SAS Journal of Medicine
Abbreviated Key Title: SAS J Med
ISSN 2454-5112
Journal homepage: https://saspublishers.com

OPEN ACCESS

Medicine

Knowledge, Attitude and Practice of Type II Diabetes Mellitus Patients Attending a Tertiary Care Teaching Hospital of Western Maharashtra; a Cross Sectional Study

Dr. Priyank Rajendra Verma[1*], Dr. Nazir Attar[2], Dr. Sudhir L. Tungikar[2], Dr. Ranjeet Patil[3]

[1]MBBS, MD Medicine, Junior Resident, Pravara Institute of Medical Sciences, Maharashtra, India
[2]MBBS, MD Medicine, Professor, Pravara Institute of Medical Sciences, Maharashtra, India
[3]MBBS, MD Medicine, Junior Resident, Pravara Institute of Medical Sciences, Maharashtra, India

DOI: 10.36347/sasjm.2022.v08i11.007 | **Received:** 06.10.2022 | **Accepted:** 11.11.2022 | **Published:** 14.11.2022

***Corresponding author:** Dr. Priyank Rajendra Verma
MBBS, MD Medicine, Junior Resident, Pravara Institute of Medical Sciences, Maharashtra, India

Abstract **Original Research Article**

Diabetes mellitus is one of the most common non-communicable diseases and is the fifth leading cause of death in most developing countries. There is always a need to investigate knowledge, attitude and behavior among diabetic patients to aid in future development of national health programs and techniques for effective prevention. ***Objective:*** To assess knowledge, attitude and practice of type II diabetes patients attending tertiary care teaching hospital of western Maharashtra. ***Material and Methods:*** This was observational cross sectional study. Patients above 18 years of age, either gender attending outpatient department of general medicine including newly diagnosed and follow up type II diabetes were included by using simple random sampling. Patients not willing to participate, patients who were not physically or psychologically able excluded. Total 275 patients included as per inclusion and exclusion criteria. ***Results:*** Out of total patients 57.82% (159) and 41.18% (116) were males and females respectively. In this study majority of patients were of 51 to 60 years (35.64%) age group followed by 61 to 70 years (28.73%) and 41 to 50 years (24.36%) age group. On analysis we found that though the majority (92.75%) of the patients aware about what diabetes is. Responses on attitude domains were somewhat mixed and 65.81% and 44.72% do not exercise and test blood for sugar regularly. ***Conclusions:*** The present study concluded that although type II diabetes patients have good knowledge, attitudes, but they lack in practice which is essential to control diabetes.

Keywords: Diabetes mellitus, Knowledge, Attitude, Practices.

INTRODUCTION

Diabetes mellitus (DM) is a growing health concern worldwide, and a disproportionate increase in prevalence is expected to occur in India within the next two decades, from 62 million currently; a 5th world diabetes population to 80 million by 2030 [1-3]. The most common is type 2 diabetes, usually in adults, which occurs when the body becomes resistant to insulin or doesn't make enough insulin. In the past 3 decades the prevalence of type 2 diabetes has raised dramatically in countries of all income levels. Diabetes mellitus is a chronic health condition which has a lifetime management needs as it affects vital organs in the body such as the eyes, heart, kidneys, brain, and the nerves [4]. The long-term effect of diabetes on these organs is the development of blindness, heart failure, kidney failure, stroke, and foot diseases, respectively [5].

The complications arise when the disease is not adequately managed. Diabetic complications could be prevented or delayed, which are the whole aim of managing the diabetes mellitus. It also saves cost and reduces mortality and morbidity associated with the health condition. However, management of diabetes requires a more significant commitment of the patients suffering from the condition in addition to the one provided by the health workers and care- givers [6, 7]. One of the challenges facing the management of patients with this condition is the misconception and inadequate knowledge about the disease regarding its aetiology and outcome from the patients' perspective [8]. Therefore, the prevention of these complications could not be achieved if diabetic patients do not play

their role regarding managing their situation concerning lifestyle modification and use of medication [9].

