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## Knowledge, attitude and practices of type 2 diabetes mellitus patients attending medicine OPD at a tertiary care hospital

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### Abstract

**Introduction:** Prevalence of Type 2 Diabetes is increasing globally, more so in developing countries like India due to rapid urbanization. As India ranks first in Diabetes prevalence and will continue to do so in 2025, we must prevent the disease by various measures. Therefore, prevention is important both on monetary and human aspects. Before setting the programmes, we should have ample data on the population's knowledge, attitude and practices (KAP) of Diabetes Mellitus.

**Aim:** The aim of the study was to assess the knowledge, attitude and practices of patients having Type II Diabetes Mellitus.

**Material and Method:** A cross sectional study was done in a tertiary care centre (SRMSIMS) among Diabetes patients, attending Medicine OPD. Data were collected regarding their knowledge, attitude and practices about Diabetes and associated risk factors. Data was analysed by SPSS 20 Version.

**Results:** Mean age of the study respondents were  $46.21 \pm 7.85$  years and among them most of the subjects belongs to age group 40 years to 60 years. Found that most patients are having poor knowledge about Diabetes Mellitus. Among these patients mostly are having low level of education and they belong to low socio-economic status. Very low percent of people know about the complications of Diabetes Mellitus.

**Conclusion:** This study showed that there was poor knowledge, attitude and practice about the diabetes which calls for urgent action and instruction by skilled health care providers. From the result of this study we can conclude that education plays an important role. Life style modification is needed for reducing the complications of Diabetes Mellitus.

**Keywords:** Diabetes mellitus, knowledge, attitude, practices

### Introduction

Diabetes mellitus is a metabolic disorder of multiple etiological factors characterized by chronic hyperglycemia with disturbance of carbohydrate metabolism which resulted from either insufficient insulin secretion, resistance to the action of Insulin or both [1, 2]. International diabetes federation's report described that 382 million had diabetes in the year 2013 and it was estimated to reach 592 million in the year 2035. Diabetes mellitus is classified into type I (IDDM), type 2 (NIDDM) and Gestational Diabetes Mellitus (GDM) type I being characterized by insulin deficiency which needs daily administration of insulin. Type 2 diabetes mellitus results from the body's ineffective use of insulin while gestational diabetes is hyperglycemia with onset or first recognition during pregnancy [3, 4]. Participation of patients is very crucial in the management of diabetes mellitus as medications alone aren't enough to manage the disease without different non pharmacological measures taken [5, 6]. Prevalence of diabetes mellitus is increasing globally, [7] more so in developing countries like India due to rapid urbanization [8, 9]. In adults the prevalence of Diabetes globally has risen from 4.7% in 1980 to 8.5% in 2014 [10]. Unhealthy lifestyle, rapid westernization, poor knowledge, negative attitude, poor practices towards DM are the reason an increase in the prevalence of diabetes mellitus in developing countries. There is a large gap between the knowledge, attitude, practices towards diabetes among patients with diabetes. Knowledge about diabetes mellitus, attitude, and practices are important to reduce the prevalence and morbidity associated with diabetes mellitus. A systematic review concluded that patients with diabetes might perceive better self-efficacy in disease management with self-monitoring

of blood glucose and would have a better understanding about the possible factors that affect diabetes management Improving knowledge level of the patients regarding the diabetic drugs can be done by many ways including group education as well as through patient counselling [11]. Moreover, complications of diabetes also increase among obese diabetic patients. However, changes in lifestyle that lead to weight loss reduce the incidence of diabetes and onset of its complications [12, 13]. Since socioeconomic and cultural perspectives are strong determinants of KAP [14], these studies need to be conducted in specific communities. Very few studies have been performed on these issues particularly in developing country like India. The aim of the study was to assess the knowledge, attitude and practices of patients having Type II Diabetes Mellitus.

