



## SOCIODEMOGRAPHIC AND ANTHROPOMETRIC PROFILE OF DIABETIC PATIENTS ATTENDING IN A DIABETIC CLINIC IN A TERTIARY MEDICAL COLLEGE AND HOSPITAL, WEST BENGAL

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### ABSTRACT

**Background:** Diabetes mellitus is one of the important causes of morbidity and mortality. With a rise in non communicable diseases in India, diabetes has become a modern epidemic showing a rising trend in West Bengal also. A large number of diabetes patients come to the diabetes clinic of our tertiary care hospital in North Bengal Medical College and Hospital, Darjeeling, West Bengal. The large proportion of patients presenting with this condition prompted us to study the Sociodemographic and Anthropometric Profile of such patients.

**Methods:** This was a descriptive hospital based cross sectional study involving a total of 344 diabetic patients enrolled in the diabetes clinic of a tertiary care teaching hospital from December 2019 to February 2020. A self-administered questionnaire was used to collect data and was analyzed in Microsoft excel sheet and using SPSS 20.0 software.

**Results:** Among the 344 study participants, we found that 220 (63.95%) were males and 124 (36.05%) were females. Diabetes was more common among those aged 51-60 years 108 (31.40%). Family history was present among 188 (54.65%) of the diabetic patients. Almost 160 (46.51%) patients have diabetes 1.1 – 5 years. Hypertension was present among 216 (62.79%) patients. Almost 218 (63.37%) of the patients were overweight and 84 (24.42%) were obese.

**Conclusions:** The diabetic patients presenting to this tertiary care hospital belong lower socioeconomic strata and having limited education in their age group. There is high proportion of obesity and hypertension among them.

**KEYWORDS :** Diabetes mellitus, Socio-demographic profile, Anthropometric profile

### INTRODUCTION :

Diabetes is a grave, chronic condition.<sup>1</sup> In 2013, it was estimated that globally 382 million people were diabetic and this number is expected to rise to 592 million by 2035.<sup>2</sup> According to the reports of the International Diabetes Federation, 72.9 million Indians were diabetic in 2017, which would be expected to rise till 134.3 million by the year 2045.<sup>3</sup> Most people with diabetes live in low- and middle-income countries and these will experience the greatest increase in cases of diabetes over the next 22 years.<sup>4</sup>

The proportion of people with type 2 diabetes is increasing in most countries. 79% of adults with diabetes were living in low- and middle-income countries. China has the largest number of people with diabetes in the World (114.4 million), followed by India with 72.9 million. The greatest number of people with diabetes were between 40 and 59 years of age. 1 in 2 (232 million) people with diabetes were undiagnosed.<sup>5</sup>

Diabetes is of two types type 1 and type 2. In type 1 diabetes is also known as insulin-dependent diabetes. It usually begins in childhood thus also known as juvenile-onset diabetes. Type 1 diabetes is an autoimmune condition where a person's own body attacks its own pancreas with antibodies and doesn't make insulin. In type 2 diabetes, either the pancreas isn't making enough insulin as per the body's requirement or there is insulin resistance.<sup>6</sup>

In India the prevalence rate of diabetes have increased dramatically since the time the first National survey was

undertaken, in 1971. At that time the prevalence was 2.3% in the urban areas and 1.2% in rural areas. The most recent studies suggest prevalence rate 15-20% in urban areas and about half of that in rural areas 8-10%.<sup>7</sup> The reason for the explosive increase in the prevalence of diabetes in India have been the subject of much study. Though genetic predisposition does play a role, it is unlikely that the genetic makeup of the population has changed so drastically in the past 30 years as to account for the alarming increase in prevalence of diabetes. More likely, increasing prosperity and urbanisation have led to wholesome changes in lifestyle which cause diabetes to manifest individuals who already have a genetic predisposition to the disease.<sup>7,8</sup>

Since diabetes is an ice-berg disease, most of the subjects remain asymptomatic. Screening for diabetes can identify patients at an early stage of the disease, and identify those who will derive benefit from prevention and early treatment methods.<sup>9</sup>

Diabetes should be managed with holistic and individualised patient care based on structured education, self-management and safe and effective glucose-lowering therapies.<sup>10</sup> Diabetes self-care activities can have a dramatic impact on lowering glycosylated haemoglobin levels.<sup>11</sup>

Hence the current research was carried out with an objective to study the socio-demographic and anthropometric profile of Diabetic Patients Attending in A Diabetic Clinic in a Tertiary Medical College and Hospital, West Bengal.