There is always a need to investigate knowledge, attitude and behavior among diabetic patients to aid in future development of national health programs and techniques for effective prevention [10]. With this background present the study was conducted with objective to assess knowledge, attitude and practice of type II diabetes patients attending tertiary care teaching hospital of western Maharashtra.

MATERIAL AND METHODS

The present observational cross sectional study was carried out to study knowledge, attitude and practice of type II diabetic patients. The Institutional Ethical Committee's (IEC) approval was obtained before starting the study. The study was carried out for a period of 2 years i.e. from January 2020 to September 2022. The study was carried out in the Dr. Vitthalrao Vikhe Patil Pravara Rural Hospital, Loni; which is a tertiary care teaching hospital. The study was conducted through the Department of General Medicine, Dr. Balasaheb Vikhe Patil Rural Medical College a part of Pravara Institute of Medical Sciences – Deemed University (PIMS-DU). The hospital is a 1275 bed multi-disciplinary, super-specialty medical institute catering to a wide area of District Ahmednagar in western Maharashtra. The hospital is a referral teaching institute for the entire region covering a population of two million. Patients above 18 years of age, either gender attending outpatient department of general medicine including newly diagnosed and follow up type II diabetes were included by using simple random sampling. Patients not willing to participate, patients who were not physically or psychologically able excluded. The sample size for this study was calculated using the formula for a cross sectional study. It was assumed that about 80% of diabetic patients having correct knowledge about hereditary nature of the diabetes disease. The formula used is given below.

$$n = \frac{z^2\, p\, (1-p)}{d^2}$$

Where,
n = Estimate of minimum sample size
z = Value of α at 95% confidence level which is 1.96
p = proportion of correct knowledge about the hereditary nature of disease
d = Absolute precision set 5%

Using these values, the sample size worked out to be 246, which were rounded off to 275.

A pilot study was done for validation, practicality and applicability of questionnaire. It was carried out using predesigned questionnaire. According to answers obtained and difficulties faced during pilot study, rectification was done and questionnaire modified accordingly.

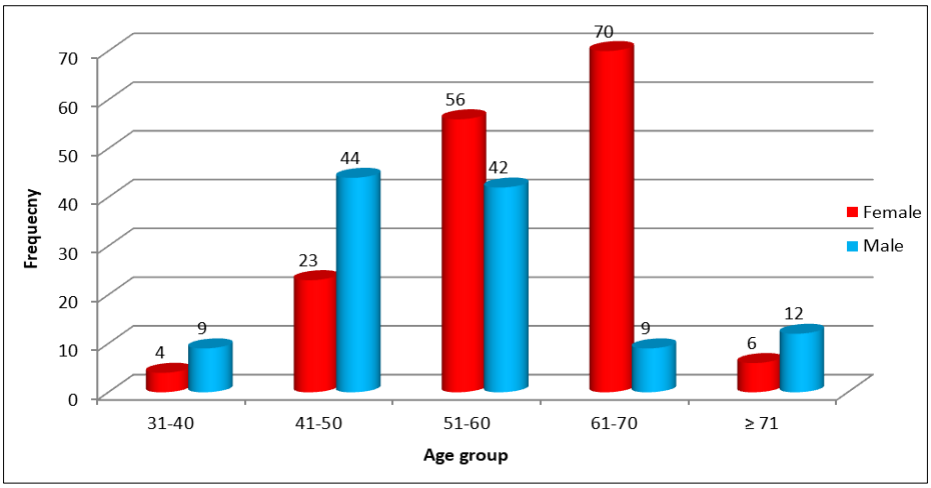
Predesigned and pretested questionnaire was used for data collection. Study questionnaire consists of four parts Part 1: Includes socio-demographic variables Part 2: Questions on knowledge variable Part 3: Questions on attitude variable Part 4: Questions on practice variable. Data tools were checked for their completeness and data entry and coding was done in Microsoft Excel. The raw data was compiled, classified and presented in a tabulated and graphical manner to bring out important details. Chi square test was used for categorical data to determine the association between variables. Level of significance ≤ 5% considered significant.