**Material and Methods**

Under cross-sectional design 200 type 2 diabetic patients were selected in a tertiary care centre (SRMSIMS) among Diabetes patients, attending Medicine OPD.

Data was collected through a structured interview with patients attending the outpatient door of the institute during the study period from the January 2014 to December 2015. These included the newly diagnosed Type 2 diabetes mellitus patients and medicine OPD or referred from within and outside institute for treatment of diabetes mellitus. The exclusion criteria disallowed patients who werenot physically or psychologically able to conduct the interview. In the present study 200 patients who fulfilled the inclusion criteria and were willing to participate in the study were interviewed. Modified Prasad's classification was applied to measure the individual's socioeconomic status [15].

Pre-tested, semi-structured questionnaire regarding knowledge attitude and practice among diabetic questionnaire containing 25 knowledge, 10 attitudes, 10 practice questions. Score 1 was given for correct answer, 0 for the wrong answer after getting informed written consent questionnaire was given to the participant.

Patients who had other medical complications and who were unable to answer short list of simple questions were excluded from the study. The knowledge, attitude and practice of the subjects were assessed by an interviewer-administered questionnaire. A standard questionnaire was constructed in local language and interview was administrated in OPD setting. Ethical approval was obtained from the institutional ethical and research review committee. Informed written consent was taken from all respondents after full explanation of the nature, purpose and all procedures used for the study. Confidentiality of participants was maintained at all times.

**Results**

Table 1 shows the characteristics of the respondents. Mean age of the study respondents were 46.21±7.85 years and among them most of the subjects belongs to age group 40 years to 60 years. The 44% of the patients were male and 56% of the patients were female. About 10% were illiterate, 34% had primary education, 34% had up to eight class, 8% had high school, 10% had intermediate education and 6% had graduation and above The30% of the male population was farmer while most of the female respondents were house wife. Out of total 65% respondent were belongs to fourth class and fifth class of socio economic status (Table 1).

**Table 1:** Distribution of socio-demographic variables of respondent

Variables	Frequency	Percent (%)
<b>Age group</b>		
30-40	58	29.0
41-50	64	32.0
51-60	54	27.0
61-70	24	12.0
<b>Gender</b>		
Male	88	44.0
Female	112	56.0
<b>Education of Male</b>		
Illiterate	20	10.0
Primary education	68	34.0
Up to VIII class	68	34.0
High school	12	6.0
Intermediate	20	10.0
Graduation	12	6.0
<b>Education of Female</b>		
Illiterate	30	15.0
Primary Education	102	51.0
Up- to VIII class	44	22.0
High school	16	8.0
Intermediate	2	1.0
Graduation	6	3.0
<b>Occupation of male</b>		
Farmer	60	30.0
Government	28	14.0
Private	94	47.0
Veg hawker	18	9.0
<b>Occupation of female</b>		
House wife	144	72.0
Private job	56	28.0
<b>Socio economic status</b>		
I	18	9.0
II	26	13.0
III	26	13.0
IV	70	35.0
V	60	30.0

**Table 2:** Knowledge Regarding Diabetes Mellitus among Diabetic Patients

What is diabetes	Frequency	Percent (%)
Higher level of sugar in the blood?	72	36
Lower level of sugar in the blood?	34	17
Don't know	94	47
<b>Symptoms of diabetes</b>		
Polyuria	90	45
Polyuria +polyphagia	60	30
Polyuria +polyphagia +polydipsia	30	15
3P+Weakness	20	10
<b>Required Lifestyle modifications</b>		
Stop taking sugar products	160	80

Stop taking fatty oil food /taking sugar products	130	65
Regular exercise	30	15
Stop taking alcohol/ tobacco /sugar products/ taking oil foods	60	30
All of the above	10	5
<b>Complications of diabetes</b>		
Eye problem	50	25
Heart problem	40	20
Renal problem	30	15
Don't know	80	40