**MATERIAL AND METHODS:**

The design for the current study was observational, descriptive cross-sectional hospital based study. The study was conducted in a tertiary care teaching hospital (North Bengal Medical College and Hospital, Darjeeling, West Bengal). This hospital runs a Diabetes Clinic in conjunction with the medicine OPD and the data of the patients were collected twice a week on designated OPD days. Thus data from 344 patients were collected. The study population was all the patients attending clinic. The study participants were consecutively tracked over a period of 3 months from December 2019 to February 2020.

A total of 344 patients visited the diabetes clinic during the 3 months data collection phase of the study. Thus, the final sample size was 344 patients. The details of the variables under study were recorded from the case papers of the patients attending the diabetes clinic. The questionnaire included demographic and clinical details. Variables recorded in the study were Age, Gender, Religion, Economic status (according to Modified Kuppuswamy Socioeconomic Status Scale, 2018), Area of residence, Body Mass Index, Waist Hip ratio etc. Family history of diabetes was considered if the disease was present either in the father, mother or both.

Weight and height were measured by standard techniques using adult weighing scale and stadiometer respectively. Body Mass Index (BMI) was calculated by formula weight (kg) / height (m<sup>2</sup>). Patients with BMI  $\leq 18.5$  were classified as underweight, 18.6 - 22.9 were classified as normal,  $\geq 23$  were over classified over weight, out of which 23-24.9 were classified as pre-obese, and  $\geq 25$  were classified as obese as per the new guidelines for obesity among Asians.<sup>12</sup> Waist hip ratio was measured by using inch tapes ensuring privacy of the patient. Waist hip ratio of  $>0.95$  in males and  $>0.85$  in females was considered as high. Blood pressure was measured with standard protocol.

**STATISTICAL ANALYSIS:**

The data thus collected were entered in Microsoft excel and analysed using SPSSv20. The proportions are expressed in percentages. This being a descriptive study no statistical significance tests were applied.

**Inclusion criteria**

Inclusion criteria included patients who were diagnosed cases of diabetes mellitus and were willing to participate in the study.

**Exclusion criteria**

patients who refused to participate in the study were excluded.

**RESULTS:**

A total of 344 subjects were included in the study. In the present study Demographic profile of diabetic patients attending diabetic clinic was done it showed majority of the study subjects 108 (31.40%) belong to age group of 51-60 years. Most of the study participants were males that is 220 (63.95%). It was found that majority 258 (75%) of the participants were Hindu and 232 (67.44%) diabetic patients were married. It was found that majority of the diabetic patients had passed the primary school education 82 (23.84%). Majority 235 (68.31%) of the diabetic patients belong to lower Middle Class (Class III) as per Modified Kuppuswamy Socioeconomic Status Scale, 2018. Majority of the patients 220 (63.95%) were resident of rural area. (Table 1)

**Table 1: Demographic profile of diabetic patients attending diabetic clinic. (N=344)**

Variables	Patients	Percentage %
<b>Age</b>		
<30 yrs	18	5.23

31 - 40 years	82	23.84
41 - 50 years	74	21.51
51 - 60 years	108	31.40
> 60 years	62	18.02
<b>Gender</b>		
Male	220	63.95
Female	124	36.05
<b>Religion</b>		
Hindu	258	75.00
Muslim	48	13.95
Others	38	11.05
<b>Marital Status</b>		
Married	232	67.44
Single	34	9.88
Divorced	42	12.21
Widow (er)	36	10.47
<b>Education</b>		
Profession / honours	28	8.14
Graduate	34	9.88
Intermediate / Diploma	48	13.95
High School	74	21.51
Middle School	72	20.93
Primary School	82	23.84
Illiterate	6	1.74
<b>Economic status</b>		
Upper class (I)	7	2.03
Upper Middle Class (II)	20	5.81
Lower Middle Class (III)	235	68.31
Upper Lower Class (IV)	68	19.77
Lower Class (V)	14	
<b>Area of residence</b>		
Urban	124	36.05
Rural	220	63.95

It was found from the table that the majority of diabetic patients 188 (54.65%) reported positive history for the same. (Table 2)

**Table 2 : Family history of diabetic patients attending the diabetic clinic.**

Family history	Patients	Percentage %
Present	188	54.65
Absent	156	45.35

It was found that majority of the diabetic patients 160 (46.51%) were suffering from the disease for a duration of 1.1 – 5 years., followed by 70 (20.35%) for 5.1 – 10 years, 54 (15.70%) for 10.1 – 20 years. 5.1 – 10 years. (Table-3)

**Table 3 : Distribution of diabetic patients according to duration of illness.**

Duration of illness	Patients	Percentage %
< 1 year	46	13.37
1.1 – 5 years	160	46.51
5.1 – 10 years	70	20.35
– 10.1 20 years	54	15.70
> 20 years	14	4.07
<b>Total</b>	<b>344</b>	<b>100</b>

