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A cross sectional, non-interventional study to evaluate the knowledge of diabetes mellitus in diabetics in a tertiary care hospital

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ABSTRACT

The objective of this study was to assess how much knowledge diabetics have about Diabetes Mellitus given that India has been conferred with the title of "Diabetic Capital" of the world by the WHO, owing to increased incidence and high prevalence of Diabetes Mellitus in India. The objective was also to raise awareness about the increasing need for education or awareness programs and patient counseling about Diabetes Mellitus in India. A cross sectional, non-interventional study was conducted at the out-patient and the in-patient departments of Internal Medicine at Owaisi Hospital and Research Centre, Hyderabad for 3 months on 500 patients using a questionnaire. Patients diagnosed with Type 1 and Type 2 Diabetes Mellitus were considered for the study. The study throws light on the fact that a majority of the patients including the ones who had a positive family history (62.4%) of Diabetes Mellitus lack basic knowledge of Diabetes Mellitus like the risk factors, whether it is contagious or not, whether it is transmitted via blood or not, symptoms, long term complications, importance of diet and medication, etc. The study highlights the poor knowledge of the patients. The results show that the patients have fared very bad in the assessment test and hence, indicate the need for awareness programs and patient counseling. Given the fact that the prevalence of Diabetes Mellitus is very high and increasing by leaps and bounds every day in India, patients need to be given sound knowledge of Diabetes Mellitus.

Keywords: Diabetes Mellitus, Knowledge, Assessment, Diabetes Capital, India

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INTRODUCTION

According to epidemiological studies, the rate of prevalence of Diabetes Mellitus around the world was 2.8% in 2000 and might escalate to 4.4% by 2030, in all age groups. [3] It is estimated that by 2030, 79.4 million people would suffer with Diabetes Mellitus in India alone. [4] India was also conferred with the title of the "Diabetes Capital" of the world by World Health Organization due to escalating prevalence and incidence of Diabetes Mellitus. [5, 6] According to the various epidemiological studies conducted in India, people have very less awareness about Diabetes Mellitus and its related long term complications and the level of knowledge is even worse when it comes to rural areas. Thus there is an urgent need to educate people about Diabetes Mellitus. [15, 16]

Diabetes Mellitus may be defined as a diverse collection of syndromes or disorders associated with impaired metabolism of carbohydrates, proteins and fats, which are characterized with intense and long term hyperglycemia (increased levels of glucose).[13]

Impaired secretion of insulin or defunct insulin action or both, as a result of autoimmune or non-autoimmune destruction of beta cells of islets of Langerhans of pancreas could be the possible etiological factors of Diabetes Mellitus. [1, 7, 8]

Diabetes Mellitus is broadly classified into two categories namely Type I Diabetes Mellitus and Type II Diabetes Mellitus. Type I Diabetes Mellitus occurs due to lack of insulin and is also referred to as Insulin Dependent Diabetes Mellitus (IDDM). Type II Diabetes Mellitus occurs due to resistance offered by insulin and is also called as Non-Insulin Dependent Diabetes Mellitus (NIDDM). [2, 9]

The symptoms of Diabetes mellitus include polyuria (increased urination), polydipsia (increased thirst), blurred vision, weight loss and infections. [11]

If the patient observes the above mentioned symptoms and finds his fasting plasma glucose level more than or equal to 200mg/dL or fasting plasma glucose level of more than or equal to 126mg/dL on investigation, then he is assumed to be a diabetic. [12]

Long term complications might include retinopathy, nephropathy and neuropathy. [10, 14]

MATERIALS AND METHODS

Study Site: The study was conducted at the out-patient and the in-patient departments of the Owaisi Hospital and Research Centre, Kanchanbagh, Hyderabad which is a 1000 bedded multi-specialty hospital.

Sample Size: 500 diabetic patients were considered.

Study Period: The study was done for a period of 3 months from June 2014 to August 2014.

Study Design: The study was a non-interventional cross-sectional study.

Inclusion Criteria
- Patients who have been diagnosed with Type 1 and Type 2 Diabetes Mellitus.
- Both males and females were considered.
- Patients above the age of 18 years were considered for the study.