Table 2 shows that the knowledge regarding diabetes mellitus among diabetic patients. In which 36% respondents had knowledge about higher level of blood sugar. While 47% respondents don't had knowledge about it. Most of the respondents were aware about the symptoms of diabetes. 80% respondents were concerned towards stop taking sugar products. Almost 30% respondents had knowledge about stop taking alcohol or tobacco or sugar products or taking

oil foods. Sixty percent respondents already known consequences and complications of diabetes. The population has poor knowledge regarding the complications of diabetes. 40% of the population didn't know any kind of complications regarding the diabetes. Only 20% of the population knows that diabetes can affect proper functioning of heart. (Table 2)

**Table 3:** Attitude Regarding Diabetes Mellitus among Diabetic Patients

	Frequency	Percent
<b>Keeping Normal blood sugar Help to prevent complication</b>		
Yes	60	30.0
No	60	30.0
Don't know	80	40.0
<b>Diabetes is a serious disease</b>		
yes	50	25.0
No	30	15.0
don't know	120	60.0
<b>Regular exercise keep diabetes control</b>		
Yes	40	20.0
No	80	40.0
Don't know	80	40.0
<b>Regular medication keep diabetes control</b>		
Yes	50	25.0
No	80	40.0
Don't know	70	35.0

Table 3 depicts the attitude regarding diabetes mellitus among diabetic patients. Only 30% respondents were conscious for keeping normal blood sugar help to prevent complication. Rest of the respondents showed negative approach towards it. Seventy five percent respondents hadn't showed proper attitude toward seriousness of diabetes. Exercise practice was assessed by enquiring about the nature of exercise done. Merely 20% had habit of regular exercise keep diabetes control. While 40% respondent had not have tendency of regular exercise keep diabetes control. The positive response to attitude question 'regular medication keep diabetes control' was 25% and 35% respondents were negative attitude for this. (Table 3)

Table 4 indicates practices regarding diabetes mellitus among diabetic patients. In which only 25% positive response for the question 'do you get your blood sugar check' while 75% showed negative response. Out of total respondents merely 10% were in the practicing of regular exercise. Ninety percent respondents don't exercise regularly. Nearly half of the respondents were in practice of taking regular medicine whereas 55% respondents don't take medicine on regular basis. (Table 4)

**Table 4:** Practices Regarding Diabetes Mellitus among Diabetic Patients

	Frequency	Percent
<b>Do you get your Blood sugar check</b>		
Yes	50	25.0
No	150	75.0
<b>Do you exercise regularly</b>		
Yes	20	10.0
No	180	90.0
<b>Do you take Medicine regularly</b>		
Yes	50	45.0
No	150	55.0

**Table 5:** Mean knowledge, attitude and practice score of the Diabetic Patients

Parameter	Mean±SD
Knowledge	22±1.13
Attitude	7±1.21
Practice	8±1.15
Total	37±3.49

Table 5 illustrates that the mean knowledge, attitude and practice score of the diabetic patients. In which the mean knowledge, attitude and practice score of the diabetic patients is knowledge 22±1.13, attitude 7±1.21 and practice 8±1.15 and the total score is 37±3.49. Association of knowledge with higher education and higher class of socioeconomic status showed significant result. Statistically significant t-test showed knowledge scores had a strong association both with attitude as well as practice scores ( $p < 0.05$ ). (Table 5)