RESULTS

In this study total 275 patients were included for analysis according to predefined inclusion and exclusion criteria. Out of total patients 57.82% (159) and 41.18% (116) were males and females respectively (Table 01). In present study age and gender difference found to be statistically significant (Chi-square (χ 2): 54.20 df: 04 P: 0.0001).

Table 01: Age and Gender distribution of type II diabetes patients (n=275)

Sr. No	Age groups	Gender		Frequency (%)
		Female	Male	
1.	31 to 40	04	09	13 (04.27%)
2.	41 to 50	23	44	67 (24.36%)
3.	51 to 60	56	42	98 (35.64%)
4.	61 to 70	70	09	79 (28.73%)
5.	≥ 71	06	12	18 (06.55%)
	Total	**`159 (57.82%)**	**116 (42.18%)**	**275 (100%)**
Chi-square (χ 2): 54.20 df:04 P:0.0001 Significant				



Graph 01: Age and Gender distribution of participants

Majority of patients of this study belonged to class IV socioeconomic class (44%) according to modified BG Prasad classification13 2020. In terms of other socio-demographic characteristics of patients 36% were educated up to secondary, 48.72% were farmers, 93.81% were married, 57.75% were Hindus and 51.27% of patients had family history of diabetes in first degree relatives (Table 02).

Table 02: Socio-demographic Characteristics of type II diabetes patients (n=275)

Sr. No.	Variables	Frequency (%)
1.	**Socioeconomic Status***	
	Class I (7533 and above Rs./month)	11 (04.00%)
	Class II (3766-7532 Rs./month)	53 (19.27%)
	Class III (2260-3765 Rs./month)	31 (11.27%)
	Class IV (1130-2259 Rs./month)	59 (21.45%)
	Class V (1129 and below Rs./month)	121 (44.00%)
2.	**Education**	
	Illiterate	24 (08.72%)
	Primary	88 (32.00%)
	Secondary	99 (36.00^)
	Higher Secondary	57 (20.72%)
	Undergraduate and above	07 (02.54%)
3.	**Occupation**	
	Farmer	134 (48.72%)
	Self-employed	60 (21.81%)
	Service	07 (02.54%)
	Laborer	74 (26.90%)
4.	**Marital Status**	
	Married	258 (93.81%)
	Unmarried	06 (02.18%)
	Widowed/Separate	11 (04.00%)
5.	**Religion**	
	Hindu	158 (57.75%)
	Muslim	52 (18.90%)
	Christian	21 (07.63%)
	Buddhist	44 (16.00%)
6.	**Family History of diabetes (1$^{st\ 0}$ relatives)**	
	Present	141 (51.27%)
	Absent	134 (48.72%)

*Modified B G Prasad Classification 2020

We found that the majority (92.75%) of the patients aware about what diabetes is. Regarding the symptoms of diabetes, they consider increased frequency of urination (76%) as the only symptom and unaware about the rest of the symptoms. Majority participants (89.81%) of this study had correct

knowledge about non-communicable nature of diabetes but about 55.27% did not know about its genetic nature (Table 03).

Table 03: Distribution of Knowledge of the type II diabetes patients (n=275)

