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KNOWLEDGE, ATTITUDE, AND PRACTICE OF TYPE 2 DIABETES MELLITUS PATIENTS IN A TERTIARY CARE TEACHING HOSPITAL IN SOUTHERN ASSAM, INDIA

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Keywords:

Type 2 diabetes mellitus, Knowledge, Attitude, Practice, Assam

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ABSTRACT: Background: Type 2 diabetes mellitus is increasing very rapidly in India, yet studies regarding knowledge, attitude and practices in diabetes in various Indian communities, especially in the Northeastern region, are limited. It is essential to understand the current gaps in knowledge and problems with the attitude and perceptions of the general population regarding diabetes to effectively plan public health policies. **Objective:** To assess the knowledge, attitude and practice of type 2 diabetes mellitus (T2DM) patients at Silchar Medical College and Hospital, Silchar, Assam. **Materials and Methods:** A prospective, cross-sectional, questionnaire-based study was done among 161 patients attending Medicine OPD at Silchar Medical College and Hospital, Silchar, Assam. The study participants were selected using a random sampling method and data were collected through a questionnaire. **Results:** Out of 161 patients, 66% were male, 34% were female. 70% of the population fell in the 41-60 years age group. 23% of the participants think that diabetes is infectious. 63% of the population believes that insulin is habit-forming and should be avoided. Regular check-up of blood sugar was done by 43% of the population. Misinterpretations regarding diet, insulin, and diabetes were quite common among the study population. **Conclusions:** The study showed that the patients had good knowledge regarding exercise, diet modifications and diabetic complications. However, the knowledge regarding drug therapy, attitude and practices towards diabetes is poor, emphasizing the need to increase diabetes awareness.

INTRODUCTION: Type 2 diabetes mellitus (T2DM) is a chronic metabolic disorder characterized by increased levels of blood glucose levels [1]. Diabetes mellitus has become a major health problem worldwide, leading to substantial clinical, economic and social consequences [2]. The disease is associated with several complications [3,] including retinopathy [4], neuropathy [5] and nephropathy [6].

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India, with 72.95 million individuals affected by diabetes [7], has become the second-largest number in the world to be affected by diabetes. In India, the prevalence of diabetes has increased from 1.2 to 8.8% between 1971 and 2017 [8]. The study conducted in 15 states of India found a mean prevalence of prediabetes to be 10.3% (state-wise range, 6.0–14.7%) [9].

Proper self-management requires patients to be aware of the nature and consequences of the disease course, its risk factors, dimensions of treatment and its complications for proper self-management [10]. Diabetes, a chronic illness, requires sound knowledge of self-care by patients so that they can contribute meaningfully to managing their lives [11].

Thus, diabetic education and counselling for the patients and family members are becoming important goals of diabetic patient care today [12].

Early detection and lifestyle modification remain the cornerstone in managing individuals with pre-diabetes and diabetes [13]. Education is effective if the characteristics of the patients in terms of knowledge, attitude, and practices about diabetes are known [14]. Important factors such as age, sex, education, family history with diabetic background, socio-economic status, media accessibility, and capacity to receive doctor's advice influence diabetic patients and their relatives [10].

This study aimed to assess disease-related knowledge, attitude and practice regarding Type 2 Diabetes Mellitus among diabetic subjects attending the medicine OPD in a tertiary care teaching hospital in southern Assam.

MATERIALS AND METHODS:

Design and Sample: This study was prospective, cross-sectional, observational, and questionnaire-based, conducted in a tertiary care teaching institute in southern Assam. The study was started after getting permission from the Institutional Ethical Committee on 30th December 2020.

The period for the study was from 15th January 2021 to 15th July 2021 (6 months). Patients were informed about their voluntary participation and their written informed consent was taken. The questions were explained to the participants and translation was done into the local language in Bengali for those who found it difficult to understand in the English language.

Inclusion Criteria: Men and women of 18 years and above with T2DM of more than equal to 1-year duration, with or without other co-morbidities and who were receiving drug therapy for diabetes.

Exclusion Criteria: Children, pregnant women, mentally incompetent, and physically weak.

