

KNOWLEDGE ATTITUDE AND PRACTICE OF DIATERY HABITS AMONG TYPE 2 DIABETEC PATIENTS

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ABSTRACT

Introduction: Type 2 diabetes mellitus (T2DM) is the most prevalent type of the diabetes and is typically brought on by an insufficient or resistant response to insulin by the body. Usually, a lack of insulin or a resistance to it results in type 2 diabetes. Around 463 million persons worldwide suffer from diabetes, with type 2 diabetes accounting for 90% of cases. After smoking and high blood pressure, diabetes mellitus is the third most common cause of premature death worldwide, according to the World Health Organization.

Methodology: A descriptive cross-sectional study was conducted from April to June 2024 at Liaquat University Hospital, Pakistan. The study assessed knowledge, attitude, and practice (KAP) related to type 2 diabetes mellitus (T2DM) among patients using convenience sampling. Data were collected with a questionnaire adapted from the American Diabetes Association (ADA's) Diabetes Self-Management Assessment Research Tool (D-SMART). Data analysis was performed using SPSS version 21.

Results: A total of 377 type 2 diabetic patients participated in the study conducted at Liaquat University Hospital, Hyderabad. The mean age of respondents was 46, and standard deviation was 12. Among the participants, 53.05% were male and 46.9% were female. According to marital status of participants 90.98% were married, 2.39% were divorced and 6.63% were widow. According to occupation the majority of participants were casual labour 44.8%, 31.65 were formal labour, and 23.6% were unemployed. The overall knowledge of participants regarding diabetic diet, 29% was good while 71% was poor, according to overall Attitude of participants regarding diabetic diet was 45% positive and 55% negative, overall Practice of participants regarding diabetic diet was 19% Good and 81% poor.

Conclusion: The study conducted at Liaquat University Hospital Hyderabad revealed significant gaps in knowledge, attitude, and practice (KAP) related to dietary habits among Type 2 diabetic patients. There is a crucial need for focused educational interventions to promote diabetic self-management among these patients, as evidenced by the widespread lack of appropriate dietary practices and positive attitudes about diabetes care despite a moderate degree of awareness.

Keywords: Knowledge, Attitude, Practice, Type 2 diabetes.

INTRODUCTION

Type 2 diabetes mellitus (T2DM) is the most prevalent type of the diabetes and is typically brought on by an insufficient or resistant response to insulin by the body. [1] Diabetes is a silent disease; People typically don't

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know that they have diabetes. Most diabetics only realize they have the disease when one of its potentially fatal complications manifests. [2] About 463 million adults have diabetes, with type 2 diabetes mellitus accounting for 90% of cases. [3] The World Health Organization (WHO) estimates that, globally, diabetes mellitus (DM) ranks third among risk factors for premature mortality, behind hypertension and tobacco use. Among those between the ages of 20 and 79, it accounts for 5 million deaths (14.5%) from all causes. [4] Diabetes is a leading chronic illness burden on the world stage. Between the ages of 20 and 79, 415 million adults worldwide have diabetes. [5] The global diabetes prevalence in 2019 is estimated to be 9.3% (463 million people), rising to 10.2% (578 million) by 2030 and 10.9% (700 million) by 2045. Additionally, it is more common in urban regions (10.8%) than in rural ones (7.2%), particularly in developed countries (10.4%) as opposed to underdeveloped countries (8.0%). [6] Pakistan is the third-most diabetic country in the world, behind China and India, according to an article "The News". [7] In Pakistan, the prevalence of diabetes was 11.77% in 2016, 16.98% in 2018, and 17.1% in 2019. However, according to the International Diabetes Federation, 26.7% of Pakistani adults will develop diabetes by 2022, making up over 33,000,000 cases in total. [8] Nutrition plays an important role in preventing or managing diabetes. Both excessive and inadequate nutrition are linked to the risk of type 2 diabetes. [9] Regarding diabetes mellitus (DM), appropriate nutritional knowledge, attitudes, and practices can postpone the onset of complications and manage their progression. [10] Dietary adjustments are necessary for the management of type 2 diabetes patients, and these adjustments are influenced by an individual's attitude, knowledge, and practices (KAP). Therefore, before treating patients with type 2 diabetes, it is imperative to understand the risk factors in an effective manner. Given that these key variables will aid in the appropriate management of type 2 diabetes. [11] The American Diabetes Association (ADA) recommends it. Individuals with diabetes should be mindful of their diet, as 45–65% of daily calories should come from carbohydrates. Essential Fruits, leafy green vegetables, whole grains, and beans are examples of foods high in carbohydrates. Fats should make up 25% to 35% of daily calories. The decision is made to consume low-fat or nonfat dairy products rather than whole milk products. Protein should make up 12–20% of daily calories, but this can vary based on a patient's specific needs. [12]

