control and self-care for diabetes are demanding tasks, and problems with treatment plan adherence can make them much more so. Poor self-care adherence is a well-established risk factor for poor diabetes outcomes (Carpenter et al., 2019).

Participation in self-care activities improves hypertension patients' quality of life, according to a recent study. As for other factors influencing quality of life, the study indicated that self-care agency was the most important (Asadi et al., 2019).

As well as demonstrated that self-care activities, and family functioning had a positive effect on blood glucose levels in clients with type 2 diabetes Blood sugar control can delay many of the acute and chronic complications of diabetes, especially those of type 2 diabetes (Ahrari et al, 2021).

A study revealed a negative relationship between self-care and disability level in clients with rheumatic diseases, while there was a positive relationship between self-care and quality of life (Özkan & Solmaz, 2022).

Diabetic self-care entails preparing meals in advance, engaging in physical exercise as planned, monitoring blood glucose levels, taking prescribed medications, and handling periods of illness and low or high blood glucose levels. Patients and their families play a crucial role in diabetes control, making self-care an essential component of diabetes care. Caring for oneself is doing

things like exercising, eating right, and getting enough sleep in order to boost one's health and happiness. Care providers including physicians, nurses, nutritionists, and pharmacists work with patients to create individualized programs for self-care (ADA, 2015).

Americans ages 45 to 64 An estimated 14% of, or 11 million people, are diagnosed with type 2. That's nearly five times the rate for those ages 18 to 44. Diabetes rates jump to higher levels early in your senior years. Nearly 25% of Americans age 65 or older have been diagnosed with type 2. Undiagnosed cases may account for another 4.7%. This means that more than one in four older Americans live with type 2 diabetes (Helmer., 2022).

The majority of client in the Saudi Arabian study, 97.3% of men and 93.1% of women, were ignorant of the significance of keeping an eye on diabetes. Men in the study knew more about the disease than did the female participants. The study found that female teachers with diabetes had relatively little information about diabetes. Understanding diabetes offers information on blood glucose levels, exercise, weight monitoring, dietary habits, medication use, foot and eye care, and managing complications from the disease (Sami et al., 2017).

The prevalence of diabetes has risen more quickly in emerging nations than in industrialized nations in recent years. 9.1% of Nepalese people have been diagnosed with diabetes, with 10.5% of males and 7.9% of women having this diagnosis, according to the 2016 diabetic profile (HERD et el.,2018)

Low education and low income (less than 1,250,000 per month) were positively associated with an increased risk of type 2 diabetes. Education and income are equally important social and economic indicators in health, and should be considered simultaneously in health research and policy making (Duan et al., 2022).

According to the American Diabetes Association, the first step in giving diabetics information and expertise about treatment, nutrition, drugs, and complications is self-dietary management. According to a study, the targeted

population, who were at high risk of acquiring type 2 diabetes, had inadequate dietary knowledge. Males consumed more red meat and fried food than females did. The percentage of men to women who consume rice on a regular basis was notably high (Mohieldein et al.,2011).

The National Center for Health Statistics reports that socioeconomic status is a major factor in the onset of type 2 diabetes, which was previously believed to affect only the wealthy. People with poorer incomes and less education had a higher prevalence of type 2 diabetes. Some of the differences may be attributable to the foods consumed. Diabetic management relies heavily on dietary factors, according to nutritionists. These factors include the kinds and amounts of foods that impact blood sugar (Sami et al., 2017).

2.3. Healthy Diet

Although most people's diets are healthy, there is some evidence that some foods—like whole grains, nuts, berries, yogurt, coffee, and tea—may reduce the risk of type 2 diabetes, while others—like red meat and sugar-sweetened drinks—may increase it. as well as low-calorie diets to lower the incidence of type 2 diabetes, (Siegel et al., 2018).

Moreover, Research indicates that a dietary pattern including plenty of fresh produce, whole grains, lean proteins, and low amounts of red and processed meats, high-fat dairy, processed foods (including refined grains), and sugar-sweetened drinks can lower the general population's risk of type 2 diabetes by 20% (Esposito et al., 2014).

The (ADA) tabled updated dietary recommendations. The American Diabetes Association recommends that all persons with the disease follow a personalized eating plan that accounts for their tastes, cultural background, religious views, traditions, and metabolic goals; this plan should include a wide range of nutrient-dense foods eaten in reasonable portions. Eating plans, such as vegetarian, low-carb, or Mediterranean, are now part of the guide. Diabetics should take their unique metabolic objectives into account while making dietary choices, including monitoring glucose, cholesterol, and blood pressure levels (Coughlin et al., 2017).

It is advisable to have meals at consistent intervals, choosing foods that are low in fat and high in fiber, while also limiting the intake of carbohydrates. Nutritionists emphasize the crucial role of diet in effectively managing diabetes. They highlight that both the type and quantity of food consumed have a significant impact on blood sugar levels (Sami et al., 2017).

According to research conducted in various countries, including China, Finland, the United States, and India, individuals with pre-diabetes can reduce the incidence of type 2 diabetes by 30-60% by following a structured behavioral approach to lifestyle modification. This includes increasing physical activity and consuming fiber, while decreasing total calorie intake, fat consumption, and sugar-sweetened beverage consumption. (Siegel et al., 2018).

In addition, Studies have shown that a low-fiber diet with a high glycemic index is positively associated with a higher risk of T2DM, and specific dietary fatty acids may affect insulin resistance and the risk of diabetes in varying degrees diet is considered as a modifiable risk factor for T2DM (Wu et al., 2014).

Therefore, according to research studies, client with diabetes mellitus need to be informed about the benefits of appropriate nutritional habits, which are the major key in regulation of blood glucose healthy nutrition is the basis for the treatment of T2DM. It contributes positively to the maintenance of blood glucose within normal range and minimizes the complications of the disease (Mohamed, 2014).

However, both weight loss and maintenance of healthy weight are best achieved through sustained adherence to a broader range of healthy eating (e.g., increased fruit/ vegetable intake) and physical activity (e.g., reduced sedentary time). With the long-term health complications of obesity, including diabetes, heart disease, and cancer, the continued effort to understand which eating behaviors support achieving a healthy weight is of paramount importance (Heerman et al., 2017).

The importance of diet in diabetes management is still not fully understood by clients, despite studies showing that assessing clients' attitudes

toward food can improve treatment compliance and reduce complications. Diabetic patients in gulf countries are particularly at risk (El-Khawaga & Abdel-Wahab, 2015).

Many individuals nowadays are not physically active enough and eat a "unhealthy" diet, which is a key contributor to many non-communicable chronic diseases in both developed and developing nations. Multiple studies have shown that a low-fat, high-quality diet that is rich in fruits and vegetables, lean proteins (fish), and modest amounts of meat is related with a lower risk of type 2 diabetes. The effects on our health and happiness of eating healthily are substantial (Kałucka et al., 2019).

A recent study found that consuming high amounts of white rice was linked to a higher risk of developing type 2 diabetes mellitus (T2DM) in Japanese women. There is an immediate requirement for a lifestyle change among the general public, as well as a need to enhance understanding of good dietary habits across all demographic groups (Nanri et al., 2010).

2.4. Unhealthy Diet

A healthy self-care consists of regular exercise, limited alcohol and no tobacco use and a healthy diet consisting of fruit and vegetables, less sugar, salt and saturated fats can contribute to the prevention of Non-Communicable Diseases such as diabetes Unhealthy diet (high in salt, sugar and fat and low fiber, fruits and vegetables) is a cause of diabetes (Caperon et al., 2019).

Eating habits contribute to general health status. Population-based studies have stated that some unhealthy eating habits, including skipping breakfast, snacking between meals, and eating at night, are associated with an increased risk of diabetes (Huang et al., 2017).

Previous studies have displayed that night eating, including late-night snack, promoted weight gain because of decreased metabolic rate during sleep and fat oxidation. This pattern of eating also enhanced postprandial glucose excursion and elevated 24-hour average blood glucose levels (Gouda et al., 2018).

The major risk factors for developing diabetes are an unhealthy diet and a lack of physical activity. One of the most common reasons for difficulties in type 2 diabetes patients is not following their prescribed medication regimen, which includes a tight diet and regular exercise. Applying the dieting-bingeing sequence to clients with DM was proposed in a study that looked at symptoms associated to eating disorders in clients with type 2 diabetes (Sami et al., 2017).

as well as So it is essential to maintain a health care behavior to prevent complications from diabetes and to maintain a superior quality of life. healthy nutrition habits play a key role in treating T2DM as well as limiting its complications (Rosiek et al., 2016).

2.5. Physical activity

Exercise therapy plays an important role in the prevention and treatment of type 2 diabetes. The mechanism of exercise therapy in the improvement of glycolipid metabolism of T2DM is very complex and not completely clear (Dan Yang et al., 2019).

The objective is to perform at least 150 minutes a week of moderate-to-intense physical activity. One way to do this is to make an effort to exercise for at least 20 to 25 minutes every day. Include at least two days each week of exercises that focus on all of the major muscular groups (chest, shoulders, arms, legs, hips, back, and belly) (CDC., 2021).

Physical inactivity is one of the most important modifiable factors of diseases such as diabetes. Evidence indicates that physical activity, in addition to a reduction in metabolic risks, can be effective in weight management, improving blood glucose and lipid profiles in clients with diabetes (Sarbazi et al., 2019).

The lack physical activity (PA) is seen as a serious public health issue. Previous studies have demonstrated that inadequate physical activity is already a major public health concern worldwide and is growing quickly, particularly in low-income nations. Over-40-year-olds living in rural areas had a higher risk of type 2 diabetes and metabolic syndrome due to inadequate physical exercise.

It is necessary to create both population-wide and individual guidelines for physical activity, particularly for leisure purposes (Qian Wang et al.,2018).

In order to maintain good health, avoid or postpone the development of type 2 diabetes, manage diabetes effectively, and lower mortality rates, regular physical activity (PA) is essential. As a critical component in the management of long-term health conditions, particularly type 2 diabetes, meeting the suggested PA levels is a top public health priority. Decreases in physical activity (PA) are associated with an increased risk of diabetes, according to multiple studies. Considering its centrality to daily living (Abramczyk, 2018).

Although physical activity (PA) is a key element in the management and prevention of type 2 diabetes, many people who suffer from this chronic illness do not engage in regular physical activity. It is now well established that regular PA participation improves blood glucose control and can prevent or delay type 2 diabetes, along with positively affecting lipids, blood pressure, cardiovascular events, mortality, and quality of life. Until recently, there were few high-quality studies demonstrating the importance of exercise and fitness in diabetes (Colberg et al., 2010)

An integral component of both preventing and treating type 2 diabetes is engaging in physical activity (PA). Evidence suggests that people of any age can benefit from maintaining an active lifestyle and losing even a little weight to lower their risk of morbidity. All adults should engage in aerobic activity for at least 75 minutes per week at an intense level or 150 minutes per week at a moderate intensity, as per World Health Organization standards. Regular exercise lowers the risk of type 2 diabetes (Klimek et al., 2019).

Moreover, PA includes all movement that increases energy use, whereas exercise is planned, structured physical activity. Exercise improves blood glucose control in T2DM, reduces cardiovascular risk factors, contributes to weight loss, and improves well-being. Regular exercise may prevent or delay T2DM development (Colberg et al., 2016).

Type II Diabetes Mellitus is characterized by a reduction in β -cell function in the global environment of elevated insulin resistance. Aerobic

exercise has been shown to improve β -cell function, despite a subset of T2DM clients who do not respond that well to regular physical activity (sometimes called exercise-resistant) (Nieuwoudt et al., 2017).

Findings demonstrated the effectiveness of combined diet and physical activity promotion programs in reducing the risk for T2DM, increasing the likelihood of reversion to normoglycemia, and reducing weight among persons at increased risk for T2DM (Pronk & Remington, 2015).

Physical activity (PA) a beneficial effect, which is demonstrated in the prevention of diabetic neuropathy. For example, clients with type 1 or type 2 diabetes, it was observed that four hours of brisk walking per week on a treadmill over a four-years period reduced the occurrence of sensorimotor neuropathy (Duclos et al., 2013).

Dietary restriction and participation in moderate PA that results in weight loss (five percent to seven percent of total body weight) has been shown to reduce diabetes risk by 58%. Additionally, PA has been shown to independently reduce cardiovascular events associated with pre-diabetes (Hays et al., 2016).

However Still, the Brazilian government's National Health Promotion Policy is one of several programs that has prioritized PA. Nearly 3% to 4% of all diabetes-related deaths in Brazil occur in people who are sedentary, according to a new study. This is true across all age groups. Activities that encourage physical activity for the general public can help lessen the diabetes epidemic in Brazil (Silva et al., 2019).

2.6. Physical inactivity

The role of physical inactivity in the pathogenesis of T2DM has been intensively studied. Lack of physical activity predisposes to T2DM and makes its management more difficult. Conversely, engaging in regular physical activity can not only prevent the development of T2DM, but can also potentiate the effects of anti-diabetic drug therapy, thereby improving glycemic control (Anjana & Mohan, 2016).

Two hours of television viewing each day during the follow-up period raised the risk of obesity by 23% and type 2 diabetes by 14% in the Nurses' Health Study cohort, after controlling for typical physical activity. On the other side, there is a 12% reduction in the incidence of type 2 diabetes with each two-hour period per week of even low-intensity exercises like walking or standing around the house, which includes some household chores (Duclos et al., 2013).

2.7. Medication Adherence for Type II Diabetes Mellitus

More than 200 variables connected to treatment adherence behavior were found in a meta-analysis of 569 research. Adherence is defined by WHO as the extent to which a person's behavior taking medication, following diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider. Adherence to diabetes medications is an important factor in achieving good diabetes control and preventing mortality and morbidity (Aloudah et al., 2018).

Adherence behaviors in clients with T2DM include five categories: adherence to medication, dietary recommendations, increased physical activity, self-control of blood glucose, and proper care of legs. Failure to adhere to the therapeutic regimen accelerates the complications of diabetes (Rezaei et al., 2019).

Poor adherence is a widespread issue that affects more than just one person or client. To maximize the advantages of treatment adherence, a comprehensive, multifaceted approach is necessary. The rates of morbidity and mortality seen among clients with Type 2 diabetes may be attributed to low medication adherence... Medical, societal, and organizational factors all influence this behavior (Barasa Masaba & Mmusi-Phetoe, 2021).

The glucose-lowering potential of medication may only be realized through optimal medication adherence. Factors recognized by clients with diabetes to negatively impact their adherence to medication include the incidence of treatment-related side effects, particularly weight gain and hypoglycemia (Gordon et al., 2018).

Individuals with type 2 diabetes are more prone to a variety of short- and long-term problems, which frequently result in early death. Clients with type 2 diabetes are vulnerable to higher morbidity and mortality due to the condition's prevalence, sneaky onset, and tardy diagnosis, especially in resource-poor developing nations (Misra & Misra, 2020).

Also, the efforts made to explain and improve on adherence of clients to their treatment are not always effective. No adherence to treatment has been a major hurdle in the management of diabetes by healthcare providers. No adherence could occur at different stages of their treatment. These include not starting the treatment at all, taking the wrong dose, or discontinuing the treatment earlier than the last date (Aminde et al., 2019).

Controlling glycaemia is essential, and good adherence is associated with a lower risk of all-cause mortality and hospitalization in people with T2DM. However, a significant number of people with T2DM still do not take medication as prescribed and therefore have poor outcomes. The key factors for not achieving targets include therapeutic inertia and adherence (Khunti et al., 2019).

By following their treatment plans, individuals can improve their ability to manage their conditions. Many clients have trouble adhering to treatment suggestions, particularly those with chronic illnesses. With chronic conditions, the average compliance with long-term therapy is only 50%. Poor adherence prevents clients from benefiting fully from their pharmacological therapy (Kubica et al., 2017).

Treatment for type 2 diabetes focuses on restoring normal glycemia and avoiding complications. Changes in lifestyle, the use of oral hypoglycemic medications and/or insulin injections, and self-care can all help (McKenzie et al., 2021).

Clients who actively participate in their self-care are better able to actively maintain their health. The only way for a client to achieve normal blood glucose levels is if they follow the treatment guidelines. Self-care abilities can

improve diabetes treatment outcomes and greatly lower the risk of complications (Association, D, A 2021).

Diet, exercise, substance use, medication, follow-up visits, and self-monitoring can all contribute to non-adherence to diabetes therapy. A variety of non-adherence behaviors are described in the literature. It may be purposeful (when the client consciously chooses to stop receiving therapy, unintentional for example, due to forgetfulness, or both (Mugo,2019; Koech, 2020).

2.8. Self-Monitoring Blood Glucose

The goal of Self-monitoring blood glucose (SMBG) is to achieve blood glucose levels as near to normal as possible in order to prevent long-term complications, to be able to take adequate decisions in relation to diet, exercise, and medication, to evaluate the effects of these decisions, and to detect hypo- and hyperglycemia (Hortensius et al., 2012).

Self-monitoring blood glucose (SMBG) is useful for people with T2DM who take insulin or certain medications that can cause hypoglycemia. It is generally unnecessary in people who manage their diabetes with diet alone or who take medications that do not cause hypoglycemia. Your health care provider can help you determine how frequently to check your blood sugar based on your situation (Weinstock., 2019).

Glucose monitoring is the basis for practically all treatments for type 2 diabetes. Accordingly, type 2 diabetes management relies heavily on the rapid and reliable transfer of data from glucose meters to clinical decision support systems. Clinical decision support systems are essential to improve SMBG client outcomes because they help patients manage their diabetes on a daily basis, hence reducing diabetes burdens. (Garg & Hirsch, 2019).

The National Institute for Health and Clinical Excellence recommends that most people with T2DM should aim to keep their Glycated Hemoglobin level at 6.5% or under the usual method for monitoring glycemic control is by measuring glycated-hemoglobin, or, which gives an average of the blood

glucose over three months. If it is high then control needs to be improved. (Clar et al., 2010).

However, the prompt result of glucometer is more convenient than laboratory testing, which requires a long time. Thus, SMBG devices have been widely used in medical practice, from clients' homes to hospital emergency rooms. It is known that there are certain gaps between the readings of glucometer and actual blood glucose levels (Harada et al., 2019).