One hundred sixty-one patients diagnosed with type 2 diabetes mellitus attending the medicine OPD, who fulfilled the inclusion criteria, were interviewed in this study after random sampling. The average amount of time consumed per participant was 30-35 minutes. The confidentiality of the data which were collected through the interview was maintained, and the data were used strictly for the study.

Questionnaire: The patients' knowledge regarding diabetes was assessed using questions relating to definitions, symptoms, aetiology, and diabetic complications in which some questions have multiple-choice options.

Attitudes were assessed using a series of questions on positive and/or negative attitudes towards having the different aspects of the disease. Patient's practices were assessed using questions related to self-care, dietary habits, compliance to treatment, weight control, exercise, blood sugar monitoring and regular follow-up, *etc*. The questionnaire was prepared based on similar studies conducted earlier [15].

Data were entered into Microsoft Excel 2010 to generate tables, charts, bar diagrams and data analysis.

RESULTS: 161 patients meeting the inclusion criterion were enrolled in the study. **Fig. 1** shows that 105 (65.21%) were males and 56 (34.78%) were females. The mean age of our study population was 56.33 years, and the mean duration of the disease was 7.3 years.

The source of information for 64% of respondents regarding diabetes were health professionals (such as doctors, nurses, and nutritionists), while for 26%, 6% and 4% of the respondents obtained their information about diabetes from television, books and dietary charts, respectively.

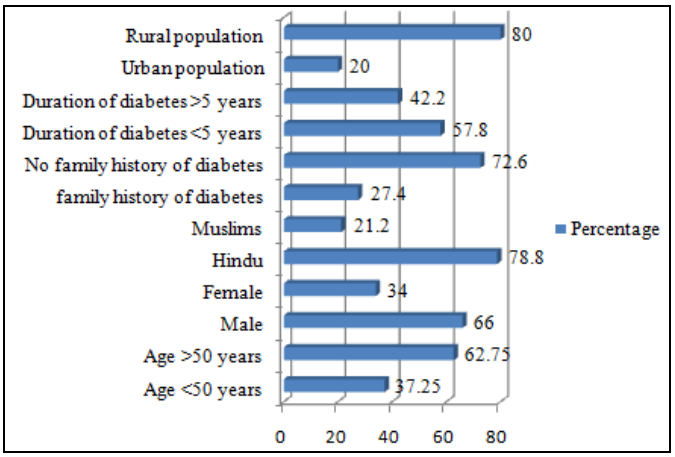

FIG. 1: DEMOGRAPHIC PROFILE OF STUDY POPULATION

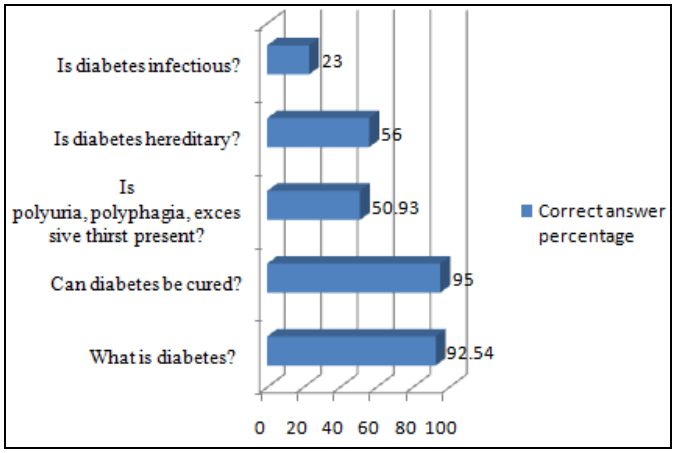

FIG. 2: KNOWLEDGE OF DIABETES AND ITS FEATURES

TABLE 1: KNOWLEDGE OF EXERCISE, DIET, AND COMPLICATIONS

	Knowledge of exercise, diet, and complications	Agree, n (%)	Disagree, n (%)
1.	Diabetes can be controlled by?		
	Exercise	135 (83.9)	26 (16.1)
	Diet modification	147 (91.3)	14 (8.7)
2.	The obese person only should do exercise?	71 (44)	90 (56)
3.	Diabetes can be cured by eating bitter substances?	21 (13)	140 (87)
4.	Complications		
	Retinopathy	95 (59)	66 (41)
	Neuropathy	96 (59.6)	65 (40.4)
	Heart	156 (96.9)	5 (3.1)
	Renal	120 (74.5)	41 (25.5)

