Knowledge, attitude and practice related to diabetes mellitus among general public

Movva Thrinatha Sai Bharghav[1], T Rahul Reddy[2], Sindhu Kondaveeti[3], Sangam Anurag Reddy[4*], Nakkala Supraja[5]

[1]*House Surgeon, Department of General Medicine, Mediciti Institute of Medical Sciences, Ghanpur Village, Medchal Mandal, Telangana, India*
[2]*House Surgeon, Department of General Medicine, Mediciti Institute of Medical Sciences, Ghanpur Village, Medchal Mandal, Telangana, India*
[3]*House Surgeon, Department of General Medicine, Mediciti Institute of Medical Sciences, Ghanpur Village, Medchal Mandal, Telangana, India*
[4]*House Surgeon, Department of General Medicine, Mediciti Institute of Medical Sciences, Ghanpur Village, Medchal Mandal, Telangana, India*
[5]*House Surgeon, Department of General Medicine, Mediciti Institute of Medical Sciences, Ghanpur Village, Medchal Mandal, Telangana, India*

Abstract
Background: Type 2 Diabetes Mellitus is a severe problem, which results in premature death and is a global epidemic. It can be prevented by changing the attitude, practices and bringing awareness towards the disease in the population. **Aim:** This study was conducted to evaluate knowledge, attitude and practice related to diabetes among general public in India. **Materials and Methods:** This study is a cross-sectional study and was carried out in health center in Telangana during the period 30 th March 2019 to 31 st March 2020. The sample size was 100. By convenience sampling from the outpatient department of the health centre, 100 patients were selected after considering inclusion and exclusion criteria. **Results:** 100 patients were involved in the study who were outpatients attending the health centre. 45% of patients were 18-35 years old, and 55% of patients were 36-65 years old. 58% were males, and 42% were females. 87% were aware of the organs which get damaged due to diabetes. 55% of patients were aware that the heart is affected, 85% of patients were aware that the kidney was affected, and 40% were aware that brain was affected by diabetes. Patients were aware of risk factors for diabetes mellitus namely obesity (70%), decreased physical activity (80%), family history of diabetes mellitus (65%), mental stress (62%) and consumption of sweets (93%) were aware was the causes of Diabetes mellitus. All patients were aware that diet control would keep blood sugar under normal levels. **Conclusion:** It is essential for health organisations to create more awareness through programs among the people towards T2DM as the high knowledge was not aligning with the attitude and practice towards the disease.
Keywords: Diabetes Mellitus, knowledge, attitude, physical activity,

Introduction
In the whole world, there are approximately 372-416 million people who are suffering from diabetes mellitus and around 50% of them are not diagnosed[1]. Type 2 diabetes mellitus is considered a significant disability, premature death, huge medical costs, and a global epidemic. Diabetes is going to have significantly risen in Asia and it is expected to be double in numbers between 2000 to 2030[2,3]. South Asia is becoming as epicentre of this epidemic in Asian regions, indicating transitions in demography, unhealthy diet and patterns of lifestyle. Younger age populations are the people who are affected by DM in South Asia when compared to other ethnic groups[4]. This increase in the number of patients with DM in South Asia has given rise to an increase in demands on health care systems that are ill prepared.

*Correspondence
Dr. Sangam Anurag Reddy
House Surgeon, Department of General Medicine, Mediciti Institute of Medical Sciences, Ghanpur Village, Medchal Mandal, Telangana, India
E-mail: anuragreddy095@gmail.com

Early diagnosis and proper management can minimise the DM problems[5]. Achieving the optimal glycemic control by delaying the macro and microvascular complications is the primary aim of DM management. Changes in lifestyle, regular exercise, healthy diet, weight loss and drug therapy are the cure to DM. The need of the hour is to increase health literacy and give proper knowledge on diabetes, its management and complications. Better diabetic control is achieved in educated, diligent diabetic patients. Previous studies on knowledge, attitude and practice related to diabetes mellitus among the general public have focused on bringing more knowledge and awareness of prevention, diagnosis and complications of diabetes. However, there was a lack in knowledge, attitude and practice related to diabetes mellitus among general public in India. It was observed that there was a large gap in awareness and knowledge about diabetes and its complications. There were no previous studies conducted in India, hence, this study was conducted to evaluate knowledge, attitude and practice related to diabetes among the general public in India.

