Kirkuk Journal of Medical Sciences

ORIGINAL ARTICLE

Attitude Of Diabetic Patients Towards Their Nutritional Status In Kirkuk City

Abdullah Raad Mijwil [1,*] and Wafa Mahmood Jasim [2]

[1]*Department of Community Health Nursing, College of Nursing, University of Kirkuk, Kirkuk, Iraq.*
[2]*Northern Technical University, College of Health and Medical Techniques Kirkuk, Iraq.*

[*]*Corresponding author email: nsrm22006@uokirkuk.edu.iq*

Received: 11 June 2024
Accepted: 20 August 2024
First published online: 02 February 2025

DOI: 10.32894/kjms.2024.150813.1107.

ABSTRACT

Background: Diabetes mellitus is rapidly becoming one of the main health issues and problem in the 21st century among humans, the number of patients with diabetes mellitus is steadily increasing both in developed and developing countries. Diabetes mellitus is a major health problem that results in serious consequences on global health and its economy. This study aimed to assess the diabetic attitude regarding their nutritional status in Kirkuk city.

Methods: A descriptive design study started from 12 November 2023 and ended at 28 March 2024 in three places in Kirkuk city in Iraq, with a non–random sample collection of (425) diabetic patients who were diagnosed with diabetes mellitus.

Results: The mean age of the patients was 50.47 ± 16.24 years. Of them, 49.6% were men compared to 50.4% female. Additionally, 318 (74.8%) of participants had accompanying diseases, including diabetes.

Conclusion: There was a high level of attitude among diabetic patients regarding their nutritional status in Kirkuk City.

Key words: Diabetes Mellitus; Attitude; Nutritional status.

INTRODUCTION

Diabetes mellitus (DM) is a serious, chronic disease that occurs either through impaired. insulin secretion, insulin resistance, or both [1, 2].

The number of people with diabetes increased from 108 million in 1980 to 422 million in 2014. The prevalence of this disease continues to increase rapidly in low and middle income countries, compared to high income countries. It was estimated that in 2019, the disease was the direct cause of 1.5 million deaths and that, on the other hand as in 2012, 2.2 million people died because of hyperglycemia [3].

Diabetes mellitus is a common and devastating medical condition that has increased in prevalence over the past few decades to constitute a major public health challenge of the twenty-first century, and regarded as one of the five leading cause of death [4].

Diabetes mellitus not only reduces quality of life and life expectancy but is also a major cause of several microvascular and macrovascular complications that lead to blindness, renal failure, myocardial infarction, stroke, and may necessitate limb amputation. The burden of diabetes mellitus associated complications worldwide is therefore, a major healthcare problem that urgently needs solutions to control it [5].

Most studies show that achieving optimal glycemic control is challenging because of the management complexity and lack of diabetes related awareness [6].

In some circumstances where diabetic patients experience complications away from medical help, understanding their nutritional status and diabetic complications is important for survival [7].

Managing DM primarily relies on patients' capacity for self-care in everyday life. Research indicates that well-informed patients about DM self-care maintain better long-term blood sugar levels, necessitating sufficient knowledge and attitudes among patients [8].

Enhanced diabetic knowledge can improve patients' ability to manage and adapt to their condition, whereas inadequate diabetes knowledge correlates with a higher hospitalization rate due to unstable conditions [9].

Increasing evidence shows that educating patients is the most effective way to reduce diabetes complications by improving their attitude and practice. Common unfavorable attitudes among diabetes patients can lead to poor care and provoke complications [10].

MATERIAL AND METHODS

Before the study began, administrative approval was obtained from the Kirkuk Health Directorate, allowing the research to take place in the specialized clinics on Baghdad Street, Ronaki, and Azadi Teaching Hospital. All participating patients willingly provided oral informed consent prior to data collection, after receiving a thorough explanation of the study's goals and objectives. The research utilized a descriptive cross-sectional design, commencing on December 11, 2023, and concluding on March 28, 2024, spanning a total of four and a half months.

The study participants consist of patients who have been diagnosed with diabetes mellitus and are attending these centers. A non-random convenience sample was selected to achieve the required outcomes. The following formula is used to determine the sample size.