Aim of the study

- The aim of this study is to assess the dietary knowledge, dietary attitude, and dietary practice of the patients of type 2 diabetes mellitus.

Research Methodology

Study setting: The study was carried out from April 2024 to June 2024 in Liaquat University Hospital Hyderabad Sindh province of Pakistan. Liaquat University Hospital is a 2200-bed tertiary care hospital in Sindh province, Pakistan. Liaquat University Hospital is one of the largest teaching hospitals affiliated with Liaquat University of Medical and Health Sciences Jamshoro.

Study design: A descriptive cross-sectional study was carried out from April 2024 to June 2024 among patients with type 2 diabetes (T2DM), to assess knowledge, attitude, and practice (KAP) related to disease.

Sample size: The sample size of 377n was used, the sample size that is used was calculated with prevalence of past study with 11.20%. [17]

- Margin Error: 5% or 0.05
- Confidence Level: 95%

Sampling technique: The data was gathered via convenience sampling. Each eligible patient was approached while they were waiting to be seen in the outpatient department's doctor's office for their regular follow-up appointments every month.

Inclusion criteria:

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- Outdoor patients above 28 years of age were included in the study.
- Patients with one year before diagnosis were included.
- Who were willing to participate were included

Exclusion criteria:

- Patients below 28 years of age were excluded from the study.
- Patients who were recently diagnosed with diabetes were excluded.
- Patients who were unwilling to participate were excluded.

Data collection tool. The study tool adopted from American Diabetes Association (ADA), Diabetes Self-Management Assessment Research Tool (D-SMART with some other questions. The data collection tool employed was the adopted questionnaire about knowledge, attitude, and practice. Tool has 4 sections as Demographic, Knowledge, Attitude and practices, on Likert scale with, 1. (Strongly disagree) 2. (Disagree) 3. (Neutral) 4. (Agree) 5. (Strongly agree) and (Yes) (No) (I don't know). The Questionnaire has 24 questions as (Demographic 7, knowledge-10, attitude-3 and practice-8 questions). The Questions were adapted from [13]. For examination of data the (SPSS) version 21 was used.

Ethical Consideration. Ethical approval was secured from the Medical Superintendent of Liaquat University Hospital Hyderabad. Informed consent was taken from all participants and all the information was kept confidential. The goal and objectives of the study were specified in consent forms, which were offered in English, Urdu, and Sindhi languages. With a focus on data privacy, participation was voluntary and available only to the researcher.

Results

A total of 377 type 2 diabetes mellitus patients participated in study, the study carried out at Liaquat University Hospital Hyderabad. Regarding the participant's demographic data. Table 1 presents the demographics of the participants. The mean age was determined to be 46 years, with a standard deviation of 12. Majority of the participants were male 53.05% while female were 46.9%. There is predominance of married 90.98 % while divorced were 2.39 % and 6.63 % of them were widow. Based on family history of diabetes 63.1% participants replied "Yes" diabetes is present in my family history, whenever 36.9% replied "No" there is no family history of diabetes.

