A STUDY TO EVALUATE THE KNOWLEDGE OF PATIENTS WITH DIABETES MELLITUS

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ABSTRACT

Diabetes is a combination of heterogeneous disorders presenting with episodes of hyperglycaemia and glucose intolerance, as a result of lack of insulin, defective insulin action, or both. There are more than 387 million people with Diabetes Mellitus (DM) and the number is likely to reach 592 million by 2035. The prevalence of DM is 9.1% in India. There are evidences that show patient education and awareness are effective in reducing the complications of diabetes. The aim of the study was to assess the Knowledge of patients with Diabetes. The data was collected through Patient data collection form that captured relevant data required for the study, and Knowledge was assessed by means of closed ended questionnaire that consisted of 12 knowledge that covered Definition, symptoms, aetiology, risk factors, complications of diabetes, normal ranges of FBS and PPBS and symptoms of hypoglycaemia with its immediate treatment. The study showed that there is an increased need for creating awareness on the importance of Diabetes Knowledge in its appropriate management in order to prevent its complications. This can be used to develop possibilities of educational needs required for Diabetes patients.

Keywords: Diabetes, Knowledge, Pharmacist, Awareness

INTRODUCTION

Diabetes mellitus is a metabolic disorder with an increasing global prevalence and incidence. It presents with episodes of hyperglycaemia and glucose intolerance, as a result of lack of insulin, defective insulin action, or both. There are four types or classes of diabetes mellitus like type 1 diabetes, type 2 diabetes, gestational diabetes, and other specific types based on the aetiology.

There are more than 387 million people with Diabetes Mellitus (DM) and the number is likely to reach 592 million by 2035. The prevalence of DM is 9.1% in India [1].

Life style management is the basis of management of diabetes mellitus and is recognized as being an essential part of diabetes and cardiovascular disease prevention [2].

Uncontrolled blood glucose in the long term will lead to micro vascular and macro vascular complications with increased morbidity and mortality and negatively affects the quality of life. In order to minimise the complications of Diabetes there is a requirement for comprehensive diabetes care which is a complex task that takes the entire team of healthcare professionals including the pharmacist to work together to provide, multidisciplinary care for patients [3].

There are evidences that show patient education and awareness are effective in reducing the complications of diabetes [4]. Education training is important since people with diabetes and their families provide 95% of their care themselves and so without appropriate education they cannot make the complex daily medical decisions required for good health, quality of life and survival [5]. Participation of patients is very essential in the management of diabetes mellitus as medications alone aren't adequate to manage the disease without different non pharmacological measures [6].

Based on a study, about 40 million people with diabetes in India, there would be at least 7 million estimated with retinopathy, 0.8 million with nephropathy, 10.4 million with neuropathy, 8.5 million with Coronary artery disease, and 2.5 million with Peripheral vascular disease. This shows that the burden due to diabetic complications is very high in India because of the large number of people with diabetes. These figures are in fact very conventional and it is possible that in rural areas, the prevalence of complications is much higher because of poorer control of diabetes and lack of access to health care [7].

Pharmacists represent the third largest health profession in the world after doctors and nurses and most of them work in the

community with a smaller proportion in hospital pharmacy, academia, industry, and research. Community pharmacies provide a range of products (in respect to diabetes medication, blood glucose meters and testing strips, needles and swabs, dietary supplements) and services **[8]**.

There is a need to assess knowledge of patients with diabetes in order to aid in future development of control programs and techniques for effective health education and patients counselling. This helps in ensuring that each patient with diabetes has sufficient information and are motivated to lead a better life.

Knowledge

Knowledge is a set of understandings. It is also one's capacity to imagine, one's way of perceiving. The degree of knowledge assessed helps to locate areas where information and education efforts remain to be exerted.

Objective

The aim of the study was to assess the Knowledge of patients with Diabetes.

Methodology

This was a prospective observational study conducted from August 2019 to January 2021 in Yashoda Hospital, Hyderabad. Prior approval from Independent ethics committee was taken.

Patients of either sex with ≥1-year history of diabetes and who were willing to give the consent were included in the study.

Patients of either sex with <1year history of DM, Pregnant/lactating women and patients who are not willing to give the consent were excluded from the study.

The data was collected through Patient data collection form that contained the socio demographic details of the patient like age, sex, educational qualification, occupation, family annual income, social and family history and also data on comorbid diseases. Data on Blood glucose levels (FBS, PPBS) and HbA_1C was also obtained and assessed. Knowledge was assessed by means of questionnaire which was closed ended consisting of 12 knowledge questions with only two Options-Yes or No, where option yes was considered correct and no was considered incorrect. Each correct answer was given a score 1 and the incorrect answer was given a score 0.

