

Original Article

Perception among Diabetic Mellitus Patients Towards Their Diet & Physical Activity at Institute of Chest Diseases Hospital Kotri

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ABSTRACT

Background: Diabetes mellitus (DM) presents a significant health challenge in Pakistan. Understanding the role of diet and physical activity is crucial as they are key factors influencing the occurrence, seriousness, and control of DM. This study seeks to assess the understanding and attitudes towards dietary habits and exercise among a cohort of adults living with DM in Kotri, Sindh.

Objective: This study aimed to identify the nutritional status and level of physical activity of individuals with type II diabetes.

Methods: A cross-sectional study was conducted at the Institute of Chest Diseases Hospital Kotri, Sindh, from 2nd February 2024 to April 2024. Data were collected from 100 participants of both genders using a pre-structured questionnaire. Participants were approached using a convenient sampling method. The questionnaire collected data on demographics, dietary habits, and physical activity levels. Anthropometric measurements, including body mass index (BMI) and blood sugar levels, were recorded. Data analysis was performed using SPSS version 25.0, applying descriptive statistics to summarize the data.

Results: The average age of respondents was between 51 and 60 years. Male respondents made up 74% of the sample, while females comprised 26%. On average, participants had been living with diabetes for 3 to 5 years. Nearly half (49%) of the respondents were aware of the importance of diet in managing diabetes, but many struggled to integrate this knowledge into their lives, primarily due to social factors. Most participants followed a carbohydrate-heavy diet. Economic constraints led to a lack of fruit consumption among many respondents. Despite these challenges, 63% of participants reported being physically active. Only 37% did not engage in any regular physical activity. About 53% of participants had high blood sugar levels, and 47% had normal levels.

Conclusion: The participants acknowledged the importance of dietary control and physical activity in managing diabetes; however, their compliance with these measures was lacking, primarily because of confusion arising from ambiguous information and socio-economic barriers. Addressing these issues through targeted educational and intervention programs is essential for improving diabetes management in this population.

Keywords: Diabetes Mellitus, Type II Diabetes, Nutritional Status, Physical Activity, Body Mass Index, Blood Sugar Levels.

INTRODUCTION

Diabetes mellitus (DM) is a chronic metabolic disease marked by elevated blood glucose levels and encompasses various types, including type 1, type 2, and gestational diabetes, with type 2 being the most prevalent and affecting individuals across all age groups (1). DM is a lifelong condition that necessitates continuous management through medications and lifestyle modifications (2). Adopting a healthy lifestyle, which includes weight loss, healthy eating, and regular physical activity, can prevent or delay the onset of type 2 diabetes (3). Currently, approximately 537 million adults aged between 20 and 79 years are living with diabetes, a figure projected to rise to 643 million by 2030 and 783 million by 2045 The International Diabetes Federation (IDF) reports that 8.8% of the global adult population has diabetes, with men exhibiting slightly higher rates (9.6%) compared to women (9.0%) (4). Pakistan,

in particular, has a younger demographic affected by diabetes, with an average age of 53.5 years, significantly lower than the global average of 64.2 years. This high prevalence imposes a substantial burden on Pakistan's healthcare system and economy (5).

The symptoms of type II diabetes include increased thirst (polydipsia), frequent urination, fatigue, blurred vision, unexplained weight loss, numbness or tingling in the extremities, and slow-healing sores or cuts (6). The risk factors for diabetes vary by type, but a family history is a common contributing factor (7). Additionally, race or ethnicity can influence the risk of developing type 2 diabetes, with higher susceptibility observed among Black, Hispanic, American Indian, and Asian American populations. Overweight or obesity is also a significant risk factor for prediabetes, type 2 diabetes, and gestational diabetes (8). Long-term complications of diabetes, which develop gradually, include coronary artery disease, heart attack, stroke, and atherosclerosis. These risks increase with the duration of diabetes and poor blood sugar control (9).

Lifestyle factors such as diet and physical activity are crucial in managing and preventing diabetes-related complications. However, the perception and adherence to dietary and physical activity guidelines among DM patients are influenced by various socio-cultural factors. Understanding these perceptions is essential for effective diabetes management (10). In Kotri, Sindh, cultural norms and socio-economic factors may significantly impact the perception of physical activity among DM patients. Barriers such as lack of access to recreational facilities, gender-specific constraints, and misconceptions about physical activity's role in diabetes management can hinder regular physical activity. Addressing these barriers is crucial for promoting physical activity among DM patients in Kotri. Recent research suggests that a diet low in carbohydrates and high in protein is effective for diabetes management. Adopting a Mediterranean-style diet and engaging in at least 30 minutes of physical activity most days of the week are recommended for managing DM. It is also advised to avoid weight loss attempts during pregnancy and focus on appropriate weight gain (11).

