

# Knowledge Regarding Diabetes Mellitus among Rural People in a Selected Area of Bangladesh

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## Abstract

**Background:** Diabetes mellitus (DM) is one of the major public health concerns throughout the world. In 2013, there were 382 million people living with DM, and this number is projected to increase to 471 million by 2035. It affects large number of people of wide range of ethnic and economic levels in both developed and developing countries.

**Objective :** The study was undertaken to assess the knowledge regarding diabetes mellitus among rural people in a selected area of Bangladesh.

**Methods :** A descriptive type of cross sectional study was conducted from November 2015 to January 2016 among 400 people of a village of Gazipur district. The data were collected by using pre tested, semi-structured, interviewer administered questionnaire. Non probability purposive sampling technique was followed. Knowledge related variable were initial symptoms, curability, prevention, risk factors, complications, changes occur inside the body, perceived causes and investigation of DM. Data analysis was done by statistical software, SPSS version 20.

**Results :** Out of 400 respondents, majority (47.50%) were in the age group of 21-30 years. Most (58.25%) of them were male and in terms of educational status 80.5% respondents were literate having varying levels of education. Majority (48.75%) of respondents were service holder. Nearly all of respondents (92%) heard about DM and their source of information was from neighbour 28.89% followed by health care provider 27.71%. Majority of respondents had good knowledge regarding initial symptoms 53.80% and curability 60.86% of DM. Most of them had fair knowledge regarding prevention 35.86% and risk factors 48.09% of DM. Majority 70.92% respondents had poor knowledge regarding complications of diabetes mellitus. Most respondents had no knowledge regarding changes occur inside the body 75.27%, perceived causes of DM 61.69% and investigation 61.41% of DM.

**Conclusion :** This study concluded that good knowledge was found on initial symptom and curability of Diabetes mellitus, fair knowledge on risk factor and prevention and poor knowledge was found regarding complications of DM. No knowledge was found regarding changes occur inside the body, perceived causes and investigation of Diabetes mellitus. Therefore, effective awareness and health education program to the rural people regarding various aspects of Diabetes mellitus are in urgent need.

**Key words :** Diabetes Mellitus, Knowledge, Rural people.

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## Introduction

Diabetes mellitus consists an enormous public health problem globally, associated with high morbidity and mortality. It is a group of metabolic disorders characterized by chronic hyperglycemia with disturbance of carbohydrate, fat and protein metabolism, resulting from a diversity of etiologies. Diabetes mellitus is due to either the pancreas not producing enough insulin or the cells of the body not responding properly to the insulin produced.<sup>1</sup> If left untreated, diabetes mellitus can cause many complications of which acute complications include diabetic ketoacidosis and nonketotic hyperosmolar coma<sup>2</sup> and serious long-term

complications include cardiovascular disease, stroke, chronic kidney failure, foot ulcers, and damage to the eyes.<sup>3</sup>

Diabetes mellitus is an emerging threat to the world's health service. Although increase in both the prevalence and incidence of type 2 diabetes have occurred globally, they have been especially dramatic in societies in economic transition, in newly industrialized countries and in developing countries.<sup>4</sup> As of 2014, an estimated 387 million people have diabetes mellitus worldwide,<sup>5</sup> with type 2 diabetes mellitus making up about 90% of the cases. This represents 8.3% of the adult population,<sup>6</sup> with equal rates in both women and men. From 2012

to 2014, diabetes mellitus is estimated to have resulted in 1.5 to 4.9 million deaths each year.<sup>7</sup> The global economic cost of diabetes mellitus in 2014 was estimated to be \$612 billion USD.<sup>8</sup>

Diabetes mellitus also common in Bangladesh. At present it is estimated that about 3.6 million people are affected throughout the country. The overall estimated prevalence of diabetes mellitus in Bangladeshi population is 5.6%, in which more than 96% is reported to have type 2 diabetes mellitus and higher prevalence is found in urban areas predominantly among women. If the trend continues to grow in Bangladeshi population where the growth rate is 1.8% and in approximately 160 million people, the problem of Diabetes mellitus as a major health issue should certainly alarm the health planners of the country<sup>8</sup>.

**Methods :** A descriptive type of cross sectional study was conducted from November 2015 to January 2016. After taking consent data were collected by self administered questionnaire from 400 rural people of Gazariapara village of Gazipur district. Purposive sampling technique was followed in selecting sample. Collected data were verified in order to reduce the errors and inconsistencies. Data analysis has been performed with the aid of advance statistical analysis software, SPSS version 20.