12 questions on Knowledge covered Definition, symptoms, aetiology, risk factors, complications of diabetes, normal ranges of FBS and PPBS and symptoms of hypoglycaemia with its immediate treatment.

The results were assessed using MS Excel, descriptive statistics such as frequency, percentage were used to summarize demographic and baseline characteristics.

RESULTS AND DISCUSSION

A total of 200 patients were enrolled in the study where 108(54%) were males and 92(46%) were females. The mean age of

the patients was 58.5 years with majority being in the age group 51-70years (73.5%). Out of 200 patients, 59 (29.5%) completed their Intermediate. Patients qualified with Primary and Graduation were approximately equal in the study i.e., 47(23.5%) and 46 (23%) respectively. About 79(39.5%) patients were private employees, 68(34%) were House wives and 25(12.5%) were illiterates **(Table 1)**. 173(86.5%) had a family income of more than INR.200000 per annum and 27(13.5%) had less than INR.200000 per annum. 178(89%) patients were non-smokers and rest 22(11%) smokedat least 05 cigarettes a day. 149(74.5%) were non-alcoholic in the study and 51(25.5%) had a history of alcohol consumption.

182 (91%) patients didn't have any family history whereas 18(9%) had either history of DM, HTN or both.108 (54%) patients had history of Diabetes since last 6-10 years and 78(39%) patients had 1-5 years' history of Diabetes. A very few patients had 11-20 years' history of Diabetes, i.e., 14 (7%) **(Figure 1, 2)**.

161(80.5%) patients had no comorbid disease conditions while 33(16.5%) patients had HTN, 4(2%) had Thyroid and 2(1%) had HTN and COPD or HTN and Thyroid each.

The mean FBS was 135.09±28.15 mg/dL, with majority (20.5%) of the patients having it between 131-140 mg/dL, followed by 12.5% of patients having it between 91-100 mg/dL and 161-170 mg/dL. The mean PPBS was 184.92±17.23 mg/dL, with majority (52%) of the patients having it between 181-200 mg/dL, followed by 28.5% of patients having it between 161-180 mg/dL. The mean HbA_1C was 8.29±0.85% with majority (27.5%) of the patients having it between 8.6-9%, followed by 20.5% having it between 7.6-8% **(Figure 3)**.

Assessment of Knowledge

There was 100% correct response for 1st and 2nd questions, followed by 85% for 12th question, 39.5%for 8th question, 28.5%for 4th question, 24.5%for 6th question, 15.5% for 11th question, 10.5% for 7th question,7% for 5th question, 5.5% for 3rd question, where majority of them were in the age group of 51-70years with a 6-10 years' history of diabetes and their qualification being Intermediate/graduates. There was 100% wrong response for 9th and 10th questions **(Table 2)**.

Table 1: Demographic Characteristics of the patients

AGE (years)	N (%)	FAMILY ANNUAL INCOME	N (%)
31-40	2 (1)	<200000	27 (13.5)
41-50	42 (21)	>200000	173 (86.5)
51-60	74 (37)	H/O SMOKING	N (%)
61-70	73 (36.5)	1 pack/day	1 (0.5)
71-80	9 (4.5)	1-2 packs/day	13 (6.5)
GENDER	N (%)	3-4 packs/day	1 (0.5)
F	92 (46)	5 packs/day	2 (1)
M	108 (54)	5-6 cigarettes /day	5 (2.5)
QUALIFICATION	N (%)	Non smokers	178 (89)
Graduate	46 (23)	H/O ALCOHOL CONSUMPTION	N (%)
High School	23 (11.5)	Daily More Than Once	1 (0.5)
Illiterate	25 (12.5)	Daily Once	3 (1.5)
Intermediate	59 (29.5)	Occasionally	30 (15)
Primary	47 (23.5)	Weekly Once	17 (8.5)
OCCUPATION	N (%)	Non Alcoholic	149 (74.5)
Farmer	16 (8)	FAMILY HISTORY	N (%)
Govt. employee	11 (5.5)	DM	5 (2.5)
House Wife	68 (34)	DM and HTN	8 (4)
Private employee	79 (39.5)	HTN	5 (2.5)
Retired	26 (13)	No Family history	182 (91)