Materials and methods
This cross-sectional study was carried out in the health center in Telangana during the period March 30 2019 to March 31 2020. The sample size was 100. By convenience sampling from the outpatient department of the health center, 100 patients were selected after considering inclusion and exclusion criteria. Regardless of the income

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status, patients of all genders and with all educational statuses were selected in the study. Patients below 18 years with DM were excluded from the study. A set of questionnaires which was interviewer guided was distributed to all patients in the study. The questionnaire was prepared in two languages, namely English and Telugu. The questionnaire was related to KAP category regarding T2DM. The questionnaire was explained clearly to all patients to understand to all patients through a pilot study. After the pilot study, few corrections and amendments were made. The Health centre authority had permitted to conduct the study. Four sections consisting of practices (often, seldom or never answers) about T2DM namely socio demographic variables, the knowledge about T2DM (Yes or No answers), attitude of patients (agreement or disagreement levels), were collected. The study obtained ethical committee approval and a written informed consent form was collected from all patients. A full explanation about nature, purpose, and all procedures about the study was given to all patients. Data was analysed by using SPSS 21. Socio-demographic characteristics were described by frequencies and percentages and the association of KAP practice scores related to T2DM was assessed using the Pearson correlation test. The KAP scores between different sexes and education levels were compared using an independent t-test. Mann Whitney test was used as a small sample size was used in the study.

Results

One hundred patients were involved in the study who were outpatients attending the health centre. Through the first questionnaire, the socio-demographic characteristics were obtained.

Table 1: Socio-demographic characteristics of the participants.

Variables		Frequency	Percentage
Age:	18-35	45	45%
	36-65	55	55%
Gender:	Male	58	58%
	Female	42	42%
Education Level:	No formal	2	2%
	Primary	7	7%
	Secondary	60	60%
	Tertiary	31	31%
Employment Status:	Full time	48	48%
	Part time	16	16%
	Unemployed	20	20%
	House wife	13	13%
	Retired	3	3%

Table 1 shows that 45% of patients were in the age group of 18-35 years and 55% of patients were 36-65 years. 58% were males, and 42% were females. Lower lever education was seen in 69% of patients, and higher-level education was seen in 31% of patients. 48% of patients were full-time employed, 16% were part-time, 20% were unemployed, 13% were housewives, and 3% were retired.

Table 2: Using independent t-test, comparison of KAP scores related to T2DM.

Knowledge			
Variables	**Number**	**Mean (SD)**	**P value**
Gender: Male	58	74.2 (5.42)	0.001
Female	42	76.8 (5.11)	
Education Level			
Lower Level	69	75.2 (5.47)	0.006
Upper Level	31	78.5 (6.78)	
Attitude			
Gender: Male	58	19.8 (0.57)	0.249
Female	42	19.9 (0.29)	
Education Level			
Lower Level	69	19.4 (0.67)	0.387
Upper Level	31	20.5 (0.56)	
Practice			
Gender: Male	58	16.7 (3.82)	0.021
Female	42	17.1 (3.67)	
Education Level			
Lower Level	69	16.9 (3.51)	0.029
Upper Level	31	17.3 (3.68)	

Table 2 shows that knowledge, attitude and practice related to T2DM was significantly higher in female patients when compared to male patients. Knowledge, attitude and approach related to T2DM was considerably higher in upper-level education patients when compared to lower-level education patients.

Table 3: Knowledge on diabetes effect on other organs by study patients.

Questions	Yes (%)	No, or don't know (%)
Will diabetes cause damage to other organs?	87	13
If yes, which of the organs are affected?		
Heart	55	45
Kidney	85	15
Brain	40	60

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Table 3 shows that 87% were aware of the organs which get damaged due to diabetes. 55% of patients were aware that heart is affected, 85% of patients were aware that kidney was affected and 40% were aware of brain was affected by diabetes.
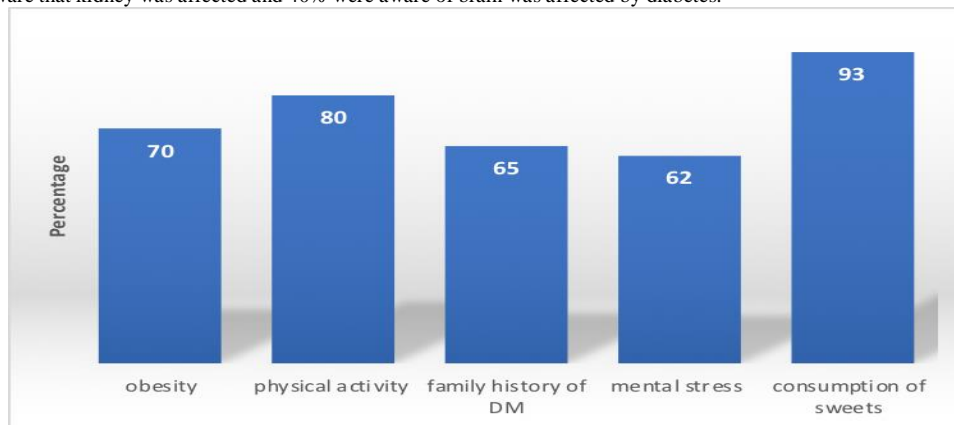

