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Original Research Article

Awareness regarding self care among diabetics in urban slum of Kolkata: a community-based, cross-sectional study

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ABSTRACT

Background: Diabetes mellitus is a disease associated with significant morbidity and mortality. Patients with diabetes have higher rates of coronary artery disease, peripheral vascular disease, retinopathy, neuropathy and nephropathy. Many of these complications can be prevented with appropriate medical care that often requires significant alterations in lifestyle and strict adherence to self-care tasks to obtain good control of disease. Awareness regarding the complications of this disease will play a vital role in its prevention and control. While lack of adherence to the treatment and self-care leads to poor glycemic control, thereby, increasing hazardous complications. Objective of the study was the present study was conducted to assess the knowledge of diabetic patients regarding the disease and its complications, and to estimate the knowledge and adherence to self-care practices concerned with Type 2 diabetes mellitus.

Methods: The study was conducted in Tangra an urban slum of Kolkata from July 2018 to December 2018. A house to house survey was conducted to identify the known diabetics in the community and data of 362 patients were collected.

Results: A total of 362 diabetic patients consented and participated in the study of whom 191(52.76%) were male and 171(42.74%) female. Majority of the respondents (26.52%) between the age of 50-59 years, 140(38.67%) belonged to upper middle class. Though 332(91.71%) respondents were aware regarding diet control but only 170(46.96%) were actually practicing the recommended diet schedules. Knowledge of the respondents regarding eye, foot, skin and dental care was very low, only 67(18.51%), 102(28.28%), 62(17.13%) and 46(12.71%) respondents were aware respectively and practices were still lower.

Conclusions: Overall the level of self-care activities among diabetic patients in our study was quite low. Government policies should help in creating guidelines on comprehensive diabetes management within the primary health care setting including availability of medicines and diagnostic services and creating public awareness.

Keywords: Awareness, Community based diabetics, Self-care, Urban slum

INTRODUCTION

Diabetes mellitus is a common noncommunicable disease in India, as well as the rest of the world. It has emerged as a major public health problem, with low- and middle-income countries facing the greatest burden.[1] India ranks second in the list of diabetes among people aged 20-79 years next only to China. Diabetes currently affects more

than 62 million Indians, which is more than 7.2% of the adult population. The average age on onset is 42.5 years. Nearly 1 million Indians die due to diabetes every year.[2]

Probably because of changes in lifestyle obesity and diabetes has manifested as a global epidemic. The change in life expectancy and lack of improvement in healthcare are in part responsible for the astounding rise in the incidence of this disease. Even in the rural Indian, population is undergoing lifestyle transition due to socioeconomic growth which can also be cited as a reason for increasing incidence of diabetes in rural areas.[3]

Diabetes is a chronic disease, requiring a multipronged approach for its management, wherein the patient has an important role to play.[4] They are required to follow certain self-care practices to achieve an optimal glycemic control and prevent complications. These practices include regular physical activity, appropriate dietary practices, foot care practice, compliance with treatment regimen, and tackling complications such as hypoglycemic episodes.[5] Self-care in the form of adherence to diet and drug regimens, blood glucose monitoring, self-administration of insulin, maintenance of optimum weight, blood pressure, recognition of symptoms associated with glycosuria and hypoglycemia etc. are crucial elements in secondary prevention.[6] Thus, the objective of this study was to assess the knowledge of diabetic patients regarding the disease and its complications, and to estimate the knowledge and adherence to self-care practices concerned with Type 2 diabetes mellitus.

METHODS

Diabetes is a growing challenge in India with estimated 8.7% diabetic population in the age group of 20 and 70 years. This community based cross sectional study was conducted in ward no 58 of Tangra area of Kolkata, West Bengal. The ward has many slum areas. Total population is 88465 as per current census. Total male population is 46207 and female population is 42258. The study was conducted from July 2018 to December 2018. A house to house survey was conducted to identify the known diabetics in the community with the help of local NGO working in the field of diabetes and awareness in different health topics. Data of 362 patients were recorded on a semi structured pretested questionnaire. Patients' level of knowledge was assessed by asking questions on symptoms of hypoglycemia and chronic complications of diabetes.