Results are expressed as numbers (%)

Knowledge of Exercise, Diet and Complications: There is some misconception about diet. 13% of the population believes that diabetes can be cured by eating bitter substances. 83% of the population believes that diabetes can be controlled by doing exercise, while 91% believe that diet modification can cure diabetes. 96% of the population knows that diabetes can cause alteration in cardiac function and damage to the heart, while 59%, 59.6% and 74.5% of the participants know about the complications of eye, nerves, and kidney due to diabetes.

TABLE 2: KNOWLEDGE REGARDING OHA, INSULIN, HERBAL DRUGS

	Knowledge of drug therapy	Agree, n (%)	Disagree, n (%)
1.	Should the drug be stopped once DM is controlled?	86 (53.4)	75 (46.6)
2.	Is the drug more important than diet control?	68 (42)	93 (58)
3.	Are herbal drugs better?	82 (51)	79 (49)
4.	Should insulin be avoided?	128 (80)	33 (20)
5.	Is insulin habit forming?	145 (90)	16 (10)

Results are expressed as numbers (%).

Knowledge of Drug Therapy: There is a lack of information and knowledge about drug therapy among the participants. 80% of the population believes that insulin should be avoided as far as possible and 90% believe that taking insulin regularly will become a habit. A major part of the population refuses insulin despite having uncontrolled sugar levels showing their inadequate knowledge about the safety of insulin.

TABLE 3: ATTITUDE AND PRACTICE TOWARD DIABETIC CARE, EATING HABITS, AND HEALTH CHECK-UP

	Respondent's attitude and practice	Agree, n (%)	Disagree, n (%)
1.	Who is responsible for your diabetic care?		
	Yourself	138 (85.7)	23 (14.3)
	Doctor	111 (69)	50 (31)

	Family	42 (26)	119 (74)
2.	Do you take fruits?	150 (93.2)	11 (6.8)
3.	Do you take Green Leafy Vegetables in your diet?	158 (98.1)	3 (1.9)
4.	Do you have a glucometer at home?	80 (49.7)	81 (50.3)
5.	Do you examine your sugar frequently?	69 (42.9)	92 (57.1)
6.	Do you examine your foot frequently?	105 (65.2)	56 (34.8)
7.	Do you take herbal medicines?	82 (51)	79 (49)

Results are expressed as number (%).

Attitude and Practices towards Diabetes: The attitude and practice towards diabetes were inadequate in general and below satisfaction. 69% of the population depends on doctors for their diabetic care. Only 43% of the participants were checking their blood sugar regularly, while a regular check-up of the foot was done by 65% of the participants. Half of the participants had a glucometer at their homes. Herbal medicines are being taken up by 51% of the participants for different purposes.

DISCUSSION: In this study, the participants' knowledge, attitude and practices were evaluated using a set of questionnaires based on similar studies conducted earlier [16]. Out of 161 type 2 diabetes mellitus patients, 66% were male, 34% were female. Most of the participants fell within the 41-60 age group (70%). These findings are analogous to findings from other studies [17]. 7.46% of the rural responders failed to identify the term diabetes. 28% of the respondents think alternative treatments such as yoga, and acupuncture are better than prescribed methods. 56% of the participants are smokers and find it difficult to quit smoking and 69% have some exposure to passive smoking. Self-care practices such as blood glucose monitoring, restrictions in diet, and frequent check-ups of foot and eye have been shown to significantly reduce the frequency and development of type 2 diabetes mellitus-related complications [18].

83.9% of participants think that exercise should be done to control diabetes, and 91.3% of participants think that diet modification should be done to control diabetes. 72.6% of the participants control their weight, while 77% of the participants take their food timely. Similar findings were found in other studies showing that the participants were aware of controlling food intake for diabetes mellitus [19]. There is an enormous need to create awareness among diabetic patients regarding the early detection of diabetic complications. The importance of regular eye and foot examinations and routine blood glucose level monitoring must be focused on educational programs. 96.9% of the participants knew about the cardiac complications caused by diabetes, while a larger part knew about ophthalmic, neurologic and renal complications. 28% of the patients think that self-care in diabetes is difficult, and a majority of them believe life becomes comparatively less useful to family members in diabetes.