Fig 1: Participants knowledge on risk factors for diabetes mellitus

Patients were aware of risk factors for diabetes mellitus namely obesity (70%), decrease physical activity (80%), family history of diabetes mellitus (65%), mental stress (62%) and consumption of sweets (93%) were aware was the causes of DM.
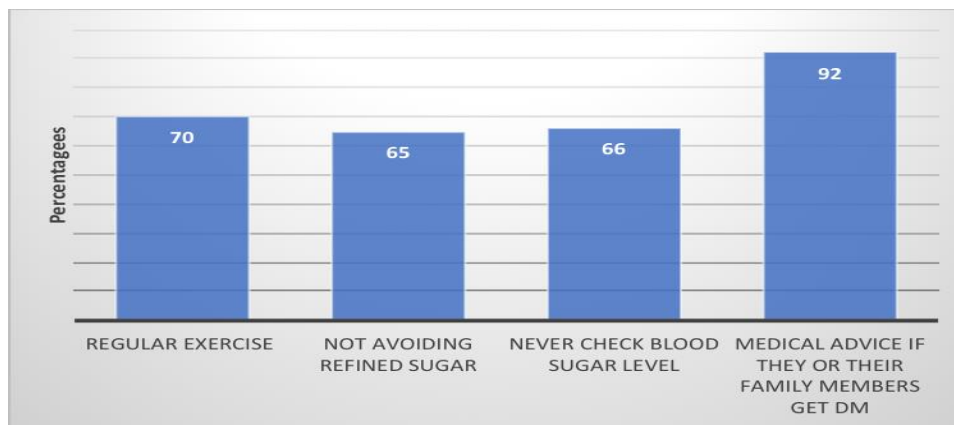

Fig 2:Diabetes preventive practices of participants

Practices were assessed using questions on participants' intention to seek treatment and preventive measures such as DM screening, diet, and exercise. The majority (92%) stated that they would seek some form of treatment if they or their family members were found to have DM . However, more than half of the study subjects had never checked their blood sugar level, and only around 34% had a regular screening for DM with annual blood glucose measurements. About 60% take refined sugar liberally, and a large majority (70%) didn't involve regular exercises. After adjusting for the covariates, individuals with good socio-economic status had regular blood sugar measurements than people with poor socio-economic status.

Only 24% and 30% of the patients read about diabetes mellitus and overall health, respectively. 40%, 22% and 5% of the patients have done physical activities regularly, tried to lose weight and never took sweetened food and drinks, respectively. 24% and 18.9% of the patients were aware of reducing fat and calories in the diet and had blood tests conducted for T2DM, respectively.

Discussion

Diabetes Mellitus is increasing alarmingly and is becoming a global public health concern and is considered epidemic disease, and it is estimated that around 700 million people will be suffering from the disease by 2050. Because of minimum initial symptoms of T2DM, it was estimated that 200 million patients with diabetes mellitus would continue to be unidentified. The present study showed the patients'

knowledge levels about diabetes mellitus while most studies in developing countries reported that patients in their studies had poor knowledge about diabetes mellitus[6,7,8,9]. In the present study, there was no relationship between knowledge on diabetes with gender or age. Level of education was associated significantly with diabetes knowledge. The attitude towards diabetes was very poor even if the knowledge about diabetes mellitus was moderate or good. The majority of patients were interested in getting some form of treatment if they or their family members developed diabetes mellitus. In the present study, gender or age had no association with diabetes knowledge. In developing countries, different studies showed different findings[6,9,10], in which males had more knowledge than females. A significant association between education levels with knowledge was observed in present study and many other studies [6, 9, 10, 11]. Many other studies reported poor attitude and poor knowledge [6, 7, 9,12] . In al-Tamimi S study, it was reported that patients continued to take sweetened foods even though they were well aware of the effects of sugar on diabetes mellitus[13]. In H.M.M. Herath et al study[14], it was reported that the majority (77%) had moderate or above moderate knowledge on diabetes, their attitudes towards diabetes was poor (88%). The higher knowledge of diabetes did not translate into good practices as over 50% of study subjects did not involve any preventive measures. Similar results were observed in the present study and in Malezya Y et al[15] study, it was reported that a significant correlation existed between knowledge and practice (r=0.481,