The demographic variables studied were age, gender, religion, marital status, educational status, occupation, socioeconomic status, duration of diabetes. Knowledge about hypoglycemia, family history, history of addiction was considered to be adequate if patient could correctly recall three of the following hypoglycemic symptoms: sweating, palpitations, hunger, tremor or feeling of impending disaster, each of which can be relieved by taking some food or glucose. Knowledge about chronic complications was assessed and deemed adequate if patients could specify at least three of the following: effect on vision (retinopathy), kidneys (nephropathy), sensation (neuropathy), potency (automatic neuropathy), heart (ischemic heart disease) and on the legs and feet (peripheral vasculopathy).[7]

Patients' level of self- care was assessed by asking about the following practices carried out at home: 1) blood sugar testing by glucometer, 2) self-injection of insulin; 3) Diet control; 4) Abstinence from alcohol; 5) Abstinence from smoking; 6) Eye care; 7) Foot care; 8) Skin care; 9) Dental care; 10) Regular exercise; 11) Adherence to medication and 12) regular follow up. The responses were recorded as "yes" or "no." All the data were tabulated and analyzed. Chi-squared test was used as a test of significance.

Inclusion criteria

- Those who agreed to participate in the study.

Exclusion criteria

- Those who not willing to participate in the study and severely ill.
- patients below 18 years of age (still dependent on parents).

Statistical analysis

The data were tabulated in Microsoft Excel 2007 and analyzed by using Statistical Package for the Social Sciences (SPSS) version 20.0 software for proportions and chi-square tests as test of significance.

RESULTS

A total of 362 diabetics were studied, majority 96(26.52%) among the respondents were in the age group of 50-59 years, followed by 75(20.72%), 69(19.06%) in the age group of 60-69 years, 40-49 years respectively. Male were 191(52.76%) and 171(47.24%) were females. Hindu, Muslims and Christians were 186(51.38%), 134(37.02%) and 42(11.06%) respectively. Majority 306(84.53%) were married. Only 28(7.73%) of the participants were illiterates.

Most of the study population were either homemaker or daily wage worker and belonged to the upper middle class as per Modified BG Prasad Classification. Thirty nine percent of the respondents had diabetes for 1-5 years, 28% for 6-10 years, and 22% of them for 11-20 years. Only 11% had diabetes for more than 20 years. The baseline characteristics of the respondents are shown in (Table 1).

Table 2 shows that 201(55.52%) of the respondents were having adequate knowledge about the symptoms of

hypoglycemia and males were found to be more aware (33.98%) than females (21.55%) and this difference was statistically significant.

Only 66(18.23%) of the respondents know about the chronic complications of diabetes males (11.05%) were having better knowledge than females (7.18%) but the difference was statistically non-significant. Respondents with upper middle-income group and having high school education were more aware regarding the disease and its chronic complications. No difference in the awareness was observed across various religious groups.

Table 3 shows the awareness and practices regarding self-care among the diabetics, 332(91.71 and) respondents were aware regarding diet control but only 170(46.96%) were practicing the recommended diet schedules. It was observed that more of the females (54.97%) than males (39.79%) were following the recommended diet schedules. More than 76% of the respondents were aware that regular physical exercise is helpful but only 24(12.57%) of the males and 28(16.37%) of the females were following this advice, 143(39.5%) and 232(64.09%) of the respondents had the knowledge that alcohol and cigarette smoking are more harming for the diabetics but only 34(17.8%) and 18(9.42%) of the aware persons stopped using alcohol and smoking respectively.

Table 1: Characteristics of the study population.

	Characteristics	No	%
Age (years)	20-29	6	1.66
	30-39	52	14.36
	40-49	69	19.06
	50-59	96	26.52
	60-69	75	20.72
	70-79	52	14.36
	≥80	12	3.31
Gender	Male	191	52.76
	Female	171	47.24
Religion	Hindu	186	51.38
	Muslim	134	37.02
	Christian	42	11.60
Marital status	Married	306	84.53
	Unmarried	36	9.94
	Separated	4	1.10
	Widowed	16	4.42
	Illiterate	28	7.73
Education	Nonformal education	26	7.18
	Lower primary	82	22.65
	Upper primary	85	23.48
	High school	59	16.30
	PUC/diploma	38	10.50
	Degree/professional	44	12.15

Table 2: Level of knowledge about diabetics.