N represents the sample size, Z signifies the standard deviation at a 95% confidence level, equivalent to 1.96, E indicates the margin of error, set at 0.05, P denotes the proportion of diabetic patients utilized (0.5) to enhance the study's sample size objectives [11].

The total sample size was initially set at 384 but was expanded to 425 to overcome the potential impact of outliers and missing data. A custom-designed questionnaire was employed, comprising two primary sections: one on demographic information and the other on attitudinal data. The demographic section includes seven questions, while the section on attitudes features 10 questions.

The data analysis was conducted using the Statistical Package for Social Sciences (SPSS) software, version 23. Sociodemographic information was summarized using frequencies and percentages. Attitudinal data analysis involved calculating frequencies and percentages for both incorrect and correct responses alongside the mean, standard deviation, and relative sufficiency (RS%) for correct answers.

The inclusion criteria were: diabetic patients who gave voluntary consent for participation, were over 10 years old, and resided within Kirkuk City.

The exclusion criteria included: diabetic patients who declined participation, were under 10 years of age, and pregnant or lactating women. Relative sufficiency (RS%) is determined by * 100%.

The responses were coded as follows:

- A disagreement response was assigned a code of (1).
- An uncertain response was assigned a code of (2).
- An agreement response was assigned a code of (3).

The mean attitude score is divided into three groups: a range

of (1.00–1.66) is classified as a poor attitude, (1.67–2.33) as a moderate attitude, and (2.34–3.00) as a good attitude [12].

RESULTS

The demographic and clinical characteristics illustrated in (Table 1), show that females constitute a slighty higher percentage 214 (50.4%) of the participants compared to males 211 (49.6%). Additionally, 180 participants (42.4%) fall into the age group of 40-60 years, and 284 (66.8%) of them are married. Furthermore, a significant percentage 284 (66.8%) are non-employees, and 290 (68.2%) use tablets for diabetes treatment. Among them, 349 (82.1%) are non-smokers, and 318 (74.8%) have accompanying diseases alongside diabetes.

Table 1. Demographic and Clinical Characteristics of the Study Population

Variables	Categories	No.	%
Sex	Male	211	49.6%
	Female	214	50.4%
Age (years)	<20	24	5.6%
	20–39	60	14.1%
	40–59	180	42.4%
	>59	161	37.9%
	Mean ± SD	50.477 ± 16.245	
Marital Status	Single	64	15.1%
	Married	284	66.8%
	Widow	9	2.1%
	Divorced	68	16.0%
Occupation	Non-employee	284	66.8%
	Employee	83	19.5%
	Retired	58	13.6%
Type of Treatment	Injection	108	25.4%
	Tablet	290	68.2%
	Mix	27	6.4%
Smoking	Non-smoker	349	82.1%
	Smoker	62	14.6%
	Ex-smoker	14	3.3%
Other Accompanying Diseases	Found	318	74.8%
	Not Found	107	25.2%

Overview of diabetic patients' perspectives on various aspects of diabetes management presented on (Table 2) indicating levels of agreement, uncertainty, and disagreement for each statement, along with their Relative Strength Percentage (RS%). A significant 90.6% (RS% = 96.33) of patients strongly agree that nutrition is crucial for diabetes management, receiving a "High" evaluation. Eating vegetables (78.1%, RS% = 89.33) and avoiding smoking and alcohol (77.6%, RS% = 90.33) are also rated as "High" in importance. Moderate agreement is observed for suggestions such as consuming small, frequent meals (27.6%, RS% = 72.33), removing visible fat and skin from meat (27.3%, RS% = 73.66), and understanding that overeating raises blood sugar levels (33.5%, RS% = 74.66). Statements concerning obesity increasing diabetes risk (31.3%, RS% = 71.00) and the effect of dietary fiber on blood sugar control (27.5%, RS% = 69.33) also receive a "Moderate" evaluation. Notably, opinions on allowing occasional sweets (37.4%, RS% = 68.00) and sprinkling a small amount of salt on meals (43.1%, RS% = 76.66) demonstrate moderate agreement, with relatively higher uncertainty and disagreement compared to other statements.

Notably, no items are rated as having a low attitude, seven items show a moderate attitude, and three items are rated with a high attitude.

The general evaluation of attitudes from the sample study shown in (Figure 1) is split into two parts, illustrating the share of positive versus negative attitudes among the participants. Positive attitudes dominate, comprising 78% of the responses, while negative attitudes account for 22%.