Also by persons with diabetes is an integral part of intensive glycaemic treatment and is widely believed to improve the control of blood glucose levels and health outcomes. Furthermore, the United Kingdom Prospective Diabetes Study found that a reduction in glycated-hemoglobin was associated with a decreased risk of micro vascular complications in persons with T2DM (Kirk & Stegner, 2010).

Randomized and prospective clinical trials have shown the growing importance of organized and individualized self-monitoring of blood glucose (SMBG) in the therapy of type 2 diabetes. Intensive education, and the role of self-monitoring blood glucose in patients with type 2 diabetes who are not receiving insulin are some examples of these. Blood glucose self-monitoring and outcome monitoring in type 2 diabetes patients throughout follow-up. Published reviews, meta-analyses, and guidelines also provide evidence for the efficacy of SMBG in diabetes patients receiving insulin treatment as well as those not receiving it (Schnell et al., 2013).

The multicenter diabetes care study, which was carried out across seven tertiary health centers in Nigeria to evaluate the quality of care of diabetics, reported that 72.8% of clients did not practice SMBG. A study in Port Harcourt reported only 27% of clients with diabetes practiced SMBG despite 96% of them being aware of its existence. (Sodipo et al., 2017).

The obtaining of good metabolic control includes the appropriate frequency for monitoring blood glucose, nutritional therapy, regular physical exercise, pharmacological therapeutic regimens, information regarding the prevention and treatment of the acute and chronic complications, and the

periodic evaluation of the treatment's objectives. SMBG in the home stands out among the interventions for maintaining good glycemic and metabolic control (Veras et al., 2014).

Some studies have suggested that a higher level of education might lead to better SMBG adherence. And several psychological factors, such as self-care, outcome expectations, physical influence, environmental barriers and social support, have also been included to explore their association with adherence to SMBG. High level of motivation was reported to enable clients with T2DM to maintain diet and perform SMBG (Wang et al., 2019).

Some studies showed that SMBG improved glycemic control, when combined with training to learn how to adjust diet and lifestyle, in clients with non-insulin-treated T2DM under poor metabolic control on the other hands, the efficacy of SMBG for clients with non-insulin-treated T2DM has been inconsistent among studies (Wada et al., 2020).

2.9. Foot Care

According to research, diabetic foot ulcers are less common after receiving knowledge on how to properly care for their feet, even though this effect is only temporary. It is important to educate clients about the need of regular foot care and encourage them to adhere to excellent practices Clients must be educated about regular foot care and enhance their compliance.

According to a study, diabetic foot care education improves their habits in the near run and may minimize diabetic foot ulcers. (Fatima et al., 2020).

Good knowledge and practice toward diabetic foot care reduces the risk of diabetic foot complications and ultimately amputation. According to ADA, annual assessments of knowledge, skills and behaviors are necessary for clients with diabetes (Pourkazemi et al., 2020).

Diabetic foot examination, instruction, and education depends on health care personnel and willingness to maximize client involvement in their care plan. Internal and external factors affecting diabetic foot care include anxiety, depression, cognitive level, insurance coverage, language, and health literacy (Branch & Lindholm, 2020).

Foot self-care behaviors, including daily inspection of feet, professional treatment, hygiene, and proper shoe gear help minimize the risk of foot complications. Diabetic foot complications, which more often affect older adults, have the capacity to diminish a person's quality of life. (Matricciani & Jones, 2015).

However, the development of such complications can be prevented and reduced through the implementation of comprehensive programs focused on foot care, which have been shown to greatly reduce amputation rates. These T2DM-related lower extremity amputations cause critical implications for individuals, family members, and caretakers in terms of psychosocial, physical, functional, and financial implications (Bonner et al., 2016).

Improving the foot care behaviors of people living with T2DM is reported to be one of the most effective strategies in minimizing diabetic foot complications. The main aim of diabetes education is to change behavior and promote self-management of the condition, since poor foot care behaviors are known to increase the risk of ulcerations, amputations and mortality (Formosa et al., 2012).

2.10. Stress and T2 Diabetes Mellitus

Stress is one of the main problems among clients with diabetes. Several studies have shown that stress and psychological distress play an important role in the development, intensification, and chronicity of diabetes (Alonso-Morán et al., 2014).

Although some people have a good reaction to stress, others just can't handle all the extra work that comes with having an illness. Managing a client's emotional and behavioral needs while dealing with diabetes is a challenging task in and of itself. The demanding nature of diabetes is linked to stress, which can induce both the start and worsening of the condition. When we're under stress, our bodies and minds react in various ways to things that can be either good or bad (Ramkisson et al., 2016).

Moreover, there is a two-pronged association between stress and diabetes. Stress, then, can be thought of as both a cause and an effect of diabetes.

Diabetes and its complications can raise stress levels in people with type 2 diabetes and cause additional physical, behavioral, and mental issues. Stress raises glucose and glycated hemoglobin (Zamani-Alavijeh et al., 2018).

Stress is an important factor in not only causing diabetes onset or exacerbation, but also in hampering proper treatment by interfering with the treatment adherence of clients. Hence, it becomes important for physicians to acquaint themselves with the effects of stress on T2DM in order to ensure proper treatment of the latter (Vasanth et al., 2017).

Psychosocial stress was found among 16.6% of clients with diabetes and those with extreme psychosocial stress showed worse diabetic control compared to less stressed clients. Psychosocial stress-related variables had also been reported as being significantly correlated with diabetes related factors such as hyper-insulinemia, hyperglycemia, dyslipidemia, hypertension, increased abdominal obesity, and increased plasminogen activator inhibitor antigen (Adeniyi et al., 2015).

The development of cardiovascular diseases, however, has been shown to be independently associated with a variety of stress-related factors, including control (e.g. feelings of control of one's life), hostility, and traumatic life events. Such stress-related factors, which have been demonstrated to be important for the development of CVD, may also be important for the development of T2DM (Kelly & Ismail, 2015).

Stress-induced sympathetic activation of the autonomic nervous system causes changes in blood pressure, heart rate and cardiac output, whereas parasympathetic activation results in changes in heart rate variability. High blood pressure is a recognized risk factor for diabetes mellitus (Hackett & Steptoe, 2017).

Also, stress is one of the factors that can set off type 2 diabetes, particularly in women. The likelihood of getting sick seems to be affected both directly and indirectly by nervous strain. An unhealthy lifestyle, including a lack of attention to one's physical health and disordered eating habits (with food

often serving as a crutch or comfort), may be the result of a stressful event. (Falco et al., 2015).

Everyday life stressors such as work deadlines and family disagreements can exacerbate diabetes management challenges. It has been suggested that diabetes-related stress affects the ability to self-manage diabetes, thus negatively impacting metabolic control and psychological well-being (Wingert et al., 2015).

It is estimated that 90% of cases of T2DM could be prevented if people adopted healthy life including regular physical activity, a moderate diet, and modest weight loss. For people with pre-diabetes, healthy lifestyle measures are more effective than medication for delaying or preventing the development of diabetes (Adeleke & Ayenigbara, 2019).

2.11. Classification of Diabetes Mellitus.

Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of different organs, especially the eyes, kidneys, nerves, heart, and blood vessels (American Diabetes Association (ADA), 2013).

The distinction between T1D and T2D was determined, but, not until 1936. T2D accounts for about 90% of diabetes occurrences and is by far the most prevalent type of diabetes. In an Egyptian document from more than 3000 years ago, diabetes mellitus was first described (Hegazi et al., 2015). (Skyler et al., 2017).

Diabetes mellitus can be classified into two primary categories: Type 1, which requires insulin for treatment, and type 2, which does not require insulin for treatment. Type 1 diabetes is characterized by the autoimmune destruction of the β -cells in the pancreatic islets, while type 2 diabetes is characterized by decreased insulin secretion and resistance to the effects of insulin (Karamanou et al., 2016).

Diabetes Mellitus T2 is a chronic, multifactorial, metabolic disorder that affects numerous organs and is on the rise in the world today. It is characterized by peripheral tissue insulin resistance, increased pancreatic alpha-cell function, and pancreatic beta-cell malfunction (Reed et al., 2021).

These alterations cause peripheral tissues, like skeletal muscle, to suffer from impaired nutrient uptake, dyslipidemia (high triglyceridemia and low high-density lipoprotein [HDL]-cholesterol), hyperglycemia (as a result of impaired peripheral glucose uptake), increased glucagon production (which worsens hyperlipidemia and hyperglycemia), and impaired amino acid uptake and ATP production (Chia et al., 2018).

Since that 90% of T2D clients in western nations are fat or overweight, it is believed that diets containing excessive food consumption are a major contributing factor in the disease. A study in China indicated that, in contrast to what was reported in western nations, 50.3% of T2D clients were not overweight, and other (Stanhope et al., 2018).

A significant portion of T2D clients in Asian nations have a Body Mass Index of less than 25. It is now obvious that genetic factors contribute to susceptibility, even if no significant risk genes have been discovered. T2D is viewed as a heterogeneous disease because each client's prognosis, treatment needs, and degree of insulin insufficiency differ (Prasad & Groop, 2019).

Glycaemia control remains fundamental to the treatment of DM, especially for the prevention of micro vascular complications. Since glycaemia control takes a long period of time to exert a beneficial effect on macro vascular complications, the search has to continue for drugs that will not only help glycaemia control but also reduce macro vascular complication (Dandona & Chaudhuri, 2017).

People with DM suffer from other chronic diseases as comorbidities or complications such as hypertension, dyslipidemia, cardiovascular diseases (coronary heart disease, cerebrovascular disease and peripheral arterial disease), nephropathy, retinopathy and neuropathy. These complications are a result of

suboptimal control of blood glucose, blood pressure and lipids, and negative moods (Chew et al., 2018).

Blood sugar levels are of utmost relevance to individuals with T2DM. Even though they have the ability to manufacture insulin, the cells in their bodies are not responsive to the signal it sends. When cells in the body aren't responsive to insulin's signals, the body responds by producing more insulin to entice the cells to open and take in glucose. When cells run out of energy, they can no longer produce insulin independently, which is a big concern. Hyperglycemia is characterized by increased risk of problems due to insulin resistance, impaired glucose homeostasis, and persistently high blood sugar levels. (Frazer, 2019).

Type 2 diabetes is characterized by peripheral insulin resistance and poor insulin secretion from pancreatic β -cells. A rise in plasma fatty acids and a subsequent decrease in glucose transport into muscle cells and an increase in fat breakdown and hepatic glucose synthesis are both consequences of insulin resistance. In order for type 2 diabetes to manifest, insulin resistance and malfunction of pancreatic β -cells must happen at the same time. (Al-Goblan et al., 2014).

2.11.1. Epidemiology of T2DM

In the year 2017, approximately 462 million people were impacted by type 2 diabetes, which accounted for 6.28% of the global population. This percentage can be further broken down as follows: 4.4% of individuals aged 15 to 49 years, 15% of those aged 50 to 69, and 22% of those aged 70 and older. prevalence rate of 6059 cases per 100,000 people. Diabetes, on its own, is responsible for more than 1 million deaths annually, making it the ninth leading cause of mortality (Khan et al.,2020).

Type II Diabetes Mellitus (T2DM) is becoming more common and more commonplace. Around 592 million T2DM cases are anticipated to be detected by 2035. Even if the prevalence and incidence of T2DM differ between nations, it is still regarded as an illness that affects everyone on the planet. T2DM was once thought to be a condition brought on by "western lifestyles". In 2013, there

were reportedly 382 million T2DM sufferers worldwide, a figure that has more than doubled in the previous two decades. (high-calorie diets and sedentary lifestyles) (Knudsen et al., 2022).

India has the second highest number of people living with Type II Diabetes Mellitus (T2DM) in the world, with an estimated 77 million cases, trailing only China in the total number of individuals diagnosed with T2DM (Barman et al., 2023).

Generally speaking, people who are 40 to 60 years old in industrialized countries and 60 or older in poor countries have the highest chance of getting T2D. Despite the fact that T2D is thought to be an adult disease and that prevalence rises with age, it is becoming frequent for children to be afflicted. However, it is possible that the number of people identified with TID in adulthood is underestimated. It has been suggested that 5-15% of adult clients receive incorrect diagnoses of T2D when they may actually have TID; this is a subject of debate in the literature at the moment (Islam et al., 2021).

countries are expected to have approximately 4 times higher prevalence of type 2 diabetes than developed countries. This is believed to be a result of emerging countries adopting "Western lifestyles". This has led to an increase in obesity rates and the proportion of overweight people in their population (Afroz et al., 2019).

Diabetes in young people was formerly assumed to be TID. T2D clients were uncommon at pediatric centers up until the early 1990s. With pediatric T2D accounting for up to 45% of newly diagnosed pediatric diabetes cases in the USA, this has significantly changed since the late 1990s. The "young T2D" is not simply an American phenomenon. A startling 80% of all newly diagnosed cases of diabetes in children and adolescents in Japan were T2D, and other nations have also documented an increase in young people developing T2D (Lin et al., 2021).

The prevalence(T2D) rates among the national populations of the Federated States of Micronesia, the Marshall Islands, and Kiribati are 35, 34.9, and 28.8%, respectively. In 2013, the prevalence of T2D in the national

population was less than 26% in all other nations. In the years 2009, 2011, 2013, 2015, and 2017, the estimated numbers of persons with diabetes were 285, 366, 382, 415, and 425 million (Reed et al., 2021).

Diabetes was considered a rare disease in 1958, when fewer than one percent of Americans had the diagnosis. But type 2 diabetes rates skyrocketed in developed countries in the second part of the twentieth century, reaching epidemic proportions by the century's close and carrying over into the new millennium. Similar increases in incidence and prevalence of T2D over the past few decades have made this disease a serious health concern in developing countries as well. In 1980, only 1% of Chinese people developed diabetes; by 2008, that number had nearly doubled to 10% (Zheng et al., 2018).

Contrary to the perception that clients in poor nations are often over 60, it was revealed in 2014 that 46% of newly diagnosed T2D clients in India were under the age of 40. Incidence and prevalence of T2D have also risen significantly in the twenty-first century. According to estimates, there will be more than 700 million T2D sufferers globally by 2045 (Onge et al., 2015).

2.11.2. Risk Factors of T2DM

The risk of developing type 2 diabetes rises with age, particularly after reaching the age of 45. This is often due to reduced physical activity and weight gain. Being overweight is a significant contributing factor to the risk of developing type 2 diabetes. This is because an excess of fatty tissue can lead to increased resistance of your cells to insulin (Diabetes Care Editors., 2014).

Majority of the clients with T2DM are obese, and obesity itself further contributes to insulin resistance to some extent. The non-obese individuals with T2DM may have an increased percentage of body fat distributed predominantly in the abdominal region. According to ADA, T2DM accounts for 90-95 % of all diabetes mellitus clients worldwide (Chandra et al., 2019).

Countries are expected to have approximately 4 times higher prevalence of type 2 diabetes than developed countries. This is believed to be a result of emerging countries adopting “Western lifestyles”. This has led to an increase in

obesity rates and the proportion of overweight people in their population (Afroz et al., 2019).

Adult men are shown to have a higher risk of T2D than women, which is assumed to be caused at least in part by altered adiposity storage patterns in men. Diabetes Mellitus T2 is more common in men than in women around the world, and in 2013, 14 million more men than women received a T2D diagnosis. (Dávila-Cervantes et al., 2019).

2.11.3. Pathophysiology of T2DM

Type 2 diabetes is characterized by peripheral insulin resistance and poor insulin secretion from pancreatic β -cells. A rise in plasma fatty acids and a subsequent decrease in glucose transport into muscle cells and an increase in fat breakdown and hepatic glucose synthesis are both consequences of insulin resistance. In order for type 2 diabetes to manifest, insulin resistance and malfunction of pancreatic β -cells must happen at the same time. (Al-Goblan et al., 2014).

When beta cells are unable to produce enough insulin due to insulin resistance, type 2 diabetes develops. Insulin resistance, in which cells fail to react to normally occurring insulin levels, manifests itself mainly in the skeletal muscles, liver, and fat cells. In many cases, insulin prevents the liver from releasing glucose. However, insulin resistance causes the liver to release glucose into the bloodstream in an inappropriate way. Insulin resistance and beta cell dysfunction manifest in varying degrees in various people; some have severe insulin resistance and mild insulin secretion deficiencies, while others have mild insulin secretion deficiencies and moderate insulin resistance. (Okur et al., 2017).

Additional potentially important mechanisms associated with insulin resistance and type 2 diabetes include increased lipid breakdown within fat cells, incretin resistance or absence, high blood glucagon levels, increased renal salt and water retention, and improper central nervous system regulation of metabolism. Since the development of diabetes requires the incorrect secretion

of insulin by pancreatic beta cells, not all individuals with insulin resistance get to this stage. (Oyewande et al., 2020).

2.11.4. Signs and Symptoms of T2 DM

Regular urine (polyuria), increased thirst (polydipsia), increased appetite (polyphagia), and weight loss are the typical signs of diabetes (Vujosevic et al., 2019). Additional symptoms that are frequently present at diagnosis include fatigue, peripheral neuropathy, itching, impaired vision, and recurrent vaginal infections. Further signs could include a lack of flavor (Soliman et al., 2020).

Yet, many clients are diagnosed on routine testing even though they show no symptoms for the first few years. A tiny percentage of individuals with type 2 diabetes may experience hyperosmolar hyperglycemia (a condition of very high blood sugar associated with a decreased level of consciousness and low blood pressure) (Forte et al., 2020).

2.11.5. Complications of T2 DM

Type 2 diabetes is often a chronic condition that reduces life expectancy by ten years. This is mainly because it is linked to a number of problems, such as a two to four times increased risk of cardiovascular disease, including ischemic heart disease and stroke; a 20-fold rise in lower limb amputations; and higher rates of hospitalization (Babaliche et al., 2019).

Within the industrialized world, type 2 diabetes is the major cause of nontraumatic blindness and renal failure. This is also becoming increasingly prevalent in other parts of the world. In addition to this, it has been associated with an increased likelihood of cognitive impairment and dementia, which can be caused by illnesses such as Alzheimer's disease and vascular dementia. (Koc & Sumbul, 2019).

