Research Article

KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING TYPE 2 DIABETES MELLITUS AMONG DIABETIC PATIENTS RESIDING IN AN URBAN FIELD PRACTICE AREA OF BLDEU'S SHRI B M PATIL MEDICAL COLLEGE, VIJAYAPURA

Tanuja. P. Pattankar and Shailaja. S. Patil

BLDEU's Shri B. M. Patil Medical College, Hospital & Research Center, Vijayapura, Karnataka

ARTICLE INFO	ABSTRACT
	Prevalence of diabetes mellitus is rising day by day globally and India is the hub for diabetic patients due to rapid urbanization and life style modification. There is irrefutable evidence that knowledge regarding type 2 diabetes mellitus & its complications are poor among developing countries and India is one among them. So, to understand the level of knowledge, attitude and practice of theses diabetic patients regarding type 2 diabetes mellitus was the sole purpose of conducting this study. This is a community based cross-sectional study conducted in urban field practice area of department of community medicine of BLDEU's Shri B M Patil Medical College, Vijayapura. From May – August 2016. Data was analyzed using SPSS 16 and results are presented as Mean+SD, Percentages and diagrams and analyzed for significance. A total of 128 known type 2 DM were interviewed, their mean history of disorder was 5±3.3. All patients were above the age of 30 years (mean age, 51.88±9.99 years; median, 53 years; range, 32-70 years). Women were 64.84% of the population, with mean age of 51.59±9.66 years. Men were 35.16% with mean age of 52.18±10.66 years. This study revealed the gap in knowledge, attitude and practice among those who are affected by diabetes. Conclusion: Public health Programs involving activities to improve the knowledge and behavioral change has to be actively indulged in urban slums to reduce the morbidity due to Type 2 DM and for proper management of the disease.

INTRODUCTION

The burden of type 2 diabetes mellitus is increasing day by day and year by year, especially in the developing countries. This has become the major cause of morbidity and mortality in the world. Until a decade ago, diabetes was not considered a major public health problem in developing countries, like India,[1] but now it is said to be the world capital of Diabetes because of alarming increase in its prevalence and also more than 50 million people live with Diabetes mellitus in the country[2]. This has been due to change in life style and westernization which has resulted from accelerated urbanization leading to demographic transition[3]. Risk factors for type 2 Diabetes may be many like age, sex, heredity, but the burden is on rise due to rapid life style modification.

WHO estimates that 392 million (8.3%) people in the world are suffering from diabetes presently and by year 2035 it will rise to 592 million (8.8%). It also estimates that 80 per cent of diabetes deaths occur in low and middle-income countries and projects that such deaths will double by 2030.

Corresponding author: **Tanuja. P. Pattankar**
BLDEU's Shri B. M. Patil Medical College, Hospital & Research Center, Vijayapura, Karnataka

It is estimated that by year 2030 the prevalence of diabetes will raise by 58% in India, *i.e.,* from 51 million people to 87 million people living with type 2 DM[2]. It has been understood after series of research that public awareness of the disease regarding its onset, prevention and management are low in developing countries like India, which is more so in the rural area. The overall prevalence of diabetes in India has ranged from 6.1 -19.5%.The prevalence of type 2 diabetes mellitus in Karnataka is found to be 12.4%.[3-5]

We conducted this study in the Urban field practice area (urban slum), because there is double edged sword on these urban slum dwellers because of unplanned rapid urbanization. So, their knowledge, attitude and practice regarding some of the important non-communicable diseases like type 2 DM are of great importance so as to maintain healthy life.

MATERIALS & METHODOLOGY

This is a community based cross-sectional study, conducted in urban field practice area of department of community medicine of BLDEU's Shri B M Patil Medical College, Vijayapura. Prevalence of self reported diabetes mellitus was 11.2% [5], with 95% confidence interval and 6% absolute allowable error the sample size is derived to be 110. House to house survey has been conducted and all the known cases of

type 2 diabetes mellitus were enrolled in the study. Purpose of the study has been explained in detail to them and after taking their written consent interview has been conducted using semi-structured questionnaire. Information regarding their socio-demography and knowledge, attitude and practice towards type 2 diabetes mellitus and its complication were noted. All the questions regarding KAP were scored 1 for correct answer and 0 for wrong or unsure answers[6]. For multiple choice questions regarding causes, symptoms and complications of type 2 DM in knowledge components were scored 1 for every correct option and 0 if they answered "Don't know". The final maximum score for knowledge, attitude and practice were 13, 3 and 4 respectively.

Statistical analysis

Data has been tabulated in Excel sheet and analyzed using SPSS 16 and results are presented as Mean$\pm$ SD, Percentages and diagrams, and ANOVA test has been applied to check for statistical significance.