Table 1: Demographic Characteristics

Mean	46			
Standard Deviation	12.			
Gender	Male (n=200) 53.05%	Female (n=177) 46.9%		(n=377) 100%
Marital status	Married(n=343) 90.98 %	Divorced (n=9) 2.39 %	Widow (n=25) 6.63 %	(n=377) 100%
Family History if anybody have diabetes	Yes (n=238) 63.1 %	No (n=139) 36.9 %		(n=377) 100%

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Figure 1: Presents a graphic representation of educational qualifications. According to educational level, The Majority of participant's were having secondary education (n 140) 37.9%, while (n 101) 26.9% having primary education, (n 99) 26.8% having tertiary level of education and the percentage of illiterate participants were about (n 28) 7.7%.

Figure 2: is indicating the occupation of participants. Relative to their occupation 44.8% of participants were casual labour, where as 31.6% were formal labour and only 23.6% were unemployed.

Figure: 1 Qualification Status

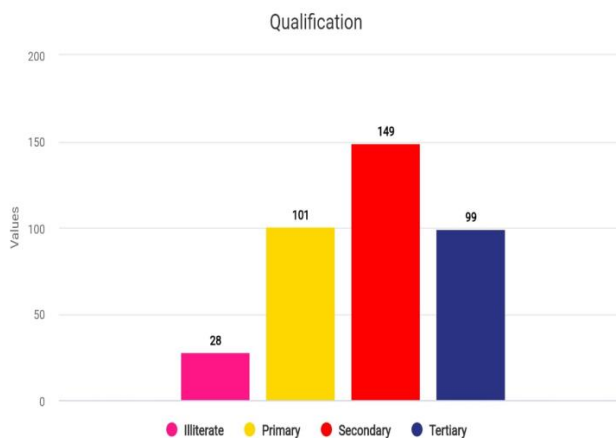
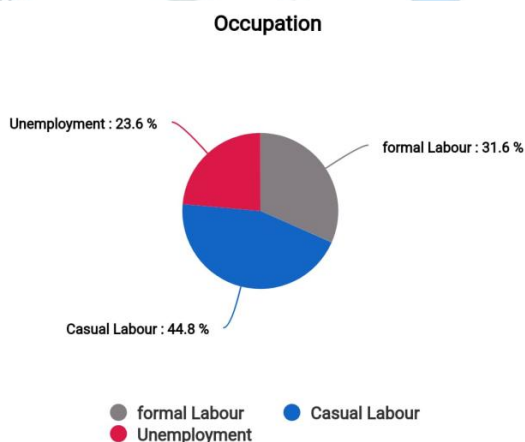


Figure: 2 Occupational Status



Regarding the dietary knowledge of patient in (Table 2) maximum participants (n=279) 74% replied No in the dimension of, The diabetes diet is a healthy diet for most people. From respondents (n=51) 13.5% replied Yes, about, Glycosylated hemoglobin (HbA1c) is a test that measures average blood glucose level in the past week. Only (n=88) 23.4% respondents replied don't know about, A pound of chicken has more carbohydrate in it than a pound of potatoes. Majority of participants (n=271) 71.9% respond No about, Orange juice has more fat in it than low fat milk. Only (n=105) 27.8% respondents replied Yes about, Urine testing and blood testing are both equally as good for testing the level of blood glucose. A maximum (n=311) 82.5% of the participants replied don't know about, For a person in good control, exercising has no effect on blood sugar levels in table 2 dietary knowledge of patients.

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Table:2Dietary Knowledge of patient