The condition known as acanthosis nigricans, which causes the skin to darken, is another problem. Other problems include sexual dysfunction and recurrent infections. Furthermore, there is a correlation between type 2 diabetes and a minor loss of hearing. (Sheir et al., 2020).

The two primary categories of the most common consequences include (A) acute side effects such as hypoglycemia, diabetic ketoacidosis (DKA), and hyperglycemia, hyperosmolar nonketotic syndrome (HHNS). (B) Chronic problems that are either macrovascular, such as diabetic nephropathy, neuropathy, and diabetic retinopathy or microvascular, coronary artery disease, peripheral arterial disease, and stroke. (Faselis et al., 2020).

2.11.6. Prevention of T2 II DM

Avoiding or delaying the start of type 2 diabetes is possible with a balanced diet and frequent physical activity. Alterations to one's way of life have the potential to halve or even triple the risk. Exercise helps people lose weight regardless of their initial weight or the amount they lose. A 28% reduction in the risk of diabetes is associated with very active lifestyles. (Lundy et al., 2020).

Dietary changes alone do not appear to have many health advantages, however there is some evidence that a diet rich in leafy green vegetables and reducing consumption of sugary beverages may help. While there is no proof that drinking 100% fruit juice causes diabetes, those with impaired glucose tolerance may reduce their chance of acquiring the disease by increasing their consumption of sugar-sweetened fruit juice, which, along with a healthy diet and regular exercise, may help lower blood sugar levels. Modifications to one's way of life are more successful than metformin. (Uusitupa et al., 2019).

A significant portion of diabetes cases worldwide are Type 2 Diabetes (T2D), which has modifiable risk factors include smoking, obesity, sedentary lifestyles, and poor food. Changes in behavior and surroundings can alter these characteristics (WHO, 2016)

While medication does not lower risk after cessation, lifestyle adjustments reduced it by 28%. Although low vitamin D levels are linked to an increased risk of diabetes, the risk is not reduced by raising the levels by using vitamin D3 supplements (Sankar et al., 2020).

2.11.7. Management of T2 II DM

Objectives of DM treatment include reducing complications by glycemia management, blood pressure control, macrovascular (including coronary, cerebrovascular, and peripheral vascular) control, lipid control, hypertension control, and quitting smoking. Controlling glycaemia can lessen issues related to the metabolism and nervous system (Jayawardena et al., 2018).

Metformin is the optimal initial medication, unless there are specific reasons not to use it, and should be supplemented with one or two other oral or injectable drugs to minimize adverse effects to the greatest extent feasible. The treatment programmed is based on personalized glycemic targets, glucose-lowering medicines, dietary adjustments, physical exercise, and health education. (Anwer et al., 2018).

Low blood sugar (hypoglycemia) and high blood sugar (hyperglycemia) during self-monitoring of blood glucose are of concern, especially for clients who take insulin. With type 2 DM, blood glucose levels are typically more stable than in type 1 DM, hence doctors typically advise simply testing blood glucose levels once or twice each day. Those who become insulin-dependent require more thorough monitoring (Afandi et al., 2019).

In the end, all treatment decisions should be tied to the state of the client, with a focus on the client's preferences, needs, and values, whether insulin therapy is used alone or in combination with other medications to maintain blood glucose control. comprehensive cardiovascular risk reduction is the primary emphasis (Feizollahzadeh et al., 2017).

2.11.8. Factors Influencing Treatment of T2 DM.

Several genetic variables linked to decreased insulin secretion or sensitivity, along with environmental factors such excessive eating, inactivity, obesity, stress, and aging, all contribute to the development of type II Diabetes Mellitus (Hara et al., 2016).

Medical nutrition/exercise therapy is the first step in the standard treatment for T2DM recommended by the American Diabetes Association and the Japanese Diabetes Society if adequate glycemic control is not achieved

despite the continued use of these interventions, pharmacologic therapy is advised (Araki et al., 2020). Individuals with diabetes are in charge of managing their own dietary and lifestyle choices, blood glucose monitoring, and prompt medication administration (Suzuki et al., 2021).

Clients with T2DM can retain a high quality of life (QoL) and a life expectancy that is comparable to that of healthy people by preventing diabetes complications (Naomi et al., 2019). Unfortunately, only about 50% of those receiving therapy in Japan have their HbA1c level reach the desired level, which is below average (Yagi et al., 2022). The life expectancy and quality of life of people with T2DM are greatly impacted by poor blood glucose management, which also has an adverse effect on healthcare expenses (Suzuki et al., 2021).

Low medication adherence is connected with poor blood glucose management; therefore, risk factors for poor adherence have been widely examined so that prevention initiatives can be undertaken. Younger age, poor glycemic control, and high treatment costs are known risk factors for low treatment adherence (Horii et al., 2019).

Additional variables, such as gender, polypharmacy, and higher education, have produced varying findings among studies and research groups. According to reports, the employment has been linked to a lack of treatment compliance (Farhat et al., 2019).

Good medication compliance is linked to both successful blood glucose management and treatment satisfaction (Saisho, 2018). The significance of treatment satisfaction in the management of diabetes is widely acknowledged (Hayashi et al., 2018).

In order to measure client-reported outcomes such as treatment satisfaction, well-being, and quality of life, a number of questionnaires have been developed. In numerous nations, these questionnaires have been used to uncover sociodemographic and clinical characteristics linked to treatment satisfaction. These widespread beneficial aspects include male gender, job, diabetes knowledge, and effective glucose control (Boels et al., 2017). Other

variables also exhibited both positive and negative correlations, such as age and the occurrence of diabetes complications (Ozder et al., 2014).

While maximizing individual treatment options, it may be useful to take into account modifiable aspects affecting client adherence and satisfaction because daily self-management of nutrition, exercise, and medicine is the foundation of diabetes therapy. Also, because to the socioeconomic, physio-psychological, and financial differences between relatively young and old clients, factors affecting client adherence and satisfaction may vary across the two groups (Suzuki et al., 2021).

2.12. Quality of Life among T2 DM Clients

Diabetes patients and their healthcare professionals should prioritize quality of life (QoL) for many reasons, including the fact that patients with poor QoL tend to neglect self-care. Clients with diabetes who lack self-awareness are more likely to experience problems and have poor glycemic control. (Pati et al., 2020).

The idea of quality of life is still not well-defined, is unclear, and often causes confusion. The ability of a client to manage their sickness and retain long-term health and well-being can therefore be strongly predicted by quality-of-life difficulties. It appears that the phrase has taken on a bandwagon meaning in medicine for all those human needs that are frequently disregarded in a healthcare industry that is becoming more and more dominated by technology. (Zeng et al., 2018).

In 1990, WHO decided to create the WHOQOL-100, which was followed a few years later by the condensed WHOQOL-BREF. While the concept of health is regarded as being old, the word "quality of life" (QoL) was first used as a political term in the early twentieth century. As soon as the necessity for precise OoL measurements became apparent, various QoL surveys were created. The WHO defined QoL as "an individual's view of their place in life in the context of the culture and value systems in which they live and in connection to their objectives, expectations, standards, and worries" during the course of this work (Cheung et al., 2019).

The perception of client or groups that their needs are being met and they are not being denied opportunities to find happiness and satisfaction is what is meant when we talk about quality of life. It is a broad notion that is complicatedly influenced by a client physical and mental health, independence, social connections, and personal views, as well as their relationship to key elements of their environment (Barofsky ., 2012).

2.13. Quality of life Domains

Quality of life (QoL) refers to an individual's overall well-being, which encompasses their physical and mental health, social connections, and environmental factors. We call the domains of behavior that are measured quality-of-life. One source states that the subdomains include both objective and subjective domains. (Wulfovich et al., 2022).

The subjective aspects of life satisfaction The ability to carry out physical tasks, the capacity to return to work after an absence, and one's overall perception of their health are all factors in determining quality of life. One's health perceptions are shaped by their experiences with the medical system, their families, and friends, as well as their own beliefs and evaluations of their general health. An individual's social health encompasses their interpersonal relationships, self-perception, and engagement with social norms and practices. (Hargreaves et al., 2021)

The objective domains of quality of life encompasses socioeconomic position, psychopathology, health state (as determined by laboratory or diagnostic tests), and social support (number and quality of the contacts). The eight domains that have been verified in a number of cross-cultural research make up the quality-of-life concept (Saleh et al., 2015).

They include interpersonal relationships, social inclusion, and rights (which represent a person's level of social engagement); personal development and self-determination; and material, emotional, and physical well-being. Both a hierarchy and cause-and-effect relationships between these categories are not specified in the QoL literature (Lou et al., 2015).

2.13.1. Physical QoL

Clients with chronic conditions are particularly concerned about their quality of life. Type II Diabetes Mellitus is a chronic condition that is frequently accompanied by short- and long-term problems that may have a significant impact on a client's quality of life, health, and general wellbeing (Martino et al., 2019).

The first factor is the long-term complications that diabetics experience. Issues with autonomic neuropathy, such as gastro-paresis or loss of bladder function, as well as peripheral neuropathy (which can cause chronic pain, amputation, and/or difficulty moving), erectile dysfunction, kidney damage, severe heart disease, and vision loss all contribute to a diminished quality of life for clients. This means the customer can't do anything, including work, take care of household chores, or even enjoy their hobbies. There may be a decrease in the client's ability to make autonomous judgments. (Donaghue et al., 2018).

Short-term problems. Chronically high blood sugar levels can cause further fatigue, difficulty sleeping, frequent infections, and other related issues. Strict glycemic control can result in unintended weight gain, increased hypoglycemia, and/or a lack of hypoglycemic warning symptoms (Fu et al., 2017).

Most studies have found that clients with diabetes have lower quality of life than people without the disease, particularly in terms of their physical health and wellbeing. According to (Cooper et al., 2018).

Effective evaluation of this dimension may center on the clients' perceived distress as a result of their specific diabetes symptoms, as well as their perceived loss of physical function, interference with daily tasks (such as work, household chores, and social and recreational activities), and loss of independence (Jing et al., 2018).

2.13.2. Psychological QoL

Stress is increased by how a client feels when his or her blood glucose levels are extremely low or high. In addition, there are the concerns that a client might experience difficulties as well as the responsibility of managing any

existing complications. Diabetes is a demanding condition that has a variety of effects on people' lives. Their diabetic management can be challenging. It is understandable why many individuals believe that having diabetes lowers their quality of life (Bhat et al., 2020).

Both short-term and long-term, the demands of diabetes management can have a significant negative impact on mood. They might also experience a sense of helplessness or pessimism regarding their chances of averting long-term consequences. Finding a means to manage diabetes in one's life and facing the sense of mortality that diabetes may signify can be a challenging, emotional battle. If and when insulin is first started, at the moment of diagnosis, or when long-term complications start to appear, these precise time periods in the natural course of the illness when diabetes suddenly feels quite real may pose particular problems. Chronically high blood sugar levels may also cause ongoing exhaustion, which can make depression worse (Lesiewska et al., 2021).

Diabetes can affect a client's quality of life, but so can that client's quality of life. Clients are more motivated to take good care of their diabetes when they feel good about their lives in general and about living with diabetes in particular. A positive loop that reinforces itself is triggered by high quality of life. Clients who take good care of themselves are more likely to feel better on a daily basis and to maintain their health over the long term. The client's quality of life is further improved by feeling better and maintaining health (Vlachou et al., 2022).

Evaluation may concentrate on clients' perceived emotional distress brought on by diabetes-related symptoms, self-care, pertinent troublesome circumstances, and more general diabetes difficulties in order to gauge this dimension. Clients may experience a pervasive sense of powerlessness while dealing with an illness that is frequently challenging and complex to treat, which has a considerable negative impact on overall wellbeing. (Maor et al., 2021).

2.13.3. Social OoL

In any scenario, it is simple to start feeling isolated, unusual, and unsupported when living with diabetes and believing that no one can truly

comprehend what it's like. Loved ones may start to rebel as clients implement adjustments in daily routines to manage diabetes as successfully as possible, preferring not to engage in any essential changes. Even if the client is unwilling to make adjustments to their self-care, friends or family may start pressuring them. Interpersonal conflicts become more likely as loved ones start acting like diabetes police. (Jing et al., 2018).

Clients might not be satisfied with a sexual relationship. Age-related changes in sexual function are a typical issue, but diabetes mellitus predisposes one to early onset and worsening of those issues. The quality of life is negatively impacted by sexual dysfunction, such as erectile dysfunction, which is also linked to depression and elevated anxiety (Trikkalinou et al., 2017).

Social support acts as a "stress buffer" by supporting beliefs about a person's capacity to handle stressful situations and difficult emotions as well as assisting in the promotion of active coping and management behaviors. It also influences a person's perceptions of personal risk or illness severity. Evaluation may concentrate on a client's perceived emotional discomfort as a result of social events related to diabetes in order to measure this dimension (Kusumo et al., 2020).

research is necessary to fully comprehend the potential influence of a marital relationship on both physical and psychological outcomes. Greater family support is linked to a variety of outcomes, including better psychological adjusting and more adherence to prescribed treatments (Trikkalinou et al., 2017)

2.13.4. Environment QOL.

The environment has been identified as another important dimension of life green space in urban areas constitutes an environmental determination to improve both physical and psychological health, enhance the quality of living and resilience in urban areas and promote sustainable lifestyles among urban residents (WHO,2017).

The distance to green space has been emphasized as an important factor that affects health. A Danish study based on a national survey found that residents living closer than 1 km to green space had higher mean scores on all

eight subscales of the than those living more than 1 km away (Stigsdotter U et al.,2020).

A British study that included all residents appearing in the Census found that the percentage of green space was associated with better health in general, although the effects were not significant among a group with higher income and those living in suburban areas. (Mitchell Ret al, 2014).

2.13.1 Treatment and Quality of Life

Type 2 Diabetes Miletus (2DM) has become a major global public health concern that has an alarmingly rising incidence and causes morbidity and mortality. Its management is complex, and the quality of life of T2DM clients is greatly impacted by adherence to diabetic therapy (Murwanashyaka et al., 2022).

The degree to which a person follows medical instructions when taking anti-diabetic drugs is known as adherence, and the amount of time between the start and end of a therapy is known as persistence (Ebuenyi, 2019).

The WHO assessed that 50% of people worldwide were taking them T2DM prescriptions as prescribed in its landmark report on non-adherence, and it added that adherence was more likely to be lower in underdeveloped nations due to resource shortages (Al-Matrouk et al., 2022).

Consequently, between 36 and 93% of people do not take their anti-diabetic drugs as prescribed, which can change blood glucose levels and lead to issues that lower quality of life (WHO, 2021).

A critical component of obtaining effective medication adherence is treatment adherence, which is defined as the cognitive assessment of whether a therapy fulfills or exceeds the client's individual subjective expectations (Mishra et al., 2021).

Clients with T2 DM frequently experience poor quality of life due to non-adherence to their therapy. It is one of many client-reported outcomes that are crucial for health professionals to understand clients' perspectives on their current drugs client-reported outcomes can be used to assess how a client's health and prescriptions affect their functioning, well-being, and daily lives.

measure endpoints drawn directly from client reports of their perceptions, including self-reported symptoms, functional status, and health-related quality of life (HRQoL) (Majeed et al., 2021).

For diabetic clients, for whom improving quality of life is crucial, surveying treatment adherence in particular has broad implications for improving health-related QoL. Significantly, HRQoL addresses both health-related and overall quality of life; it is the client's comprehension of how their illness or treatment affects their QoL. QoL and HRQoL are two terms that are frequently used interchangeably (Jannoo et al., 2017).

2.13.2. Effect of T2 DM on Quality of Life

Diabetes mellitus may also affect a client's quality of life in three different ways, namely their physical, psychological, and social functioning, which may limit their ability to engage in certain activities for fun and for work (Dong et al., 2020)..

2.14. Previous Studies

2.14.1. The First Study

Researchers Khan et al. (2022) used a correlational study design to examine the connection between type II diabetic patients' resilience, quality of life, and self-care practices. The sample size (N=200) was determined by conducting this study in Lahore's public and private hospitals. Eleven objects Summary The research employed the following instruments: the Diabetes Self-care Activity scale (SDSCA), the Trait Resilience Scale (TRS) (incorporating 18 items), and the Diabetes Quality of Life (DQOL) (incorporating 15 items). The findings demonstrated a strongly favorable relationship between self-care, flexibility, and quality of life (.61, $p < 0.5$), as well as between resilience and blood glucose (.53, $p < 0.5$), and quality of life and resilience (.77, $p < 0.5$). The results of multiple linear regression showed that self-care measures significantly predict life satisfaction.

2.14.2. The Second Study

Yilmaz et al., (2020). The research that was done Two family health centers participated in a single-group randomized trial with a pre- and post-

intervention design, with a total of sixty participants. Researchers looked examined how people with type 2 diabetes take care of themselves, what they believe about health, and how it affected their quality of life. The mean scores for the blood glucose subscale before and after the intervention were 1.57 ± 0.91 and 3.22 ± 1.06 , respectively, according to the data. After the intervention, the average scores on the social/vocational concerns subscale were 33.26 ± 3.19 . Before the intervention, the scores were 29.26 ± 5.54 . Both the elementary school graduates and those who had not previously received diabetes intervention saw an improvement in their quality-of-life scores following the program. Following the intervention, it was found that the participants' mean body mass index values dropped. Following the intervention, self-care levels and quality of life both increased.

2.14.3. The Third Study

Babazadeh et al., (2017) their research This study sought to examine the association between self-care practices and quality of life in 120 patients with type 2 diabetes who were referred to health centers of Chaldean. Patients' average ages were 46.30 and 53.30 years old, respectively, according to the findings. Among the demographic factors that were shown to be substantially related to overall quality of life were gender ($P=0.002$), age group ($P=0.007$), and household monthly income ($P=0.009$). Additionally, characteristics that were shown to be substantially linked with quality of life were self-care nutrition (odds ratio [OR], 1.47; $P=0.001$), self-management of blood glucose control (OR, 1.29; $P=0.002$), and self-medication behavior (OR, 1.18; $P=0.030$).

