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Original Research Article

Prevalence of complications and health seeking behaviour of patients with type 2 diabetes mellitus: a community based study

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ABSTRACT

Background: Diabetes mellitus is a chronic disease with a variety of micro-and macro-vascular complications. Health seeking behaviour is directly related to occurrence of diabetes complications by identifying them early and to plan diabetes care and management upon diagnosis. So, this study was planned to know the prevalence of complications in Type 2 diabetes mellitus patients and their level of treatment seeking behaviour.
Methods: A total of 75 type 2 DM patients from rural area were studied. Patients were selected by taking 8 villages as strata and minimum of 9 patients were selected from each village. Patients were interviewed face-to-face for knowing details related to diabetes, and its complications and about health seeking behaviour.
Results: Around 21.3% patients had complications related to diabetes mellitus, in which peripheral neuropathy was most common. As many as 45% patients seeking care from govt. facility and 60% patients seeking care from Pvt. facility had poor health seeking behaviour. Significantly higher number of patients seeking health care from Pvt. facility (77.8%) having poor health seeking behaviour had complications than patients seeking health care from govt. facility (33.3%). Odds of having complications was 7 times higher for patients seeking health care from Pvt. facility than for patients approaching govt. facility.
Conclusions: Good health seeking behaviour is needed to improve the quality of life of patients suffering with type 2 DM.

Keywords: Complications, Health seeking behaviour, Type 2 diabetes mellitus, Rural

INTRODUCTION

Diabetes mellitus (DM) is a chronic disease with a variety of micro-and macro-vascular complications (affecting eye, kidney, lower extremity, heart).[1] Diabetes is a silent disease, and many sufferers became aware that they have diabetes only after developing one of its life-threatening complications. It was estimated that over 70% of diabetes-related cost was attributed to their complications, particularly of macro-vascular complications, commonly occurs in type 2 diabetes patients.[2] It is known that to reduce complications, adequate control of diabetes is essential.[3]

Diabetes management involves multiple healthcare providers like medical professional, dietician, and other paramedical personnel depending on the course of disease.[4,5] Apart from that patient's positive attitude towards disease, appropriate health seeking behaviour and practicing necessary self-care practices will be needed to prevent complications.[6,7] Health seeking behaviour is directly related to occurrence of diabetes complications by identifying them early and to plan diabetes care and management upon diagnosis.

Individual's access to health services and using it depends on their predisposition to use services, factors enabling or

impeding, and patients need for care in their perception.[8] Predisposing factors are sociocultural characteristics of patients exists prior to their illness such as age, gender, religion, education, occupation, attitudes, and health beliefs. Enabling factors will be the aspects of obtaining care such as availability, affordability, and accessibility of services. Factors that determine need will be most immediate cause of health service use, from health and functional problems, that generate the need for health services and this includes the presence of symptoms and severity of illness.[8] Complexity of health seeking behaviour is poorly understood in diabetes patients, especially in patients with complications. So, this study was planned to know the prevalence of complications in Type 2 diabetes mellitus patients and their level of treatment seeking behaviour.

METHODS

This is a community based cross-sectional study done in both urban and rural field practice areas of Department of Community Medicine, P.E.S. Institute of Medical Sciences and Research, Kuppam, Andhra Pradesh from April 2022 to October 2022. The minimum sample size required was calculated using the formula;

$$N = (1.96)2\,PQ/L2$$

Wherein P is prevalence of any one of the complications related to diabetes mellitus was 10.3% reported in a study done at rural Goa and absolute error (L) taken was 7%.[9] A sample of 75 individuals aged 20 years and above was selected among 216 known type 2 diabetes mellitus cases listed in 8 areas selected for study by stratified random sampling. The patients were selected by taking 8 areas (4 urban areas and 4 villages) as strata and minimum of 9 patients were selected from each area by lottery method after collecting their informed consent for the study. Seriously ill patients who could not cooperate for the study were excluded. Patients were interviewed face-to-face using a semi-structured questionnaire containing data related to demographic characteristics, details related to diabetes, and its complications. To identify different complications, different criteria was used, such as Minnesota criterion for coronary heart disease (CHD), peripheral vascular disease (PVD) by the presence of definite history of intermittent claudication, absence of one or more peripheral pulses on both the feet with or without the presence of an ulcer or amputation, cerebrovascular accident (CVA) by medical and CT scan records (if available), diabetic neuropathy by the absence of bilateral ankle jerks and/or bilateral distal sensory loss or with any other severe neurological deficit and diabetic retinopathy by fundoscopy findings.[10-13] Subsequently, Information related to health seeking behaviour was collected such as reasons for seeking health care from a particular provider, changing provider frequently, interrupting consultations, and perceived barriers in health seeking for diabetes. Questionnaire was pilot tested in a different setting before starting the interview in the study sample, for assessing its feasibility and reliability. Suitable modifications were done afterward and internal consistency (Cronbach's alpha) of final questionnaire was calculated and found to be 0.76. Data was entered in to Microsoft Excel and analyzed using IBM SPSS software 21 version (IBM Corp., Armonk, New York, USA). Results are presented in averages and proportions. Difference in proportions between groups was assessed using Chi-square or fisher test. Significance was estimated for all comparisons at a probability of 5% level ($p<0.05$).