## Discussion

Most studied regarding epidemiology and prevalence of diabetes were conducted from south India [16-19] and very few studies from north India [14]. There are no studies regarding KAP available for Uttarakhand and western Uttar Pradesh [20] hence, this study is an attempt to gather the data regarding the same. In the present study, mean age of the study respondents were 46.21±7.85 years and among them most of the subjects belongs to age group 40 years to 60 years. The 44% of the patients were male and 56% of the patients were female. Another similar study enrolled 200 patients with diabetes during the study period. 54% of the patients belong to the age group of 46 to 55 years. Saleh *et al.* reported mean age of the study respondents was 45.17±5.68 years and among them 45% were male [21]. In addition, another study included 64% male patients and 36% of the patients were female. The mean age was 50 years and the mean duration of the disease is 9.7 years [20]. In present study about 10% were illiterate and 6% had graduation and above whereas similar study stated that 22% of the population was illiterate and 36% had graduation and higher education [20]. The management of diabetes not only requires the prescription of the appropriate nutritional and pharmacological regimen by the physician but also intensive education and counseling of the patient [22]. This finding highlights that the average knowledge levels are low despite of 78% literacy rate in communities with higher diabetes prevalence [23]. As patients are the most important decision makers, they should receive enough instruction to make informed decisions about prevention and management [24]. Education can be more effective when it is educated according to knowledge, attitude and practice of patients [21]. In present study respondents has inadequate knowledge regarding the complications of diabetes. 40% of the population didn't know any kind of complications regarding the diabetes. Only 20% of the population knows that diabetes can affect proper functioning of heart. Almost similar findings were reported by Ravi kant and Thapliyal [20].

Thirty six percent respondents had knowledge about higher level of blood sugar. Most of the respondents were aware about the symptoms of diabetes. In resemble, study reported that the overall assessment regarding the knowledge of diabetes was satisfactory 50% of the population knows what diabetes is and what causes diabetes? But the population had poor knowledge regarding the features of diabetes [20]. Previous studies both in developed and developing countries have reported that knowledge about diabetes is generally poor among diabetic patients [22, 25-28]. Similar to present findings, one study that surveyed patients attending tertiary education hospitals in Gujarat-the Saurashtra region of India [22] found that 51% of patients believed exercise assisted with diabetes control, 75% knew that diet was important in diabetes control and only 7% reported quitting smoking was related to diabetes management. Another study of 575 patients with diabetes in the United Arab Emirates attending outpatient clinics [25] reported that 60% of people believed that diabetes was caused by excessive sugar and sweets. This concurs with present findings that 80% of participants believed diabetes could be controlled by reducing sweet and sugar. In present study seventy five percent respondents hadn't showed proper attitude toward seriousness of diabetes. Merely 20% had routine of regular exercise for keeping diabetes control. Moreover, 85% of the

diabetic patients undertook physical exercise [29]. Compared to Sangra *et al.* it was 66.48% and in Upadhyay *et al.* it was 66.48% [10, 11]. In present study 25% positive response for the question 'do you get your blood sugar check' In contrast, a study reported that 31% respondents checked blood glucose levels once a year, 16% checked it at least twice in a year [30]. In present study association of knowledge with higher education and higher class of socioeconomic status showed significant result. Knowledge scores had a strong association both with attitude as well as practice scores. The knowledge and attitude score in the current study is in concord with those stated by Ng *et al.* and Ambigapathy *et al.* [31, 32] However, Islam *et al.* showed in Rasch analysis that the overall participants have a significantly below average knowledge score. Most of the previous studies including the study conducted in Bangladesh examined those who were already diagnosed with diabetes and attending hospitals or centres for diabetes care, and thus the responses may be biased compared with present findings from the general population [30]. Both knowledge score and attitudes towards treatments for diabetes in present study population are very similar to those reported by Al-Maskari *et al.* [6]. Complementing this was randomised control trial evidence from Australia which showed that knowledge of the risk factors of diabetes and motivation to life style change were powerful predictors of change in diet and exercise [33, 34]. However, the challenge remains in developing countries [30].

## Conclusion

This study showed that there was poor knowledge, attitude and practice about the diabetes which calls for immediate action and education by skilled health care providers. The development of public health programmes to increase knowledge of diabetes and its complications is required to assist people living in rural India to control and management of diabetes. From the result of this study we can conclude that education plays an important role. Life style modification is needed for reducing the complications of Diabetes Mellitus.

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