Patient Data		Awareness of Hypoglycaemic symptom				Awareness of chronic complications			
Sex	No.	Yes		No		Yes		No	
		No.	%	No.	%	No.	%	No.	%
Males	191	123	33.98	68	18.78	40	11.05	151	41.71
Females	171	78	21.55	93	25.69	26	7.18	145	40.06
	362	201	55.52	161	44.48	66	18.23	296	81.77
p value		0.001 (significant)				0.10 (non-significant)			

Table 3: Level of knowledge regarding self-care among diabetics.

Activity	Number of aware persons						Number practicing					
	Male		Female		Total		Male		Female		Total	
	n=191		n=171		n=362		n=191		n=171		n=362	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Diet control	176	92.15	156	91.23	332	91.71	76	39.79	94	54.97	170	46.96
Regular exercise	148	77.49	128	74.85	276	76.24	24	12.57	28	16.37	52	14.36
Abstinence from alcohol	78	40.84	65	38.01	143	39.50	34	17.80	NA	0.00	34	9.39
Abstinence from smoking	124	64.92	108	63.16	232	64.09	18	9.42	NA	0.00	18	4.97
Self-blood examination	112	58.64	96	56.14	208	57.46	38	19.90	26	15.20	64	17.68
Adherence to medication	148	77.49	138	80.70	286	79.01	148	77.49	125	73.10	273	75.41
Self-administration of insulin	9	4.71	NA	0.00	9	2.49	9	4.71		0.00	9	2.49
Regular follow up	186	97.38	124	72.51	310	85.64	87	45.55	78	45.61	165	45.58
Eye care	45	23.56	22	12.87	67	18.51	24	12.57	13	7.60	37	10.22
Foot care	65	34.03	37	21.64	102	28.18	47	24.61	21	12.28	68	18.78
Skin care	38	19.90	24	14.04	62	17.13	19	9.95	17	9.94	36	9.94
Dental care	29	15.18	17	9.94	46	12.71	9	4.71	7	4.09	16	4.42

More than 76% of the respondents were aware that regular physical exercise is helpful but only 24(12.57%) of the males and 28(16.37%) of the females were following this advice, 143(39.5%) and 232(64.09%) of the respondents had the knowledge that alcohol and cigarette smoking are more harming for the diabetics but only 34(17.8%) and 18(9.42%) of the aware persons stopped using alcohol and smoking respectively.

About 208(57.46%) of respondents were aware regarding self-blood sugar examination and only 64(17.68%) were monitoring their blood sugar level at home. Despite the fact all respondents were aware that diabetes is not a curable disease so regular follow up is very important, only 165(45.58%) were showing compliance to this advice. Knowledge of the respondents regarding eye, foot, skin and dental care was painfully low, only 67(18.51%), 102(28.18%), 62(17.13%) and 46(12.71%) respondents were aware respectively and practices were still very low i.e. 37(10.22%), 68(1.78%), 36(9.94%) and 16(4.42%) respectively. People across religions were having similar level of knowledge and practices. People with low income group and lower-class schooling were having lower knowledge. It was further observed that respondents with longer duration of disease were having a wrong perception that they know more about the disease and its care, but study found no such difference.

DISCUSSION

Diabetes is a disease requiring many types of interventions to prevent the associated morbidity and mortality which also involve self-care practices that the patient can complete independently. The importance of self-management skills in diabetes care has been stressed by the American Diabetes Association (ADA) and the Veterans Health Administration (VHA). Self-care is a crucial element in secondary prevention of diabetes. It requires that the diabetic should take a major responsibility for his own care with medical guidance e.g. adherence to diet and drugs regimens, home monitoring of urine and blood glucose, self-administration of insulin, maintenance of optimum weight, abstinence from tobacco and alcohol, recognition of symptoms associated with glycosuria and hypoglycemia and attending periodic checkups.