Awareness and knowledge about diabetes management vary among patients in Pakistan. Many patients, especially in rural areas with limited healthcare resources and education, may lack comprehensive understanding of the importance of diet and physical activity in managing their condition (12). Several barriers, including limited access to nutritious foods, financial constraints, cultural preferences, and misconceptions, hinder adherence to dietary and physical activity recommendations among diabetes patients in Pakistan (13).

This study seeks to assess the understanding and attitudes towards dietary habits and exercise among adults with DM at the Institute of Chest Diseases Hospital Kotri, Sindh. By exploring the nutritional status and physical activity levels of individuals with type II diabetes, this research aims to provide valuable insights into the demographic and lifestyle factors affecting diabetes management. Such understanding is critical for developing targeted interventions to improve diabetes care and outcomes in this population.

MATERIAL AND METHODS

A cross-sectional study was conducted at the Institute of Chest Diseases Hospital Kotri, Sindh, from 2nd February to 30th April 2024. The study aimed to assess the nutritional status and physical activity levels among individuals with type II diabetes mellitus. Data were collected from 100 participants, both male and female, using a pre-structured questionnaire. Participants were selected using a convenient sampling method, ensuring a diverse representation of the target population. The questionnaire included sections on demographic information, dietary habits, and physical activity levels.

Participants were approached and informed about the study's objectives and procedures. Informed consent was obtained from all participants, ensuring compliance with ethical standards. The study adhered to the principles outlined in the Declaration of Helsinki. Permission for the study was obtained through the proper channels, including approval from the Director of the Peoples Nursing School at Liaquat University of Medical & Health Sciences, Jamshoro, who forwarded the application to the Director of the Institute of Chest Diseases Hospital, Kotri.

Data collection involved face-to-face interviews conducted by trained healthcare professionals to ensure accuracy and consistency. The questionnaire included questions about participants' dietary plans, meal timing, types of foods consumed, and frequency of physical activity. Additionally, anthropometric measurements such as body mass index (BMI) and blood sugar levels were recorded. The data were analyzed using SPSS version 25.0. Descriptive statistics, including frequencies and percentages, were calculated to summarize the demographic characteristics, dietary habits, and physical activity levels of the participants. The relationship between these variables and diabetes management was explored through statistical analysis.

The results were presented in tables to provide a clear overview of the demographic distribution, dietary responses, physical activity levels, and anthropometric measurements of the participants. Ethical considerations were strictly adhered to, ensuring the confidentiality and anonymity of the participants' information. The study aimed to provide valuable insights into the perceptions and behaviors of diabetic patients towards diet and physical activity, highlighting areas for potential intervention and improvement in diabetes management.

Throughout the study, the researchers maintained rigorous standards of data collection and analysis to ensure the reliability and validity of the findings. The comprehensive approach adopted in this study aimed to contribute to the existing body of knowledge on diabetes management and to inform future research and interventions targeting diabetic populations in similar socio-cultural settings.

RESULTS

The study analyzed the demographic characteristics, dietary habits, and physical activity levels of 100 participants with type II diabetes mellitus from the Institute of Chest Diseases Hospital Kotri, Sindh. The results are presented in tabulated format, with descriptions provided above each table.

Table 1: Demographic Data of Study Participants

Variable	Category	Frequency	Percentage (%)
Gender	Male	74	74.0
	Female	26	26.0
Age	30-40	22	22.0
	41-50	22	22.0
	51-60	44	44.0
	61-70	10	10.0
	>70	2	2.0
Marital Status	Unmarried	7	7.0
	Married	88	88.0
	Widow	5	5.0
Educational Status	Uneducated	41	41.0
	Primary	12	12.0
	Middle	7	7.0
	Secondary	17	17.0
	Higher Secondary	10	10.0
	Graduation	11	11.0
	Masters	2	2.0
Employment Status	Unemployed	50	50.0
	Employed	38	38.0
	Self-employed	10	10.0
	Retired	2	2.0

The majority of participants were male (74%), and the most common age group was 51-60 years (44%). Most participants were married (88%), uneducated (41%), and unemployed (50%).

Table 2: Diet Response of Study Participants

Variable	Category	Frequency	Percentage (%)
Do you have any diet plan?	Yes	49	49.0
	No	51	51.0
Importance of diet in DM	Yes	64	64.0
	No	36	36.0
Do you take meals on time?	Yes	79	79.0
	No	21	21.0
Do you consume sweets?	Yes	63	63.0
	No	37	37.0
Type of diet	Carbohydrates	46	46.0
	Lipid Diet	5	5.0
	Protein Diet	19	19.0
	Others	30	30.0

Variable	Category	Frequency	Percentage (%)
Do you consume fruits?	Yes	39	39.0
	No	61	61.0
Do you consume bakery items?	Yes	64	64.0
	No	36	36.0

Only 49% of participants followed a diet plan, and 64% acknowledged the importance of diet in managing diabetes. While 79% took meals on time, 63% regularly consumed sweets. A significant portion (46%) favored a carbohydrate-rich diet, and 61% did not consume fruits frequently.