#	Questions	Yes	No	Don't know	Cumulative Frequency
1	The diabetes diet is a healthy diet for most people.	(n=60) 15.9%	(n=279) 74%	(n=38) 10.1%	(n=377) 100%
2	Glycosylated hemoglobin (HbA1c) is a test that measures your average blood glucose level in the past week.	(n=51) 13.5%	(n=293) 77.7%	(n=33) 8.7%	(n=377) 100%
3	A pound of chicken has more carbohydrate in it than a pound of potatoes	(n=136) 36%	(n=153) 40.6%	(n=88) 23.4%	(n=377) 100%
4	Orange juice has more fat in it than low fat milk.	(n=29) 7.7%	(n=271) 71.9%	(n=77) 20.4%	(n=377) 100%
5	Urine testing and blood testing are both equally as good for testing the level of blood glucose.	(n=105) 27.8%	(n=199) 52.8%	(n=73) 19.4%	(n=377) 100%
6	Unsweetened fruit juice raises blood glucose levels	(n=50) 13.3%	(n=29) 7.7%	(n=298) 79%	(n=377) 100%
7	A can of diet soft drink can be used for treating low blood glucose levels.	(n=107) 28.4%	(n=237) 62.9%	(n=33) 8.8%	(n=377) 100%
8	Using olive oil in cooking can help lower the cholesterol in your blood.	(n=76) 20.2%	(n=301) 79.8%	(n=377) 100%
9	Wearing shoes a size bigger than usual helps prevent foot ulcers.	(n=99) 26.3%	(n=209) 55.4%	(n=69) 18.3%	(n=377) 100%
10	For a person in good control, exercising has no effect on blood sugar levels.	(n=43) 11.4%	(n=23) 6.10%	(n=311) 82.5%	(n=377) 100%

In the table 3 dietary attitude of patients, maximum (n=239) 63.5% of respondents replied No about, Being drunk while on diabetic drugs is not a serious problem. Whereas (n=193) 51.1% of participants respond don't know about Dietary instructions should be written out even if the diabetic patient is illiterate. Someone at home should be available to interpret it for him/her. Only (n=169) 44.8% of respondents respond yes about, Diet and exercise are not as important as treatment in control of Diabetes.

Table:3Dietary Attitude of patient

#	Questions	Yes	No	Don't know	Cumulative Frequency
1	Dietary instructions should be written out even if the diabetic patient is illiterate. Someone at home should be available to interpret it for him/her	(n=99) 26.3%	(n=85) 22.6%	(n=193) 51.1%	(n=377) 100%
2	Being drunk while on diabetic drugs is not a serious problem	(n=49) 12.9%	(n=239) 63.5%	(n=89) 23.6%	(n=377) 100%
3	Diet and exercise are not as important as treatment in control of Diabetes.	(n=169) 44.8%	(n=117) 31.1%	(n=91) 24.1%	(n=377) 100%

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In the table 4 dietary practice of patients, majority of participants (n=167) 44.3% respond disagree about, You are able to fit dietary management into your life in a positive manner. Whereas 44.3% of respondents respond Neutral about, Do you involve your family in helping you follow a meal plan. Only (n=19) 5% of participants respond Agree about, In the past 1 week have you eaten high fat foods like fried animal protein.

Table: 4 Dietary practice of patients

Q#	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Cumulative Frequency
1	In the past 1 week often have you missed or skipped meals	(n=102) 27%	(n=53) 14.1%	(n=66) 17.6%	(n=74) 19.6%	(n=82) 21.7%	(n=377) 100%
2	In the past 1 week have you eaten more than you know you should?	(n=81) 21.5%	(n=61) 16.3%	(n=44) 11.9%	(n=112) 29.8%	(n=79) 20.5%	(n=377) 100%
3	In the past 1 week have you eaten high fat foods like fried animal protein	(n=94) 24.9%	(n=19) 5%	(n=33) 8.8%	(n=147) 38.9%	(n=84) 22.5%	(n=377) 100%
4	You are able to fit dietary management into your life in a positive manner.	(n=86) 22.8%	(n=60) 15.9%	(n=60) 15.9%	(n=167) 44.3%	(n=43) 11.4%	(n=377) 100%
5	Do you involve your family in helping you follow a meal plan	(n=60) 15.9%	(n=86) 22.8%	(n=167) 44.3%	(n=60) 15.9%	(n=43) 11.4%	(n=377) 100%
6	You are empowered to control/avoid sweets or limit fatty foods?	(n=108) 28.5%	n=38 10%	(n=23) 6.10%	(n=78) 20.8%	(n=130) 34.6%	(n=377) 100%
7	Do you eat only that which is available or only what you can afford irrespective of content	(n=46) 12.2%	(n=65) 17.3%	(n=26) 6.8%	(n=130) 34.5%	(n=110) 29.2%	(n=377) 100%
8	Does diabetes interfere with or prevent you from doing your normal daily activities.	(n=90) 23.8%	(n=101) 26.8%	(n=55) 14.6%	(n=73) 19.4%	(n=58) 15.4%	(n=377) 100%