2.14.5. The Fourth Study

Baz pour et al., (2021). They studied 140 people with type 2 diabetes from October to December 2019 in a descriptive cross-sectional study at the diabetic clinic of Mashhad's Imam Reza hospital. with the goal of assessing how well people with type 2 diabetes take care of themselves and their quality of life. The study participants had an average age of 58.41 ± 8.91 years, with 67.14% being female. In men, the overall score for self-care was 43.32 ± 10.93 , whereas in females it was 39.93 ± 9.94 . On average, people's physical health

scored 61.29 ± 15.66 , their mental health 60.62 ± 13.70 , their social health 68.67 ± 11.63 , and their environmental health 61.54 ± 14.88 on the quality-of-life aspects. The strongest predictor of quality of life among self-care behaviors was physical exercise ($P = 0.006$). There were substantial relationships between the various components of quality of life and demographic variables, with the exception of age, family history, and the length of illness. The results showed that the most important factor in determining quality of life was physical exercise.

2.14.6. The Fifth Study

Malini et al., (2022). A descriptive cross-sectional study was carried out with the objective of assessing the self-care behaviors and quality of life of individuals diagnosed with type 2 diabetes. A total of 89 respondents were selected using a non-probability sampling technique. During the COVID-19 pandemic, this study found that individuals with type 2 diabetes managed their own care an average of 3.07 days per week, with a moderate rating for self-care management at 70.8%. With an average of 6.88 (97%) days per week, participants engaged in pharmacological therapy as part of their self-care management. Dietary aspects were followed by this at 4.69 (67%) days per week. After then, 2.39 (or 34% of the total) days per week were devoted to physical activity, and 2.16 (or 31% of the total) days per week were devoted to foot care. Blood glucose monitoring was the least effective form of self-care, occurring only 1.15 (16%) days each week on average. In addition, the data demonstrated that, on average, the blood glucose monitoring component was the least effective. It was previously known that 83.1% of type 2 diabetics tested their blood sugar levels at least once a week, while 15% did so on a more regular basis, and 17.0% did so in response to medical recommendations. A favorable correlation between self-care and quality of life in type 2 diabetics was found, with statistical significance.

2.14.7. The Six Study

Sari et al., (2021). they conducted in this study was with a sample of 75 patients with type 2 diabetes. The sample size with simple random sampling

method, and data analysis using spearman rank test. The aim of this study was to determine the relationship between self-management and quality of life in type 2 DM patients. these results showed that there was a significant relationship between self-management and quality of life in type 2 DM patients (p- value = .000, r = .394). The results showed a statistically significant positive relationship between the level of self-management and quality of life. This means that the higher the patient's self-management, it will also improve the quality of their life.

Chapter three

Methodology

Chapter Three

Methodology

The present chapter focuses on the method of the study included the design which is used in this study, administrative agreements, ethical consideration, study preparation, validity of the questionnaire, pilot study, reliability of the questionnaire, sample selection, data collection method and statistical data analysis.

3.1. Study Design

A descriptive correlational design is used in this study from (15 October 2023 to 27 July 2024). The descriptive correlational design, with its primary purpose being to examine relationships between and among variables. Correlational research is conducted to establish the of relationships between or among variables, as they exist in a natural setting

3.2. Administrative Arrangements

The official permissions were obtained from relevant authorities before collecting the study data as follow:

1. Protocol of research and official permission taken from University of Kerbala/ College of Nursing to conduct the study.
2. The title and questionnaire were presented to the Ethics Committee formed within the College of Nursing, which reviewed the study tools (questionnaire), and therefore agreed to conduct the study.
3. In the last step of the administrative arrangements, an official letter by the (Training Department and Development) Al-Diwaniya Teaching Hospital
4. An official is obtained from Al-Diwaniya Teaching Hospital (Appendix A3).
5. In addition, the consent of participate in the study, after explaining the objectives and usefulness of the study to them and assuring that all information provided will be confidential for scientific and research purposes (autonomy and privacy).

3.3. The Setting of the Study:

The study was carried out in Al-Diwaniya Teaching Hospital at Diabetes and Endocrine Center. This hospital is a public hospital, and the largest general hospital in Al-Diwaniya City.

3.4. Sampling of the Study

A non-probability convenience sample of (150) clients with type 2 diabetic who visit the diabetic center were selected the total sample of were selected as 10% from the average of the (3 previous monthly) visits. In convenience sampling, subjects are included in the study because they happen to be in the right place at the right time. Studies simply enter available subjects into the study until they have reached the desired sample size (Gray, Grove, & Sutherland, 2017).

3.4.1 Sample Calculation

According to Soper (2024), the sample size that must achieve the parameters of anticipated effect size of 0.15, the desired statistical power level of 0.80, number of predictors= 3, and a probability level of 0.05; the minimum required sample size would be 128(Soper, D.S. (2024).

The sample is assigned to the study according to the following criteria:

3.4.2 Exclusion Criteria

1. Women with diabetes due to pregnancy.
2. Client who disagree to take part or refused to participate in present study.

3.5. The Study Instrument

The study instrument includes the participants' socio-demographic sheet, Self-Care Scale, the Type 2 Diabetes and Quality of Life Scale the measures were taken based on previous research (Appendix C1, C2).

3.5.1. Demographic Data

The socio-demographic sheet includes client characteristics include age, gender, monthly income, marital status, education level,

occupation, Residents, chronic disease, sources of information and duration of T2DM. (Appendix C1, C2).

3.5.2 Self-care Scale

This section deals with self-care Scale adopted questionnaire a development of a tool for assessing self-care in client with diabetes type 2. A tool consisting of four areas: (45) item self-care questionnaire that involves five dimensions. These are (11) items dealing with taking with food, diet, and exercise, (10) items dealing with take medication, and (5) items dealing with periodic examinations, (9) items dealing with foot care, (10) items dealing with stress coping.

A total of (45) items of measured self-care on 3-level type of Likert Scale (3=Always, 2=Sometime, 1=Never). Accordingly, points can be taken range from 45-135. The higher average defined as good self-care.

3.5.3 WHOQOL-BREF

World health organization quality of life (WHOQoL, 1998) is adopted and developed, is a 26-item instrument consisting of four domains: physical health, psychological health, social relationships, and environmental health; it also contains QOL and general health items. The physical health domain includes items on mobility, daily activities, functional capacity, energy, pain, and sleep. The psychological domain measures include self-image, negative thoughts, positive attitudes, self-esteem, mentality, learning ability, memory concentration, religion, and the mental status. The social relationships domain contains questions on personal relationships, social support, and sex life. The environmental health domain covers issues related to financial resources, safety, health and social services, living physical environment, opportunities to acquire new skills and knowledge, recreation, general environment (noise, air pollution, etc.), and transportation.

A total of (26) items of quality of life measured on 5-level type of Likert Scale (1=Very Poor, 2=Poor, 3=Moderate, 4=Good and 5=Very Good).

Accordingly, points can be taken range from 26-130. The higher average defined as good quality of life.

3.6. Pilot study

The pilot study enables the study to re-enter the iterative process by conducting a smaller version of the study. From the pilot study, the study may decide, for example, to refine data collection instruments, revise strategies for access, include a larger sample, control for a potential extraneous variable, or add a second data collection period (Gray et al., 2017). A pilot study was conducted among (15) clients with type 2 DM. The pilot study was conducted during the period (25th December, 2023, to 31 December, 2023). The sample of the pilot study was excluded from the original sample of the study. The pilot study serves to verify the readability of items and the time required to answer the study instrument. The time required for answering it ranged between 15-20-minutes.

The pilot study aimed to achieve the following objectives.

1. Adequacy of research tools development and testing
2. Evaluation of the instrument's viability.
3. Identifying any logistical issues that may arise as a result of the proposed methods.
4. Assessment of proposed data analysis approaches for the detection of potential issues.
5. The study's time estimate during data collecting.

3.7. Validity of the Questionnaire

To make the study instrument more valid, the adopted instrument was determined through the use of panel of experts who have more than five years of experience at their jobs field to investigate clarity,

A preliminary copy of the questionnaire was designed and presented to a panel of (10) experts. They were (3) faculty members from College of Nursing/ Kerbala University; (2) faculty members from College of Nursing/ Baghdad University; (3) faculty members from College of Nursing/ Kufa

University; (1) faculty member from College of Nursing/ Warith Al-Anbiyaa University (1) Al Diwaniyah Health Department (Appendix D).

The experts' responses indicated that minor changes should be done to some items and it's were made according to their suggestions, then the final draft was completed to be ready for conducting the study.

3.8 Reliability of the Questionnaire

Reliability in nursing research refers to the consistency and accuracy of the research instrument, such as a questionnaire or interview, in producing the same results if used in the same situation on repeated occasions (NSF Consulting, 2021). A reliable instrument is essential for producing valid results, which means that the instrument measures what it intends to measure (Nicoll et al., 2023).

The internal consistency type of reliability was determined in current study; internal consistency reliability measures the consistency between different items of the instrument. Edwin stated that “It measures the consistency within the instrument and questions on how well a set of items measures a particular characteristic of the test. Single items within a test are correlated to estimate the coefficient of reliability”. (Edwin, 2019)

The internal consistency between items was determined by using Cronbach`s alpha coefficient which calculated through application of Statistical Package for Social Science Program (IBM SPSS) version 26.0 as referred in (Table: 3-1) on a sample of (15) participants that are selected randomly.

Table (3-1) Reliability Analysis of the Instruments (N= 15).

Scales	No. of Items	Cronbach`s alpha	Evaluation of Internal Consistency
Self-care	45	0.928	Pass
Quality of life	26	0.962	Pass

The Cronbach's alpha shows excellent evaluation for self-care scale (0.928) and quality of life scale (0.962) that reflect acceptance; these findings mean that the questionnaires had adequate level of internal consistency and equivalence measurability.

3.9. Ethical Considerations

Adhering to ethical obligations is paramount when conducting a study. Prior to commencing data collection from the identified community, the study must clearly define its primary objective and desired outcome. Additionally, it must ensure that the data collected from the study sample is kept strictly confidential and used solely for scientific purposes pertaining to the study.

Before starting to collect data from the study participants, we provided a concise explanation of the scientific context of the research and its objective. We verbally informed the patients about the study's objectives and invited them to participate voluntarily. The study provided the participants with an anonymous questionnaire to fill out, safeguarding their privacy upon their agreement to participate.

3.10. Methods of Data Collection

The data were collected and by means of self-report and structure interview with each client who were included in the present study. The study met the clients with diabetic type 2 at a hall in the center to get their agreement to participate in the study and to clarify the study questionnaire. The data collection process started from (2th January, 2024 to, 2th March, 2024) in order to achieve the objectives of the study. The time required for answering it ranged between 15-20-minutes.

3.11. Rating and Scoring

3.11.1. Self-care Behaviors

A 3-Likert scale was used for self-care behaviors scale and scored as follows: never (1), sometime (2), and always (3).

The overall score of symptoms was estimated by calculating the range score for mean of total score after calculating the range from minimum score and maximum score; the range score rated into three levels and scored as follow:

- Food, Diet, and exercise: Poor= 11 – 18.33, Moderate= 18.34 – 29.66, and Good= 29.67 – 33.
- Medication adherence: Poor= 10 – 16.66, Moderate= 16.67 – 23.33, and Good= 23.34 – 30.
- Periodic examination: Poor= 5 – 8.33, Moderate= 8.34 – 11.66, and Good= 11.67 – 15.
- Foot care: Poor= 9 – 15, Moderate= 16 – 21, and Good= 22 – 27.
- Coping with stress: Poor= 10 – 16.66, Moderate= 16.67 – 23.33, and Good= 23.34 – 30.
- Overall self –care: Poor= 45 – 75, Moderate= 76 – 105, and Good= 106 – 135
- The level of self-care for each item: Poor= 1 – 1.66, Moderate= 1.67 – 2.33, and Good= 2.34 – 3.

3.11.2. Quality of life

A 5-Likert scale was used for quality-of-life scale and scored as follows: very poor (1), poor (2), moderate (3), good (4), and very good (5) except items 2, 3, and 15 that are reversely scored.

The overall score of quality of life was estimated by calculating the range score for mean of total score after calculating the range from minimum score and maximum score; the range score rated into three levels and scored as follow:

- Physical domain: Poor= 8 – 18.66, Moderate= 18.67 – 29.33, and Good= 29.34 – 40.
- Psychological domain: Poor= 7 – 16.33, Moderate= 16.34 – 25.66, and Good= 25.67 – 35.

- Social domain: Poor= 4 – 9.33, Moderate= 9.34 – 14.66, and Good= 14.67 – 20.
- Environmental domain: Poor= 7 – 16.33, Moderate= 16.34 – 25.66, and Good= 25.67 – 35.
- Overall quality of life: Poor= 26 – 60.66, Moderate= 60.67 – 95.33, and Good= 95.34 – 130.
- The level for each item: Poor= 1 – 2.33, Moderate= 2.34 – 3.66, and Good= 3.67 – 5.

3.12. Data Analysis

Analyzing data is an essential step in nursing research, wherein various methods are employed to describe and assess information gathered by the study. The choice of analysis method depends on the nature of the collected data, with quantitative research specifically utilizing descriptive and inferential statistics to analyze numerical data. (O'Connor, 2020)

The data were analyzed and interpreted through use of the application of Statistical Package for Social Sciences (SPSS), version 26.0.

3.13. Descriptive Statistical Tests

3.13.1. Frequency (f): In statistics the frequency of an event is the number of times the event occurred in an experiment or study (Kenny & Keeping, 2022). It was used to describe the sociodemographic characteristics of clients with diabetes mellitus as well as levels of self-care behaviors and quality of life.

3.13.2. Percentage (%): A percentage is a number or a ratio stated as a fraction of 100 in mathematics. A percentage is calculated by dividing a number by the whole and multiplying it by 100. As a result, % can be defined as a part per hundred. It is represented by the symbol percent. (Shwetha, 2023). It was used to describe the sociodemographic characteristics of clients with diabetes mellitus as well as levels of self-care behaviors and quality of life.

3.13.3. Mean (M): The "mean" in biostatistics refers to the arithmetic average of a set of values. It is a measure of central tendency and is calculated by summing up all the values in the dataset and then dividing the sum by the total number of values. The mean is denoted by the symbol (\bar{x}) and is used to represent the average value of a given set of data (Taylor, 2003). It was used to determine the levels of levels of self-care behaviors and quality of life among clients with diabetes mellitus.

3.13.4. Standard Deviation: In statistics, the "standard deviation" is a measure of the amount of variation or dispersion of a random variable expected about its mean. It is a summary measure of the differences of each observation from the mean (Bland & Altman, 1996). It was used to determine the levels of levels of self-care behaviors and quality of life among clients with diabetes mellitus.

3.14. Inferential Statistical Tests

3.14.1. Cronbach Alpha (α): Cronbach's alpha coefficient measures the internal consistency, or reliability, of a set of survey items. Use this statistic to help determine whether a collection of items consistently measures the same characteristic. Cronbach's alpha quantifies the level of agreement on a standardized 0 to 1 scale. Higher values indicate higher agreement between items (Polit & Hungler, 2013). It was used to estimate the internal consistency of the study instrument.

3.14.2. Simple Linear Regression: Simple linear regression is a statistical method used to model the relationship between two continuous variables. It involves a single independent variable and a single dependent variable, where the goal is to fit a linear function to the data in order to predict the dependent variable based on the independent variable. The regression line is determined using the method of least squares, which minimizes the sum of the

squared differences between the observed and predicted values. The formula for a simple linear regression is: $y = B_0 + B_1(x) + e$ where (y) is the predicted value of the dependent variable, (B_0) is the intercept, (B_1) is the regression coefficient, (x) is the independent variable, and (e) is the error of the estimate. (Montgomery et al., 2013). It was used to determine the influence of self-care behavior on quality of life among clients with diabetes mellitus.

3.14.3. **Independent sample t-test:** an independent sample t-test, also known as a two-sample t-test, is an inferential statistical test used to determine whether there is a statistically significant difference between the means of two unrelated groups. The test is used when the cases (e.g., participants) in each group are different, and the groups are independent of each other (SPSS Statistics, 2021). It was used to determine the significant association among clients' self-care behavior and quality of life with some of their sociodemographic characteristics.

3.15. **One-way analysis of variance (ANOVA):** is a statistical method used to compare the means of three or more independent groups to determine if there are any significant differences between them. The test is used when there is a single independent variable with different levels, and the goal is to investigate if variations in that factor have a measurable effect on a dependent variable (Statistical Knowledge Portal, 2024). It was used to determine the significant association among clients' self-care behavior and quality of life with some of their sociodemographic characteristics.

Chapter Four

Results of the Study

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Results of the Study

This chapter presents the descriptive analysis of the sample related to socio-demographic characteristics for clients with diabetes mellitus; and describes their levels of self-care and quality of life, and to determine the influence of self-care on quality of life. This chapter also investigates the significant differences in clients' self-care with regard to some of demographic variables and find out the significant relationship among clients' quality of life with their sociodemographic variables.

The statistical procedures were applied for the purpose of analyzing the results of the present study; the results were manipulated and interpreted. Those results are based on the sample responses to the study questionnaire.

Table (4-1): Distribution of Clients according to their Socio-demographic Characteristics

List	Characteristics	f	%	
1	Age (year) M±SD= 56 ± 8	Less than 40	3	2
		40 – 49	27	18
		50 – 59	63	42
		60 – 69	44	29.3
		70 and more	13	8.7
		Total	150	100
2	Sex	Male	87	58
		Female	63	42
		Total	150	100
3	Marital	Unmarried	6	4
		Married	120	80
		Separated	4	2.7
		Divorced	1	.7
		Widowed/er	19	12.6

		Total	150	100
4	Level of education	Doesn't read & write	47	31.3
		Read & write	17	11.3
		Primary school	28	18.7
		Intermediate school	20	13.3
		Secondary school	17	11.4
		Institute /College	8	5.3
		Postgraduate	13	8.7
		Total	150	100
5	Occupation	Jobless	12	8
		Housewife	63	43.3
		Employee	26	17.3
		Private work	1	.7
		Free work	16	10.7
		Retired	30	20
		Total	150	100
6	Monthly income	Insufficient	122	81.3
		Barely sufficient	21	14
		Sufficient	7	4.7
		Total	150	100
7	Residency	Urban	107	71.3
		Rural	43	28.7
		Total	150	100

f: Frequency, %: Percentage,

The table 4-1 shows that average age for clients is 56±8 years in which the highest percentage of them is seen with age group of 50-59 years as reported among 42%. The sex of clients refers to male among 58% of them and 42% are females.