Table 3: Physical Activity of Study Participants

Variable	Category	Frequency	Percentage (%)
Daily physical activity	Yes	63	63.0
	No	37	37.0
Type of workout	Not at all	37	37.0
	Walking	62	62.0
	Yoga	1	1.0
	Cycling	0	0.0
Duration of exercise	Not at all	37	37.0
	<30 Minutes	9	9.0
	30 Minutes	50	50.0
	>30 Minutes	4	4.0
Importance of physical activity	Yes	77	77.0
	No	23	23.0
Barriers to physical activity	None	50	50.0
	Climate Changes	7	7.0
	Timing issues	21	21.0
	Lethargy	22	22.0
Knowledge of obesity	Yes	35	35.0
	No	65	65.0
Link between obesity and DM	Yes	43	43.0
	No	57	57.0

About 63% of participants engaged in daily physical activity, mainly walking (62%). Half of the participants exercised for exactly 30 minutes daily. Although 77% believed physical activity is crucial for managing diabetes, barriers such as lethargy (22%), timing issues (21%), and climate changes (7%) hindered adherence. Notably, 65% lacked knowledge about obesity, and 57% did not acknowledge the link between obesity and diabetes.

Table 4: Anthropometric Measurements of Study Participants

Variable	Category	Frequency	Percentage (%)
Body Mass Index	Underweight (<18.5)	11	11.0
	Normal (18.5-24.9)	37	37.0
	Overweight (25.0-29.9)	34	34.0
	Obese (>30.0)	18	18.0
Sugar Level	Normal	47	47.0
	High	53	53.0

The distribution of participants according to their BMI revealed that 11% were underweight, 37% had a normal BMI, 34% were overweight, and 18% were obese. Regarding sugar levels, 53% of participants had elevated levels, while 47% exhibited normal levels. These findings indicate that despite a general awareness of the importance of diet and physical activity, significant barriers and misconceptions hinder effective diabetes management among the participants. Addressing these issues through targeted interventions and education is essential for improving diabetes outcomes in this population.

DISCUSSION

The present study provided valuable insights into the demographic and lifestyle factors influencing diabetes management among individuals with type II diabetes mellitus in Kotri, Sindh. The findings revealed that the majority of participants were middle-aged men, predominantly between the ages of 51 and 60 years. This demographic profile aligns with previous research indicating a higher prevalence of diabetes among middle-aged and older adults (5). The study also highlighted that most participants were married, uneducated, and unemployed, which could contribute to the challenges they face in managing their condition.

A significant observation from the study was the lack of adherence to dietary plans, despite a general awareness of their importance. Nearly half of the participants did not follow a specific diet plan, and many regularly consumed sweets, indicating a gap between knowledge and practice. Previous studies have similarly reported that socio-cultural factors and economic constraints often impede the adoption of healthy dietary habits among diabetic patients (10). The preference for carbohydrate-rich diets and infrequent fruit consumption further underscored the need for targeted nutritional education and support to promote healthier eating patterns.

Physical activity, recognized as a crucial component of diabetes management, was another area where participants exhibited suboptimal adherence. While a majority engaged in daily physical activity, primarily walking, barriers such as lethargy, timing issues, and climate changes hindered consistent participation. These findings echoed the results of earlier studies that identified similar barriers to physical activity among diabetic populations (19). Moreover, a substantial proportion of participants lacked awareness about obesity and its link to diabetes, highlighting an urgent need for comprehensive health education programs.

The study's strengths included a well-defined sample size and a structured methodology that provided a clear understanding of the participants' demographic, dietary, and physical activity profiles. However, several limitations were noted. The study relied on self-reported data, which could affect the reliability of the findings due to potential biases or inaccuracies in participants' responses. Additionally, the use of a convenient sampling method and the focus on a single institution limited the generalizability of the results to a broader population. The cross-sectional nature of the study also precluded the assessment of causal relationships between the observed variables and diabetes management outcomes.

Despite these limitations, the study offered valuable recommendations for improving diabetes management in similar settings. Strengthening educational initiatives to enhance awareness about the importance of diet and physical activity, and addressing socio-cultural and economic barriers, were identified as critical steps. Healthcare providers should focus on developing culturally sensitive and economically feasible intervention strategies that promote sustainable lifestyle changes among diabetic patients. Integrating regular follow-ups and support systems could also help bridge the gap between knowledge and practice, ensuring better adherence to dietary and physical activity guidelines.

CONCLUSION

In conclusion, the study highlighted significant gaps in the dietary and physical activity practices of individuals with type II diabetes mellitus in Kotri, Sindh. Addressing these gaps through targeted educational and intervention programs is essential for improving diabetes management and overall health outcomes in this population. Future research should consider larger, more diverse samples and longitudinal designs to explore the long-term impact of lifestyle interventions on diabetes management.

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