Research Article

Healthcare-seeking behavior among diabetic patients in Kozhikode, Kerala

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ABSTRACT

Background: Diabetes mellitus is a global health problem. India has additional unique problem of treatment compliance of diabetic patients. Diabetic patients do not adhere to treatment and ultimately develop multiple chronic complications leading to irreversible disability and death. **Objectives:** To determine healthcare--seeking behavior and the health expenditure incurred for the treatment of diabetes in study population. **Materials and Methods:** Community-based cross-sectional study was conducted in 2015. House-to-house survey was done for data collection. A structured questionnaire was used for collecting data after explaining purpose of the study. All individuals with diabetes residing in area who consented for participation in the study were included in the study. Elderly individuals who were critically ill and were unable to comprehend questions were excluded from the study. Collected data were entered in Microsoft Excel and statistical analysis was done using SPSS version 16. **Results:** A total of 79 diabetic patients were interviewed. Their mean age was 61.51 ± 11.8 years. 63.3% individuals belonged to upper socioeconomic class. Family history of diabetes was seen in 39.2% of the individuals. Only 34.1% patients used Government health facilities. 82.3% individuals were taking treatment regularly. Comorbidities associated with diabetes were seen in 69.6% of the individuals. The mean total monthly expenditure required for diabetes care was Rs. 1793. **Conclusions:** Healthcare-seeking behavior among diabetic patients in Kerala is still low compared to diabetic patients in developed countries. Diabetic patients have to spend significant amount for traveling, consultation, and laboratory investigations along with expenditure for drugs and hospitalization.

KEY WORDS: HealthCare-Seeking Behavior; Health Expenditure; Diabetic Patients

INTRODUCTION

Diabetes mellitus, a non-communicable disease, is a global health problem that affects people of all ages, gender and socioeconomic background.

Diabetes is an Iceberg disease. Currently, the number of cases of diabetes worldwide is estimated to be around 347 million, of which more than 90% are cases of type-2 diabetes. In 2008, an estimated 1.2 million people died from consequences of high blood sugar. More than 80% of these deaths occurred in low- and middle-income countries. The Indian population has an increased susceptibility to diabetes mellitus. During the year 2004, there were an estimated 37.7 million cases of diabetes in the country. The estimated total mortality due to diabetes was 1.09 lakh.[1] The crude prevalence rate of diabetes in urban areas of India is thought to be 9% while in rural areas the prevalence is approximately 3% of the total population. India is regarded as the "diabetes capital" of the world owing to the existence of the largest number of people with diabetes in the country.[2]

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Diabetes is a serious condition both at a clinical and public health level. Its rapidly increasing prevalence is a significant cause for concern. Epidemiological studies provide evidence that overeating, particularly when combined with obesity, is associated with the development of type-2 diabetes. It is likely that obesity acts as a diabetogenic factor by increasing

insulin resistance in people who are genetically predisposed to develop type-2 diabetes. Type-2 diabetes is often associated with other risk factors for cardiovascular diseases, such as dyslipidemia and hypertension. These factors, combined with obesity and insulin resistance, constitute the "metabolic syndrome."[3]

Early diagnosis and appropriate management can prevent complications of the diabetes, allowing the individual to sustain an optimal quality of life. It is the responsibility of family physicians to ensure that patients with diabetes who are under their care are treated optimally to prevent or mitigate acute and long-term complications.[4] Compared to other chronic conditions diabetes is very difficult to treat as lifestyle changes are important part of management; which is beyond the control of the health-care provider.

India, being a rural country has unique problem regarding the diagnosis and treatment compliance of diabetic patients. As diabetes is silent disease, most of the patients are undiagnosed. Many of diagnosed patients are not treated. Those who are treated are either inadequately treated or does not adhere to treatment. Cost of treatment of diabetes which is almost Rs. 10,000 in urban and Rs. 6,260 in rural area is one of the leading cause of noncompliance to treatment. The treatment cost increases with duration of diabetes, presence of complications, hospitalization, surgery, Insulin therapy, etc.[5] Ignorance about long-term complications of apparently asymptomatic diabetes and lack of access to quality health services aggravates problem of noncompliance to treatment leading to irreversible disability and death.

The prevalence of diabetes in Kerala is as high as 20%, which is double the national average of 9%.[6] If India is the diabetes capital of world, Kerala is the diabetes capital of India. The high prevalence of diabetes is accompanied by poor detection of diabetes. The control rates of diabetes are even poor. The high-literacy rate in this state does not seem to translate to health literacy for diabetes. With this background community-based study was undertaken in a rural area in Manassery, Kozhikode to understand the treatment-seeking behavior of diabetics. Their health-care expenditure, compliance patterns as well as the reasons for their noncompliance.