Sr. No	Questions	Frequency (%)
1.	**Diabetes is?**	
	Higher level of sugar in the blood?	255 (92.75%)
	Low level of sugar in blood	09 (03.27%)
	Don't know	11 (04.00%)
2.	**Symptoms of Diabetes**	
	Polyuria	209 (76.0%)
	Polyuria & Polyphagia	36 (13.09%)
	Polyuria &Polyphagia & Polydipsia	14 (05.09%)
	Polyuria & Polyphagia & Polydipsia & weakness	16 (05.81%)
3.	**Is diabetes communicable?**	
	Yes	28 (10.18%)
	No	247 (89.81%)
4.	**Is diabetes genetic disease?**	
	Yes	123 (44.72%)
	No	152 (55.27%)
5.	**Can diabetes be cured?**	
	Yes	91 (33.09%)
	No	184 (66.90%)
6.	**Is taking insulin harmful for diabetic's patients?**	
	Yes	104 (37.81%)
	No	34 (12.36%)
	No sure	137 (49.81%)
7.	**Is there insulin deficiency in type II diabetes?**	
	Yes	181 (65.81%)
	No	94 (34.18%)
8.	**Long term complications of diabetes?***	
	Eye Problem	66 (24%)
	Heart Problem	82 (29.81%)
	Kidney Problem	220 (80.0%)
	Feet	15 (05.45%)
	Nerves	11 (04.0%)
	Don't Know	13 (04.72%)
9	**Test used to diagnose type II DM**	
	Blood test	214 (77.81%)
	Urine test	41 (14.90%)
	Both	20 (07.27%)

*Multiple responses

On attitude domain when asked whether diabetics should eat sweets occasionally, 52.72% and 47.27% answered yes and no respectively. Regarding self-care 68% people believe that medication is more important than self-care while 57.81% people think diabetes is not a serious disease (Table 04).

Table 04: Distribution of Attitude of the type II diabetes patients (n=275)

Sr. No	Questions	Frequency (%)
1.	**It is alright to eat sweets on occasional basis?**	
	Yes	145 (52.72%)
	No	130 (47.27%)
2.	**Is self-care less important than medication in diabetes?**	
	Yes	187 (68.0%)
	No	88 (32.0%)
3.	**Diabetes is a serious disease**	
	Yes	116 (42.18%)
	No	159 (57.81%)

Sr. No	Questions	Frequency (%)
4.	**It is alright if you forget to take your insulin and/or other anti-diabetic drugs on some days**	
	Yes	87 (31.63%)
	No	188 (68.36%)
5.	**Is quitting smoking/alcohol important for diabetics?**	
	Yes	123 (44.72%)
	No	152 (55.27%)
6.	**Should diabetics take Herbal/Ayurveda medicines along with allopathic medicines?**	
	Yes	206 (74.90%)
	No	69 (25.09%)
7.	**Should diabetics follow a healthy lifestyle (diet/exercise)?**	
	Yes	241 (87.63%)
	No	34 (12.36%)

On assessment of practice domain of type II diabetes it was found that 65.81% and 44.72% do not exercise and test blood for sugar regularly. In present study 40% had not following diabetic diet, 41.81% not visiting physician regular checkup and 77.81% not doing diabetic self-care routinely (Table 05).

Table 05: Distribution of Practice of the type II diabetes patients (n=275)

Sr. No	Questions	Frequency (%)
1.	**Do you exercise regularly?**	
	Yes	94 (34.18%)
	No	181 (65.81%)
2.	**Do you get your blood sugar check regularly?**	
	Yes	151 (54.90%)
	No	123 (44.72%)
3.	**Do you take medicine regularly?**	
	Yes	251 (91.27%)
	No	24 (08.72%)
4.	**Are you following the diabetic diet?**	
	Yes	165 (60%)
	No	110 (40.0%)
5.	**Do you visit your healthcare providers for regular checkups?**	
	Yes	160 (58.18%)
	No	115 (41.81%)
6.	**Do you take diabetic self-care routinely?**	
	Yes	61 (22.18%)
	No	214 (77.81%)
7	**Have you taken Herbal/Ayurvedic medicine to control blood sugar**	
	Yes	247 (89.81%)
	No	28 (10.18%)