Questions regarding various aspects of Diabetes Mellitus were incorporated in the questionnaire e.g initial symptoms, risk factors, curability, investigation, complications, prevention, perceived causes and changes occur inside the body. Knowledge level has been operationalized into good, fair, poor and no knowledge. In case of questions having multiple correct answers, those who had given three or more correct answers were considered as having good knowledge, who had given two correct answers were considered as having fair knowledge, who had given one correct answer were considered as having poor knowledge and who had given incorrect answers were considered as having no knowledge. In case of single correct answer questions, those who had given the correct answer were considered as having good knowledge and who had given the incorrect answer were considered as having no knowledge.

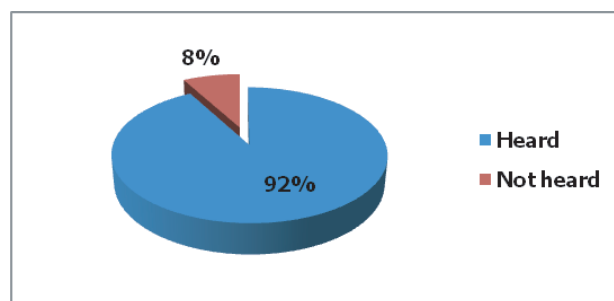
**Results :** Among 400 respondents, majority (47.50%) were 21-30 years of age and least were <20 years of age. According to sex, most (58.25%) of the respondents were male. Regarding education, majority (80.50%) were educated in different level. Only 19.50% of them were illiterate. In case of occupation, majority (48.75%) of the respondents were service holder, followed by business (17.50%), daily worker (13.00%) and farmer (11.25%). Regarding income, majority (33.75%) of the respondent's monthly family income was 10,000-15,000 Tk. (table-I)

**Table I : Socio demographic characteristics of the respondents (n=400)**

Age in years	Frequency	Percentage (%)
<20	24	6.0
21-30	190	47.50
31-40	97	24.25
>40	89	22.25
Sex		
Male	233	58.25
Female	167	41.75
<b>Educational status</b>		
Illiterate	78	19.50
Primary	126	31.50
Secondary	154	38.50
Higher Secondary	31	7.75
Graduate	11	2.75
<b>Occupation</b>		
Farmer	45	11.25
Service holder	195	48.75
Business	70	17.50
Daily worker	52	13.00
Jobless	38	9.50
<b>Monthly family income</b>		
<5,000	30	7.5
5,000-10,000	107	26.75
10,000-15,000	135	33.75
15,000-20,000	63	15.75
>20,000	65	16.25

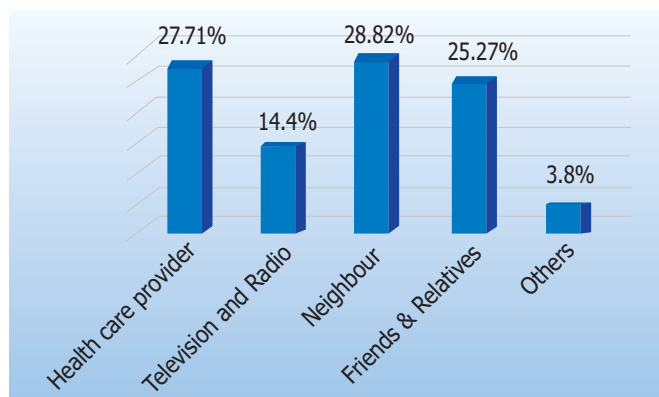
Regarding Diabetes Mellitus 368 (92%) of the respondents have heard about Diabetes mellitus, whether 32 (8%) have not heard regarding this subject. (Figure-1)

**Figure-1: Distribution of respondents according to whether they have ever heard regarding Diabetes mellitus (n=400)**



Majority (28.82%) of the respondents have heard information regarding Diabetes mellitus, from neighbor followed by health care provider (27.71%), friends and relatives (25.27%) and television and radio (14.40%) figure-2,

**Figure-2 : Distribution of respondents according to their source of information about DM regarding Diabetes mellitus (n=368)**