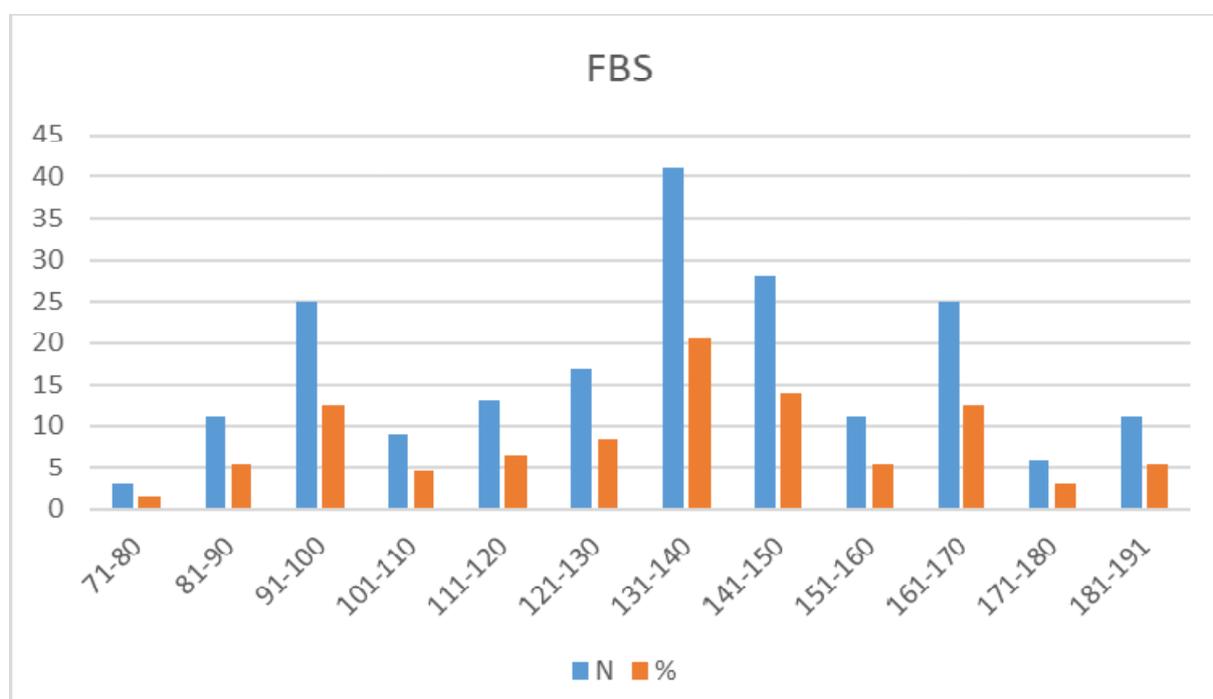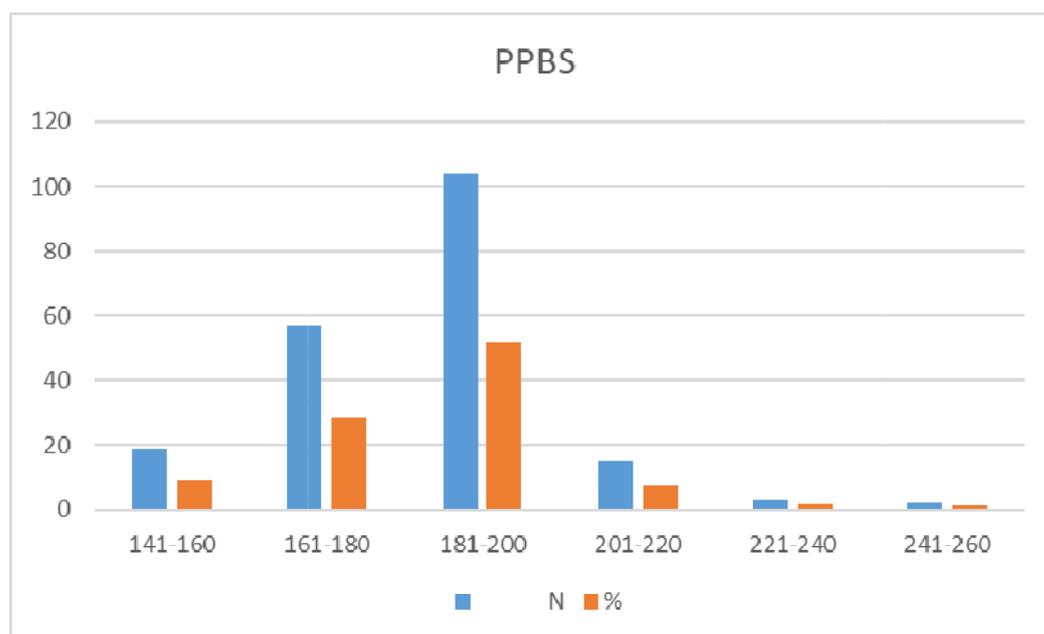**Figure 1: Fasting Blood Glucose Levels**
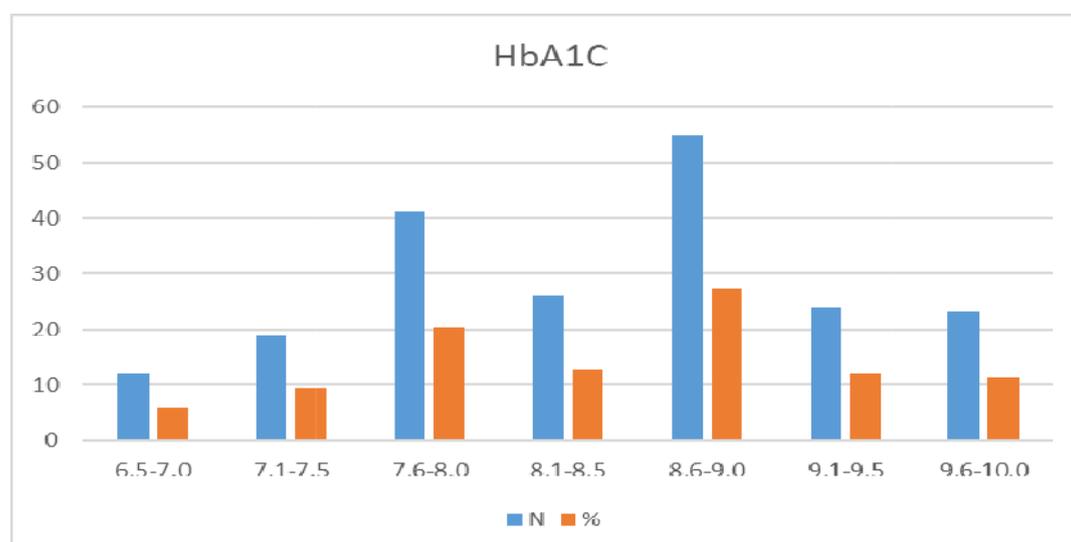
Figure 2: Post Prandial Blood Glucose Levels