Exclusion Criteria
- Patients below the age of 18 years.
- Non-diabetic patients.
- Pregnant women.

Study Approval: The study was carried out after getting the permission from the Institutional Review Board.

Source of Data: The patients were provided with a questionnaire, which was modified from 8-GATE Knowledge Questionnaire and WAVE Questionnaire and had 17 questions, a majority of which were close ended. The uneducated patients were given the needed assistance.

Study Procedure:
- Review of literature was done about the growing incidence and prevalence of Diabetes Mellitus in the world and in India especially.
- The study protocol was made and presented to the Institutional Review Board.
- It was approved by the Institutional Review Board.
- Questionnaire was designed.
- Consent for the study was taken.
- 500 diabetic patients, who fell under the inclusion criteria, were provided with the questionnaires and the uneducated ones were assisted in filling out the form.
- The data was analyzed and then statistical methods of analysis were applied to obtain the results.

Statistical Methods Used: The tables, charts, bar diagrams and other graphical representation was constructed by using the MS Word and MS Excel Spreadsheet. The percentages were calculated for each question.

RESULTS AND DISCUSSION

The sample size was 500, out of which 219 (43.8%) were in-patients and 281 (56.2%) were out-patients.

Table.1 Gender wise distribution of the patients

Sex	Number	Percentage (%)
Male	232	46.4
Female	268	53.6

Table.2 Age-wise distribution of the patients

Age Group	Number	Percentage (%)
21-40	96	19.2
41-60	235	47
61-80	169	33.8

Figure.1 Age-wise distribution of the patients

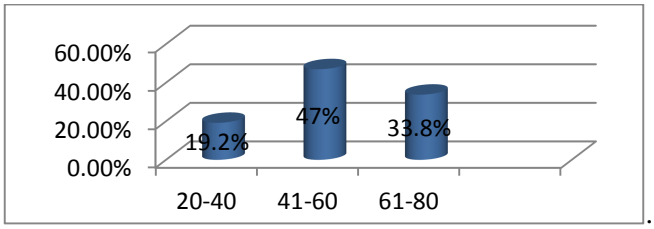


Figure.2 Occupational status of the patients

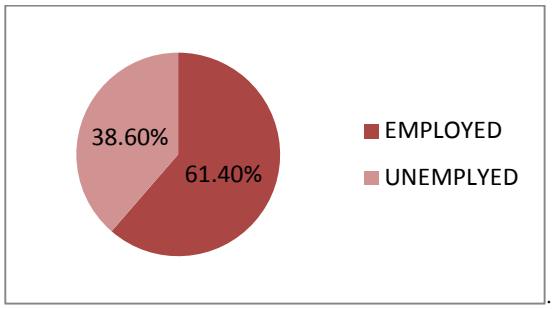


Table.3 Personal habits or addictions of the patients

Addictions	Number	Percentage (%)
Tea/Coffee	71	14.2
Alcohol	42	8.4
Smoking	37	7.4
Tobacco Chewing	93	18.6
Betel Leaf	56	11.2
None	201	40.2