DISCUSSION

In present study total 275 patients were included for analysis according to predefined inclusion and exclusion criteria. Out of total patients 57.82% (159) and 41.18% (116) were males and females respectively. In this study majority of patients were of 51 to 60 years (35.64%) age group followed by 61 to 70 years (28.73%) and 41 to 50 years (24.36%) age group. (Table 01) In present study age and gender difference found to be statistically significant (Chi-square (χ 2): 54.20 df: 04 P: 0.0001). In study conducted by Shah VN *et al.,* [11] out of 238 patients 50.42% (120) were males and predominantly patients belonged to 50-59 years (40.33%) of age group. Age and gender distribution of this study was somewhat similar with our study. In Solanki JD *et al.,* [12] study out of all diabetic patients had a higher proportion of females (52%) than males (48%) and mean age of all patients was 56.64±13.21 years.

Majority of patients in this study belonged to class IV socioeconomic class (44%) according to modified BG Prasad classification [13] 2020. In terms of other socio-demographic characteristics of patients 36% were educated up to secondary, 48.72% were farmers, 93.81% were married, 57.75% were Hindus and 51.27% of patients had family history of diabetes in first degree relatives. Majority of patients in Dahake ST *et al.,* [14] study had per capita income of 1500 to 3000 monthly. In Shah VN study [11] 43.90% patients were housewives, 39.47% had annual income less than 20000 rupees and 52.35% had completed their schooling.

During the evaluation of knowledge part, we found that the majority (92.75%) of the patients aware about what diabetes is. Regarding the symptoms of diabetes, they consider increased frequency of urination (76%) as the only symptom and unaware about the rest of the symptoms. Majority participants (89.81%) of this study had correct knowledge about non-communicable nature of diabetes but about 55.27% did not know about its genetic nature. When asked, is taking insulin harmful for diabetics? 62.17% of the participants were either unaware or answered incorrectly. In this study 65.81% responded that type II diabetes is due to deficiency of insulin. A majority of patients responded that diabetes adversely affects the kidneys but a significant proportion of patients are unaware of other long-term complications of diabetes. In Shah VN *et al.,* [11] study most of the patients in his study didn't know what diabetes is (63%) and what the consequence of diabetes are in the long run (60%). In Dahake ST *et al.,* [14] study on urban versus rural comparison they have found that 64% in urban and 42% in rural respondents had knowledge about higher level of blood sugar. Most of the respondents were aware about the symptoms of diabetes in urban while very few were aware of diabetes symptoms in rural population. In Solanki JD *et al.,* [12] study 45.5% replied that taking insulin is not harmful for the body. In Dahake ST *et al.,* [14] study reported that only 57% in urban and only 22% in rural were known to some or other consequences and complications of diabetes. The population in both the groups has poor knowledge regarding the complications of diabetes. Somewhat similar findings on knowledge domain were reported by Kant R *et al.,* [15] study.

In the present study on the assessment of attitude domains in type II diabetic patients; the response was somewhat mixed. When asked whether diabetics should eat sweets occasionally, 52.72% and 47.27% answered yes and no respectively. Regarding self-care 68% people believe that medication is more important than self-care while 57.81% people think diabetes is not a serious disease. The majority of participants (68.36%) in the present study believed that skipping their anti-diabetic medication or insulin was not a good idea and 87.63% considered that diabetic person should follow health life style. On the other hand, 74.90% of the participants feel that herbal/ayurvedic medicines can be taken along with allopathic medicines to control their blood sugar. In contrast to the self-care results of our study, Shah VN *et al.,* [11] reported that responses to self-care questions in their study were most encouraging. In Dahake ST *et al.,* [14] study maximum respondents in both (urban and rural) the groups did not know about seriousness of diabetes. In Solanki JD *et al.,* [12] study only 27% were confident about self-care nearly, 75% were taking medication at fixed time.