The marital status refers that 80% of clients are married and only 12.6% of them are widowed and widower.

Regarding level of education, the highest percentage refers to 31.3% who are doesn't read and write and 18.3% of them are graduated from primary schools.

The occupation reveals that 43.3% of clients are housewives and 20% of them are retired.

Regarding monthly income, 81.3% of clients perceive insufficient monthly income.

The residency refers that 71.3% of clients are resident in urban and remaining are resident in rural.

Table (4-2): Distribution of Clients according to their Illness Variable

List	Variables	f	%	
1	Duration of diabetes mellitus M±SD= 13.8 ± 8	1 – 5 years	25	16.7
		6 – 10 years	33	22
		11 – 15 year	41	27.3
		16 – 20 year	32	21.3
		21 year or more	19	12.7
		Total	150	100
2	Co-morbid disease	No	54	36
		Yes	96	64
		Total	150	100
3	Sources of information about self-care	Family	2	1.3
		Friends	0	0
		Social media	3	2
		Health care institutions	145	96.7
		Total	150	100

f: Frequency, %: Percentage,

The table 4-2 shows that average duration for diabetes mellitus among client is 13.8 ± 8 years; 27.3% of them seen with duration of 11-15 year. 64% of clients reported that they have co-morbid chronic disease. The majority of

clients reported that they got their information about self-care from health care institution (96.7%)

Table (4-3a): Assessment of Self-Care Behavior related to Food, Diet, and Exercise (N=150)

List	Food, Diet, and Exercise	Mean	SD	Assess.
1	I take allowed foods only	2.33	0.640	Moderate
2	I avoid foods that contain starches , such as bread	2.08	0.710	Moderate
3	I don't drink too much coffee	2.31	0.725	Moderate
4	I avoid foods that effect my blood sugar	2.53	0.620	Good
5	I avoid foods with a lot of sugar	2.63	0.607	Good
6	I avoid soft drinks	2.64	0.615	Good
7	Make sure to eat foods recommended by your doctor	2.59	0.614	Good
8	Movement in everyday life	2.39	0.654	Good
9	I do sports activity regularly	1.34	0.633	Poor
10	Make sure to do morning exercise	1.20	0.505	Poor
11	If I miss an activity , I try to catch it up later	1.13	0.453	Poor

M: Mean, SD: Standard Deviation, Assess: Assessment

Poor= 1 – 1.66, Moderate= 1.67 – 2.33, Good= 2.34 – 3

This table reveals that clients are showing moderate to good self-care behavior regarding food and diet but they show poor self-care regarding exercise.

Table (4-3b): Overall Assessment of Self-Care Behavior related to Food, Diet, and Exercise (N=150)

Food, Diet, and Exercise	f	%	M	SD	Ass.
Poor	19	12.6	23.19	3.876	Moderate

Moderate	127	84.7			
Good	4	2.7			
Total	150	100			

f: Frequency, %: Percentage

M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment

Poor= 11 – 18.33, Moderate= 18.34– 29.66, Good= 29.67 – 33

This table indicates that 84.7% of clients show moderate level of self-care behavior related to food, diet, and exercise.

Table (4-4a): Assessment of Self-Care Behavior related to Medication Adherence (N=150)

List	Medication adherence	Mean	SD	Assess.
1	I continued to take my medication even though my health condition improved	2.77	0.484	Good
2	I continued to take my medication even though I was bothered by its side effects	2.80	0.433	Good
3	I take my medicine with me in case I am away from home	2.81	0.413	Good
4	I do not delete appointments to take my medication	2.82	0.450	Good
5	Eat well before taking the medicine	2.82	0.403	Good
6	I do not change my medication until after consulting my doctor	2.86	0.402	Good
7	Buy the medicines prescribed by the doctor	2.85	0.362	Good
8	I see my doctor if the side effects of my treatment worsen	2.89	0.339	Good
9	Take my medication at the times set by the doctor	2.85	0.373	Good

10	Do not reduce the dose of my medication	2.90	0.343	Good
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M: Mean, SD: Standard Deviation, Assess: Assessment

Poor= 1 – 1.66, Moderate= 1.67 – 2.33, Good= 2.34 – 3

This table reveals that clients are showing good self-care behavior regarding medication adherence.

Table (4-4b): Overall Assessment of Self-Care Behavior related to Medication Adherence

Medication Adherence	f	%	M	SD	Ass.
Poor	0	0	28.36	2.725	Good
Moderate	14	9.3			
Good	136	90.7			
Total	150	100			

f: Frequency, %: Percentage

M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment

Poor= 10 – 16.66, Moderate= 16.67– 23.33, Good= 23.34 – 30

This table depicts that 90.7% of clients show good level of self-care behavior related to medication adherence.

Table (4-5a): Assessment of Self-Care Behavior related to Periodic Examination (N=150)

List	Periodic examination	Mean	SD	Assess.
1	Do regular check-ups	2.57	0.583	Good
2	Attend my medical appointments regular	2.59	0.569	Good
3	I do not change my doctor in search of a better one	2.61	0.601	Good
4	I come to my regular check-up appointment even when my health improves	2.55	0.661	Good

5	I do the examinations that my doctor orders on a regular basis	2.62	0.631	Good
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M: Mean, SD: Standard Deviation, Assess: Assessment

Poor= 1 – 1.66, Moderate= 1.67 – 2.33, Good= 2.34 – 3

This table reveals that clients are showing good self-care behavior regarding periodic examination.

Table (4-5b): Overall Assessment of Self-Care Behavior related to Periodic Examination

Periodic Examination	f	%	M	SD	Ass.
Poor	15	10	12.94	2.660	Good
Moderate	27	18			
Good	108	72			
Total	150	100			

f: Frequency, %: Percentage

M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment

Poor= 5 – 8.33, Moderate= 8.34– 11.66, Good= 11.67 – 15

This table reveals that 72% of clients show good level of self-care behavior related to periodic examination.

Table (4-6a): Assessment of Self-Care Behavior related to Foot Care (N=150)

List	Foot care	Mean	SD	Assess.
1	Generally check your feet yourself	2.29	0.681	Moderate
2	Check your nails	2.43	0.698	Good
3	It is not difficult for you to dry your feet after showering	2.46	0.711	Good
4	Cut or treat your nails weekly	2.49	0.632	Good
5	Your feet get dried every time they get wet	2.35	0.714	Good
6	I keep my feet warm	2.45	0.597	Good

7	I follow up skin ulcers and dry patches with the doctor	2.73	0.530	Good
8	Wear appropriate shoes according to the season	2.33	0.514	Moderate
9	I massage my feet daily	2.02	0.728	Moderate

M: Mean, SD: Standard Deviation, Assess: Assessment

Poor= 1 – 1.66, Moderate= 1.67 – 2.33, Good= 2.34 – 3

This table reveals that clients are showing moderate to good self-care behavior regarding foot care.

Table (4-6b): Overall Assessment of Self-Care Behavior related to Foot Care

Foot care	f	%	M	SD	Ass.
Poor	13	8.7	22.54	3.804	Good
Moderate	55	36.7			
Good	82	54.7			
Total	150	100			

f: Frequency, %: Percentage

M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment

Poor= 9 – 15, Moderate= 16– 21, Good= 22 – 27

This table indicates that clients show good level of self-care behavior related to foot care (moderate= 36.7% and good= 54.7%).

Table (4-7a): Assessment of Self-Care Behavior related to Coping with Stress (N=150)

List	Coping with stress	Mean	SD	Assess.
1	I try to discuss the problems I have with my family	2.31	0.665	Moderate
2	I apologize for the tasks that may cause the house	2.55	0.586	Good

3	When I feel stressed, I try to get some exercise	1.41	0.715	Poor
4	I take some painkillers and sedatives	2.07	0.702	Moderate
5	I argue or fight with others at home	2.10	0.721	Moderate
6	I keep my emotions and feelings inside myself	2.46	0.692	Moderate
7	When I feel stressed, I try to transfer to another place	2.20	0.786	Moderate
8	I try to prioritize my daily work	1.85	0.763	Moderate
9	When I feel more pressure than reading the Holy Quran	1.63	0.790	Poor
10	I resort to taking a vacation from work	1.27	0.575	Poor

M: Mean, SD: Standard Deviation, Assess: Assessment

Poor= 1 – 1.66, Moderate= 1.67 – 2.33, Good= 2.34 – 3

This table reveals that clients are showing moderate self-care behavior regarding coping with stress among most of items.

Table (4-7b): Overall Assessment of Self-Care Behavior related to Coping with Stress

Coping	f	%	M	SD	Ass.
Poor	15	10	19.83	2.620	Moderate
Moderate	120	80			
Good	15	10			
Total	150	100			

f: Frequency, %: Percentage

M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment

Poor= 10 – 16.66, Moderate= 16.67– 23.33, Good= 23.34 – 30

This table displays that 80% of clients show moderate level of self-care behavior related to coping with stress.

Table (4-8): Overall Assessment of Self-Care Behavior among Clients with type II Diabetes Mellitus

Self-care behavior	f	%	M	SD	Ass.
Poor	1	.7	106.86	10.252	Good
Moderate	65	43.3			
Good	84	65			
Total	150	100			

f: Frequency, %: Percentage

M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment

Poor= 45 – 75, Moderate= 76– 105, Good= 106 – 135

This table manifests that the clients with diabetes mellitus show moderate good level of self-care behavior ($M \pm SD = 106.86 \pm 10.252$); in which 65% of them are seen with good level and 43.3% of them seen with moderate level of self-care.

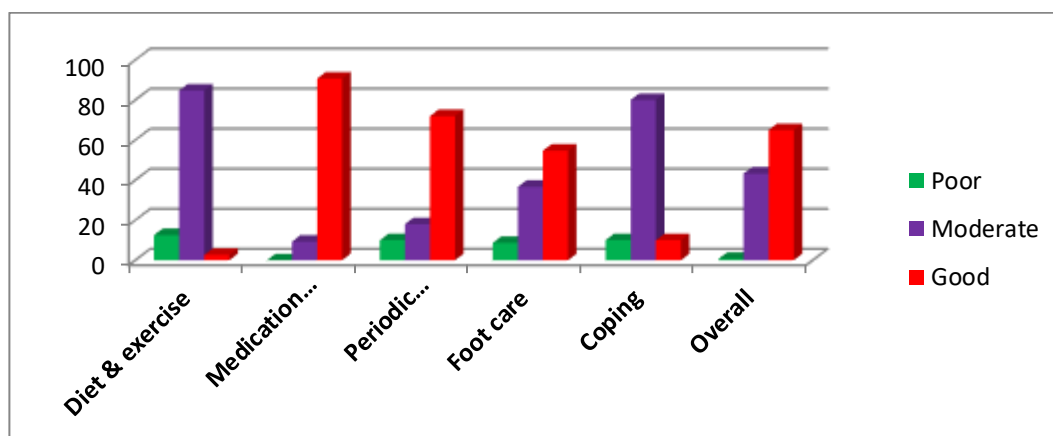


Figure (4-1): Levels of Self-Care Behavior among Clients with type II Diabetes Mellitus(N=150)

This figure shows that clients with DM showing moderate self-care related to diet & exercise (84.7%), and coping with stress (80%) while showing good self-care behaviors related to medication adherence (90.7%), periodic examination (72%), foot care (54.7%), and overall behavior (65%).

Table (4-9a): Assessment of Physical Quality of Life (N=150).

List	Physical QoL	Mean	SD	Assess.
1	How satisfied are you with your healthy life?	2.97	0.951	Moderate
2	In your opinion, to what extent does your illness lead to an inability to do work?	2.95	0.754	Moderate
3	So invest your life how much care do you need?	2.46	0.662	Moderate
4	Do you have the sufficiency and effectiveness to carry out the duties of daily life?	3.25	0.768	Moderate
5	How far are you able to move around?	3.20	0.835	Moderate
6	To what extent are you satisfied with your Sleep?	3.23	0.883	Moderate
7	How satisfied are you with your daily meals?	3.13	0.833	Moderate
8	How satisfied are you with your ability to work?	3.13	0.762	Moderate

M: Mean, SD: Standard Deviation, Assess: Assessment

Poor= 1 – 2.33, Moderate= 2.34 – 3.66, Good= 3.67 – 5

This table reveals that clients are with moderate level of physical quality of life among all items.

Table (4-9b): Overall Assessment of Physical Quality of Life among Clients

Physical QoL	f	%	M	SD	Ass.
Poor	9	6	24.31	3.447	Moderate
Moderate	136	90.7			

Good	5	3.3			
Total	150	100			

f: Frequency, %: Percentage

M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment

Poor= 8 – 18.66, Moderate= 18.67– 29.33, Good= 29.34 – 40

This table indicates that 90.7% of the clients have moderate quality of life related to physical domain.

Table (4-10a): Assessment of Psychological Quality of Life (N=150)

List	Psychological QoL	Mean	SD	Assess.
1	What is your assessment of the quality of your Life?	3.22	0.750	Moderate
2	How much do you enjoy life?	3.05	0.754	Moderate
3	How do you feel there is meaning in your life?	3.15	0.748	Moderate
4	How far can you simply focus your mind?	3.14	0.676	Moderate
5	Are you accepting of your physical structure?	3.29	0.727	Moderate
6	How satisfied are you with yourself?	3.38	0.825	Moderate
7	How sad, depressed and anxious do you feel?	3.05	0.834	Moderate

M: Mean, SD: Standard Deviation, Assess: Assessment

Poor= 1 – 2.33, Moderate= 2.34 – 3.66, Good= 3.67 – 5

This table reveals that clients are with moderate level of psychological quality of life among all items.

Table (4-10b): Overall Assessment of Psychological Quality of Life among Clients

Psychological QoL	f	%	M	SD	Ass.
Poor	11	7.3	22.28	3.285	Moderate

Moderate	111	74			
Good	28	18.7			
Total	150	100			

f: Frequency, %: Percentage

M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment

Poor= 7 – 16.33, Moderate= 16.34– 25.66, Good= 25.67 – 35

This table reveals that 74% of the clients have moderate quality of life related to psychological domain.

Table (4-11a): Assessment of Social Quality of Life (N=150)

List	Social QoL	Mean	SD	Assess.
1	How satisfied are you with your personal relationships	3.35	0.890	Moderate
2	How satisfied are you with your sex life?	2.41	1.024	Moderate
3	How satisfied are you with the social support provided by your friends	3.29	0.782	Moderate
4	The level of quality of life affects your social activity	3.24	0.652	Moderate

M: Mean, SD: Standard Deviation, Assess: Assessment

Poor= 1 – 2.33, Moderate= 2.34 – 3.66, Good= 3.67 – 5

This table depicts that clients are with moderate level of social quality of life among all items.

Table (4-11b): Overall Assessment of Social Quality of Life among Clients

Social QoL	f	%	M	SD	Ass.
Poor	16	10.7	12.29	2.428	Moderate
Moderate	108	72			
Good	26	17.3			
Total	150	100			

f: Frequency, %: Percentage

M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment

Poor= 4 – 9.33, Moderate= 9.34– 14.66, Good= 14.67 – 20

This table indicates that 72% of the clients have moderate quality of life related to social domain.

Table (4-12a): Assessment of Environmental Quality of Life (N=150)

List	Environmental QoL	Mean	SD	Assess.
1	How secure do you feel in life?	3.46	0.720	Moderate
2	How healthy are you in your natural environment	3.45	0.681	Moderate
3	Are you competent to satisfy your needs?	3.21	0.762	Moderate
4	How well do you provide the necessary information that you need in your daily life?	3.25	0.623	Moderate
5	How often do you have the opportunity to rest and relax?	3.35	0.613	Moderate
6	How satisfied are you with your housing or where you live?	3.51	0.865	Moderate
7	How satisfied are you with the services provided by the community?	2.03	0.811	Moderate

M: Mean, SD: Standard Deviation, Assess: Assessment

Poor= 1 – 2.33, Moderate= 2.34 – 3.66, Good= 3.67 – 5

This table reveals that clients are with moderate level of environmental quality of life among all items.

Table (4-12b): Overall Assessment of Environmental QoL Quality of Life among Clients

Environmental QoL	f	%	M	SD	Ass.
Poor	5	3.3	22.24	3.076	Moderate
Moderate	127	84.7			
Good	18	12			

Total	150	100			
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f: Frequency, %: Percentage

M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment

Poor= 7 – 16.33, Moderate= 16.34– 25.66, Good= 25.67 – 35

This table reveals that 84.7% of the clients have moderate quality of life related to environmental domain.

Table (4-13): Overall Assessment of Quality of Life among Clients with Diabetes Mellitus

QoL	f	%	M	SD	Ass.
Poor	3	2	81.12	10.529	Moderate
Moderate	135	90			
Good	12	8			
Total	150	100			

f: Frequency, %: Percentage

M: Mean for total score, SD: Standard Deviation for total score, Ass: Assessment

Poor= 26 – 60.66, Moderate= 60.67– 95.33, Good= 95.34 – 130

This table indicates that clients are associated with moderate quality of life as reported among 90% of them ($M \pm SD = 81.12 \pm 10.529$).

Table (4-14): Influence of Self-Care Behavior on Quality of Life among Clients with type II Diabetes Mellitus (N=150)

QoL	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Physical	.148	.022	.483	6.708	.001
Psychological	.136	.021	.465	6.382	.001
Social	.081	.016	.376	4.933	.001
Environmental	.0123	.020	.449	6.116	.001

Overall QoL	.487	.066	.521	7.424	.001
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This table manifests that self-care behaviors are highly influence the quality of life among clients with diabetes mellitus as indicated by high significant differences in overall score and sub-domains at p-value= .001 respectively.