Figure.3 Co-morbid conditions of the patients

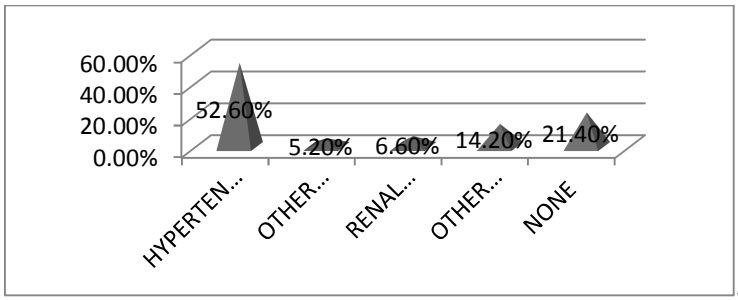


Figure.4 Family history of the patients

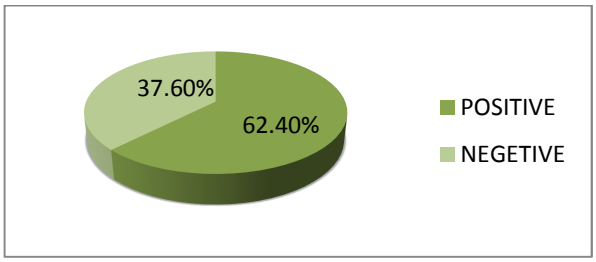


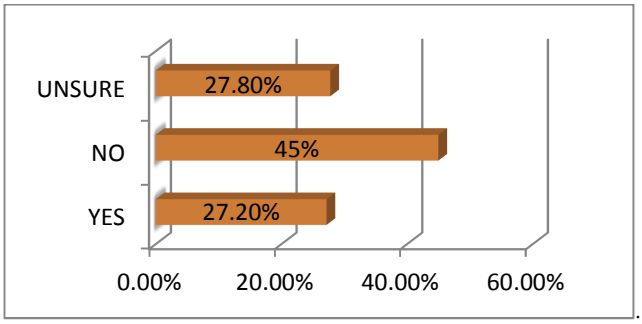
Table.4 Duration of diabetes mellitus

Duration Of Diabetes (In Years)	Number	Percentage (%)
0-3	63	12.6
3-5	86	17.2
5-10	146	29.2
>10	205	41

Answers to the questions in the questionnaire:

Question.1 Do you have any knowledge about Diabetes Mellitus?

Figure.5 Knowledge about Diabetes Mellitus (Response to Question 1)

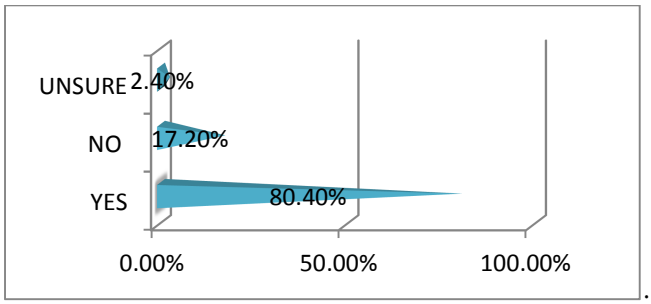


Question.2 Do you know that nowadays, many people are being diagnosed with Diabetes Mellitus?

Table.5 Diagnosis of Diabetes Mellitus (Response to Question 2)

Response	Number	Percentage (%)
Yes	402	80.4
No	86	17.2
Unsure	12	2.4

Figure.6 Diagnosis of Diabetes Mellitus (Response to Question 2)



Question.3 Do you think Diabetes Mellitus is predisposed by certain reasons?

Table.6 Knowledge about predisposed factors ((Response to Question 3)

Answer	Number	Percentile (%)
Yes	198	39.6
No	225	45
Unsure	77	15.4

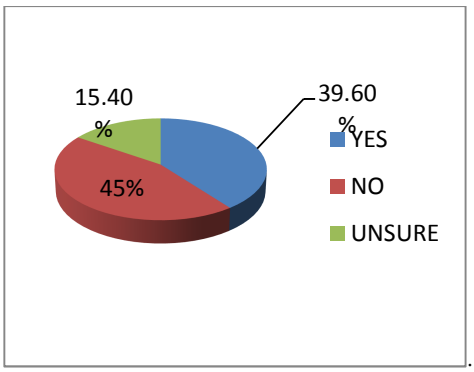


Figure.7 Knowledge about predisposed factors ((Response to Question 3)

If yes, what are they?

Table.7 Knowledge about predisposed factors

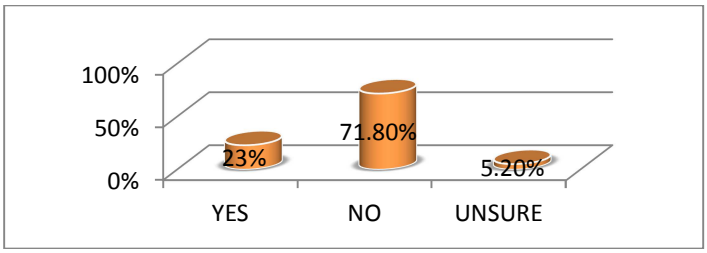
Condition	Number	Percentile (%)
Obesity	22	11.11
Lack of exercise	20	10.10
Mental stress	93	46.97
Hypertension	31	15.66
Positive family history	26	13.13
Others	6	3.03

QUESTION.4 Is Diabetes Mellitus contagious?