On assessment of practice domain of type II diabetes it was found that 65.81% and 44.72% do not exercise and test blood for sugar regularly. In present study 40% had not following diabetic diet, 41.81% not visiting physician regular checkup and 77.81% not doing diabetic self-care routinely. In this study considerable proportion 89.81% of patients had taken Herbal/Ayurvedic medicine to their control blood sugar. In Dahake ST *et al.,* [14] study 62% urban and 52% rural patient checking their blood sugar regularly. In this study merely 35% in urban area and 32% in rural area had habit of regular exercise keep diabetes control.

CONCLUSION

The present study concluded that although type II diabetes patients have good knowledge, attitudes, but they lack in practice which is essential to control diabetes.

REFERENCES

1. Wild, S., Roglic, G., Green, A., Sicree, R., & King, H. (2004). Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. *Diabetes care*, *27*(5), 1047-1053. https://doi.org/10.2337/diacare.27.5.1047
2. Kaveeshwar, S. A., & Cornwall, J. (2014). The current state of diabetes mellitus in India. *Australian Medical Journal*, 7(1), 45-48. https://doi.org/10.4066/AMJ.2014.1979
3. Kumar, A., Goel, M. K., Jain, R. B., Khanna, P., & Chaudhary, V. (2013). India towards diabetes control: Key issues. *The Australasian medical journal*, *6*(10), 524-531. https://doi.org/10.4066/AMJ.2013.1791
4. World Health Organization. Diabetes. Fact File. 2018. [Last accessed on 2022 October 11]. Available from:https://www.who.int/health-topics/diabetes#tab=tab_1
5. American Diabetes Association. (2010). Diagnosis and classification of diabetes mellitus. *Diabetes Care*, 33, 62-69.
6. Muhammad, F. Y., Iliyasu, G., Uloko, A. E., Gezawa, I. D., & Christiana, E. A. (2021). Diabetes-related knowledge, attitude, and practice among outpatients of a tertiary hospital in North-Western Nigeria. *Annals of African Medicine*, *20*(3), 222-227.
7. Deshpande, A. D., Harris-Hayes, M., & Schootman, M. (2008). Epidemiology of diabetes and diabetes-related complications. *Physical therapy*, *88*(11), 1254-1264.
8. Jin, J., Sklar, G. E., Oh, V. M. S., & Li, S. C. (2008). Factors affecting therapeutic compliance: A review from the patient's perspective. *Therapeutics and clinical risk management*, *4*(1), 269-86.
9. Otekeiwebia, A., Oyeyinka, M., Oderinde, A., & Ivonye, C. (2015). Explanatory models of diabetes mellitus and glycemic control among Southwestern Nigerians. *Int J Diabetes Res*, *4*(2), 23-30.
10. Murugesan, N., Snehalatha, C., Shobhana, R., Roglic, G., & Ramachandran, A. (2007). Awareness about diabetes and its complications in

the general and diabetic population in a city in southern India. *Diabetes research and clinical practice*, *77*(3), 433-437.

11. Shah, V. N., Kamdar, P. K., & Shah, N. (2009). Assessing the knowledge, attitudes and practice of type 2 diabetes among patients of Saurashtra region, Gujarat. *International journal of diabetes in developing countries*, *29*(3), 118-122.
12. Solanki, J. D., Sheth, N. S., Shah, C. J., & Mehta, H. B. (2017). Knowledge, attitude, and practice of urban Gujarati type 2 diabetics: Prevalence and impact on disease control. *Journal of Education and Health Promotion*, *6*, 1-7.
13. Debnath, D. J., & Kakkar, R. (2020). Modified BG Prasad Socio-economic Classification, Updated – 2020. *Indian J Comm Health*, 32(1), 124-125.
14. Dahake, S. T., & Shaikh, U. A. (2019). A cross sectional study to assess knowledge attitude and practices of type 2 diabetes mellitus in urban and rural population of Maharashtra. *Int J Community Med Public Health*, 6(12), 5262-5267.
15. Kant, R., & Thapliyal, V. (2015). Knowledge attitude and practice of type 2 diabetic patients in a tertiary care teaching hospital in India. *Integr Food Nutr Metab*, *2*(1), 131-135.