Level of knowledge regarding various aspects of DM, most of them (75.27%) had no knowledge and only (24.73%) had good knowledge regarding changes occur inside the body in diabetes mellitus. In case of perceived causes of DM, majority (61.69%) had no knowledge and only 18.75% had good knowledge. Regarding risk factors of diabetes mellitus, 48.09% had fair knowledge 17.93% had no knowledge and only 12.5% had good knowledge. Most (60.86%) of the respondents had good knowledge and (39.14%) had no knowledge about curability of DM. Regarding initial symptoms of diabetes mellitus, majority (53.8%) of the respondents had good knowledge. In case of complications of DM, majority (70.92%) had poor knowledge followed by 13.31% no knowledge and only 6.25% had good knowledge. Most (61.41%) of the respondents had no knowledge and the rest (38.59%) had good knowledge about investigations of DM. Regarding prevention of DM, majority (35.86%) of respondents had fair knowledge. (table II)

## Discussion

This descriptive type of cross sectional study was conducted among 400 people to assess the knowledge regarding diabetes mellitus among them. Among the respondents, was majority (47.50%) were 21-30 years of age followed by (24.25%) were 31-40 years, (22.25%) were >40 years. Age distribution was similar with the study in India by Poornima S et al<sup>10</sup>. According to sex, most (58.25%) of the respondents were male and the rest (41.75%) were female. Similar sex distribution was found in a study by Varshil Mehta<sup>11</sup> Regarding education, majority of the respondent's educational level belongs to secondary (38.50%) and primary (31.50%) followed by higher secondary (7.75%) & graduate (2.75%) and 19.50% of them were illiterate. These finding were consistent with the study conducted by Sueziani Binte Zainudin et al in Singapore<sup>12</sup>. In this study, majority of the respondents belonged to sedentary worker and from low middle class.

Majority (92%) of the respondents have heard regarding Diabetes mellitus, whether 8% have not heard regarding this subject. A study conducted by Mohan D et al<sup>13</sup> suggested that 75.5% of the respondents of Chennai, India had heard regarding Diabetes mellitus. Most (28.82%) of the respondents have heard information regarding Diabetes mellitus, form neighbor followed by health care provider (27.71%), friends and relatives (25.27%) and television and radio (14.40%). Therefore, health care providers and the audio visual media should provide more emphasis to disseminate information about DM to the rural people.

Regarding changes occur inside the body in DM, most of them (75.27%) had no knowledge and only 24.73% had good knowledge. On asking perceived causes of diabetes mellitus, majority (61.69%) had no knowledge, Regarding risk factors of

**Table-II : Distribution of respondents according to level of knowledge regarding various aspects of Diabetes mellitus (n=368)**

Knowledge related variables	Level of Knowledge							
	Good Knowledge		Fair Knowledge		Poor Knowledge		No Knowledge	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Changes occur in side the body	91	24.73	-	-	-	-	277	75.27
Perceived causes	69	18.75	50	13.59	22	5.97	227	61.69
Risk factors	46	12.5	177	48.09	79	21.48	66	17.93
Curability	224	60.86	-	-	-	-	144	39.14
Initial symptoms	198	53.8	93	25.28	34	9.24	43	11.68
Complications	23	6.25	35	9.52	261	70.92	49	13.31
Investigation	142	38.59	-	-	-	-	226	61.41
Prevention	68	18.48	132	35.86	93	25.27	75	20.39

diabetes mellitus, majority (48.09%) had fair knowledge followed by 17.93% had no knowledge and only 12.5% had good knowledge. A study conducted by Munninarayana C. et al<sup>14</sup> suggested that 45% of the participants had good knowledge about risk factors of DM.

Most (60.86%) of the respondents had good knowledge and 39.14% had no knowledge about curability of DM. Regarding initial symptoms of diabetes mellitus, majority (53.8%) of the respondents had good knowledge. In case of complications of diabetes mellitus, majority (70.92%) had poor knowledge. Most (61.41%) of the respondents had no knowledge and the rest (38.59%) had good knowledge about investigation of diabetes mellitus. Regarding prevention of diabetes mellitus, majority (35.86%) of respondents had fair knowledge. Therefore, a large portion of people had lack of good knowledge regarding investigations and preventive aspects of the disease.

### Conclusion

The rural people in study area had good knowledge on controllability and initial symptom of DM and no knowledge on changes occur inside the body in diabetic patients and also regarding investigations of DM. They had fair knowledge on risk factor and prevention and poor knowledge was found about the complications of DM. Therefore, health education program, mass media campaign, diabetic camp could be organized to increase awareness on DM for the rural people.

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