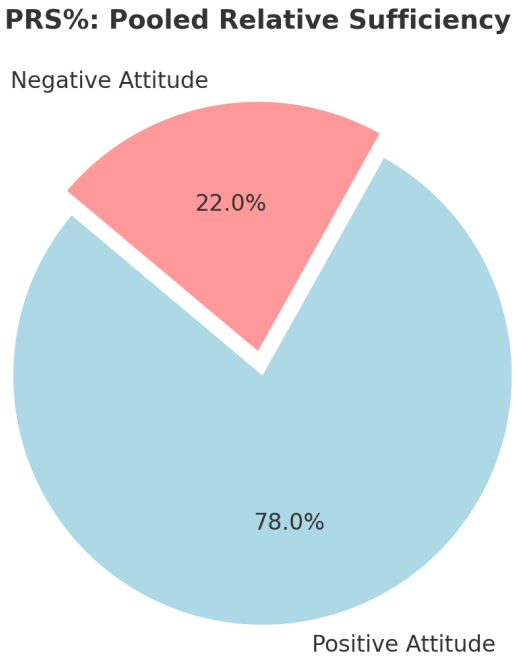

Figure 1. Overall assessment of attitudes in the sample study.

Table 2. Distribution of Diabetic Patients Based on their Attitudes Towards Diabetes Management & Nutrition

Question	Agree (%)	Uncertain (%)	Disagree (%)	Mean ± SD	RS%	Assessment
Nutrition plays an important role in managing diabetes	90.6	7.5	1.9	2.89 ± 0.372	96.33	High
It is preferable to eat small and frequent meals to manage blood sugar	27.6	61.6	10.8	2.17 ± 0.597	72.33	Moderate
Obesity increases the risk of diabetes	31.3	50.6	18.1	2.13 ± 0.691	71.00	Moderate
It is recommended to remove visible fats from red meat and eat chicken without skin	27.3	66.1	6.6	2.21 ± 0.545	73.66	Moderate
Eating a large amount of food simultaneously leads to an increase in blood sugar	33.5	57.6	8.9	2.24 ± 0.604	74.66	Moderate
Eating vegetables is a good habit for diabetic patients	78.1	11.3	10.6	2.68 ± 0.657	89.33	High
Sometimes eating sweets may be a consideration	37.4	29.2	33.4	2.04 ± 0.842	68.00	Moderate
Smoking and alcohol cause poor blood sugar control	77.6	15.5	6.8	2.71 ± 0.586	90.33	High
Dietary fiber can help control blood sugar levels	27.5	52.9	19.5	2.08 ± 0.682	69.33	Moderate
Can add a little salt when eating	43.1	44.2	12.7	2.30 ± 0.683	76.66	Moderate

RS%: Relative Strength Percentage, indicating the level of agreement with each statement.

DISCUSSION

Diabetes mellitus is a chronic condition that requires comprehensive management, including medical treatment, lifestyle modifications, and dietary adjustments [13].

Understanding the attitudes of diabetic patients toward their nutritional status is important, as diet plays a pivotal role in controlling blood glucose levels and preventing complications. However, addressing these attitudes can be challenging, particularly in regions where socio-demographic factors, cultural practices, and access to healthcare resources significantly influence patient behavior. In Kirkuk City, where diabetes prevalence is rising, exploring these attitudes is essential to developing targeted interventions that improve patient outcomes. This study examines the socio-demographic characteristics of diabetic patients—such as sex, age, marital status, occupation, treatment type, smoking habits, and the presence of accompanying diseases and investigates their attitudes toward nutritional management. By identifying patterns and comparing them with existing literature, this research aims to provide insights that can inform better diabetes care strategies in the region.

According to recent data, there was almost equality between males and females, (49.6%) males and (50.4%) females, this finding is in agreement with the study aimed to examine awareness, attitude, and the practice of healthy lifestyles to prevent and/or deal with diabetes in the province of Kirkuk - Iraq [14].

This study shows that (42.4%) of the participants' age were between (40-60) years and this was similar to study conducted to evaluate knowledge and attitude of diabetic patients towards the oral complications of diabetes [15].