DISCUSSION

The mean age of respondents was 46±12 years, another study shows the mean age of participants 56.0±12.7 [14]. There was majority of male (53.05%) and (46.9%) were female, another study shows that (46.6%) female and (42.4%) were male only [15]. According to marital status of participants the maximum number (90.98%) of participants were married, only (2.39%) were divorced and (6.63%) of participants were widow. In the terms of qualification, the majority of respondents 37.9% having secondary level of education, while 26.9% having primary level of education and 26.8% of participants having tertiary level of education, only 7.7% of the participants were illiterate. Another study which held in 2019 in Cotonou, Southern Benin [16] revealed that 2.33% participants were having secondary level education, 31.33% having primary level education, 18.33% of participants were no formal education and only 10.0% of participants having college & above education. Regarding the dietary knowledge of patient in (Table 2) maximum participants (n=311) 82.5% respond don't know in the dimension of, For a person in good control, exercising has no effect on blood sugar levels. Another study shows that 88.0% of participants respond don't know. [13] According to

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both studies participant's dietary knowledge is poor. From respondents (n=301) 79.8% replied No, in the dimension of, Using olive oil in cooking can help lower the cholesterol in your blood. Another study shows that 86.8% respondents respond No. [13] Only (n=136) 36% of participants respond Yes in the dimension of, A pound of chicken has more carbohydrate in it than a pound of potatoes. Regarding the dietary attitude of patient in (Table 3) in the dimension of, Being drunk while on diabetic drugs is not a serious problem maximum(n=239) 63.5% Respondents respond No. another study shows that 50.0% of participants respond No. [13] According to both studies the dietary attitude of participants is negative. While (n=193) 51.1% of participants respond don't know in the dimension of, Dietary instructions should be written out even if the diabetic patient is illiterate. Someone at home should be available to interpret it for him/her. Only (n=169) 44.8% of the participants respond yes in the dimension of Diet and exercise are not as important as treatment in control of Diabetes. Regarding the dietary practices of patient in (Table 4) in the dimension of, You are able to fit dietary management into your life in a positive manner (n=167) 44.3% of respondents respond disagree. Another study shows that 35.2% of participants respond disagree. [13] According to both studies the dietary practice of participants is poor. From the table 4 in the dimension of, Do you involve your family in helping you follow a meal plan, (n=167) 44.3% respond Neutral. And in the dimension of, You are empowered to control/avoid sweets or limit fatty foods (n=130) 34.6% respond strongly disagree. From table 4(n=101) 26.8% respond agree in the dimension of, Does diabetes interfere with or prevent you from doing your normal daily activities. Another study shows that 23.2% respond agree. [13], and only (n=102) 27% of respondents replied strongly agree in the dimension of, In the past 1 week often have you missed or skipped meals. The Overall dietary knowledge of of participants was poor, the overall attitude of participants was negative and overall practices of participants was also poor.

