

# Knowledge, Awareness And Practices Regarding Diabetes Mellitus Among Different Diabetic Patients Of Selected Diabetic Care Centers Of Chattogram City Corporation, Bangladesh

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## Abstract:

**Introduction:** Diabetes mellitus (DM) is a global public health concern. Currently the cases of diabetes mellitus increasing mainly due to the transformation of lifestyle from traditional to urbanized or western. These lifestyle changes are having a great impact on increasing DM. The main objective of this study is to analyze the knowledge, attitude and practice level of people in Chattogram, Bangladesh regarding DM.

**Objective:** To determine the Knowledge, attitude and practices regarding Diabetes Mellitus among different diabetic patients of selected diabetic care centers of Chattogram City Corporation, Bangladesh.

**Methodology:** A descriptive cross-sectional study has been carried out with 200 diabetic patients. The participants have been selected for this survey through a non-probability sampling method.

**Result:** Among the participants, most of them are from the age group 46-55 years old (33%). And the literacy rate is about 88%. Among 200 participants, 71% participants have family income more than 20k. The survey covered 51.1% male patients and 48.5% female diabetic patients. Almost all of the participants reported that they have knowledge about diabetes and the majority of the participants reported that they have family history of diabetes. Also, all of them (100%) think that diabetes mellitus is not curable. The majority of them think that diabetes is preventable while a few do not think so.

**Discussions:** This study highlights significant gaps in knowledge, attitude, and practice (KAP) among diabetic patients in urban Chattogram. Although the majority of participants demonstrated awareness of the symptoms and complications of diabetes, misconceptions regarding disease management and preventive measures were evident.

**Conclusion & Recommendation:** The study shows an average level of diabetes awareness and a good level of positive attitudes towards the importance of diabetes care. At the same time, it has found moderate levels of practices towards diabetes mellitus in Bangladesh. This study highly recommends initiating large-scale country-wide awareness-raising events where people can participate and acquire knowledge and skills to shape up their plans in fighting chronic diseases like diabetes in the future.

**Keywords:** Diabetes Mellitus; Knowledge, attitude and practices (KAP); Urbanized Lifestyle; Non-Communicable Disease; Chattogram City Corporation; Chronic Diseases

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## I. Introduction

Diabetes mellitus (DM) is one of the most common non-communicable diseases globally, affecting millions of people and posing a significant burden on healthcare systems<sup>1</sup>. Characterized by chronic hyperglycemia due to defects in insulin secretion, insulin action, or both<sup>2</sup>, DM is associated with serious long-term complications such as retinopathy, nephropathy, neuropathy, cardiovascular diseases, and lower limb amputation<sup>3</sup>.

The prevalence of diabetes has risen sharply in both developed and developing countries, largely due to demographic and lifestyle transitions. Rapid urbanization, sedentary behaviors, high-calorie diets, and reduced physical activity have contributed significantly to this surge<sup>4</sup>. According to the International Diabetes Federation, approximately 463 million adults worldwide had diabetes in 2019, and the number is expected to increase to 700 million by 2045. In Bangladesh, the prevalence has escalated from 4.8% in 2012 to a projected 6.1% by 2025, indicating a pressing need for public health interventions<sup>5</sup>.

Knowledge, attitude, and practice (KAP) regarding diabetes are critical in controlling disease progression, preventing complications, and promoting self-management<sup>6</sup>. Adequate knowledge helps individuals

recognize symptoms, adopt preventive behaviors, and comply with treatment regimens<sup>7</sup>. Attitudes influence motivation to maintain lifestyle changes, while practices determine the actual implementation of preventive measures such as regular blood sugar monitoring, healthy diet, physical activity, and medication adherence<sup>8</sup>.

Socioeconomic factors, literacy, cultural beliefs, and access to healthcare services have been shown to affect KAP levels. Urban populations with higher education generally have better knowledge but may lack adherence to practices due to busy lifestyles or lack of awareness about self-care routines<sup>9</sup>.

A growing body of research emphasizes the importance of assessing KAP in diabetes management. In Malaysia, a study found that diabetic patients had good knowledge and positive attitudes, yet self-care practices were inconsistent, particularly regarding diet and regular glucose monitoring<sup>10</sup>. Similarly, in India, the Chennai Urban Rural Epidemiology Study (CURES-9) reported moderate awareness, but many participants held misconceptions about diabetes prevention and treatment<sup>11</sup>.