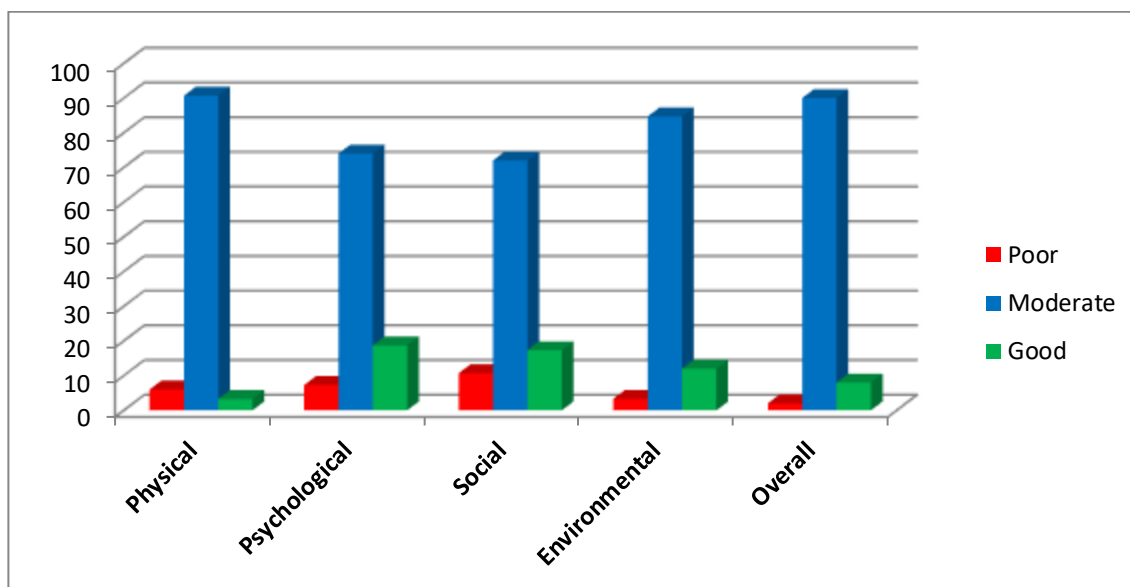


Figure (4-2): Quality of Life among Clients with Diabetes Mellitus (N=150)

This figure shows that clients with DM showing moderate quality of life (90%) which are reveal moderate physical (90.7%), psychological (74%), social (72%), and environmental (84.7%) quality of life.

Table (4-15): Significant Difference in Clients' Self-Care Behavior with regard to their Age (N=150)

Age	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
Self-care	Between Groups	69.542	4	17.386	1.162	0.330
	Within Groups	2169.231	145	14.960		

	Total	2238.773	149			
Medication adherence	Between Groups	35.958	4	8.990	1.218	0.306
	Within Groups	1070.602	145	7.383		
	Total	1106.560	149			
Periodic examination	Between Groups	27.523	4	6.881	.972	0.425
	Within Groups	1026.937	145	7.082		
	Total	1054.460	149			
Foot care	Between Groups	133.764	4	33.441	2.269	0.065
	Within Groups	2137.496	145	14.741		
	Total	2271.260	149			
Coping with stress	Between Groups	75.814	4	18.954	2.902	0.024
	Within Groups	947.019	145	6.531		
	Total	1022.833	149			
Overall	Between Groups	1087.176	4	271.794	2.217	0.050
	Within Groups	17778.88	145	122.613		
	Total	18866.06	149			
		0				

df: Degree of freedom, F: F-statistic, Sig: Significance

This table indicates that there is significant difference in overall self-care behaviors among clients with regard to their age group at p-value= .050, particularly significant with coping to stress at p-value= .024.

Table (4-16): Significant Difference in Clients' Self-Care Behavior with regard to their Sex (N=150)

Self-care	Sex	M	SD	t	df	p≤ 0.05	Sig
Food, diet, and exercise	Male	23.0 9	4.011	.351	148	0.725	N.S
	Female	23.3 2	3.711				
Medication adherence	Male	28.0 3	3.017	1.731	148	0.086	N.S
	Female	28.8 1	2.206				
Periodic examination	Male	12.7 6	2.667	.981	148	0.328	N.S
	Female	13.1 9	2.651				
Foot care	Male	21.2 3	3.993	1.144	148	0.254	N.S
	Female	21.9 7	3.767				
Coping with stress	Male	19.7 9	2.965	.220	148	0.826	N.S
	Female	19.8 9	2.072				
Overall	Male	104. 91	12.47 6	1.220	148	0.225	N.S
	Female	107. 17	9.240				

M: Mean, SD: Standard deviation, t: t-test, df: Degree of freedom, Sig: Significance, p: Probability value,

N.S: Not significant, S: Significant, H.S: High significant

This table reveals that there is no significant difference in overall self-care behaviors and sub-domains among clients with regard to their sex.

Table (4-17): Significant Difference in Clients' Self-Care Behavior with regard to their Marital Status (N=150)

Marital Self-care	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
Food, diet, and exercise	Between Groups	36.784	4	9.196	0.606	0.659
	Within Groups	2201.989	145	15.186		
	Total	2238.773	149			
Medication adherence	Between Groups	16.110	4	4.028	0.536	0.710
	Within Groups	1090.450	145	7.520		
	Total	1106.560	149			
Periodic examination	Between Groups	16.135	4	4.034	0.563	0.690
	Within Groups	1038.325	145	7.161		
	Total	1054.460	149			
Foot care	Between Groups	6.453	4	1.613	0.103	0.981
	Within Groups	2264.807	145	15.619		
	Total	2271.260	149			
Coping with stress	Between Groups	26.711	4	6.678	0.972	0.425

	Within Groups	996.123	145	6.870		
	Total	1022.833	149			
Overall	Between Groups	184.895	4	46.224	0.359	0.838
	Within Groups	18681.165	145	128.836		
	Total	18866.060	149			

df: Degree of freedom, F: F-statistic, Sig: Significance

This table shows that there is no significant difference in overall self-care behaviors among clients with regard to marital status.

Table (4-18): Significant Difference in Clients' Self-Care Behavior with regard to their Level of Education (N=150).

Education	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
Self-care	Between Groups	131.945	6	21.991	1.493	0.185
	Within Groups	2106.828	143	14.733		
	Total	2238.773	149			
Medication adherence	Between Groups	47.260	6	7.877	1.063	0.387
	Within Groups	1059.300	143	7.408		
	Total	1106.560	149			

Periodic examination	Between Groups	19.016	6	3.169	.438	0.853
	Within Groups	1035.444	143	7.241		
	Total	1054.460	149			
Foot care	Between Groups	195.158	6	32.526	2.240	0.043
	Within Groups	2076.102	143	14.518		
	Total	2271.260	149			
Coping with stress	Between Groups	171.998	6	28.666	4.818	0.001
	Within Groups	850.836	143	5.950		
	Total	1022.833	149			
Overall	Between Groups	1748.799	6	291.467	2.435	0.029
	Within Groups	17117.261	143	119.701		
	Total	18866.060	149			

df: Degree of freedom, F: F-statistic, Sig: Significance

This table indicates that there is significant difference in overall self-care behaviors among clients with regard to their level of education at p-value= .029, particularly significant with sub-domain of foot care and coping with stress at p-values= .043 and .001 respectively.

Table (4-19): Significant Difference in Clients' Self-Care Behavior with regard to their Occupation (N=150)

Occupation	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
Self-care	Between Groups	158.211	5	31.642	2.190	0.058
	Within Groups	2080.563	144	14.448		
	Total	2238.773	149			
Food, diet, and exercise	Between Groups	124.651	5	24.930	3.656	0.004
	Within Groups	981.909	144	6.819		
	Total	1106.560	149			
Medication adherence	Between Groups	80.137	5	16.027	2.369	0.042
	Within Groups	974.323	144	6.766		
	Total	1054.460	149			
Periodic examination	Between Groups	176.961	5	35.392	2.434	0.038
	Within Groups	2094.299	144	14.544		
	Total	2271.260	149			
Foot care	Between Groups	69.291	5	13.858	2.093	0.070
	Within Groups	953.543	144	6.622		
	Total					
Coping with stress	Between Groups					
	Within Groups					

Overall	Total	1022.833	149			
	Between Groups	2428.255	5	485.651	4.254	0.001
	Within Groups	16437.80 5	144	114.151		
	Total	18866.06 0	149			

df: Degree of freedom, F: F-statistic, Sig: Significance

This table depicts that there is significant difference in overall self-care behaviors among clients with regard to their occupation at p-value=.001, particularly significant with sub-domains of medication adherence, periodic examination, and foot care at p-values= .004, .042, and .038 respectively.

Table (4-20): Significant Difference in Clients' Self-Care Behavior with regard to their Monthly Income (N=150)

Income	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
Self-care	Between Groups	28.144	2	14.072	0.936	0.395
	Within Groups	2210.629	147	15.038		
	Total	2238.773	149			
Medication adherence	Between Groups	57.467	2	28.734	4.026	0.020
	Within Groups	1049.093	147	7.137		
	Total	1106.560	149			
Periodic examination	Between Groups	25.457	2	12.729	1.818	.166

	Within Groups	1029.003	147	7.000		
	Total	1054.460	149			
Foot care	Between Groups	66.209	2	33.105	2.207	0.114
	Within Groups	2205.051	147	15.000		
	Total	2271.260	149			
Coping with stress	Between Groups	55.623	2	27.812	4.227	0.016
	Within Groups	967.210	147	6.580		
	Total	1022.833	149			
Overall	Between Groups	797.615	2	398.807	3.245	0.042
	Within Groups	18068.445	147	122.915		
	Total	18866.060	149			

df: Degree of freedom, F: F-statistic, Sig: Significance

This table illustrate that there is significant difference in overall self-care behaviors among clients with regard to their monthly income at p-value= .042, particularly significant with sub-domains of medication adherence and coping with stress at p-values= .020 and .016 respectively

Table (4-21): Significant Difference in Clients' Self-Care Behavior with regard to their Residency (N=150)

Residency Self-care		M	SD	t	df	p≤ 0.05	Sig
Food, diet, and exercise	Urban	23.3 5	3.727	.762	148	.430	N.S
	Rural	22.7 9	4.246				
Medication adherence	Urban	28.3 2	2.787	.299	148	.766	N.S
	Rural	28.4 7	2.594				
Periodic examination	Urban	12.7 9	2.744	1.126	148	.262	N.S
	Rural	13.3 3	2.427				
Foot care	Urban	21.4 8	3.910	.313	148	.755	N.S
	Rural	21.7 0	3.931				
Coping with stress	Urban	20.0 4	2.712	1.511	148	.133	N.S
	Rural	19.3 3	2.327				
Overall	Urban	105. 96	11.39 3	.176	148	.861	N.S
	Rural	105. 60	11.02 2				

M: Mean, SD: Standard deviation, t: t-test, df: Degree of freedom, Sig: Significance, p: Probability value,

N.S: Not significant, S: Significant, H.S: High significant

This table indicates that there is no significant difference in overall self-care behaviors among clients with regard to their residency

Table (4-22): Association among Clients' Quality of Life and their Sociodemographic Variables (N=150)

Variables		Quality of Life				Association
		Poor	Mod	Good	Total	
Age (year)	Less than 40	0	3	0	3	F= 1.702 P-value= .153 Sig= N.S
	40 – 49	1	23	3	27	
	50 – 59	1	55	7	63	
	60 – 69	1	42	1	44	
	70 and more	0	12	1	13	
	Total	3	13	12	15	
Sex	Male	2	78	7	87	t= 0.981 P-value= .013 Sig= S
	Female	1	57	5	63	
	Total	3	13	12	15	
Marital	Unmarried	0	5	1	6	F=0 .744 P-value= .564 Sig= N.S
	Married	2	10	11	12	
	Separated	0	4	0	4	
	Divorced	0	1	0	1	
	Widowed/er	1	18	0	19	
	Total	3	13	12	15	
Level of education	Doesn't read & write	2	45	0	47	F= 4.942 P-value=0 .001 Sig= H.S
	Read & write	0	16	1	17	
	Primary school	0	28	0	28	

	Intermediate school	0	18	2	20	
	Secondary school	0	14	3	17	
	Institute /College	1	5	2	8	
	Postgraduate	0	9	4	13	
	Total	3	13	12	15	
			5		0	
Occupation	Jobless	0	12	0	12	F= 5.700 P-value=0 .001 Sig= H.S
	Housewife	2	62	1	65	
	Employee	0	18	8	26	
	Private work	0	1	0	1	
	Free work	1	14	1	16	
	Retired	0	28	2	30	
	Total	3	13	12	15	
			5		0	
Monthly income	Insufficient	3	11	6	12	F= 3.571 P-value= 0.031 Sig= S
	Barely sufficient	0	17	4	21	
	Sufficient	0	5	2	7	
	Total	3	13	12	15	
			5		0	
Residency	Urban	2	94	11	10	t= 1.015 P-value= .148 Sig= N.S
	Rural	1	41	1	43	
	Total	3	13	12	15	
			5		0	

F= F-statistics, t= independent sample t-test, p= Probability, Sig= Significance, N.S= Not significant, S= Significant, H.S= High significant

The table 4-22 reveals that there is significant relationship among clients' quality of life and their sex, level of education, occupation, and monthly income at p-values= .013, .001, .001, and .031 respectively, while

there is no significant relationship is reported with variables of clients' age, marital status, and residency.

Chapter Five
Discussion,
Conclusion, and
Recommendation
of Study Results

Chapter Five

Discussion of the Study Findings

This chapter presents a systematically driven discussion and interpretations of this study. Supportive evidence for the study findings is presented as being available in the literatures with respect to their relevance. The presentation of this chapter is organized according to the objectives of this study as follows:

5.1. Discussion of Participants according to their Sociodemographic Characteristic.

Diabetes is a chronic disease that usually affects people of advanced age (Arrar et al., 2021). The table (4-1): shows that the highest percentage of the sample is seen with age group of 50-59 years. This result is consistent with a study conducted in America, which showed that 14% of clients with type 2 diabetes are between 45 and 64 years old (Sami et al., 2017).

The majority of clients in the study were male. This finding aligns with previous research in Saudi Arabia, where 82.7% of male and 17.3% of female participants lacked awareness about the importance of diabetes monitoring (Juma Elywy et al., 2022). This trend of higher male attendance at rehabilitation centers for chronic diseases has been observed consistently (Nejat et al., 2021).

Regarding educational attainment, the majority of clients (31.3%) were illiterate, while 18.3% had completed primary school. These findings are consistent with several studies like Nejat et al., (2021), Duan et al. (2022), Adhikari et al., (2021), and Alotaibi et al., (2020). In terms of occupation, 43.3% of clients were housewives and 20% were retired. These results are in line with a study by Shrivastava et al. (2020) and Bayable et al.,(2022).

The findings in the table (4-2) of this study showed that in clients with the history of disease more than 10 years, these findings are consistent with Babazadeh et al., (2017), Gebremedhin et al., (2019).

Therefore, it is necessary to consider the history of the disease and its reducing impact on quality of life during client's needs assessment and designing the training programs.

5.2. Discussion for self-care for Clients with Type II Diabetes Mellitus.

5.2.1. Assessment of Self-Care Behavior related to Food, Diet, and Exercise (N=150).

This table(4-3b) According to the findings, 84.7% of clients exhibit a moderate degree of self-care behavior, which indicates that a sizeable section of the population is making an attempt to improve their eating habits, exercise routines, and other aspects of their lifestyle. This level, however, may still imply that there is opportunity for development, particularly when taking into consideration the relationship with low levels of physical activity that was discovered in a prior study. This finding is disagreed with that obtained by Mukanoheli and others (2020) who concluded that most of study participants have low level of physical activity.

5.2.2. Assessment of Self-Care Behavior related to Medication Adherence (N=150)

This table(4-4b) The fact that 90.7% of clients exhibit a high degree of self-care behavior linked to medication adherence is a positive indication of their commitment to controlling their health through the appropriate intake of medicine. This is consistent with the findings of another study, which similarly revealed good adherence rates for the testing of blood sugar and the use of medication. This finding is consistent with that obtained by Karthik et al., (2020) who concluded that adherence was high for blood sugar testing (75.2%) and medication (70.4%) in the study population.

5.2.3 Assessment of Self-Care Behavior related to Periodic Examination (N=150)

In the table (4-5b) A sizeable amount of people are actively seeking out regular checkups, as indicated by the fact that 72 percent of clients

exhibited a satisfactory degree of self-care behavior in relation to periodic assessment. In the management of chronic illnesses such as diabetes, this is of utmost importance, and it is correlated with the high adherence rates that have been recorded for blood sugar testing in a population that is comparable. This finding is consistent with that obtained by Karthik et al (2020) who concluded that Adherence was high for blood sugar testing (75.2%).

5.2.4. Assessment of Self-Care Behavior related to Foot Care (N=150).

This table(4-6b) The conclusion that clients exhibit a good to moderate level of self-care behavior linked to foot care (moderate = 36.7% and good = 54.7%) is in line with the findings of the study conducted by Garg et al. (2017), which discovered that only 17.6% of the population under study was inspecting their feet on a regular basis. This shows that people who have diabetes may not be practicing foot care in an adequate manner, which is an essential component of the behavior of self-care (Untari et al., 2024)

5.2.5. Assessment of Self-Care Behavior related to Coping with Stress (N=150).

This table(4-7b) 80% of clients exhibit a moderate degree of self-care behavior related to managing with stress, which is similar with the findings of the study conducted by Eshete et al. (2023), which discovered that stress management behavior was correlated with diabetes self-care practice. In light of this, it may be deduced that people who have diabetes are more likely to engage in stress management measures, which is an essential component of self-care behavior (Eshete et al., 2023).

5.3. Overall Assessment of Self-Care Behavior among Clients with Diabetes Mellitus.

This table (4-8) manifests that the majority of clients in the study exhibited good self-care behaviors for type 2 diabetes, while a smaller

percentage had average levels of self-care behaviors. The Possible explanation for doctor, nurses, and media and there was a shortage Organized diabetes education practice and poor media engagement, It can also be attributed to the difference in demographic characteristics of the study sample, whether in terms of age or education, which may affect the extent of their awareness of the importance of self-care behaviors, or their actual practice of those behaviors. this result is similar with a study conducted by (Malini et al., 2022; Sari et al., 2021; Boell et al., 2020).