REFERENCES

- Diabetes. (n.d.). Retrieved 20 July 2024, from <https://www.who.int/westernpacific/health-topics/diabetes>
- Wee, H. L., Ho, H. K., & Li, S. C. (2002). Public awareness of diabetes mellitus in Singapore. *Singapore medical journal*, 43(3), 128–134.
- 9th edition. (n.d.). Retrieved 20 July 2024, from <https://diabetesatlas.org/atlas/ninth-edition/>
- Nana, A., & Zema, T. (2018). Dietary practices and associated factors during pregnancy in northwestern Ethiopia. *BMC Pregnancy and Childbirth*, 18(1), 183. doi:10.1186/s12884-018-1822-1
- Adam, H. M. I., Elmosaad, Y. M., Ahmed, A. E. E., Khan, A., & Mahmud, I. (2021). Dietary knowledge, attitude and practice among type 2 diabetes mellitus patients in Sudan: a hospital-based cross-sectional study. *African health sciences*, 21(1), 32–40. <https://doi.org/10.4314/ahs.v21i1.6>
- Gebeyehu, A. F., Berhane, F., & Yimer, R. M. (2022). Dietary knowledge and practice and its associated factors among type 2 diabetes patients on follow-up at public hospitals of Dire Dawa, Eastern Ethiopia. *SAGE open medicine*, 10, 20503121221107478. <https://doi.org/10.1177/20503121221107478>
- Waqar Bhatti, M. (2021, October 10). 'Pakistan ranks 3rd in prevalence of diabetes in world after China and India'. *The News International*. Retrieved from <https://www.thenews.com.pk/print/899124-pakistan-ranks-3rd-in-prevalence-of-diabetes-in-world-after-china-and-india>
- Azeem, Salehaa,*; Khan, Ubaida; Liaquat, Ayeshab. The increasing rate of diabetes in Pakistan: A silent killer. *Annals of Medicine & Surgery* 79(07), July 2022. | DOI: 10.1016/j.amsu.2022.103901
- Bekele B. B. (2019). The prevalence of macro and microvascular complications of DM among patients in Ethiopia 1990-2017: Systematic review. *Diabetes & metabolic syndrome*, 13(1), 672–677. <https://doi.org/10.1016/j.dsx.2018.11.046>
- Noor, S. K. M., Bushara, S. O. E., Sulaiman, A. A., Elmadhoun, W. M. Y., & Ahmed, M. H. (2015). 164 Undiagnosed diabetes mellitus in rural communities in Sudan: prevalence and risk factors. *La Revue de Sante de La Mediterranee Orientale [Eastern Mediterranean Health Journal]*, 21(3), 164–170. doi:10.26719/2015.21.3.164

The Research of Medical Science Review

- Ntaate, C. (2015). Dietary knowledge, attitude and practices of diabetic patients at Nsambya Hospital Kampala, Uganda. Stellenbosch, South Africa: University of Stellenbosch.
- American Diabetes Association. (2012). Standards of medical care in diabetes--2012. *Diabetes Care*, 35 Suppl 1(Supplement_1), S11-63. doi:10.2337/dc12-s011
- Bano, A., Afzal, M., Sarwar, H., Waqas, A., Kousar, S., & Gulzar, S. (2017). Dietary knowledge, Attitude and Practices of Diabetes Patients at Services Hospital Lahore. *International Journal of Applied Sciences and Biotechnology*, 5(2), 227–236.
- Okunlola, Rotkang & Abu, Samuel & Joseph, Benjamin & Damun, Pandell & Selowo, Temitope & Dapar, Maxwell. (2022). Dietary knowledge, attitudes and practices: a cross-sectional survey of type 2 diabetic patients in two tertiary hospitals in Jos, Nigeria. *Journal of Pharmacy & Bioresources*. 19. 1-8. 10.4314/jpb.v19i1.1.
- Adam, H. M. I., Elmosaad, Y. M., Ahmed, A. E. E., Khan, A., & Mahmud, I. (2021). Dietary knowledge, attitude and practice among type 2 diabetes mellitus patients in Sudan: a hospital-based cross-sectional study. *African health sciences*, 21(1), 32–40. <https://doi.org/10.4314/ahs.v21i1.6>
- Alaofè, H., Hounkpatin, W. A., Djrolo, F., Ehiri, J., & Rosales, C. (2021). Knowledge, attitude, practice and associated factors among patients with type 2 diabetes in Cotonou, Southern Benin. *BMC public health*, 21(1), 339. <https://doi.org/10.1186/s12889-021-10289-8>
- Farhad Hussainlaghari, Hafeeza Gul, Yasmeen Gull sarwar, Mehwish Alais Bakhatawar Bhatti, Raheela Mangi and Fozia Wassan. (2018); REVIEW ON THE PREVALENCE OF DIABETES MELLITUS SINDH PROVINCE OF PAKISTAN. *Int. J. of Adv. Res.* 6 (Oct). 17-21] (ISSN 2320-5407). www.journalijar.com