RESULTS

The present study included 75 known diabetes mellitus patients among which 31 (41.3%) were males and 44 (58.7%) were females. Most of the patients were belongs to 51 to 60 years (37.3%) with mean age of 57 years (SD: 9.5 years), and the mean duration of diabetes was six years (SD: 3 years). Most of the participants belonged to poor socio-economic class (modified BG Prasad class IV and V) (n=39, 52%) and were availing the treatment from government facility at present (n=60, 80%) (Table 1). Out of 75 diabetes patients, majorly 10 (13.3%) patients had peripheral neuropathy, followed by 5 (6.7%) patients had coronary heart disease (CHD), 4 (5.3%) patients had cataract, 2 (2.7%) patients had retinopathy, 2 (2.7%) patients had peripheral vascular disease (PVD) and 1 (1.3%) patient had cerebrovascular accidents. In total around 16 (21.3%) patients had any one of the complications related to diabetes mellitus (Figure 1). Out of 60 patients currently seeking treatment from government facility, 23 (38.3%) patients were shifted from one facility to another for seeking health care and remaining 37 (61.7%) patients were seeking treatment from same facility from the beginning. Among these 23 patients, changing of facility or practitioner was happens two or more times in 8 (34.8%) patients and in remaining 15 (65.2%) patients happens only once. Among 15 patients currently seeking treatment from private practitioners, 9 (60%) patients were shifted from one facility to another. In which 6 (66.7%) patients change their provider two or more times. The reasons for changing their providers were listed in table 2. Most common reason for changing the treatment facility was cost in both type of patients seeking care from govt. and pvt. Facility (34.8% and 33.3% respectively).

Among total 75 patients studied, 15 (20%) patients missed one or more consultation in the past 6 months, as they reported. Around 33.3% (25/60) patients seeking care from govt. facility and 46.7% (7/15) patients seeking care from Pvt. facility were missing doses occasionally. In those 32 patients, 31.3% (10/32) patients missing due to not stocking-up of medicines on time, 25% (8/32) patients missing due to repeated travel for work, 18.8% (6/32) patients due to adverse effects of drugs, 12.5% (4/32) patients due to money issues and another 12.5% (4/32) patients due to sickness.

Table 1: Socio-demographic characteristics of participants.

Variables	N (%)
Age (years)	
≤50	23 (30.7)
51 to 60	28 (37.3)
>60	24 (32)
Gender	
Male	31 (41.3)
Female	44 (58.7)
Marital status	
Married	50 (66.7)
Widow/ separated	25 (33.3)
Religion	
Hindu	49 (65.3)
Muslim	10 (13.3)
Christian	16 (21.4)
Education	
Illiterate	454 (62.5)
Primary	64 (8.8)
Secondary	45 (6.2)
High school	99 (13.6)
College	65 (8.9)
Occupation	
Unemployed	36 (48)
Unskilled worker	14 (18.7)
Semi-Skilled worker	11 (14.7)
Skilled worker	8 (10.6)
Semi-professional & professional	6 (8)
Type of family	
Nuclear	73 (97.3)
Joint	2 (2.7)
Socio-economic status	
Class I	2 (2.7)
Class II	13 (17.3)
Class III	21 (28)
Class IV	37 (49.3)
Class V	2 (2.7)
Currently treatment received from	
Government facility	60 (80)
Private facility	15 (20)

On combining poor drug adherence with shifting of facility for seeking of health care, a total of 27 (45%) patients seeking care from govt. facility and 9 (60%) patients seeking care from Pvt. facility had poor health seeking behaviour. On comparing poor health seeking behaviour of patients seeking care from govt. facility and Pvt. facility with complications of type 2 DM, it was found that significantly higher number of patients seeking health care from Pvt. facility (77.8%) having poor health seeking behaviour had complications than patients seeking health care from govt. facility (33.3%). Odds of having complications was 7 times higher for patients seeking health care from Pvt. facility than for patients approaching govt. facility.