5.4. Discussion for s for Quality-of-Life Clients with Type II Diabetes Mellitus.

5.4.1 Overall Assessment of Quality of Life among Clients with Diabetes Mellitus

In the table (4-9b,4-10b,4-11b,4-12b and 4-13) the findings in study group for all domains was moderate quality of life as reported among 90% of them quality of life (QoL) which include: overall (Qol), physical, psychological, social and environment, **Physical Health:** Type 2 diabetes clients face physical challenges such as controlling glucose levels and accompanying symptoms of the disease, which may impact their assessment of their physical quality of life (Al Hayek et al., 2014). **psychological:** Coping with a chronic illness may affect mental health, such as anxiety and depression, contributing to a decrease in quality of life (Kalra et al., 2018). **Social:** Restrictions imposed by the disease may impact social interaction and social support, which is an important factor in assessing quality of life (Pamungkas et al.,2017). **Environment:** Environmental factors such as available healthcare, financial situation, and general living conditions may also affect clients' assessment of their quality of life. improving access to healthcare, and providing education and guidance on disease management (Hill-Briggs et al., 2021). This is supported by research conducted by Yousaf et al., (2023) Komaratat et al., (2021); Gebremedhin et al., (2019);

5-5 Relationship among self- care behavior and socio-demographic characteristics

In the table (4-16,4-17,4-21) indicates that there is non-significant relationship between self- care behavior of client with type 2 diabetes each of sex, marital status and residency. While is significant age in table (4-15), Age and coping with Stress the results indicate a statistically significant relationship between age and coping with Stress ($p=0.024$), where different age groups may adopt diverse strategies in dealing with stress. Older individuals tend to adopt more effective strategies in dealing with stress compared to youth, relying on their life experiences and previous experiences to alleviate psychological pressures (American Psychological Association, 2020).

level of education in table (4-18) The study showed a statistically significant relationship between education level and self-care, especially regarding foot care and stress management ($p=0.043$ and $p=0.001$ respectively). Individuals with higher educational levels tend to follow better health practices and manage stress more effectively, possessing greater knowledge of various health methods and self-care techniques (World Health Organization, 2019).

Occupation in table (4-19) The study found a statistically significant relationship between occupation and adherence to medication and regular check-ups ($p=0.004$ and $p=0.042$ respectively). Occupations that involve high pressures or instability may negatively impact individuals' ability to follow regular healthcare and treatment, requiring additional support interventions to improve these aspects (National Institute for Occupational Safety and Health, 2018).

monthly income in table (4-20). The results showed that monthly income significantly affects the ability to manage stress ($p=0.016$). Individuals with higher incomes tend to have better resources for stress

management, such as access to healthcare services and the ability to provide a comfortable living environment, enhancing their ability to deal with daily pressures more effectively (American Psychological Association, 2021).

5-6 Relationship among Clients' Quality of Life and their Sociodemographic Variables (N=150)

The table (4-22) reveals that there is significant relationship among clients' quality of life and their sex, level of education, occupation, and monthly income at p-values= .013, .001, .001, and .031 respectively,

Sex: It appears that men and women view quality of life differently, as indicated by the strong correlation with sex. Various factors, including variations in coping strategies, health-seeking behavior, and societal expectations and roles, could be responsible for this (Ausín et al., 2020).

Level of Education: The study indicated a highly significant relationship between education level and quality of life ($P = 0.001$). These findings support research indicating that education promotes health awareness, increases opportunities for good jobs, and improves access to resources and services that enhance quality of life (Zhan et al., 2023)

Occupation: The study found a significant relationship between clients' quality of life and their employment status ($p\text{-value}=0.001$). This can be explained by research showing that work provides individuals not only with financial income, but also with a sense of accomplishment and purpose (Randall et al., 2023).

Monthly Income: The results indicate a significant relationship between monthly income and quality of life ($p\text{-value}=0.031$). Studies confirm that sufficient income can enhance quality of life by providing basic needs and improving healthcare and education (Li et al., 2023). Low income can lead to financial pressures, negatively affecting mental and physical health. while there is no significant relationship is reported with variables of clients' age, marital status, and residency. Studies show that socioeconomic factors such as gender, education level,

employment status, and monthly income have a significant impact on individuals' quality of life. Other factors such as age, marital status, and residency may have less of an impact. It is important to consider these factors when designing quality of life improvement programs.

5-7 Influence of Self-Care Behavior on Quality of Life among Clients with Diabetes Mellitus (N=150).

In the table (4-14) manifests that self-care behaviors are highly influence the quality of life among clients with diabetes mellitus as indicated by high significant differences in overall score and sub-domains at p-value=.001 respectively. Thus, statistically, there is a significant correlation between self-care management and the quality of life of T2DM clients, with moderate correlation strength and positive direction. This means that the better the client's self-care management, the better their quality of life. In addition, these finding agree with Malini et al. (2022) Babazadeh et al., (2017).

Conclusions and Recommendations

5.2 Conclusions:

1. This study showed that the highest percentage of clients with type II diabetes is seen in the age group of 50-59 years. Most of them were married and males.
2. With low educational level, insufficient monthly income, the majority of clients in the study exhibited good self-care behaviors for type II diabetes, while a smaller percentage had average levels of self-care behaviors.
3. There is a significant relationship between self-care behaviors of clients with type II diabetes and each of level of education and occupation.
4. The present study concluded that the overall evaluation to quality of life for clients suffering from for Clients with type II Diabetes Mellitus was within the moderate level.
5. The current study found that there is significant of socio-demographic factors such as (sex, residence, level of education, occupational status, monthly income) And no significant with another variable.
6. Information source most client 97% of them from health institutions

5.3 Recommendations:

1. It is necessary to set up health education programs for younger type II diabetes customers in order to increase their understanding of their health and the health responsibility, awareness programs targeting different age groups to enhance stress management strategies and especially those who are illiterate or have low education levels.
2. The health officials in Al-Diwaniya City need to collaborate with different stakeholders with the goal of improving the living conditions of clients with type II diabetes who are classified of lower socioeconomic status.
3. A manual booklet about self-care for client must be written in simple words using attractive images to be given to client and families in healthcare centers and hospitals.
4. Educating and encouraging client to exercise and move to reduce complications of the disease.
5. Establish comprehensive care plans integrating medical treatment with self-care education, including regular monitoring and support from healthcare providers.
6. Implement financial assistance programs or subsidies for diabetes management to improve adherence to self-care routines and overall quality of life.
7. Prioritize urban health initiatives that focus on enhancing access to diabetes care resources, including regular check-ups and educational workshops.

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Appendixes

Appendix A1

Ministry of Higher Education and
Scientific Research
University of Karbala / College of Nursing
Scientific Research Ethics Committee



UOK / CN 23-014
Ethical Committee Code:
Date: 14 / 11 / 2023

Research Ethical Approval Form

Title of the research project			
In the English language		In the Arabic language	
Influence of Self-Care for Clients' with Type II Diabetes Mellitus on Quality of Life		تأثير الرعاية الذاتية للمرضى المصابين بمرض السكري من النوع الثاني على جودة الحياة	
Data About the Main Researcher /Student:			
Full Name	Scientific Title	Mobile Number	Email
Mohanad Jasim salah	Academic Nurse	07725244093	Mohanad1993jasim@gmail.com
Data About the Co-author /Supervisor:			
Full Name	Scientific Title	Mobile Number	Email
Dr. Ghazwan Abdalhussein abdulwahid	Assistant prof	07705571856	Ghazwan.a@uokerbala.edu.iq
Study objectives			
1. To assess the self-care and quality of life for clients' with type II Diabetes Mellitus. 2. To find out the influence of self-care on quality of life for diabetic client. 3. To find out the relationship between self-care and quality of life for clients with diabetes mellitus type II with their socio demographic characteristic such as: (Age, sex, Marital status, Education level, Occupation, Monthly Income and Residency).			
Time and Setting of the Study			
Time: Start from October 2023 to August 2024 The samples will be collected from Al-Diwaniya Teaching Hospital at Diabetes and Endocrine Center			
Study Design			
Quantitative/ Descriptive study correlational design			
Sampling method and sample size			
A non-probability convenience sample of (300) clients with type 2 diabetic			
Statement of Ethical Commitment			
The study will be conducted in accordance with what was mentioned in the protocol above and to commitment that all rules set by the ethical committee are followed in present research process. The researcher also makes a commitment to abide by ethical principles, moral values, law and instruction of the institutions. There is no bias will be during collecting the data, gender, regional aspects and is totally impartial and objective. The researcher will have taken an informed consent from the participants, and provide clarifications and information about the study to the sample members. The researcher deals with the data of the sample members in complete confidentiality.			
Mohanad Jasim salah Name and signature of the researcher			
Recommendation of the College's Research Ethical Committee			
<input checked="" type="checkbox"/>	Agreement to conduct the study	<input type="checkbox"/>	Disagreement to conduct the study
 Instructor Dr. Sajidah Saadoon Oleiwi Member		 Ass. Prof. Dr. Zeki Sabah Musihb Member	
 Ass. Prof. Dr. Ghazwan Abdalhussein Member		 Ass. Prof. Dr. Hassan Abdullah Athbi Chairman of the Committee	

Appendix A2

جامعة كربلاء
Ministry of Higher Education & Scientific Research
University of Karbala
College of Nursing
KARBALA, IRAQ

العدد: 346 / 14
التاريخ: 2023 / 11 / 14

مركز الدراسات والبحوث
وزارة التعليم العالي والبحث العلمي
جامعة كربلاء
كلية التمريض
شعبة الدراسات العليا

346 / 14
التاريخ: 2023 / 11 / 14

الى / دائرة صحة الديوانية
م/ تمهيل مهمة

تحية طيبة...

يرجى التفضل بالموافقة على تسهيل مهمة طالب الدراسات العليا / الماجستير
(مهندس جاسم صالح) في كليتنا للعام الدراسي (2023-2024) لغرض جمع العينات
الخاصة برسالته الموسومة:

" تأثير الرعاية الذاتية للمراجعين المصابين بداء السكري من النوع الثاني على جودة
الحياة "

"Influence of Self-Care for Clients' with Type II Diabetes
Mellitus on Quality of Life

مع التقدير

أ.م.د. سلمان حسين فارس الكريفي
معاون العميد للشؤون العلمية و الدراسات العليا
2023 / 11 / 14

مكتبة السيد معاون العميد المعظم
شعبة الدراسات العليا

مكتبة السيد معاون العميد المعظم
شعبة الدراسات العليا



العنوان : العراق - محافظة كربلاء المقدسة - هي الوائقيين - جامعة كربلاء
Mail: nursing@uokerbala.edu.iq website:



Appendix A3

جمهورية العراق
محافظة الديوانية
دائرة صحة الديوانية
قسم التدريب والتنمية البشرية
عدد /
التاريخ / ٢٠٢٣



إلى / مستشفى الديوانية التعليمي

م / تسهيل مهمة بحثية

بهديتكم أطوبم التعاضد...

كتاب جامعة كربلاء / كلية التمريض المرقم ٣٤٦ في ٢٠٢٣/١١/١٤، المتضمن تسهيل مهمة طالب الماجستير (مهيد جاسم صالح)، لغرض جمع العينة البحثية في مستشفىكم ببحثه الموسوم:-

Influence of self-care for client with type II diabetes mellitus on quality of life.

لامانع لدينا من اجراء بحثه على ان لاتتحمل مؤسستكم اي تبعات مالية او قانونية من جراء البحث

مع الاحترام

المرفقات / كتاب جامعة كربلاء / كلية التمريض المرقم ٣٤٦ في ٢٠٢٣/١١/١٤
استمارة المعلومات البحثية + القرار بحث

الطبيب الاختصاص
يحيى فالح محمد
مدير قسم التدريب والتنمية البشرية
٢٠٢٣/١١/١٤

نسخة منه الى
مركز التدريب والتنمية البشرية / ادارة المعرفة والبحوث

Appendix A4

قرار لجنة اخلاقيات البحث العلمي

درست لجنة البحوث في دائرة صحة الديوانية مشروع البحث المقدم من قبل السيد الباحث (مهند جاسم صالح) طالب الماجستير في جامعة كربلاء / كلية التمريض، لغرض اكمال الجانب العملي في البحث ، علماً ان عنوان البحث.

Influence of self-care for client with type II diabetes mellitus on quality of life.

والمقدم من قبل الباحث الى مركز التدريب والتنمية البشرية دائرة صحة الديوانية بكتاب جامعة كربلاء / كلية التمريض المرقم ٣٤٦ في ٢٠٢٣/١١/١٤ قررت اللجنة :-
قبول مشروع البحث اعلاه كونه مستوفياً للمعايير المعتمدة في وزارة الصحة والخاصة بتنفيذ البحوث ولا مانع لدينا من تنفيذه .

تعديلات وملاحظات لجنة البحوث / لا يوجد

البحث مستوفي الشروط العلمية ومطابق لأخلاقيات البحث العلمي ولا مانع لدينا من إجراء البحث في (مستشفى الديوانية التعليمي).

رئيس اللجنة
الطبيب الاختصاص
يحيى فالح محمد

عضو
الاستاذ الدكتور
علي عبد الامير الخزاعي

عضو
الصيدلاني الاختصاص
مهند محمد فرمان

Appendix A5



وزارة الصحة
دائرة صحة الديوانية
قسم التدريب والتنمية البشرية
شعبة ادارة المعرفة والبحوث
قرار لجنة البحوث



استمارة رقم ٢٠٢٣ / ٠١

رقم القرار: ٤٢

تأريخ القرار: ٢٠٢٣/ ٣ / ١

قرار لجنة اخلاقيات البحث العلمي

درست لجنة البحوث في دائرة صحة الديوانية مشروع البحث المقدم من قبل السيد الباحث (مهند جاسم صالح) طالب الماجستير في جامعة كربلاء / كلية التمريض ، لغرض اكمال الجانب العملي في البحث ، علماً ان عنوان البحث.

Influence of self-care for client with type II diabetes mellitus

on quality of life..

والمقدم من قبل الباحث الى مركز التدريب والتنمية البشرية في دائرة صحة الديوانية بكتاب جامعة كربلاء / كلية التمريض المرقم ٣٤٦ في ٢٠٢٣/١١/١٤ قررت اللجنة :-

قبول مشروع البحث اعلاه كونه مستوفياً للمعايير المعتمدة في وزارة الصحة والخاصة بتنفيذ البحوث ولا مانع لدينا من تنفيذه .

تعديلات وملاحظات لجنة البحوث / لا يوجد

البحث مستوفي الشروط العلمية ومطابق لأخلاقيات البحث العلمي ولا مانع لدينا من اجراء البحث في (مستشفى الديوانية التعليمي).

رئيس لجنة البحوث

الطبيب الاختصاص / د. يحيى فالح محمد

٢٠٢٣ / /

Appendix C1

الاستبانة

عزيزي المراجع/ة

إن المعلومات التي تصدر عنك ستكون في غاية السرية ولن تستخدم إلا لغرض البحث العلمي فقط.. لذا
يمكنك الإدلاء برأيك بكل جدية ومصداقية

الجزء الاول: المعلومات الديموغرافية:

١. العمر : سنة

٢. الجنس: ذكر انثى

٣. الحالة الزوجية : أعزب متزوج انفصل طلاق مل

٤. المستوى التعليمي:

<input type="checkbox"/>	لا يقرأ ولا يكتب	<input type="checkbox"/>	يقرأ ويكتب
<input type="checkbox"/>	ابتدائية	<input type="checkbox"/>	متوسطة
<input type="checkbox"/>	اعدادية	<input type="checkbox"/>	كلية
<input type="checkbox"/>	دراسات عليا	<input type="checkbox"/>	معهد

٥. المهنة: ربة بيت موظف حكومي عاطل عن العمل

قطاع خاص إعمال حرة متقاعد

٦. الدخل الشهري:

<input type="checkbox"/>	- يكفي
<input type="checkbox"/>	- لا يكفي
<input type="checkbox"/>	- يكفي الى حد ما

٧. السكن حضر ريف

٨. مدة الإصابة بمرض السكري: سنة

٩. لديك مرض مزمن مصاحب لداء السكري: نعم كلا

١٠ . مصادر معلوماتك حول العناية بمرض السكري

العائلة
 الأصدقاء
 وسائل التواصل الاجتماعي
 المؤسسات الصحية

الجزء الثاني: العناية الذاتية بين مرضى السكري من النوع الثاني

أولاً: العناية الذاتية المتعلقة بالغذاء والحمية والتمارين

ت	الفقرات	٣	٢	١
الغذاء والحمية				
١	اتناول فقط الأطعمة المسموح بها	دائماً	أحياناً	أبداً
٢	أتجنب الأطعمة التي تحتوي على نشويات مثل الخبز			
٣	لا أفرط في شرب القهوة			
٤	أتجنب الأطعمة التي تؤثر على نسبة السكر في الدم			
٥	أتجنب الأطعمة الكثيرة السكريات			
٦	أتجنب المشروبات الغازية			
٧	أحرص على تناول الأطعمة الموصى بها من قبل الطبيب			
النشاط البدني				
١	أتحرك في الحياة اليومية	دائماً	أحياناً	أبداً
٢	أمارس النشاط الرياضي بانتظام			
٣	أحرص على ممارسة الرياضة الصباحية			
٤	إذا فأتني احد الأنشطة، أحاول استدرأها لاحقاً			

ثانياً: العناية الذاتية المتعلقة بالمواطبة على أخذ الدواء

ت	الفقرات	دائماً	أحياناً	أبداً
١	أستمر في تناول دوائي رغم تحسن حالتي الصحية			
٢	أستمر في تناول دوائي رغم انزعاجي من آثاره الجانبية			
٣	أأخذ دوائي معي في حالة ابتعادي عن البيت			
٤	لا أهمل تناول دوائي			
٥	أأكل جيداً قبل تناول الدواء			
٦	لا أغير دوائي إلا بعد استشارة طبيبي			
٧	أشتري الأدوية التي يصفها لي الطبيب			
٨	أراجع طبيبي في حالة تفاقم الآثار الجانبية لعلاجي			
٩	أتناول دوائي في المواعيد التي حددها لي الطبيب			
١٠	لا أنقص من جرعات دوائي			

ثالثا: العناية الذاتية المتعلقة بالفحوصات الدورية

ت	الفقرات	دائما	أحيانا	أبدا
١	اعمل على إجراء الفحوصات الدورية بشكل منتظم			
٢	احضر بانتظام لمواعيدي الطبية			
٣	لا أغير طبيبي بحثا عن طبيب أفضل			
٤	احضر إلى مواعيد الفحص الدوري حتى عند تحسن في حالتي الصحية			
٥	اجري الفحوصات التي يطلبها طبيبي بشكل منتظم			

