

**Diabetes Mellitus prevalence and elder people preceptions, behaviours, and knowledge**

<sup>1</sup>Kashif Shahnawaz, Assistant Professor, Department of Community Medicine, Jannayak Karpoori Thakur Medical College, Madhepura, Bihar, India

**Corresponding Author:** Kashif Shahnawaz, Assistant Professor, Department of Community Medicine, Jannayak Karpoori Thakur Medical College, Madhepura, Bihar, India

**How to citation this article:** Kashif Shahnawaz, “Diabetes Mellitus prevalence and elder people preceptions, behaviours, and knowledge”, IJMACR- March - 2023, Volume – 6, Issue - 2, P. No. 196 – 202.

**Open Access Article:** © 2023, Kashif Shahnawaz, et al. This is an open access journal and article distributed under the terms of the creative commons attribution license (<http://creativecommons.org/licenses/by/4.0>). Which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

**Abstract**

**Objective:** One of the most prevalent and rapidly expanding non-communicable diseases (NCDs), diabetes mellitus (DM) poses risks to the general public health of the world. Diabetes patients should have their present level of knowledge (K), attitude (A), and practice (P) assessed before beginning any educational programs or therapies. So, the objective of this research was to ascertain adults with diabetes Mellitus’ current knowledge, attitude, and behaviors (KAP) in relation to diabetes.

**Method:** The current study was a cross-sectional study conducted in the Jannayak Karpoori Thakur Medical College, Madhepura from July 2021 to August 2022. Data were gathered using a four-part, semi-structured questionnaire that was administered by an interviewer.

**Results:** There were 155 people signed up for the study in total. Of those, 57% of the diabetic patients were men and 43% were diabetic women. 34.5 percent of participants have inadequate knowledge, 49.4 percent

have intermediate knowledge, and 15% have strong knowledge. Only 33% of patients reported favorable practice, compared to the overall participant's 43.2% positive attitude.

**Conclusion:** Most of the patients in our study had moderate or poor knowledge scores, as well as unfavorable behaviors and attitudes, which highlights the requirement for more diabetes awareness campaigns. Patients who are younger, have no family history of diabetes, and are female should receive additional attention.

**Keywords:** Diabetes, knowledge, attitude, and practice

**Introduction**

One of the most prevalent and quickly spreading non-communicable diseases (NCDs), diabetes mellitus (DM) poses risks to the general public's health worldwide. Most often, diabetes progression results in chronic complications, which reduce patients' quality of life, raise their risk of morbidity and mortality and place a significant financial burden on our health systems

[Figure 1; 1]. Self-care has been demonstrated to be the cornerstone of diabetes control in numerous research and groups [2]. Diabetes patients should have their present level of knowledge (K), attitude (A), and practice (P) assessed before beginning an educational program or intervention [3].

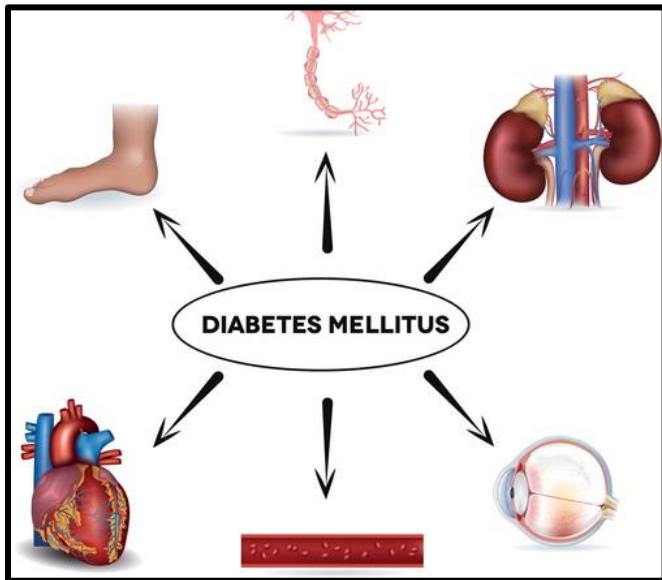


Figure 1: Complications associated with Diabetes Mellitus

Type 2 diabetes currently affects 415 million people worldwide and 69.2 million people in India, according to the seventh edition of the International Federation (IDF) Atlas from 2015 [4]. By the year 2040, these numbers are expected to rise to 642 million and 123.5 million, respectively.