RESULTS

A total of 128 type 2 DM patients residing in urban field practice area were interviewed for their Knowledge, Attitude and Practice towards their condition. Patients participated in the study were above 30 years (mean age, 51.80±9.99 years; median, 53 years; range, 32-70 years). Women were 64.84% of the population, with mean age of 51.99±9.66 years and men were 35.16% with mean age of 52.18±10.66 years.

Table 1 shows the socio demographic factors of the study participants. This table shows that uneducated were 35% in our study population, 63% of them belonged to class IV & V of modified B G Prasad classification, and obese were 51.5% these are the main risk factors for ignorance towards DM.

Table 1 Shows the demography of the study participants.

	Variables	n=128	Percentage (%)
Gender	Male	45	35.16
	Female	83	64.84
Religion	Hindu	90	70.31
	Muslim	38	29.69
Education	No formal schooling	45	35.16
	Primary school (<7th std)	47	36.72
	High school(7th to 10th std)	27	21.09
	Pre university & college	9	7.03
Marital status	Married	120	93.75
	Unmarried/widow/widower	8	6.25
Occupation	Government employee	49	38.28
	Self/private employed	42	32.81
	Homemaker	25	19.53
	Retired/unemployed	12	9.38
Type of family	Nuclear	53	41.41
	Three generation	47	36.72
	Joint	28	21.88
Socioeconomic status	V	39	30.47
	IV	41	32.03
	III	32	25.00
	II	14	10.94
	I	2	1.56
BMI	Underweight (<18.5Kg/m^2)	11	8.59
	Normal (18.5 – 22.9 Kg/m^2)	35	27.34
	Overweight (23.0 – 24.9 Kg/m^2)	16	12.50
	Obese (>25 Kg/m^2)	66	51.56

Table 2 shows percentage of knowledge, attitude and practice of study participants. The knowledge component is defined by asking questions related to knowledge on cause of type 2 DM, time period of disorder, symptoms and complication of this disorder and life style

modification. Attitude component is defined by asking questions related to their point of view on life style modification, maintenance of glycemic index and taking regular medication. The practice component is elicited by asking them questions on their regular health check-ups, blood sugar level testing, screening for complications and diet and exercise regulations. Table 3 shows mean and standard deviation of KAP scores for study participants. Fig 1 is bar diagram which depicts that even though knowledge and attitude among study participants is average, the practice component is poor with 21.9% of study subjects having poor score for practice component. Table 4 shows comparison of means of knowledge, attitude and practice with selected variable i.e., BMI, SES, h/o type 2 DM, education and occupation. Among them practice and Socio economic status show statistical significance, others are not statistically significant.

Table 2 Knowledge, Attitude & Practice of known type 2 DM

Sl.No.	KAP questions	Frequency	Percentage (%)
	Knowledge		
1	Do you know DM is a disorder for life time	78	60.93
2	The major causes of diabetes are hereditary, obesity & aging	112	87.5
3	Symptoms of DM are polyuria, polydypsia and hunger	111	86.71
4	Complications of DM	109	85.15
5	Life style modification is the part of DM treatment	76	59.37
	Attitude		
6	Do you think prevention of DM requires life style modification	78	60.93
7	Do you think DM patients could lead a normal life with maintenance of good glycemic index	74	57.81
8	Do you think taking regular medication is mandatory for diabetic patients	77	60.15
	Practice		
9	Do you get your blood sugar get checked regularly	78	60.93
10	Do you visit physician for regular check up with regards to DM	82	64.06
11	Do you get yourself routinely screened for any diabetes related complications regularly	47	36.71
12	Do you follow diet regulations and exercise for DM	58	45.31

Table 3 Mean & Standard deviation of KAP and categorization into Poor, Average and Good[6]

	Maximum score	mean±SD	Poor (<mean-1SD)	Average (mean-1SD to mean+1SD)	Good (> mean +1SD)
Knowledge	13	6.45±1.96	19.6%	65.6%	14.8%
Attitude	3	1.79±0.88	9.4%	69.5%	21.1%
Practice	4	2.48±1.18	21.9%	53.9%	24.2%
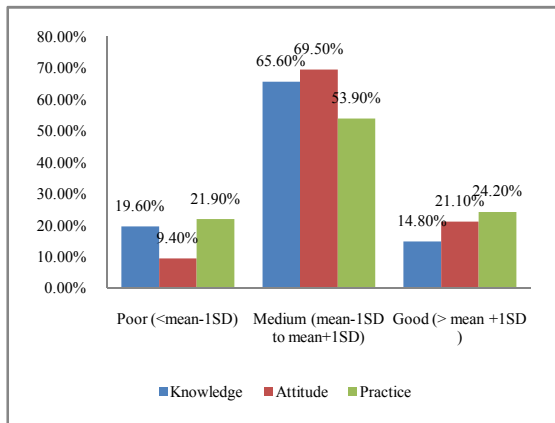
Fig 1 Bar diagram showing distribution of knowledge, attitude & practice of known type 2 diabetic patients regarding Diabetes Mellitus[6].