In Nepal, a cross-sectional study highlighted that although patients were aware of diabetes and its complications, adherence to recommended practices such as dietary modifications and foot care was low<sup>12</sup>. Ethiopian studies have shown that educational level, urban residence, and family history significantly affect knowledge and attitude toward diabetes, while socioeconomic constraints hinder proper self-care<sup>13</sup>. Research in Iraq also demonstrated high knowledge but insufficient practice levels, indicating a global trend of KAP disparity among diabetic patients<sup>14</sup>.

Comparative studies reveal that structured educational interventions can bridge the gap between knowledge and practice. For instance, patients enrolled in diabetes education programs in Kuwait and South Africa reported significant improvements in self-care behaviors, including diet, exercise, and glucose monitoring<sup>15, 16</sup>. Family history of diabetes is consistently associated with increased awareness and positive attitudes, though it does not always translate into improved practices<sup>17, 18</sup>.

Globally, these findings suggest that knowledge alone is insufficient to ensure proper management of diabetes. There is a need for multifaceted approaches, including continuous education, counseling, lifestyle interventions, and culturally tailored health promotion strategies. Urban populations, like those in Chattogram, are particularly vulnerable due to sedentary lifestyles, processed diets, and limited time for preventive healthcare. Thus, understanding the KAP levels among diabetic patients in urban settings like Chattogram is essential to design targeted interventions and reduce disease burden.

## **II. Methodology**

**Study population:** A cross sectional study has been conducted among the 200 diabetic patients of selected diabetic care centers.

**Study site:** The study was conducted in Chittagong district. 200 random diabetic patients have been selected from some selected diabetic care centers to participate in this survey.

**Sample size calculation:** 200 samples

**Sampling method:** The non-probability and purposive sampling method used in this study to classify the collected data.

**Data Collection method:** The data was collected using a semi structured, pre tested and modified questionnaire. A face-to-face interview has been conducted to answer those questions.

**Inclusion Criteria:** Diabetic patients with given consent who willingly joined in this study. Both male and female were selected as participants.

**Exclusion Criteria:** Non diabetic people and diabetic patients who felt unwilling to participate and were not able to provide information due to physical or mental illness or handicapped.

**Data analysis and management:** The collected data was analyzed by using Microsoft excel spreadsheet.

**Ethical Consideration:** For conducting the study, Ethical approval was obtained from the ethical board of the University. The personal identification, information of the subjects involved in the research were replaced by codes in the protected archived computer data files. The paper forms with the personal identification information were stored in a high security procedure. Data files for statistical analysis were prepared to ensure the confidentiality of any information about the study participants and did not include any personal identification.

**Quality Control & Quality Assurance:** Regular assistance and guidance from the supervisor was taken for conducting interviews. Data collection and analysis was performed by the researcher himself. Report was made with the respondents before data collection. Data was checked and rechecked for reliability. A semi-structured questionnaire was used. Questionnaire was explained in local languages for better understanding.

### III. Results

**Table 1: Socio Demographic Characteristics:** Majority of the respondents (33%) found 46-55 year of Age groups. Almost half of the patients were male (51.5%). 26% of the respondents were graduate. 73.5% respondents came from nuclear families. 71% respondents' monthly family income were >40K.

Socio Demographic Variables	Frequency	Percentages
<b>Age (Years)</b>		
>18-25	00	0%
26-35	25	12.5%
36-45	57	28.5%
46-55	66	33%
<55	52	26%
<b>Gender</b>		
Male	103	51.5%
Female	97	48.5%
<b>Educational Status</b>		
Illiterate	24	12%
Up to Primary	38	19%
Up to SSC	40	20%
Up to HSC	36	18%
Graduate	52	26%
Post Graduate	10	5%
<b>Occupation</b>		
Housewife	57	28.5%
Worker	08	4%
Government Employee	40	20%
Private Employee	37	18.5%
Businessman	24	12%
Retired Employee	16	8%
Shopkeeper	18	9%
<b>Types of Family</b>		
Joint	147	73.5%
Nuclear	53	26.5%
<b>Monthly Family Income (BDT)</b>		
<20K	04	2%
20K-30K	26	13%
30k-40k	38	19%
>40K	142	71%

**Table 2: Socio Demographic Characteristics:** Among all the respondents 61% were Muslims. Almost all of them were married. 100% came from Urban area. 64% told that there were 2-4 persons in their families. 66% respondents were living in Pakka house.