Table.8 Knowledge about the spread of Diabetes Mellitus (Response to Question 4)

Response	Number	Percentile (%)
Yes	115	23
No	359	71.8
Unsure	26	5.2

Figure.8 Knowledge about the spread of Diabetes Mellitus (Response to Question 4)



Question.5 Is Diabetes Mellitus transmitted via blood?

Table.9 Hematogenous spread of Diabetes Mellitus (Response to Question 5)

Answer	Number	Percentile (%)
Yes	259	51.8
No	112	22.4
Unsure	129	25.8

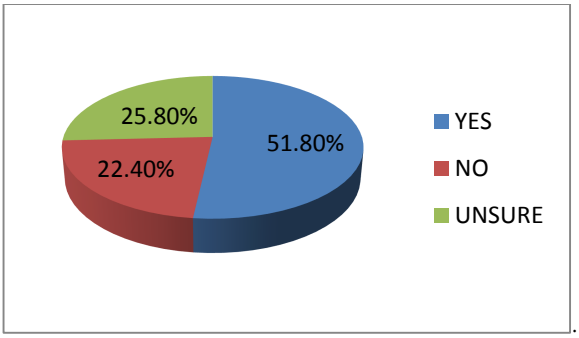


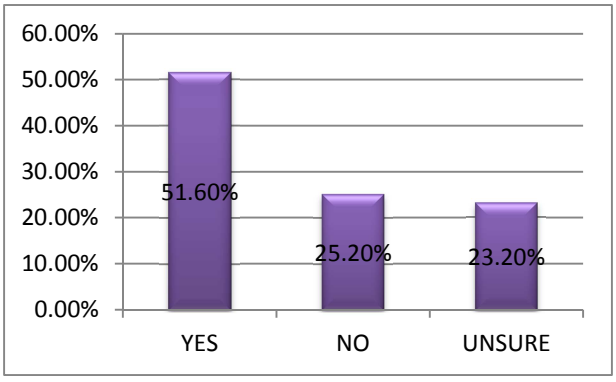
Figure.9 Hematogenous spread of Diabetes Mellitus (Response to Question 5)

Question.6 Can alcohol ingestion and smoking deteriorate the condition of a Diabetic?

Table.10 Effect of alcohol and smoking on diabetics (Response to Question 6)

Response	Number	Percentile (%)
Yes	258	51.6
No	126	25.2
Unsure	116	23.2

Figure.10 Effect of alcohol and smoking on diabetics (Response to Question 6)

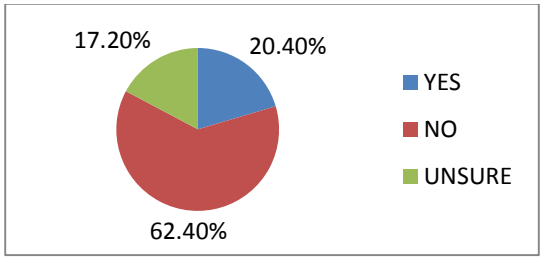


Question.7 Are increased frequency of urination and thirst, symptoms of Diabetes Mellitus?

Table.11 Symptoms of Diabetes Mellitus (Response to Question 7)

Answer	Number	Percentile (%)
Yes	102	20.4
No	312	62.4
Unsure	86	17.2

Figure.11 Symptoms of Diabetes Mellitus (Response to Question 7)

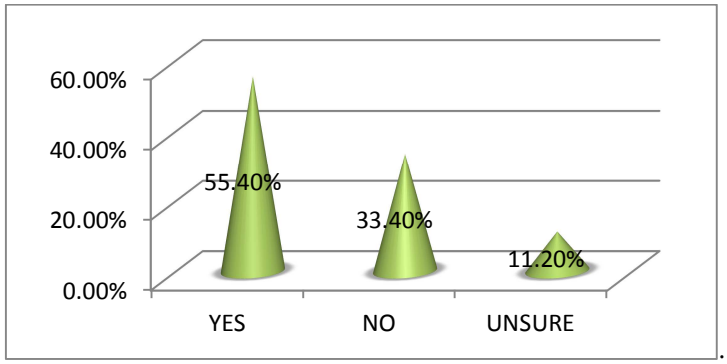


Question.8 Do you have any idea about the possible complications Diabetes can have in the future?