from Nepal where, 12.3% had knowledge regarding DM[12] and a study by Kaniz Famita *et.al* reported 17% of poor, 68% of average and 15% of good knowledge among known diabetics of Bangladesh. Hence, it shows that the difference in the knowledge levels among all participants is related to the level of literacy, intelligence and availability of information on diabetes to them which is similar to result of Kassahun CW *et. al.* [13] One of the reasons for failure to answer questions correctly could be myths and misconceptions surrounding issues like incurability of diabetes. Nonetheless, patients were generally able to identify the symptoms and complications of diabetes, although they were not aware of the risk factors that may lead to diabetes mellitus[6].

Their attitude towards Type 2 DM was poor among 9.4%, average in 69.5% and good among 21.1% of the participants. The results also showed that 60.93%, 57.81% & 60.15%

Table 4 mean score comparison of Knowledge attitude practice and selected variables

		Knowledge (mean±sd)	Attitude (mean±sd)	Practice (mean±sd)
Education	No formal schooling	6.67±1.74	1.80±0.9	2.60±1.19
	Primary school (<7th std)	6.45±2.26	1.70±0.97	2.29±1.26
	High school(7th to 10th std)	6.44±1.86	1.92±0.82	2.62±1.00
	Pre university & college	5.33±1.41	1.77±0.44	2.33±1.22
	P-value*	0.329	0.779	0.548
SES	CLASS I	6.50±0.70	2.00±00	3.00±00
	CLASS II	7.14±1.6	1.92±0.61	2.57±1.39
	CLASS III	5.96±1.92	1.90±0.85	2.78±1.12
	CLASS IV	6.51±1.95	1.70±1.03	2.02±1.23
	CLASS V	6.51±2.13	1.71±0.86	2.64±2.47
	P-value*	0.446	0.809	0.05
Occupation	Government employee	6.57±1.94	1.63±0.95	2.32±1.28
	Self/private employed	5.95±2.07	1.92±0.89	2.40±1.01
	Homemaker	6.68±1.65	1.80±0.70	2.68±1.25
	Retired/unemployed	7.16±2.08	1.91±0.90	2.91±1.16
	P-value*	0.18	0.422	0.345
BMI	Underweight (<18.5kg/m^2)	5.54±2.01	1.45±1.12	2.36±1.28
	Normal (18.5 – 22.9 kg/m^2)	6.45±2.16	1.80±0.86	2.45±1.29
	Overweight (23.0 – 24.9 kg/m^2)	6.26±1.27	2.06±0.79	2.66±0.89
	Obese (>25 kg/m^2)	6.62±1.97	1.77±0.86	2.46±1.18
	P-value*	0.394	0.384	0.920
H/o type 2 DM	0-5years	6.29±1.91	1.71±0.91	2.45±1.14
	5-10years	6.68±2.10	1.90±0.86	2.48±1.28
	>10years	7.4±1.14	2.00±0.70	2.40±1.14
	P-value*	0.328	0.476	0.476

*is ANOVA Test.

DISCUSSION

Knowledge, attitude and practice (KAP) regarding type 2 diabetes mellitus vary considerably depending upon the habits, cultural beliefs & socioeconomic conditions[6]. Appreciating these variables is very crucial in designing management and control strategies for type 2 diabetes mellitus. The results of the present study shows the gap in knowledge, attitude and practice regarding DM among type 2 Diabetic patients. Control of obesity is an important indicator for better control of glycemic index and also in prevention of complications, but it is evident from the present study that DM subjects do not attain the ideal goal as more than half of them are overweight and obese. Obesity has been shown to be a major risk factor for T2DM[7]. This is in line with previous studies conducted in developing countries like Malaysia, Bangladesh and elsewhere[7-11].

This study showed that the knowledge regarding DM was good in only 14.8% of the study population; it was average in 65.6% and poor in 19.6%. Our result coincide with the study

showed attitude of thinking DM requires life style modification, maintenance of good glycemic index and taking regular medication respectively helps them to prevent complications due to DM. Rajiv Kumar Gupta et al. reported in his study that 65% of them had positive attitude towards DM in North Indian Urban slums[14]. He reported that low socio economic condition as the main constraint for this pattern, which is similar to our study as 62.5% of the study population belongs to either Class V or IV according to modified B G Prasad Classification.

Their practice also showed similar trends i.e, 21.9% had poor practice, 53.9% had average and 24.2% had good practice. 61.91%, 60.93% of them got their blood sugar level checked regularly (i.e., once in 3 months), 64.06 of them visited there doctor once every 3months respectively, but only 36.71% of them got themselves screened regularly for complications of DM and 45.37% of them had followed diet regulations and exercise for DM.