The trend of urbanization and alterations in lifestyle is most likely to blame for the rise in diabetes morbidity rates in developing nations. Patients are more likely to participate in their own care if they are more knowledgeable about diabetes mellitus [3-6].

The quality of life of diabetic patients is significantly impacted by chronic comorbidities and other consequences of diabetes, which can be prevented with adequate knowledge of the disease. The necessity of

knowledge about illness management, risk factor identification, and prevention has been validated by earlier research [7-11]. In order to design control programs and strategies for efficient patient counseling and health education, it is necessary to evaluate the participants who have diabetes' current knowledge, attitude, and practice levels.

Diabetes patients have a wide disparity in their knowledge, attitudes, and practices, which can be reduced by evaluating their current knowledge, attitudes, and practices as well as their determinants, which can be useful in future planning for the creation of better educational interventional programs for diabetic patients [12,13].

So, the aim of this study was to assess the present knowledge, attitude, and practices (KAP) of adults with diabetes mellitus in relation to diabetes.

## Method

**Study Design:** The current investigation was carried out in Department of Community Medicine, Jannayak Karpooori Thakur Medical College, Madhepura from July 2021 to August 2022 as a hospital-based cross-sectional study.

**Methodology:** The first four months of the study period were designated for gathering data. Data were gathered using a semi-structured pretested questionnaire with four sections, one of which was devoted to socio-demographic characteristics and the other three of which contained questions about knowledge, attitude, and practises. Each section was assigned a specific scoring based on participant responses. The questionnaire's questions were based on relevant research that has been utilised in other situations [14-16] to ensure its validity. To make sure that participants could understand all of the questions, a pilot research was conducted.

13 questions covering definitions, symptoms, etiology, and complications of diabetes were used to gauge patients' knowledge of the disease. Some of the questions had multiple choice answers, and each accurate response was worth one point. A series of questions on positive and/or negative attitudes towards having the various aspects of the condition were used to gauge attitudes. Questions about self-care, eating habits, treatment compliance, weight control, exercise, blood sugar monitoring, and regular follow-up were used to evaluate patients' behaviours.

Then, for each response that was accurate, DM knowledge was rated, earning one point. For our purposes, "Excellent Knowledge" was defined as a score between 14 and 25, "Moderate Knowledge" as a score between 11 and 15, and "Low Knowledge" as a score between 1 and 8. On a Likert scale of 0 for disagree, 1 for neutral, and 2 for agree, attitudes were elicited. A score of 0–5 was deemed "Negative Attitude," and a score of 6–14 was deemed "Positive Attitude" based on the patients' responses. If you answer a practise question correctly, you receive 2 points; if you answer it incorrectly, you receive 1. Whereas a score of 6–8 was deemed "Bad Practice" and a score of 9–15 was deemed "Positive Practice"

**Sample size:** 155 diabetic patients agreed to participate in the study.

**Exclusion Criteria:** Those with type 1 diabetes, severe illness, and pregnancy were excluded from the study.

**Statistical Analysis:** Epi Info TM language en-US version 7.2.1.0 was used to examine the data, which were entered into Microsoft Excel 2007 for analysis. The frequency was determined using descriptive statistics, the association was determined using the chi square test, and  $p < 0.04$  was considered statistically significant.

**Ethical Committee:** The study was approved Department of Community Medicine, JannayakKarpoori Thakur Medical College, Madhepura and written consent was given by the patients, participating in the study.

**Results**

There were 155 people signed up for the study in total. Of those, 57% of the diabetic patients were men and 43% were diabetic women. The majority of the patients (71%) were above the age of 51. 64% of the subject's residences were in metropolitan areas. The majority of them (28.5%) just had a high school diploma, while 21.2% held graduate or postgraduate degrees. Following them came those with only primary education (19.2%), those with a middle school education (20.5%), and those with no formal education (11%). The majority of the study subjects (32.5%) did not have a job. 18.5% of patients smoked, while only 25% of individuals had a family history. Table 1 contains details of other socio demographic variables.