رابعاً: العناية الذاتية المتعلقة بصحة القدم

ت	الفقرات	دائما	أحيانا	أبدا
١	تفحص قدميك بنفسك بشكل عام			
٢	تتحقق من أطرافك			
٣	لا يصعب عليك تجفيف قدميك بعد الاستحمام			
٤	تقص أو تعالج أطرافك أسبوعيا			
٥	تجفف قدميك في كل مرة تبتل فيها			
٦	أحافظ على تدفئه قدمي			
٧	أتابع تقرحات الجلد وجفاف البقع مع الطبيب			
٨	ارتدي الأحذية المناسبة وحسب الموسم			
٩	اعمل مساج يومية لقدمي			

خامساً: العناية الذاتية المتعلقة بالتأقلم مع الضغوط

ت	الفقرات	دائما	أحيانا	أبدا
١	أناقش المشكلات التي تواجهني مع عائلتي			
٢	ابتعد عن المهام التي قد تتسبب لي الاجهاد وعدم الراحة في المنزل			
٣	عندما اشعر بالضغط أزاوّل بعض التمارين الرياضية			
٤	أتناول بعض المسكنات والمهدئات			
٥	أتجادل وأتشاجر مع الآخرين في المنزل			
٦	أحتفظ بانفعالاتي ومشاعري داخل نفسي			
٧	أسعى إلى الانتقال إلى مكان آخر			
٨	أحرص على تحديد أولويات عملي اليومي			
٩	عندما اشعر بالضغط فاني أكثر من قراءة القرآن الكريم			
١٠	ألجأ إلى التمتع بإجازة من العمل			

الجزء الثالث : جودة الحياة بين مرضى السكري

المجال الاول : نوعية الحياة البدنية :						
ت	الفقرات	جدا	جيد	متوسط	ضعيف	ضعيف جدا
١	ما هو مدى رضاك عن حياتك الصحية ؟					
٢	من رأيك الى اي مدى يؤدي مرضك الى عجز عن القيام بالعمل ؟					
٣	حتى تستثمر حياتك ما مقدار الرعاية التي تحتاج اليها ؟					
٤	هل لديك الكفاية والفاعلية للقيام بواجبات الحياة اليومية ؟					
٥	كم انت قادر على التنقل هنا وهناك ؟					
٦	الى اي مدى انت راضي عن نومك ؟					
٧	مدى رضاك عن اداك لواجباتك اليومية ؟					
٨	مدى رضاك عن قدرتك على العمل ؟					
المجال الثاني : نوعية الحياة النفسية						
٩	ما هو تقديرك لنوعية حياتك ؟					
١٠	مدى استمتاعك بالحياة ؟					
١١	مدى شعورك بوجود معنى بحياتك ؟					
١٢	الى أي مدى يمكنك تركيز عقلك ببساطة ؟					
١٣	هل انت متقبل لبنيتك الجسمية ؟					
١٤	مدى رضاك عن نفسك ؟					
١٥	مدى شعورك بالحزن والاكتئاب والقلق ؟					
المجال الثالث : نوعية الحياة الاجتماعية :						
١٦	مدى رضاك عن علاقاتك الشخصية ؟					
١٧	مدى رضاك عن حياتك الجنسية ؟					
١٨	كم انت راضياً عن المساندة الاجتماعية التي يقدمها لك اصدقائك ؟					
١٩	مستوى نوعية الحياة تؤثر على نشاطك الاجتماعي ؟					
المجال الرابع : نوعية الحياة البيئية :						
٢٠	مدى شعورك بالأمن في الحياة ؟					
٢١	مدى اهتمامك الصحي في بيئتك الطبيعية ؟					
٢٢	هل انت كفاء لإشباع احتياجاتك ؟					
٢٣	مدى توفيرك المعلومات اللازمة والتي تحتاج اليها في حياتك اليومية ؟					
٢٤	الى أي مدى تتوفر لديك الفرصة للراحة والاسترخاء؟					
٢٥	مدى رضاك عن سكنك او مكانك التي تعيش فيه ؟					
٢٦	مدى رضاك عن الخدمات التي يقدمها المجتمع ؟					

WHOQOL.. (1998). Development of the World Health Organization WHOQOL-BREF . quality of life assessment. Psychological medicine, 28(3), 551-558

Appendix C2

Questionnaire

Influence of Self-Care for Clients' with Type II Diabetes Mellitus on Quality of Life

الحياة

Objectives of the study:

1. To assess the self-care and quality of life for clients' with type II Diabetes Mellitus.
2. To find out the influence of self-care on quality of life for diabetic client.
3. To find out the relationship between self-care and quality of life for clients with diabetes mellitus type II with their socio demographic characteristic such as: (Age,sex,Marital status, Education level, Occupation, Monthly Income and Residency).

Dear review

The information that is issued by you will be strictly confidential and will only be used for the purpose of scientific research. Therefore, you can express your opinion with all seriousness and credibility.

Part I: Socio-demographic Information

1. Age: years

2. Gender: Male Female

3. Social state

Single Married Separated
Divorced Widower

4. Education level

Unable to read and write Read and write
Elementary school Middle school
Secondary school High school and above

5. Occupation

Housewife Government

Employ Private or employ

Free Business Retired

6. Monthly Income

Less than 300 ID

300-600 ID

600-900 ID

900-1.200 ID

More than 1.200 ID

7. Residents

Urban Rural

8. Duration of DM years

9. Are you have a chronic disease associated with diabetes: Yes No

10. Your sources of information about diabetes care

Family Friends

Social media Health institutions

Part II: Self-Care for Clients' with Type II Diabetes Mellitus

First : Self-Care related to food, diet and exercise

List	Paragraph	Always	Sometime	Never
Food and diet		3	2	1
1	I avoid foods that contain starches , such as bread			
2	I don't drink too much coffee			
3	I avoid foods that effect my blood sugar			
4	I avoid foods with a lot of sugar			
5	I avoid soft drinks			
6	Make sure to eat foods recommended by your doctor			
Physical activity		Always	Sometime	Never
1	Movement in everyday life			
2	I do sports activity regularly			
3	Make sure to do morning exercise			
4	If I miss an activity , I try to catch it up later			

Second : Self-care related to medication adherence

List	Paragraph	Always	Sometime	Never
1	continued to take my medication even though my health condition improved			
2	I continued to take my medication even though I was bothered by its side effects			

3	I take my medicine with me in case I am away from home			
4	I do not delete appointments to take my medication			
5	Eat well before taking the medicine			
6	I do not change my medication until after consulting my doctor			
7	Buy the medicines prescribed by the doctor			
8	I see my doctor if the side effects of my treatment worsen			
9	Take my medication at the times set by the doctor			
10	Do not reduce the dose of my medication			

Third : Self-care related to periodic examinations

List	Paragraph	Always	Sometime	Never
1	Do regular check-ups			
2	Attend my medical appointments regular			
3	I do not change my doctor in search of a better one			
4	I come to my regular check-up appointment even when my health improves			
5	I do the examinations that my doctor orders on a regular basis			

Forth : Self-care related to foot care

List	Paragraph	Always	Sometime	Never
1	Generally check your feet yourself			
2	Check your nails			
3	It is not difficult for you to dry your feet after showering			
4	Cut or treat your nails weekly			
5	Your feet get dried every time they get wet			
6	I keep my feet warm			
7	I follow up skin ulcers and dry patches with the doctor			
8	Wear appropriate shoes according to the season			
9	I massage my feet daily			

Fifth : Self-care related to stress coping

List	Paragraph	Always	Sometime	Never
1	I try to discuss the problems I have with my family			
2	I apologize for the tasks that may cause the house			
3	When I feel stressed, I try to get some exercise			
4	I take some painkillers and sedatives			
5	I argue or fight with others at home			

6	I keep my emotions and feelings inside myself			
7	When I feel stressed, I try to transfer to another place			
8	I try to prioritize my daily work			
9	When I feel more pressure than reading the Holy Quran			
10	I resort to taking a vacation from work			

Part III : Quality of Life

First : Physical quality of life

List	Items	Very good	Good	Moderate	Poor	Very poor
1	How satisfied are you with your healthy life?					
2	In your opinion, to what extent does your illness lead to an inability to do work ?					
3	So invest your life how much care do you need ?					
4	Do you have the sufficiency and effectiveness to carry out the duties of daily life?					
5	How far are you able to move around?					
6	To what extent are you satisfied with your Sleep?					
7	How satisfied are you with your daily meals?					
8	How satisfied are you with your ability to work ?					

Second: Psychological Quality of Life

9	What is your assessment of the quality of your Life ?					
10	How much do you enjoy life?					
11	How do you feel there is meaning in your life?					
12	How far can you simply focus your mind ?					
13	Are you accepting of your physical structure?					
14	How satisfied are you with yourself ?					
15	How sad, depressed and anxious do you feel ?					

Third: Social Quality of Life

16	How satisfied are you with your personal relationships					
17	How satisfied are you with your sex life ?					

18	How satisfied are you with the social support provided by your friends					
19	The level of quality of life affects your social activity					
Fourth: Environmental Quality of Life						
20	How secure do you feel in life ?					
21	How healthy are you in your natural environment					
22	Are you competent to satisfy your needs ?					
23	How well do you provide the necessary information that you need in your daily life ?					
24	How often do you have the opportunity to rest and relax ?					
25	How satisfied are you with your housing or where you live ?					
26	How satisfied are you with the services provided by the community ?					

WHOQOL.. (1998). Development of the World Health Organization WHOQOL-BREF . quality of life assessment. Psychological medicine, 28(3), 551-558

Appendix D

قائمة بأسماء الخبراء المحكمين لاستمارة الاستبيان

ت	اسم الخبير	اللقب العلمي	مكان العمل	الاختصاص	سنوات الخبرة
1	د. علي كريم خضير الجبوري	استاذ	كلية التمريض/جامعة كربلاء	تمريض الصحة النفسية والعقلية	٣٢ سنة
2	د. سلمان حسين فارس	أستاذ مساعد	كلية التمريض/جامعة كربلاء	تمريض صحة مجتمع	٣٢ سنة
3	د. فاطمة وناس خضير	استاذ	كلية التمريض/جامعة كوفة	تمريض صحة مجتمع	٣٠ سنة
4	د. مرتضى غانم عداي	استاذ	كلية التمريض/جامعة وارث الانبياء	تمريض صحة مجتمع	١٧ سنة
5	د. منصور عبد الله فلاح	أستاذ مساعد	كلية التمريض/جامعة كوفة	تمريض صحة مجتمع	١٩ سنة
6	د. ايسن كمال محمد	أستاذ مساعد	كلية التمريض/جامعة بغداد	تمريض صحة مجتمع	١٨ سنة
7	د. قحطان قاسم محمد	أستاذ	كلية التمريض/جامعة بغداد	تمريض الصحة النفسية والعقلية	١٥ سنة
8	د. حسين منصور علي	أستاذ مساعد	كلية التمريض/جامعة كوفة	تمريض صحة مجتمع	١٢ سنة
9	د. حقي اسماعيل	مدرس	كلية التمريض/جامعة كربلاء	تمريض صحة مجتمع	٧ سنة
10	د. مهند غازي هبان	طبيب استشاري	دائرة صحة الديوانية/مستشفى الديوانية التعليمي	اخصائي الامراض الباطنية	٢٢ سنة

Appendix E1

Linguistic Certification

Republic of Iraq Ministry of higher education & scientific research University of Karbala College of Nursing Graduate studies Division		جمهورية العراق وزارة التعليم العالي والبحث العلمي جامعة كربلاء كلية التمريض شعبة الدراسات العليا
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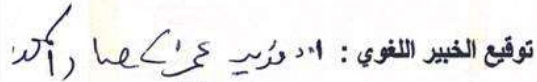
إقرار الخبير اللغوي

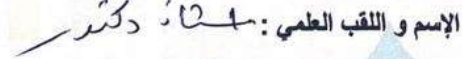
أشهد بأن الرسالة الموسومة :

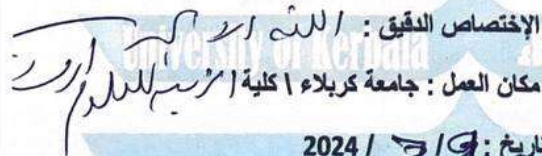
" تأثير الرعاية الذاتية للمراجعين المصابين بداء السكري من النوع الثاني على جودة الحياة "

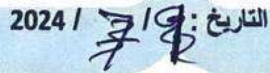
" Influence of Self-Care for Clients' with Type II Diabetes Mellitus on Quality of Life "

قد جرى مراجعتها من الناحية اللغوية بحيث أصبحت بأسلوب علمي سليم خالي من الأخطاء اللغوية ولأجله وقعت .

توقيع الخبير اللغوي : 

الإسم و اللقب العلمي : 

الإختصاص الدقيق : 
مكان العمل : جامعة كربلاء كلية التمريض

التاريخ :  / 7 / 2024

العنوان : العراق - محافظة كربلاء المقدسة - حي الموظفين - جامعة كربلاء
Mail: nursing@uokerbala.edu.iq website: nursing.uokerbala.edu.iq

Appendix E1

Statistical Certification

Republic of Iraq
Ministry of higher education & scientific research
University of Karbala
College of Nursing
Graduate studies Division



جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة كربلاء
كلية التمريض
شعبة الدراسات العليا

إقرار الخبير الإحصائي

أنهد بأن الرسالة الموسومة :

" تأثير الرعاية الذاتية للمراجعين المصابين بداء السكري من النوع الثاني على جودة الحياة "

" Influence of Self-Care for Clients' with Type II Diabetes Mellitus on Quality of Life "

قد تم الاطلاع على الإسلوب الإحصائي المتبع في تحليل البيانات و إظهار النتائج الإحصائية وفق مضمون الدراسة و لأجله وقعت .

توقيع الخبير الإحصائي :

الإسم و اللقب العلمي : د. م. م. خالد

الإختصاص الدقيق : إحصاء تطبيقي

مكان العمل : جامعة كربلاء كلية الأتمتة والإقتصاد

التاريخ : ٢٠٢٤ / ١٦

العنوان : العراق - محافظة كربلاء المقدسة - حي الموظفين - جامعة كربلاء

Mail: nursing@uokerbala.edu.iq

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المستخلص

مرض السكري من النوع الثاني هو حالة مزمنة ومعقدة تؤثر على الجسم كله، يتطلب مرض السكري رعاية ذاتية يومية ويمكن أن يؤدي عدم القيام بهذه الرعاية إلى مضاعفات تؤثر بشكل كبير على الصحة ونوعية الحياة. هدفت هذه الدراسة إلى تقييم الرعاية الذاتية لدى المراجعين المصابين بداء السكري من النوع الثاني وتحديد تأثير الرعاية الذاتية على جودة الحياة مع خصائصهم الاجتماعية والديموغرافية. استخدمت الدراسة الوصفية منهج التقييم وأجريت في مركز السكري والغدد الصماء في مدينة الديوانية للفترة من ١٥/١٠ / ٢٠٢٣ إلى ٢٧/٦/٢٠٢٤ تم اختيار عينة عشوائية غير احتمالية من (١٥٠) مراجعا مصاباً بداء السكري من النوع الثاني يزورون المركز السكري. تم التحقق من صحة الاستبيان من قبل الخبراء وموثوقيته من خلال ألفا كرونباخ. كان إجمالي عدد بنود الاستبيان ٧١ عنصراً. تم جمع البيانات من خلال المقابلات وتحليلها باستخدام التحليل الإحصائي الوصفي والاستنتاجي. أشارت نتائج الدراسة إلى أن ٤٢٪ متوسط العمر (٥٦ ± ٥ سنوات) مع فئة عمرية الأكبر سناً ٥٠-٥٩ سنة. الذكور أكثر من الإناث (٥٨٪، ٤٢٪) على التوالي، كما أن غالبية العينة ٨٠٪ متزوجون. بينما، أقل من نصف المشاركين ٤٢،٦٪ ذوي مستوى تعليمي منخفض وأكثرهم ٤٣،٣٪ ربات بيوت مع ٨١،٣٪ دخل شهري غير كاف. أشار السكن إلى أن ٧١،٣٪ من المراجعين كانوا مقيمين في المناطق الحضرية. أظهرت نتائج الدراسة أن ٦٥٪ لديهم مستوى جيد من سلوك الرعاية الذاتية ($M \pm SD = 106,86 \pm 10,525$). بينما، أغلبية العينة ٩٠٪ بمستوى متوسط لجودة الحياة ($M \pm SD = 81,12 \pm 10,529$). كان هناك علاقة مهمة بين سلوك الرعاية الذاتية للمراجعين ومستوى تعليمهم ووظيفتهم عند قيمة $p = 0,029$ و $0,000$ على التوالي. كذلك هناك ارتباط إحصائي كبير بين جودة حياة المرجعين وجنسهم ومستوى تعليمهم ووظيفتهم ودخلهم الشهري عند قيم $p = 0,013$ و $0,001$ و $0,031$ على التوالي. لخصت الدراسة أن أكثر من نصف العينة أكثر التزاماً بمستوى سلوك الرعاية الذاتية وأغلبيتهم بمستوى متوسط من جودة الحياة. توصي الدراسة بتطوير برامج تعليمية لتلبية احتياجات المراجعين المصابين بداء السكري من النوع الثاني، وخاصة أولئك الذين هم أميون أو ذوي مستوى تعليمي منخفض. إعطاء الأولوية للمبادرات الصحية التي تركز على تعزيز إمكانية الوصول إلى موارد رعاية السكري بما في ذلك الفحوصات الدورية وورش العمل التعليمية.



جامعة كربلاء
كلية التمريض

تأثير الرعاية الذاتية للمراجعين المصابين بداء السكري من النوع الثاني
على جودة الحياة

رسالة تقدم الى

مجلس كلية التمريض – جامعة كربلاء

وهي جزء من متطلبات نيل درجة الماجستير علوم في التمريض

بواسطة

مهند جاسم صالح

إشراف

أ.م. د غزوان عبد الحسين عبد الواحد

حزيران ٢٠٢٤ م

نوالحجة ١٤٤٦ هـ