According study conducted to determine quality of life (QOL) of type 2 diabetes mellitus patients and analyze factors that affect patients' QOL, which explain that high percentage of diabetic patients (67.5%) were married [16], this result was consist with current study which explain that (66.8%) of sample were married.

The present study observed that 66.8% of the sample were non-employees, and this result is similar to a study conducted to evaluate the knowledge, attitudes, and practices regarding diabetes among 100 Iranian type 2 diabetics [17]. Additionally, this study identified a high percentage of the sample (68.2%) who used tablets to treat diabetes, which aligns with a study assessing the current knowledge, attitudes, and practices of patients towards managing diabetes [9].

According to recent data, a high percentage of the sample (82.1%) were non-smokers, and this result agrees with a study conducted to evaluate the effect of various demographic, clinical, and social factors on the quality of life (QOL) of diabetic patients [18].

According to a study conducted to assess the quality of life among diabetic patients attending primary health care centers, a high percentage of diabetic patients had other diseases accompanying diabetes [18]. This result aligns with the findings of the present study, which revealed that 74.8% of the sample had other accompanying diseases.

The "attitude data" results indicate a high level of awareness among diabetic patients regarding their nutritional status. This finding aligns with studies conducted in western Nepal, which explored the demographic details and knowledge, attitude, and practices (KAP) of diabetes patients [19]. Similar consistency is observed in research from Kirkuk, Iraq, which assessed awareness, attitudes, and healthy lifestyle practices for diabetes prevention or management [20], as well as in Uganda, where the dietary knowledge, attitude, and practices of diabetic patients were examined [21–23].

CONCLUSION

A significant level of nutritional awareness was observed among diabetic patients in Kirkuk City, with the majority being middle-aged, married, unemployed, and relying on oral hypoglycemic agents. Future initiatives should prioritize the integration of medical treatment with lifestyle modifications to enhance diabetes management and patient outcomes.

ETHICAL DECLARATIONS

- **Ethics Approval and Consent to Participate**

  The study protocol, subject information, and permission form underwent assessment and approval by a local ethics committee in Kirkuk Health Directorate, as per document number 735, dated 02/11/2023.

- **Consent for Publication**

  Non.

- **Availability of Data and Material**

  The datasets are available from the corresponding author upon reasonable request.

- **Competing Interests**

  The authors declare that there is no conflict of interest.

- **Funding**

  Self funded.

- **Authors' Contributions**

  All authors contributed significantly, directly, and intellectually to the work and consented to its publication.

REFERENCES

[1] Belsti Y, Akalu Y, Animut Y. Attitude, practice and its associated factors towards Diabetes complications among type 2 diabetic patients at Addis Zemen District hospital, Northwest Ethiopia. BMC Public Health 2020;20:1–11. https://doi.org/10.1186/s12889-020-08953-6.

[2] Mohammed A. Correlation between HbA1c and lipid profile in patients with Type 2 diabetes mellitus. Kirkuk Journal of Medical Sciences 2023;11(1):101–107. http://dx.doi.org/10.32894/kjms.2022.136535.1043.

[3] Suryasa IW, Rodríguez-Gámez M, Koldoris T. Health and treatment of diabetes mellitus. International journal of health sciences 2021;5(1):1–5. https://doi.org/10.53730/ijhs.v5n1.2864.

[4] Tomic D, Shaw JE, Magliano DJ. The burden and risks of emerging complications of diabetes mellitus. Nature Reviews Endocrinology 2022;18(9):525–539. https://doi.org/10.1038/s41574-022-00690-7.

[5] Aldossari KK, Aldiab A, Al-Zahrani JM, Al-Ghamdi SH, Abdelrazik M, Batais MA, et al. Prevalence of prediabetes, diabetes, and its associated risk factors among males in Saudi Arabia: a population-based survey. Journal of diabetes research 2018;2018(1):2194604. https://doi.org/10.1155/2018/2194604.

[6] Kanter JE, Bornfeldt KE. Impact of diabetes mellitus. Arteriosclerosis, Thrombosis, and Vascular Biology 2016;36(6):1049–1053. https://doi.org/10.1161/ATVBAHA.116.307302.