Figure 3: HbA1C Levels

Table 2: Scores of Knowledge

Knowledge Question	% of correct answer
1. Do you know that diabetes is a condition of high level of sugar in the blood than normal?	100
2. Do you know that frequent hunger, thirst and urination are symptoms of diabetes?	100
3. Do you know that diabetes is associated with certain complications like retinopathy, neuropathy, nephropathy and cardiovascular complications?	5.5
4. Do you know that people of age 40years old are at higher risk of getting diabetes?	28.5
5. Do you know that the major causes of diabetes are hereditary and obesity?	7
6. Do you know the symptoms of hypoglycemia?	24.5
7. Do you know the immediate treatment of hypoglycemia?	10.5
8. Do you know the normal value of fasting blood sugar level?	39.5
9. Do you know the normal value of post-prandial blood sugar level?	0
10.Do you know that pancreatic β-cells are affected when a person suffers with diabetes?	0
11.Do you know that there is low healing of cuts and wounds in patients with diabetes?	15.5
12.Do you know that diabetes is incurable and requires a lifelong administration of medication?	85

This showed that all the patients knew the definition and symptoms of Diabetes. 85% of them knew that Diabetes is incurable and requires a lifelong administration of medication, 39.5% knew the normal value of fasting blood sugar level, 28.5% knew that people of age 40years and above are at higher risk of getting Diabetes, 24.5% knew the symptoms of Hypoglycemia, 15.5% knew that there is low healing of cuts and wounds in patients with Diabetes while 10.5% knew the immediate treatment of Hypoglycemia, only 7% knew that hereditary and obesity are major causes of diabetes and only 5.5% knew that Diabetes is associated with retinopathy, neuropathy, nephropathy and cardiovascular complications. Of 200, no patient knew that pancreatic β-cells are affected in Diabetic patients and also did not know the normal range of Post Prandial blood glucose level.

This study showed that though majority of the patients who answered correctly were literates (Intermediate/Graduates), their Knowledge on Diabetes was not up to the mark or could be considered good. Also, most of them knew that Diabetes requires lifelong administration of medication, however they were less aware of the risk factors for Diabetes like hereditary, age, obesity and complications like retinopathy, neuropathy, nephropathy and cardiovascular complications.

CONCLUSION

Although the importance of Diabetes Knowledge in its management was recognised to be useful and effective in achieving Diabetes control and prevention of its complications, this study showed that there was poor knowledge which was problematic. The study also presented that there was significant association between Diabetes Knowledge and history of Diabetes. The study concludes that there is an increased need for creating awareness on the importance of Diabetes Knowledge in its appropriate management in order to prevent its complications. The study indicates the significant evidence on the role of pharmacists in providing Diabetes care, however the provision of such services remains inconsistent. Though the study cannot be generalised, the conclusions can be used to develop possibilities of educational needs required for Diabetes patients.

Limitations: The limitations were the study being single centred with a small sample size and so this data cannot be extrapolated to the entire Indian population.

Conflict of interest

The authors have no conflicts of interest.

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