Most of the study participants were in the 50-59 years age group, which was slightly lower than that seen in studies done by Priyanka and Angadi and Shah et al.[7,8] The age group is higher when compared to studies conducted in two places of Karnataka, namely Kolar and Dharwad, by Muninarayana et al, and Patil et al.[9,10]

In the present study, the duration of diabetes in the participants was mostly 1-5 years (39%) in contrast to study done by Hawal et al, where the majority of them had diabetes for more than 5 years (30.95%).[11] Regarding the literacy status of the study participants, it was found that only 28(7.73%) were illiterates as compared to 36.64% as seen in the study done by Shah et al.[8]

It is generally thought that the duration of diabetes and a literacy rate of the participants have some influence on the knowledge regarding the disease. In our study, higher the education of the participant better was the knowledge on the disease but lesser the duration of the disease, higher the knowledge. The present study has shown that diabetics in area under study had a poor level of knowledge about the disease and self-care. Similar observations have been made in the other studies.[12-14] It was further observed that the attitude of the diabetics in area under study towards the disease was very casual and only a few of them had put their knowledge in practice. In the present study 75.41% of the study population took the mediation regularly, diet control was practiced by 46.96% but only 14.36% exercised regularly. In the study conducted by Ruggiero et al, found that over 90% usually took their medication regularly but only 64% usually followed dietary recommendations and less than half usually exercised.[15]

Additionally, medical regimens used to treat chronic disease are complicated. Patients may not fully understand the medical rationale behind particular recommendations such as exercise and diet. Furthermore, exercise and diet may not result in immediate improvement in symptoms and often cause initial discomfort or feelings of deprivation, thereby providing little positive feedback and reinforcement. Information provided by home monitoring of blood glucose and urine testing for glucose is a powerful motivating factor, encouraging self-management of the diabetes by allowing patient to measure directly the impact of their behavior, such as the effect of eating on postprandial glucose or glucose lowering effect of exercise. Some studies have shown that, even in patients treated with diet alone, those who measure their blood glucose more often have better outcomes and those who are highly motivated are likely to do well in the long term.[16-18]

To achieve the goal to diabetes awareness health education is an area which needs to be addressed immediately.[19] Diabetes mellitus has been cited as a model disease in which patient education makes a big difference.[20] Regular assessment of patients' skills and knowledge is critical.[21,22] The American Diabetes Association (ADA) recommends that patients' knowledge of the self-care responsibility be assessed annually and the Veterans Health Administration (VHA) recommends reassessing patient knowledge about diabetes at least three months after an educational intervention.[23,24] This assessment can be easily made by administering a written or oral evaluation with patient. Improving patients' knowledge of diabetes self-care practices will allow them to better contribute to their care thereby postponing, if not avoiding, long-term complications. It will be a small investment with a large benefit.

CONCLUSION

Self-care is a crucial element in secondary prevention of diabetes. Diabetics had a poor level of knowledge about the disease and self-care and hence a very casual attitude towards the disease. This predisposes them to the risk of development of complications at latter life. Health education is an area which needs to be addressed immediately to improve patients' knowledge and skills of diabetes self-care practices so that they can better contribute towards the management of their disease.

Considering the disease burden of diabetes in India involvement of the ASHA, ANM, NGOs should be sought in the comprehensive management of diabetics particularly by positive behaviour modifications regarding self-care, treatment compliance, and encouraging patients to go the sub-centre for regular check-up of BP / blood glucose.