It was revealed that majority of diabetic patients 216 (62.79%) had hypertension as comorbidity. (Table 4)

**Table 4 : Distribution of diabetic patients having hypertension (comorbidity)**

Association	Patients	Percentage %
Present	216	62.79
Absent	128	37.21
<b>Total</b>	<b>344</b>	<b>100.00</b>

Majority of the diabetic patients 218 (63.37%) were overweight i.e. their BMI was in the range of 20.0 – 29.9 mg/m<sup>2</sup>. It was also

found that 84 (24.42%) of diabetic patients were obese. (Table 5)

**Table 5 : Distribution of diabetic patients attending diabetic clinic according to Body Mass Index (BMI) and Waist hip ratio (as per WHO standards)**

Variables	Patients	Percentage %
<b>BMI</b>		
Underweight (< 18.5)	7	2.03
Normal (18.6 - 22.9)	35	10.17
Overweight ( $\geq$ 23.0)	218	63.37
Obese ( $\geq$ 25)	84	24.42

## DISCUSSION

The hospital where this study was conducted in the diabetic clinic of North Bengal Medical College and Hospital, Darjeeling, West Bengal. Majority of the participants of this study were from lower socioeconomic strata.

Our study has shown that majority of the patients were in above 50 years 170 (49.42%). A study by Patel et al has shown the proportion of patients (defined as >55 years in their study) to be only one forth (25%).<sup>13</sup> The difference may be because a large number of younger patients with diabetes coming from lower socioeconomic class with rural background might have not been detected early for the reasons of non-awareness about the disease. The awareness among the population served by the hospital in study by Patel et al may be high so that patients are detected at an early age.

It was found that majority 258 (75%) of the participants were Hindu. Majority of the diabetic patients were married 232 (67.44%). Acharya et al noted that high risk of diabetes was significantly more common among the married individual (84.2%).<sup>14</sup> It was found that majority of the diabetic patients were passed primary school education 82 (23.84%). Majority 235 (68.31%) of the diabetic patients belong to lower Middle Class (Class III) as per Modified Kuppuswamy Socioeconomic Status Scale, 2018. Study conducted by Himanshu M Rana et al at Central Gujarat found that 92.8% of the diabetic patients belonged to lower income group.<sup>15</sup> Study conducted by Chandra Mani and Laxman Kumar in Chhatisgarh found that 63.40% diabetic patients belonged to lower income group.<sup>16</sup> Majority of the patients 220 (63.95%) were resident of rural area.

In our study majority of diabetic patients 188 (54.65%) reported positive family history of diabetes. Studies done by Geetha A et al in Tamilnadu, Evuru et al in Andhra Pradesh and Patel et al in Ahmedabad, showed positive family history of 68.8%, 66.2% and 67% respectively.<sup>17,18,19</sup> This shows that family history of diabetes is highly prevalent among diabetic patients.

It was found that majority of the diabetic patients 160 (46.51%) were suffering from the disease for a duration of 1.1 – 5 years., followed by 70 (20.35%) for 5.1 – 10 years, 54 (15.70%) for 10.1 – 20 years. 5.1 – 10 years. In other studies, it was reported as 53.6, 57% and 62% for having a duration of diabetes of fewer than 5 years.<sup>20,21,22</sup>

Our study found that majority of diabetic patients 216 (62.79%) had comorbidities like hypertension. A similar finding was observed in one study that 43.3% had also hypertension.<sup>23</sup> In another study, it was found that 80% had hypertension.<sup>24</sup> In a study conducted in Maharashtra, it was 62.3% for hypertension as comorbidity.<sup>20</sup>

In our study majority of the diabetic patients 218 (63.37%) were overweight. It was also found that 84 (24.42%) of diabetic patients were obese. In the study by Patel et al almost 70% of their patients were in obese category.<sup>13</sup> A study by Shrivastava et al from Reva city in Madhya-Pradesh showed that 55% of their patients were obese.<sup>25</sup>

## CONCLUSION

This study shows the demographic profile of the diabetic patients attending the tertiary care hospital a large part of who are from lower socioeconomic strata and having limited education. Contrary to the common belief that diabetes is more prevalent in higher socio economic group, in present study it is more in the lower socio economic group. More elaborated study should be conducted to find out the association of diabetes with socio economic scale. Also we saw a higher proportion of obesity and hypertension among the studied diabetic patients. Comprehensive health care with screening for diabetes is need of the hour to diagnose the pre diabetic and diabetic patients particularly amongst the population at risk of developing the disease. Hypertension should be monitored and lifestyle modification among the diabetics should be encouraged amongst at risk population.

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