Our study shows the gap in knowledge, attitude and practice of diabetic patients, which cannot be overlooked. It is also represented that knowledge, attitude and practice are interlinked. Better knowledge is associated with a better attitude and practice and poor attitude is associated with poor practice.

Limitations

This study covered only urban areas, followed by study subject were already enrolled type 2 diabetic patients. We conducted study to only know the level of the knowledge, attitude and practice of known diabetics hence knowledge, attitude and practice of non-diabetics was not included in the study so generalizing ability for population is poor. The sample size was small.

CONCLUSION

Knowledge of diabetic patients was not up to the mark but attitude and practices were fairly good. Hence, the gap exists in knowledge, attitude and practice of type 2 diabetic patients. Public health Programs involving educational interventions and behavioral change has to be more actively indulged in urban slums to reduce the morbidity due to Type 2 DM and for proper management of the diseases.

References

1. King H, Aubert RE and Herman WH. "Global burden of diabetes". *Diabetes care.* 1998: 21; 1414-31. [pubmed: 9727886]
2. Malik R. "India is The Diabetes Capital of the World". *Times of India.* 2016: 3. web. 17 June 2017.
3. Shah VN, Kamdar PK and Shah N. "Assessing the knowledge, attitudes and practice of type 2 diabetes among patients of Saurashtra region, Gujarat". *Int j diabetes dev ctries.* July 2009: 29 (3); 118-122. [Doi: 10.4103/09733930.54288]
4. Nikhil P. Hawal, Shivaswamy M.S, Sanjay Kambar, Shweta Patil and M B Hiremath. "Knowledge, attitude and behaviour regarding self-care practices among type 2 diabetes mellitus patients residing in an urban area of South India". *Int Multidisciplinary Research J.* 2012: 2(12); 31-35.
5. Rao CR, Kamath VG, Shetty A and Kamath A. "A study on the prevalence of type 2 diabetes in coastal Karnataka". *Int j diabetes dev ctries.* Apr 2010: 30(2); 80–85. [Doi: 10.4103/09733930.62597]
6. Kaniz Fatema, Hossain S, Khurshid N, Chowdhury HA, Akter J, Khan T *et. al.* "Knowledge attitude and practice regarding diabetes mellitus among Non-diabetic and diabetic study participants in Bangladesh". *BMC Public Health.* 2017: 17; 364, 1-10.
7. Saleh F, Mumu SJ, Ara F, Ali L, Hossain S and Ahmed KR. "Knowledge, attitude and practice of type 2 diabetic patients regarding obesity: study in a tertiary care hospital in Bangladesh". *J Public Health Africa.* 2012: 3(1); 29-32. [doi: 10.4081/jphia.2012.e8]
8. Saeed NHR. Diabetes-related knowledge, attitude, practice and beliefs among adult diabetic patients attending diabetic consultation clinic in Sulaimani city. Iraq: University of Sulaimani; 2009.
9. Chege MP. Risk factors for type 2 diabetes mellitus among patients attending a rural Kenyan hospital: original research. *African Primary Health Care Family Med.* 2010; 2(1):1-5.
10. Steyn NP, Mann J, Bennett P, Temple N, Zimmet P, Tuomilehto J, Lindström J, Louheranta A. Diet, nutrition and the prevention of type 2 diabetes. *Public Health Nutr.* 2004; 7(1a):147-65.
11. Okonta HI, Ikombele JB, Ogunbanjo GA. Knowledge, attitude and practice regarding lifestyle modification in type 2 diabetic patients. *African J Primary Health Care Family Med.* 2014; 6(1):6.
12. Anju G, Bhatta ND and Aryal RU. "Diabetes related health knowledge, attitude and practice among diabetic patients in Nepal". *Bio Med Central.* 2015: 15(25); 1-8.
13. Kassahun CW and Mekonen AG. "Knowledge, Attitude, Practices and their associated factors towards diabetes mellitus among non diabetes community members of Bale Zone administrative towns, South East Ethiopia". A cross-sectional study. PLOS ONE 12(2): e0170040. [available at: https://doi.org/10.1371/journal.pone.0170040].
14. Gupta RK, Shora TN, Jan R, Raina SK, Mengi V, Khajuria V. Knowledge, attitude and practices in type 2 diabetes mellitus patients in rural Northern India. *Indian J Community Health.* 2015; 27:327-33.
15. Tadesse AMA, Gelaw BK, Ahmed M, Muluneh Fromsa Se E. Assessment of knowledge, attitude and practices regarding life style modification among type 2Diabetic mellitus patients attending Adama hospital Medical college, Oromia region, Ethiopia. *Global J Med Res.* 2015: 14; 7.

****