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p<0.001) and between the age of participants with knowledge (r=0.562, p<0.001) and practice regarding T2DM (r=0.607, p<0.001). There was also a significant difference in terms of knowledge and practice regarding T2DM between different sexes and education levels. But while making a comparison between Malays and other races, the significant difference was only found for practice regarding T2DM. The attitude was found to be similar in all groups. T2DM can be prevented by having accurate knowledge, adopting a positive attitude and practicing a healthy lifestyle. Mohamad Aljofan et al[16] study also reported similar results such as participant's age was found to have a significant association with participant's knowledge of diabetes with the ≥35 year old group knew the different types of diabetes (p<0.001) and knew that high carbohydrate consumption can increase the risk of diabetes (p<0.001), but only the younger group <18 year old's identified diabetes as a genetic disorder (p<0.001). Thus, because of convenience sampling, generalisation of the population has to be done with caution; therefore, more cohort studies need to be conducted to provide more accurate results. Investigated variables should align with the outcomes studied.

Conclusion

This study concluded that knowledge about T2DM among the patients was satisfactory as many questions were answered by most of the patients. All patients showed a positive attitude towards T2DM. However, more awareness is to be brought from health organisations about lifestyle and screening for T2DM.

References

1. World Health Organization (WHO). Diabetes. Key Facts. 2017. Available at http://www.who.int/news-room/fact-sheets/detail/diabetes (Accessed August 24, 2018).
2. Castillo M. 371 million people have diabetes globally, about half undiagnosed. CBS News. 2012. Available at https://www.cbsnews.com/news/371-million- people-have-diabetes-globally-about-half-undiagnosed/(Accessed August 24,2018)
3. Organisation WH. USA. Diabetes; 2019.
4. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. Diabetes Care. 2004;27(5):1047–53.
5. Kaveeshwar SA, Cornwall J. The current state of diabetes mellitus in India. The Australasian Medical Journal. 2014;7(1):45–8
6. Islam FMA, Chakrabarti R, Dirani M, et al. Knowledge, attitudes and practice of diabetes in rural Bangladesh: the Bangladesh population based diabetes and eye study (BPDES). PLoS One. 2014;9(10):e110368.
7. Mohan D, Raj D, Shanthirani CS, et al. Awareness and knowledge of diabetes in Chennai–the Chennai urban rural epidemiology study [CURES-9]. J Assoc Physicians India. 2005;53:283–7.
8. Al-Maskari F, El-Sadig M, Al-Kaabi JM, Afandi B, Nagelkerke N, Yeatts KB. Knowledge, attitude and practices of diabetic patients in the United Arab Emirates. PLoS One. 2013;8(1):e52857.
9. Saleh F, Mumu SJ, Ara F, Begum HA, Ali L. Knowledge and self-care practices regarding diabetes among newly diagnosed type 2 diabetics in Bangladesh: a cross-sectional study. BMC Public Health. 2012;12:1112.
10. Shah VN, Kamdar PK, Shah N. Assessing the knowledge, attitudes and practice of type 2 diabetes among patients of Saurashtra region, Gujarat. International Journal of Diabetes in Developing Countries. 2009;29(3):118–22.
11. Rani PK, Raman R, Subramani S, Perumal G, Kumaramanickavel G, Sharma T. Knowledge of diabetes and diabetic retinopathy among rural populations in India, and the influence of knowledge of diabetic retinopathy on attitude and practice. Rural Remote Health. 2008;8(3):838.
12. Deepa M, Bhansali A, Anjana RM, et al. Knowledge and awareness of diabetes in urban and rural India: the Indian Council of Medical Research India diabetes study (phase I): Indian Council of Medical Research India diabetes 4. Indian Journal of Endocrinology and Metabolism. 2014;18(3):379–85.
13. Tamimi S, Petersen PE. Oral health situation of schoolchildren, mothers and schoolteachers in Saudi Arabia. Int Dent J 1998;48(3):180–186.
14. H. M. M Herath, N. P. Weerasinghe, H. Dias and T. P. Weerarathna; Knowledge, attitude and practice related to diabetes mellitus among general public in Galle district in Southern Sri Lanka; BMC Public Health (2017), 17:535.
15. Malezya Yarımadası'nın Doğu Kıyısındaki Bir Sağlık Merkezindeki Ayaktan Hastalar Arasında Tip 2 Diabetes Mellitus ile ilgili Bilgi, Tutum ve Uygulama; Knowledge, Attitude and Practice Regarding Type 2 Diabetes Mellitus Among Outpatients in a Health Center in East-Coast of Peninsular Malaysia; Istanbul Med J 2019; 20 (3):208-13.
16. Mohamad Aljofan, Ali Altebainawi, Mubarak Nsha Alrashidi; Public Knowledge, attitude and practice towards diabetes mellitus in Hail region, Saudi Arabia; International Journal of General Medicine; 2019:12, 255-262.

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