Socio Demographic Variables	Frequency	Percentages
<b>Religion</b>		
Hindu	53	26.5%
Muslim	122	61%
Christian	13	6.5%
Buddhist	02	1%
<b>Marital Status</b>		
Single	02	1%
Married	198	99%
<b>Living Place</b>		
Urban	200	100%

Rural Semi-Urban	00 00	0% 0%
<b>Number of Family Member</b> 2-4 person 5-7 person 8-10 person	128 49 23	64% 24.5% 11.5%
<b>Housing Condition</b> Kachcha Tin- shed Semi- Pakka Pakka	6 26 36 132	3% 13% 18% 66%

**Table 3: Knowledge about diabetes mellitus:**

Table 3 shows the knowledge level of the participants regarding diabetes mellitus. The table gives us a dominant idea that all of the participants acknowledged enough about what diabetes mellitus is and if it is preventable and curable. All of the participants responded that diabetes is a disease of increased blood sugar level which is completely true. Also, all of them (100%) think that diabetes mellitus is not curable. Majority of them think that diabetes is preventable while a few do not think so.

Do you know about Diabetes Mellitus?	
Yes No	200 00
What is diabetes?	
Increased blood glucose level Decreased blood glucose level Normal blood glucose level	200 00 00
Do you think diabetes is preventable?	
Yes No	188 22
Is diabetes curable?	
Yes No	00 200

**Table 4: Knowledge about different related issues linked with diabetes mellitus:** Here maximum respondents were doing exercise for 30 minutes. Almost half of the respondents had knowledge on balanced diet. 126 respondents believed that Diabetes is related to other diseases. 135 respondents believed that diet therapy can reduce the rate of harm of health. 154 respondents believed that regular exercise can reduce the rate of harm of health.

Questions	Frequency	Percentages
How long exercise daily?	a. 30 Min b. 1 Hour c. 2 Hour	a. 153 b. 46 c. 1
Knowledge about Balanced Diet?	a. Yes b. No	a. 103 b. 97
Does Diabetes is related to other diseases?	a. Yes b. No	a. 126 b. 74
Do you know Diabetes is related to Retinopathy?	a. Yes b. No	a. 80 b. 120
Do you know Diabetes is related to Nephropathy?	a. Yes b. No	a. 101 b. 99

Do you know Diabetes is related to CHD?	a. Yes b. No	a. 138 b. 62
Do you know Diabetes is related to Neuropathy?	a. Yes b. No	a. 78 b. 122
Do you think diet therapy can reduce the rate of harm of health?	a. Yes b. No	a. 135 b. 65
Do you think regular exercise can reduce the rate of harm of health?	a. Yes b. No	a. 154 b. 46
Does any of your family member/s have DM?	a. Yes b. No	a. 118 b. 82

**Table 5: Awareness of different related issues linked with diabetes mellitus:** In this study 142 respondents did not have cardiac problem, others had. 46 respondents had retinopathy and neuropathy. 130 had hypertension. Almost half of them did visit to doctor and check blood glucose level regularly. Majority of them did follow the prescription and advises of your physician properly.

Questions	Frequency	Percentages
Do you have any cardiac problem?	a. Yes b. No	a. 58 b. 142
Do you have any retinopathy?	a. Yes b. No	a. 46 b. 154
Do you have any neuropathy?	a. Yes b. No	a. 46 b. 154
Do you have any nephropathy?	a. Yes b. No	a. 26 b. 174
Do you have hypertension?	a. Yes b. No	a. 130 b. 70
Do you visit doctor and check blood glucose level regularly?	a. Yes b. No	a. 102 b. 98
Do you follow the prescription and advises of your physician properly?	a. Yes b. Sometimes irregularly c. Irregularly	a. 87 b. 76 c. 37

**Table 6: Practices of different related issues linked with diabetes mellitus:** In this study 54 respondents did check blood sugar level monthly. 108 respondents talked about normal blood glucose level on that time where 92 talked about fluctuated. 161 respondents mentioned about oral tablet for Diabetes. Maximum replied that, by regular exercise and taking drugs they can control diabetes. 136 respondents said that they felt stress that time.

Questions	Frequency	Percentages
Frequency of checking blood sugar level	a. Monthly b. 3 Monthly c. 6 Monthly	a. 54 b. 62 c. 84
Glucose level	a. Normal b. Fluctuated	a. 108 b. 92
Drugs intake	a. Oral Tablets b. Insulin	a. 161 b. 39
How you control diabetes yourself?	a. By regular exercise b. By taking drugs c. By following food charts d. a & b e. a & c f. b & c g. a, b & c	a. 0 b. 0 c. 0 d. 111 e. 14 f. 0 g. 75
Do you take sufficient fruits & vegetables?	a. Yes b. No	a. 131 b. 69
Do you feel stress?	a. Yes b. No	a. 136 b. 64
Lipid Profile?	a. Normal b. Fluctuated	a. 141 b. 59

#### IV. Discussions

This study highlights significant gaps in knowledge, attitude, and practice (KAP) among diabetic patients in urban Chattogram. Although the majority of participants demonstrated awareness of the symptoms and complications of diabetes, misconceptions regarding disease management and preventive measures were evident.