Table 1: Variables of the studied population's socio-demography

| Variable                              | Percentage |
|---------------------------------------|------------|
| Age                                   |            |
| ≤51 years                             | 29%        |
| ≥51 years                             | 71%        |
| Gender                                |            |
| Female                                | 43%        |
| Male                                  | 57%        |
| Diabetes Mellitus History of patients |            |
| Yes                                   | 22.5%      |
| No                                    | 77.5%      |
| Smoking Status                        |            |
| Yes                                   | 16.8%      |
| No                                    | 83.2%      |

| Duration of Diabetes |       |
|----------------------|-------|
| ≤ 4 years            | 46.8% |
| ≥ 4 years            | 53.2% |

Using a pretested questionnaire, the study participants' knowledge, attitudes, and practices were assessed, and the participants' responses were then graded.

**Knowledge evaluation**

7 key questions covering fundamentals, diagnosis, risk factors, prevention, and consequences of DM were used to gauge knowledge. Around 15% of the participants scored 14 or higher out of a possible 25, were classified as having a high level of knowledge, compared to 34.5% who scored less than 9, 49.2% who scored between 9 and 13, and 34.5% who were classified as having low knowledge (Table 2). Patients' awareness that elevated blood sugar levels are a sign of diabetes was 66%.

Table 2: combined knowledge, attitude, and practice score.

| Grading based on practices, knowledge, and attitude | Percentage of participants |
|---|----------------------------|
| <b>Knowledge Score</b>                              |                            |
| Good Knowledge                                      | 15%                        |
| Moderate Knowledge                                  | 49.8%                      |
| Poor Knowledge                                      | 34.5%                      |
| <b>Altitude</b>                                     |                            |
| Positive Altitude                                   | 43.2%                      |
| Negative Altitude                                   | 56.5%                      |
| <b>Practice</b>                                     |                            |
| Positive  | 33%                        |
| Negative  | 66%                        |

Only 25% of patients were aware that diabetes is characterised by blood glucose levels that are higher than usual, whereas 31% believed that frequent urination was the only symptom. Only 28% (n=87) of the 155 patients knew the normal range for blood glucose levels.

The majority of patients named the eye and kidney as the most frequent sites for complications, and about two-thirds (61%) of the participants were aware that diabetes can result in complications or organ damage. 13% of the population was unaware of any diabetes issues at all. Only 28% of diabetics were aware that blood pressure control is required, while 40% of the general population believes that diabetes may be prevented by a good diet and frequent exercise.

The relationship between the knowledge score and other variables was further examined. Fewer than half of patients (45.1%) under the age of 51 had a good/moderate knowledge score compared to patients aged 51 and older, when around three-quarters (73.0%) of them had a similar score. Age of the patient and knowledge score were found to be statistically significantly correlated. The majority of the male patients had a moderate/good knowledge score, and those with middle school or higher education had a higher knowledge score overall. This link was shown to be statistically significant. In comparison to those without family history of diabetes, around 81% of the patients exhibited statistically significant good/moderate knowledge scores.

**Assessment of behaviors and attitudes**

Those who received six or more marks on the seven questions used to gauge attitude were deemed to have a positive attitude. 43.2% of participants overall had an optimistic attitude, whereas 56.5% had a negative attitude (1-5 score). Overall, people's attitudes towards diabetes were unsatisfactory. About one-third of the patients thought that diabetes could be controlled by diet, and only 8.5% of them thought that it could be controlled by consistent exercise. Nonetheless, around half of the patients believed that diabetes was

manageable. Twenty-five percent of the patients believed that diabetes shortens life expectancy, and around one-third said that if it is not managed, organ damage can result.

Using questions about participants' intentions to seek treatment, as well as preventative measures such as DM screening, diet, and exercise, practices were evaluated. 33% of the individuals reported positive patient practices, while 65% had bad practices. Less than half of patients receive a frequent blood sugar check, despite about three-quarters of patients visiting a health facility on a regular basis. Also, half of the patients adhere to a strict diet and exercise frequently. Nonetheless, more than two-thirds of the population as a whole forgets to take their diabetes medication. Also, it was shown that more than half of the patients frequently examined their feet.

Most patients had moderate knowledge, an unacceptable attitude, and unfavorable practices regarding diabetes, according to the overall assessment based on the score of knowledge, attitude, and practices.