Table.12 Knowledge about complications of Diabetes Mellitus (Response to Question 8)

Response	Number	Percentile (%)
Yes	277	55.4
No	167	33.4
Unsure	56	11.2

Figure.12 Knowledge about complications of Diabetes Mellitus (Response to Question 8)



Question.9 Can Diabetes be prevented?

Table.13 Knowledge about prevention of Diabetes Mellitus (Response to Question 9)

Answer	Number	Percentile (%)
Yes	246	49.2
No	138	27.6
Unsure	116	23.2

If yes, then what are the measures to be adopted to prevent Diabetes?

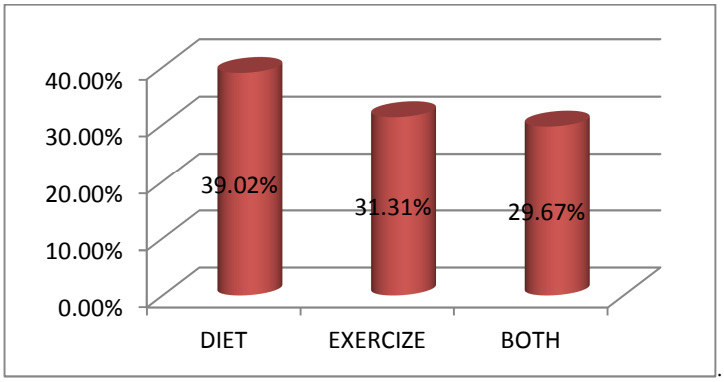


Figure.13 Knowledge about prevention of Diabetes Mellitus (Response to Question 9)

Question.10 Is the simultaneous use of medication as important as diet control and exercise?

Table.14 Knowledge about diet and exercise (Response to Question 10)

Response	Number	Percentile (%)
Yes	377	75.4
No	89	17.8
Unsure	34	6.8

Question.11 Do you know that routine blood glucose level monitoring is important?

Table.14 Knowledge about monitoring blood glucose level (Response to Question 11)

Answer	Number	Percentile (%)
Yes	256	51.2%
No	200	40%
Unsure	44	8.8%

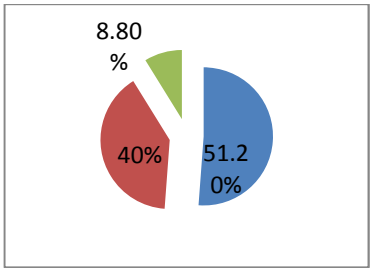


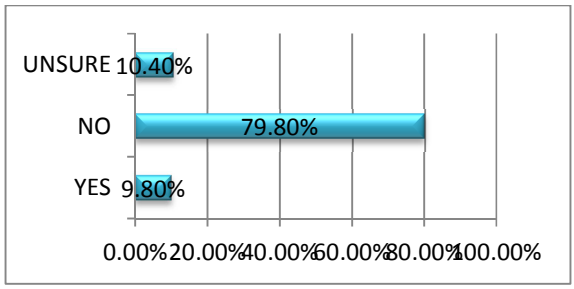
Figure.14 Knowledge about monitoring blood glucose level (Response to Question 11)

Question.12 Do you know the normal blood glucose levels?

Table.15 Knowledge on the normal parameters of blood glucose level (Response to Question 12)

Response	Number	Percentile (%)
Yes	49	9.8
No	399	79.8
Unsure	52	10.4

Figure.15 Knowledge on the normal parameters of blood glucose level (Response to Question 12)



Question.13 Is non-consumption of sugar enough to keep the blood glucose level normal?