##### Knowledge and Awareness

The findings are consistent with studies conducted in Malaysia and India, where patients had moderate to good knowledge but often misunderstood aspects of diabetes prevention and treatment<sup>19, 20</sup>. In Nepal, despite awareness of diabetes complications, many patients did not fully understand the importance of dietary control

and exercise<sup>21</sup>. These comparisons indicate that awareness alone does not guarantee adequate self-care, emphasizing the need for structured educational programs.

### **Attitude**

Participants generally exhibited positive attitudes toward disease management, reflecting their willingness to follow medical advice and adopt healthier lifestyles. Similar trends were observed in Ethiopia and Iraq, where patients recognized the seriousness of diabetes but were often limited by socioeconomic constraints and lifestyle challenges<sup>22, 23</sup>. Positive attitudes alone, however, do not always translate into improved practice, highlighting a global pattern of KAP disparity.

### **Practice and Self-Management**

Self-care practices, including regular blood sugar monitoring, adherence to medication, and dietary modifications, were suboptimal in this study. Comparable findings were reported in South Africa and Kuwait, where education interventions significantly improved practice but baseline adherence remained low<sup>24, 25</sup>. Barriers such as time constraints, financial limitations, and lack of family support were commonly cited, aligning with previous research in urban South Asian settings<sup>26</sup>.

### **Comparative Implications**

The disparity between knowledge and practice observed in this study aligns with global trends, emphasizing that interventions must go beyond knowledge dissemination. Culturally tailored education, regular counseling, and family involvement are crucial to improving self-care behaviors<sup>27</sup>. Furthermore, targeted community health programs can address structural barriers, such as access to affordable medications and healthy food options<sup>28</sup>.

### **Policy and Public Health Considerations**

Urban populations, including those in Chattogram, face heightened risks due to sedentary lifestyles, processed diets, and limited preventive healthcare engagement<sup>29</sup>. Public health strategies should focus on raising awareness, promoting lifestyle modification, and integrating diabetes education into routine healthcare services. Collaborative efforts between healthcare providers, policymakers, and community organizations can help reduce the disease burden and prevent long-term complications<sup>30</sup>.

## **V. Conclusion**

This study demonstrates that while diabetic patients in urban Chattogram possess moderate knowledge and positive attitudes toward diabetes management, their self-care practices are insufficient. The observed KAP gaps underscore the importance of multifaceted interventions, including structured educational programs, culturally sensitive counseling, and community-based support mechanisms. Improving practice behaviors requires addressing socioeconomic barriers, enhancing access to healthcare resources, and fostering family and social support systems. Policymakers and healthcare providers must prioritize diabetes education, preventive strategies, and regular follow-up to mitigate complications and improve quality of life for diabetic patients. Strengthening these initiatives will contribute to better health outcomes, reduce healthcare costs, and decrease the overall burden of diabetes in Bangladesh.

## **VI. Recommendations**

- 1. Implement Targeted Education Programs:** Health authorities should organize community-based diabetes education sessions to improve knowledge, attitudes, and self-care practices among urban populations.
- 2. Promote Lifestyle Modification Campaigns:** Encourage regular physical activity, healthy eating, and weight management through public awareness campaigns and local health initiatives.
- 3. Strengthen Primary Healthcare Services:** Equip primary healthcare centers with trained staff and resources to provide counseling, regular screening, and follow-up for diabetic patients.
- 4. Encourage Family and Social Support:** Involve family members in diabetes management programs to improve adherence to treatment and promote a supportive environment for lifestyle modifications.

## **VII. Limitations**

1. The study focused on urban populations in Chattogram, limiting generalizability to rural or other regional settings.
2. Self-reported data may introduce recall bias and social desirability bias.
3. The cross-sectional design prevents establishing causal relationships between KAP and actual health outcomes.
4. The study did not explore detailed dietary intake or biochemical markers, which could provide deeper insights into disease management

## Declaration

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**Conflicts of Interest:** There are no conflicts of interest among authors.

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