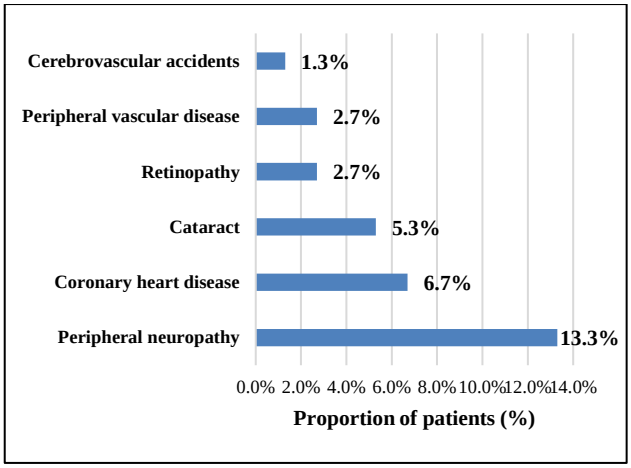

Figure 1: Proportion of complications reported in type 2 DM patients.

DISCUSSION

The reported prevalence of complications among type 2 DM patients in current study was 21.3% in which peripheral neuropathy (13.3%) was the most common. Other complications reported was coronary heart disease (6.7%), cataract (5.3%), retinopathy (2.7%), peripheral vascular disease (2.7%) and cerebrovascular accidents (1.3%). This is high compared to studies done in rural areas of other part of India.[9-15] Another rural based study done in Pakistan and Malaysia reported the increase in prevalence of complications from 11% to 17% and 3.9% to 12.2% respectively.[16,17] So, the prevalence of complications especially in Asian countries is varied and reported at high level.

On other hand, overall health seeking behaviour was poor in 45% patients seeking care from govt. facility and 60% patients seeking care from Pvt. Facility. Among them 38.3% patients seeking care from govt. facility and 60% patients seeking care from Pvt. facility had changed their treatment provider more than once. Most quoted reason for this was cost of treatment, which makes them to switch from Pvt. facility to Govt. facility. This is very important for economically disadvantaged community, such as rural community. Choice-Making Model for health seeking developed by Young describes some factors responsible for preferential utilization of a particular health service. In that he mentioned illness gravity, knowledge of a home treatment, faith in the remedy, and the accessibility of treatment could be the possible determinants.[18] The reasons quoted by the study participants were almost like this. On comparing poor health seeking behaviour with respect to facility from which health care is seeking and complications of type 2 DM, it was found that significantly higher number of patients seeking health care from Pvt. facility (77.8%) having poor health seeking behaviour had more complications than patients seeking health care from govt. facility (33.3%). Odds of having complications was 7 times higher for patients seeking health care from Pvt. facility than for patients approaching govt. facility.

Table 2: Reasons for changing the treatment provider in diabetes care.

Key reasons	Patients seeking treatment from Govt. facility (N=23) Frequency (%)	Patients seeking treatment from Pvt. facility (N=9) Frequency (%)	OR (95% CI)
Previous facility was costly	8 (34.8)	3 (33.3)	1.07 (0.21-5.45)
Advice taken from others	5 (26.1)	2 (22.2)	0.972 (0.15-6.23)
Inaccessible	4 (17.4)	0 (0)	4.38 (0.21-90.11)
Poor control of symptoms/ sugar levels	2 (8.7)	1 (11.1)	0.762 (0.06-9.61)
Dissatisfaction from the treatment provider	2 (8.7)	1 (11.1)	0.762 (0.06-9.61)
Long waiting period at treatment facility	2 (8.7)	1 (11.1)	0.762 (0.06-9.61)

Table 3: Association of poor health seeking behaviour with treatment facility.

Treatment facility	Complications of type 2 DM in poor health seeking behaviour patients (n=36) Frequency (%)		OR (95% CI)	P value
	Present (N=16)	**Absent (N=20)**		
Govt. facility (N=27)	9 (33.3)	18 (66.7)	7.00 (1.20-40.83)	0.03; S
Pvt. facility (N=9)	7 (77.8)	2 (22.2)		

S=Significant

This could be due to the fact that, in government facility providing primary care has strong network and they will track patients easily if anybody misses for the follow-up. But, this type of patient tracking and providing care at their door step, if they miss the follow-up was not there for private facility-based treatment.

CONCLUSION

Good health-seeking behaviour is needed for long term disease like diabetes mellitus. If it is poor, it will increase the chance of having complications by 7 folds. So, it is the responsibility of both patients and treatment provider to have regular follow-up visits and following all the suggested advices to limit or delaying the complications. So, that the quality of life of diabetes mellitus patients will be improved, even though the chronic nature disease.

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