[7] Chetoui A, Kaoutar K, Elmoussaoui S, Boutahar K, El Kardoudi A, Chigr F, et al. Prevalence and determinants of poor glycaemic control: a cross-sectional study among Moroccan type 2 diabetes patients. International Health 2022;14(4):390–397. https://doi.org/10.1093/inthealth/ihz107.

[8] Maina JW. Understanding the types and causes of diabetes mellitus. International Journal of Biology Research 2018;3:202–207.

[9] Al-Maskari F, El-Sadig M, Al-Kaabi JM, Afandi B, Nagelkerke N, Yeatts KB. Knowledge, attitude and practices of diabetic patients in the United Arab Emirates. PloS one 2013;8(1):e52857. https://doi.org/10.1371/journal.pone.0052857.

[10] Odili VU, Isiboge PD, Eregie A. Patients' knowledge of diabetes mellitus in a Nigerian city. Tropical Journal of Pharmaceutical Research 2011;10(5):637–642. http://dx.doi.org/10.4314/tjpr.v10i5.13.

[11] Charan J, Biswas T. How to calculate sample size for different study designs in medical research? Indian journal of psychological medicine 2013;35(2):121–126. https://doi.org/10.4103/0253-7176.116232.

[12] DeVellis RF, Thorpe CT. Scale development: Theory and applications. Sage publications; 2021.

[13] Ali WM. Factors associated with poor glycemic control in diabetic patients in Kirkuk. Kirkuk Journal of Medical Sciences 2022;10(1):87–97. https://doi.org/10.32894/kjms.2022.174187.

[14] Othman OH. Knowledge, Attitude and Practice of Diabetes in the Province of Kirkuk-IRAQ. Journal for ReAttach Therapy and Developmental Diversities 2022;5(1):87–95.

[15] Elsayed M, Awooda E. Knowledge and Attitude of Diabetic Patients towards the Oral Complications of Diabetes Mellitus and Factors Associated with Their Knowledge in Khartoum State, Sudan. British Journal of Medicine and Medical Research 2017;21(4):1–13. https://doi.org/10.9734/BJMMR/2017/32035.

[16] Alsuwayt S, Almesned M, Alhajri S, Alomari N, Alhadlaq R, Alotaibi A. Quality of life among type II diabetic patients attending the primary health centers of King Saud Medical City in Riyadh, Saudi Arabia. Journal of Family Medicine and Primary Care 2021;10(8):3040–3046. https://doi.org/10.4103/jfmpc.jfmpc_175_21.

[17] Mohammadi S, Karim NA, Talib R, Amani R. Knowledge, attitude and practices on diabetes among type 2 diabetic patients in Iran: a cross-sectional study. Science 2015;3(4):520–4. https://doi.org/10.11648/j.sjph.20150304.20.

[18] Almasri DM, Noor AO, Ghoneim RH, Bagalagel AA, Almetwazi M, Baghlaf NA, et al. The impact of diabetes mellitus on health-related quality of life in Saudi Arabia. Saudi Pharmaceutical Journal 2020;28(12):1514–1519. https://doi.org/10.1016/j.jsps.2020.09.018.

[19] Khalaf MA, Salih HS. Quality of Lifestyle Status of Patients with Diabetes Mellitus Attending Primary Health Care Centers in Kirkuk City. The International Tinnitus Journal 2024;28(1):45–50.

[20] Upadhyay DK, Palaian S, Shankar PR, Mishra P, Pokhara N. Knowledge, attitude and practice about diabetes among diabetes patients in Western Nepal. Rawal Med J 2008;33(1):8–11.

[21] Ntaate C. Dietary knowledge, attitude and practices of diabetic patients at Nsambya Hospital Kampala, Uganda. PhD thesis, Stellenbosch: University of Stellenbosch; 2015.

[22] Ali NS, Al-Kadhi NA, Noraldeen MY. Association of H. pylori IgG and CagA-IgG with Some Immunological and Biochemical Parameters in Diabetic Patients. NTU Journal of Pure Sceinces 2024;3(1):1–8. https://doi.org/10.56286/ntujps.v3i1.

[23] Alkubaisi MR, Tahir NT, Abdilya R, et al. Dyslipidemia poses a significant risk of many complications for Type 2 Diabetes Mellitus Patients: Article Review. NTU Journal of Pure Sciences 2023;2(3):34–40. https://doi.org/10.56286/ntujps.v2i3.