### **Discussion**

Using a set of questionnaires, the current study evaluated the participants' knowledge, attitudes, and behaviours. Only 15% of the participants overall scored well in terms of knowledge, compared to 49.2% who scored moderately and 34.5% who scored poorly. And only 43.2% of patients have a satisfactory attitude, compared to nearly two thirds (65%) who have a favourable practise. In our study, the majority of patients scored between mediocre and bad on knowledge tests, and they also had negative attitudes and practises. Similar low scores, negative attitudes, and negative behaviours have been observed in other research [16–20]. Lack of competent patient counselling practise by healthcare

professionals is indicated by inadequate awareness of the causes, symptoms, and complications of diseases, among other things.

Male diabetes patients had higher overall knowledge scores than female ones. Many research [8,15–19] have shown results that are similar to this one. Another factor contributing to the poor knowledge score is the lower literacy rate among Indian female patients than male patients.

Older age groups (>51 years) significantly outperformed younger age groups in terms of knowledge scores, positive attitudes, and excellent habits, which is corroborated by additional research [21].

Because patient education status significantly influences their knowledge, attitude, and practise regarding disease management, higher education groups (higher than middle education level) also scored higher on knowledge, positive attitude, and practise than lower education groups (lower than middle age group). Highly educated people had high knowledge of the condition of diabetes, a positive outlook on disease management, good adherence to diabetes therapy, and improved habits for following a planned diet and engaging in regular exercise. It emphasised the value of education in the prevention and treatment of disease. According to past research by Paulose [16,22], education level was associated with better disease knowledge. In the current study, patients with a history of diabetes had significantly higher knowledge scores, positive attitudes, and practices than patients without a history. Similar results were found in another study, which demonstrated that those with a positive family history were more cognizant of the contribution of genetics, the therapeutic value of nutrition, and the long-term implications of diabetes mellitus [22].

It is well known that patient involvement in diabetes management is necessary for better disease control, as managing diabetes necessitates not only a doctor's prescription of a pharmaceutical regimen but also intensive patient education and counseling. Patients may receive individual or group counseling regarding various aspects of diabetes, such as lifestyle changes, medication compliance, complication screening, etc. [15,22–23].

### **Conclusion**

The majority of the patients in the study had only a moderate understanding of diabetes, an unfavorable attitude toward the disease, and poor behaviors related to it, which highlights the need for more diabetes awareness initiatives. Since low understanding, a bad attitude, and bad behavior were all significantly correlated with education level, stronger informational, educational, and communication initiatives focused on diabetes are urgently needed. Patients who are younger, have no family history of diabetes, and are female should receive additional attention. Also, healthcare professionals need to be well-trained to counsel diabetic patients.

### **References**

1. Liu Z, Fu C, Wang W, Xu B. Prevalence of chronic complications of type 2 diabetes mellitus in outpatients—a cross-sectional hospital-based survey in urban China. *Heal Qual Life Outcomes*. 2010;8:62.
2. Knight K, Badamgarav E, Henning J, Hasselblad V, Gano A, Ofman J, et al. A systematic review of diabetes disease management programs. *Am J Manag Care*. 2005;11:242–50.
3. Abdo NM, Mohamed ME. Effectiveness of health education program for type 2 diabetes mellitus patients attending Zagazig University Diabetes Clinic, Egypt. *J Egypt Public Heal Assoc*. 2010;85(3&4):113–30.
4. IDF Diabetes Atlas. International Diabetes Federation. 2015. 1-163 p.
5. Damasceno MMC, Zanetti ML, Carvalho EC de, Teixeira CR de S, Araújo MFM de, Alencar AMPG. Therapeutic communication between health workers and patients concerning diabetes mellitus care. *Rev Lat Am Enfermagem*. 2012;20(4):685–92.
6. Kadirvelu A. Reality vs Illusion: Knowledge, Attitude and Practice among Diabetic Patients. *Int J Collab Res Intern Med Public Heal*. 2012;4(5):723–32.
7. Demaio AR, Dugee O, De Courten M, Bygbjerg IC, Enkhtuya P, Meyrowitsch DW. Exploring knowledge, attitudes, and practices related to alcohol in Mongolia: A national population-based survey. *BMC Public Health*. 2013;13(1):1.
8. Rani PK, Raman R, Subramani S, Perumal G, Kumaramanickavel G, Sharma T. Knowledge of diabetes and diabetic retinopathy among rural populations in India, and the influence of knowledge of diabetic retinopathy on attitude and practice. *Rural Remote Health*. 2008;8(3):838.
9. Justin Zaman M, Patel A, Jan S, Hillis GS, Raju PK, Neal B, et al. Socio-economic distribution of cardiovascular risk factors and knowledge in rural India. *Int J Epidemiol*. 2012;41(5):1302–14.
10. 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):1–8.
11. Norris SL, Engelgau MM, Venkat Narayan KM. Effectiveness of Self-Management Training in Type