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REFERENCES

1. Unwin N, Whiting D, Gan D, Jacqmain O, Ghyoot G, editors. IDF diabetes atlas. Int Diab Federation; 2009.
2. Gale J. India's diabetes epidemic cuts down millions who escape poverty. Bloomberg. Retrieved. 2012;8.
3. Misra P, Upadhyay RP, Misra A, Anand K. A review of the epidemiology of diabetes in rural India. Diab Res Clin Pract. 2011;92(3):303-11.
4. Raithatha SJ, Shankar SU, Dinesh K. Self-care practices among diabetic patients in Anand district of Gujarat. ISRN Family Med. 2014;11;2014.
5. American Diabetes Association. Standards of medical care in diabetes-2013. Diab care. 2013;36(1):11-66.
6. People-centered health care. 2007.technical papers: International Symposium on the People centered Health Care: reorienting health systems in the 21st century, the Tokyo International Forum, 25 November 2007.
7. Raj CP, Angadi MM. Hospital-based KAP study on diabetes in Bijapur, Karnataka. Indian J Med Spe. 2010;1(2):80-3.
8. Shah VN, Kamdar PK, Shah N. Assessing the knowledge, attitudes and practice of type 2 diabetes among patients of Saurashtra region, Gujarat. Int J Diab Develop Countr. 2009;29(3):118.
9. Muninarayana C, Balachandra G, Hiremath SG, Iyengar K, Anil NS. Prevalence and awareness regarding diabetes mellitus in rural Tamaka, Kolar. Intern J Diab Develop Countr. 2010;30(1):18.
10. Patil PS, Dixit UR, Hiralal BD. Study of diabetes in Dharwad-an urban area in India. Ind J Sci Technol. 2011;4(11):1481-3.
11. Hawal NP, Shivaswamy MS, Kambar S, Patil S, Hiremath MB. Knowledge, attitude and behaviour regarding self-care practices among type 2 diabetes mellitus patients residing in an urban area of South India. Int Multidiscipl Res J. 2012;2(12).
12. UK Prospective Diabetes Study (UKPDS) Group. Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33). Lancet. 1998 Sep 12;352(9131):837-53.
13. American Diabetes Association. Standards of medical care for patients with diabetes mellitus. Diab Care. 2003;26:33-50.
14. Hassan TA. The centrality of the patient role in the management of insulin dependent diabetes mellitus. Saudi Med J. 1998;19(4):370-5.
15. Ruggiero L, Glasgow R, Dryfoos JM, Rossi JS, Prochaska JO, Orleans CT, et al. Diabetes self-management: self-reported recommendations and patterns in a large population. Diabetes Care. 1997;20(4):568-76.
16. Alberti KG, Gries FA, Jervell J, Krans HM, European NIDDM Policy Group. A Desktop Guide for the Management of Non-insulin-dependent Diabetes Mellitus (NIDDM): An Update. Diab Med. 1994;11(9):899-909.
17. Karter AJ, Ackerson LM, Darbinian JA, D'Agostino Jr RB, Ferrara A, Liu J, et al. Self-monitoring of blood glucose levels and glycemic control: the Northern California Kaiser Permanente Diabetes registry∗. Am J Med. 2001;111(1):1-9.
18. Martin S, Schneider B, Heinemann L, Lodwig V, Kurth HJ, Kolb H, et al. Self-monitoring of blood glucose in type 2 diabetes and long-term outcome: an epidemiological cohort study. Diabetol. 2006;49(2):271-8.
19. El-Hazmi MA, Al-Swailem A, Warsy AS, Al-Sudairy F, Sulaimani R, Al-Swailem A, et al. The prevalence of diabetes mellitus and impaired glucose tolerance in the population of Riyadh. Annal Saudi Med. 1995 Nov 1;15(6):598-601.
20. Strowig S. Patient education: a model for autonomous decision-making and deliberate action in diabetes self-management. Med Clin North Am. 1982;66(6):1293-307.
21. American Diabetes Association. Clinical practice recommendations 2000. Diab Care. 2000;23:1-116.
22. VA/DoD Clinical Practice Guideline for The Management of Type 2 Diabetes Mellitus in Primary Care. Department of Veterans Affairs and Department of Defense. Version 5.0 - Washington, DC;2017:12-13.
23. Brown SA. Studies of educational interventions and outcomes in diabetic adults: a meta-analysis

revisited. Patient education and counselling. 1990;16(3):189-215.
24. Padgett D, Mumford E, Hynes M, Carter R. Meta-analysis of the effects of educational and psychosocial interventions on management of diabetes mellitus. J Clin Epidemiol. 1988;41(10):1007-30.

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