42.9% of the participants examine their blood sugar frequently, which is low compared to similar studies [20], while 65.2% examine their feet frequently, which is analogous to findings from similar studies [20]. 49.7% of the participants who had a glucometer at home had good self-care practices. Age and duration of diabetes was a significant factor in self-care practice as those participants above the age group of 60 years and greater than 5 years duration of diabetes had better self-care practice. These results were analogous to studies done in India [21] and Egypt [22]. This data indicates that the greater the duration of a patient with the disease, the greater the consciousness and awareness of the patient toward their health and style of living. 85.7% of the participants believe that patients themselves are responsible for their diabetic cure, while 69% of the participants think that Doctors were responsible for their diabetic cure.

Family background and public support play an important role in the patient's adherence to their treatment [23] and contribute towards good self-care practice towards diabetes. The study demonstrated that participants from rural areas had poor diabetes self-care practices compared to participants from urban areas. It was found that rural participants had a wrong conception, and poor knowledge about the self-care practices and treatment of diabetes [24]. It becomes a moral responsibility on the part of doctors, nursing staff, and other healthcare workers

to give importance to providing care and follow-up services to T2DM patients hailing from rural areas. They should make some efforts to close these gaps. The availability of good knowledge, the right attitude, and proper practice in diabetic patients play an important role in achieving good glycemic control and the prevention of disease complications.

CONCLUSION: The study showed that the patients had good knowledge regarding exercise, diet modifications and diabetic complications. However, the knowledge regarding drug therapy, attitude and practices towards diabetes is poor, emphasizing the need to increase diabetes awareness. There is a need to carry out large-scale awareness programs, after identifying the appropriate means to spread the message to the general population.

There is also a need to develop educational models and innovative tools that improve patient compliance and practices. Planning for group as well as individual education programs will deliver preventative and management techniques for diabetes. The healthcare providers should play an important role in removing ignorance, misbelieves and instituting diabetes preventive measures in the community.

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Compliance with Ethical Standards:

Ethical Approval: Ethical approval was obtained from the Institutional Ethical Committee, Silchar Medical College and Hospital, Silchar, in its meeting held on 30th December 2020, and the Institutional Ethical Committee number was SMC/12910.

Informed Consent: Informed consent was obtained from all the individual participants included in the study.

CONFLICT OF INTEREST: The authors declare no conflict of interest.

REFERENCES:

1. Mukherjee PS, Ghosh S, Mukhopadhyay P, Das K, Das DK, Sarkar P, Bhattacharya D, Mazumdar S and Chatterjee K: A diabetes perception study among rural and urban individuals of West Bengal, India: are we ready for the pandemic?. International Journal of Diabetes in Developing Countries 2020; 40: 612-8.
2. International Diabetes Federation (IDF). Diabetes atlas, 7th edition. 2015
3. Chia YC, Ching SM, Chew BN, Devaraj NK, Siti Suhaila MY, Tay CL, Kang PS, Verna Lee KM, Kong SZ, Teoh SW and Nurjasmine AJ: May measurement month 2017 blood pressure screening: findings from Malaysia—South-East Asia and Australasia. European Heart Journal Supplements 2019; 21: 77-9.
4. Campbell NR, Gilbert RE, Leiter LA, Larochelle P, Tobe S and Chockalingam A: Hypertension in people with type 2 diabetes: update on pharmacologic management. Can Fam Physician 2011; 57(9): 997–1002.
5. Tarr JM, Kaul K, Chopra M, Kohner EM and Chibber R: Pathophysiology of diabetic retinopathy. ISRN Ophthalmol 2013; 2013: 343560–13.
6. Bansal V, Kalita J and Misra U: Diabetic neuropathy. Postgrad Med J 2006; 82(964): 95–100.
7. International Diabetes Federation. India Statistics. https://www.idf. org/our-network/regions-members/south-east-asia/members/94- india.html. Accessed 4 Oct 2018.
8. ICMR P, IHME. India: health of nation's states- the india state-level disease burden initiative, Indian Council of Medical Research PHFI, Institute for Health Metrics and Evaluation; 2017 14 November 2017.
9. Geldsetzer P, Manne-Goehler J, Theilmann M, Davies JI, Awasthi A and Vollmer S: Diabetes and hypertension in India: a nationally representative study of 1.3 million adults. JAMA Intern Med 2018; 178(3): 363–72.
10. Mehrotra R, Bajaj S, Kumar D and Singh K: Influence of education and occupation on knowledge about diabetes control. Natl Med J India 1999; 13(6): 293–6.
11. Feleke SA, Alemayehu CM, Adane HT, Onigbinde A, Akindoyi O and Faremi F: Assessment of the level and associated factors with knowledge and practice of diabetes mellitus among diabetic patients attending at Felege Hiwot hospital, Northwest Ethiopia. Clin Med Res 2013; 2(6): 110.
12. Zimmet PZ: Kelly West Lecture 1991 challenges in diabetes epidemiology—from West to the rest. Diabetes Care 1992; 15(2): 232– 52. https://doi.org/10.2337/diacare.15.2.232.
13. Hemmingsen B, Gimenez-Perez G, Mauricio D, i Figuls MR, Metzendorf MI and Richter B: Diet, physical activity or both for prevention or delay of type 2 diabetes mellitus and its associated complications in people at increased risk of developing type 2 diabetes mellitus. Cochrane Database of Systematic Reviews 2017(12).
14. Shah VN, Kamdar PK and Shah N: Assessing the knowledge, attitudes and practice of type 2 diabetes among patients of Saurashtra region, Gujarat. International J of Diabetes in Developing Countries 2009; 29(3): 118.
15. Jaiswal K, Moghe N and Mehta M: Knowledge, attitude & practices of type II diabetes mellitus patients in a tertiary care teaching institute of central India. J Diabetes Metab Dis Control 2019; 6: 1-4.
16. Nagar V, Prasad P, Mitra A, Kale S, Yadav K and Shukla M: Assessment of knowledge, attitude and practice about diabetes among diabetic patients of tertiary care centre in central India. International Journal of Community Medicine and Public Health 2018; 5(9): 4065.
17. Gupta RK, Hussain S, Parveen Z, Raina SK, Langer B and Kumari R: Does being under treatment improve knowledge attitude practice for hypertension: A hospital-based study from North India. Journal of Family Medicine and Primary Care 2017; 6(2): 279.

18. Bukhsh A, Khan TM, Nawaz MS, Ahmed HS, Chan KG, Lee LH and Goh BH: Association of diabetes-related self-care activities with glycemic control of patients with type 2 diabetes in Pakistan. Patient Preference and Adherence 2018; 12: 2377.
19. Mumu SJ, Saleh F, Afnan F, Akhter A and Ahmed KR: Pattern of dietary intake among newly diagnosed type 2 diabetic subjects with hypercholesterolemia. Pak J Nutr 2009; 8(6): 721-4.
20. Al-Hussaini M and Mustafa S: Adolescents' knowledge and awareness of diabetes mellitus in Kuwait. Alexandria Journal of Medicine 2016; 52(1): 61-6.
21. Goyal N and Gupta SK: Self-care practices among known type 2 diabetic patients in Haldwani, India: a community based cross-sectional study. Int J Community Med Public Heal 2019; 6(4): 1740.
22. El-Khawaga G and Abdel-Wahab F: Knowledge, attitudes, practice and compliance of diabetic patients in Dakahlia, Egypt. Euro J Res Med Sci 2015; 3(1).
23. Shrivastava SR, Shrivastava PS and Ramasamy J: Role of self-care in management of diabetes mellitus. Journal of Diabetes & Metabolic Disorders 2013; 12(1): 1-5.
24. Mukherjee PS, Ghosh S, Mukhopadhyay P, Das K, Das DK, Sarkar P, Bhattacharya D, Mazumdar S and Chatterjee K: A diabetes perception study among rural and urban individuals of West Bengal, India: are we ready for the pandemic. International Journal of Diabetes in Developing Countries 2020; 40: 612-8.

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