- 2 Diabetes: A systematic review of randomized controlled trials. *Diabetes Care*. 2001;24(3):561–87.
12. Mehta RS, Karki P, Sharma SK. Risk factors, associated health problems, reasons for admission and knowledge profile of diabetes patients admitted in BPKIHS. *Kathmandu Univ Med J*. 2006;1(13):11–3.
13. Beattie V, Jones MJ. PDFlib PLOP: PDF Linearization, Optimization, Protection Page inserted by evaluation version A Comparative Study of the Use of Financial Graphs in the Corporate Annual Reports.
14. Chen L, Magliano DJ, Balkau B, Colagiuri S, Zimmet PZ, Tonkin AM, et al. AUSDRISK: An Australian Type 2 Diabetes Risk Assessment Tool based on demographic, lifestyle and simple anthropometric measures. *Med J Aust*. 2010;192(4):197–202.
15. Shah V, Kamdar P, Shah N. Assessing the knowledge, attitudes and practice of type 2 diabetes among patients of Saurashtra region, Gujarat. *Int J Diabetes Dev Ctries*. 2009;29(3):118.
16. Mohan D, Raj D, Shanthirani CS, Datta M, Unwin NC, Kapur A. Awareness and knowledge of diabetes in Chennai--the Chennai Urban Rural Epidemiology Study [CURES-9]. *J Assoc Physicians India*. 2005;53:283–7.
17. Islam FMA, Chakrabarti R, Dirani M, Islam MT, Ormsby G, Wahab M, et al. Knowledge, attitudes and practice of diabetes in rural Bangladesh: The Bangladesh Population based Diabetes and Eye Study (BPDES). *PLoS One*. 2014;9(10):e110368.
18. Saleh F, Mumu SJ, Ara F, Begum HA, Ali L. Knowledge and self-care practices regarding diabetes among newly diagnosed type 2 diabetics in Bangladesh: A cross-sectional study. *BMC Public Health*. 2012;12(1):1.
19. Mohan V, Kaur T, Deepa M, Bhansali A, Anjana R, Pradeepa R, et al. Knowledge and awareness of diabetes in urban and rural India: The Indian Council of Medical Research India Diabetes Study (Phase I): Indian Council of Medical Research India Diabetes 4. *Indian J Endocrinol Metab*. 2014;18(3):379.
20. He X, Wharrad HJ. Diabetes knowledge and glycemic control among Chinese people with type 2 diabetes. *Int Nurs Rev*. 2007;54:280–7.
21. Niroomand M, Ghasemi SN, Karimi-Sari H, Kazempour-Ardebili S, Amiri P, Khosravi MH. Diabetes knowledge, attitude and practice (KAP) study among Iranian in-patients with type-2 diabetes: A cross-sectional study. *Diabetes MetabSyndr Clin Res Rev*. 2016;10(1):114–9.
22. Herath HMM, Weerasinghe NP, Dias H, Weerathna TP. Knowledge, attitude and practice related to diabetes mellitus among the general public in Galle district in Southern Sri Lanka: a pilot study. *BMC Public Health*. 2017;17(1):535.
23. Murata GH, Shah JH, Adam KD, Wendel CS, Bokhari SU, Solvas PA, et al. Factors affecting diabetes knowledge in Type 2 diabetic veterans. *Diabetologia*. 2003;46(8):1170–8.
24. TARRIER N, Bobes J. The importance of psychosocial interventions and patient involvement in the treatment of schizophrenia. *Int J Psychiatry Clin Pract*. 2000;4(1):35–51.
25. Malathy R, Narmadha MP, Alvin Jose M, Ramesh S, Dinesh Babu N. Effect of a Diabetes Counseling Programme on Knowledge, Attitude and Practice among Diabetic Patients in Erode District of South India. *J Young Pharm*. 2011;3(1):65–72.