Table.16 Knowledge about sugar non-consumption (Response to Question 13)

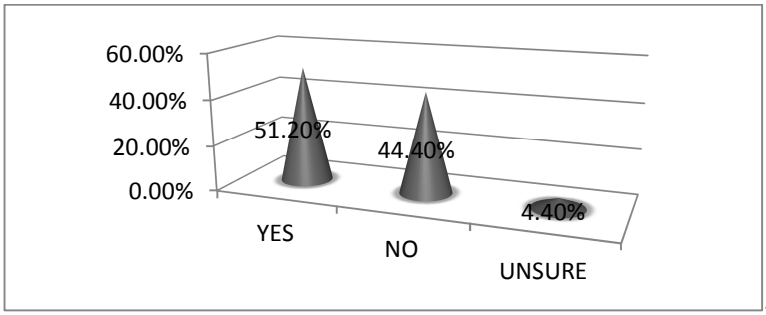
Answer	Number	Percentile (%)
Yes	322	64.4
No	76	15.2
Unsure	102	20.4

Question.14 Are you aware of the diet a diabetic is supposed to take?

Table.17 Knowledge about diabetic diet (Response to Question 14)

Response	Number	Percentile (%)
Yes	256	51.2
No	222	44.4
Unsure	22	4.4

Figure.16 Knowledge about diabetic diet (Response to Question 14)

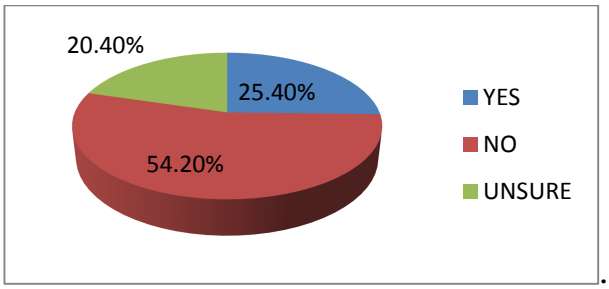


Question.15 Do you know the name/names of the medications you are taking?

Table.18 Knowledge about medication names (Response to Question 15)

Answer	Number	Percentile (%)
Yes	127	25.4
No	271	54.2
Unsure	102	20.4

Figure.17 Knowledge about medication names (Response to Question 15)



Question.16 Do you know that insulin imbalance in the body is responsible for Diabetes Mellitus?

Table.19 Knowledge about insulin as the cause of Diabetes Mellitus (Response to Question 16)

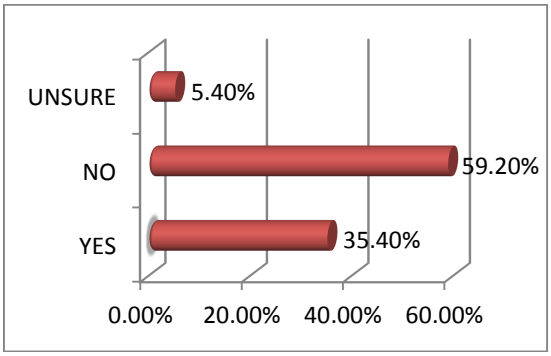
Response	Number	Percentile (%)
Yes	60	12
No	128	25.6
Unsure	312	62.4

Question.17 Do you take an extra dose of medications when you indulge in sweets?

Table.20 Knowledge about taking extra dose of medications (Response to Question 17)

Response	Number	Percentile (%)
Yes	177	35.4
No	296	59.2
Unsure	27	5.4

Figure.18 Knowledge about taking extra dose of medications (Response to Question 17)



CONCLUSION

The study throws light on the fact that a majority of the patients including the ones who had a positive family history (62.4%) of Diabetes Mellitus lack basic knowledge of Diabetes Mellitus like the risk factors, whether it is contagious or not, whether it is transmitted via blood or not, symptoms, long term complications, importance of diet and medication, etc. The study highlights the poor knowledge of the patients. The results show that the patients have fared very bad in the assessment test and hence, indicate the need for awareness programs and patient counseling. Given the fact that the prevalence of Diabetes Mellitus is very high and increasing by leaps and bounds every day in India, patients need to be given sound knowledge of Diabetes Mellitus.

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