Objectives

1. To determine the healthcare-seeking behavior of diabetics.
2. To study compliance pattern to treatment of diabetics.
3. To determine health expenditure incurred for diabetes treatment by diabetic patients.

MATERIALS AND METHODS

The field-based cross-sectional study was conducted at Manassery in Kozhikode district in October 2015 during Community Medicine postings. House-to-house survey was done to identify known diabetic patients. All diabetic patients identified through household survey formed the study population. Known cases of diabetes, residing at Manassery for more than 1 year and ready to give consent were included in the study. Individuals who refused to give consent or could not be interviewed due to severe illness were excluded from the study. Data were collected by in-depth interview of individuals. Pre-designed and pre-tested questionnaire was used for interviewing individuals. Data were entered in Microsoft Excel and statistical analysis was done using SPSS version 16.

RESULTS

Out of the 79 diabetic patients, 38 (48.1%) were men and 41 (51.9%) were women showing slight female preponderance. Out of the 79 diabetic patients interviewed, 63.3% belonged to upper socioeconomic status. The mean age of the study population was 61.51 ± 11.81 years. A total of 51.9% patients suffering from diabetes were retired individuals, sedentary life style, and advanced age may be responsible for diabetes among them. A family history of diabetes was observed in 39.2% of diabetics. Most of the individuals (98.7%) were married. A total of 94.9% of study individuals had some source of income while remaining 5.1% were homemaker. It is observed that 27.8% of the diabetic patients were addicted to either smoking, alcoholism or both. Mean duration of diabetes in the study patient was 10.40 ± 8.60 years (Table 1).

Out of the 79 patients interviewed only 34.1% depended on Government health centers for laboratory investigations and treatment; rest of the study population depended on private institutions because of easy accessibility and better facilities. A total of 82.3% of patients were taking treatment regularly. A total of 78.5% were prescribed with oral antidiabetics, 6.3% were using insulin, and 6.3% were using both oral antidiabetics as well as insulin while remaining 8.9% individuals were able to control diabetes with diet and exercise only. Most individuals (68%) preferred a diabetic diet and 76% of them strictly followed it. Even though 78.5% individuals were aware of the importance of regular physical exercise, only 43% were doing it regularly; rest neglected it because of physical inability and laziness. Among all the interviewed diabetic patients, 67.1% were checking their blood sugar level regularly monthly. The mean total monthly expenditure required for diabetes care was Rs. 1793, which included the cost of drugs, traveling, consultation, laboratory investigations, and hospitalization. The complications of diabetes have led 25% of the patients to restrict some of their activities (Table 2).

Out of 79 individuals majority (69.6%) were having diseases other than diabetes such as hypertension 22.8% (most

Table 1: Sociodemographic and disease profile of study population

Characteristics	*n* (%)
Gender	
Male	38 (48.1)
Female	41 (51.9)
Occupation	
Working	30 (37.9)
Unemployed	4 (5.1)
Homemaker	4 (5.1)
Pensioner	41 (51.9)
Socioeconomic status	
APL	50 (63.3)
BPL	29 (36.7)
Addictions	
Yes	22 (27.8)
No	57 (72.2)
Family history of diabetes	
Yes	31 (39.2)
No	48 (60.8)
Comorbidities	
Yes	55 (69.6)
No	24 (30.4)

APL: Above poverty line, BPL: Below poverty line

Table 2: Healthcare-seeking behavior among study population

Characteristics	*n* (%)
Agency where treated	
Government hospital/clinic	27 (34.1)
Private hospital/clinic	52 (65.9)
Regularity of treatment	
Regular	65 (82.3)
Irregular	14 (17.7)
Type of treatment	
Diet and exercise	7 (8.9)
Oral drugs	62 (78.5)
Insulin	5 (6.3)
Oral drugs+insulin	5 (6.3)
Physical exercise	
Yes	34 (43.0)
No	45 (57.0)

common), dyslipidemia 15.2%, and cardiovascular diseases 7.6%, osteoporosis 2.5%, and rheumatoid arthritis 2.5%. Common complaints or complications with diabetes were multifold, of which decreased vision was the major symptom observed in 57% of diabetics.

The majority of 63 (79.7%) individuals knew that diabetes diagnosis and treatment is free of cost at Government hospitals while 16 (20.3%) did not know that. It was evident that out of 79 diabetic patients interviewed in Manassery, 69.6% were aware of hypoglycemic symptoms.

DISCUSSION

This study shows the healthcare-seeking behavior among people with diabetes in Manassery, Kozhikode. Their mean age was 61.51 years. 63.3% individuals belonged to upper socioeconomic class. Family history of diabetes was seen in 39.2% of the individuals. Only 34.1% patients used Government health facilities. 82.3% individuals were taking treatment regularly. The mean total monthly expenditure required for diabetes care was Rs. 1793. The findings in our study are comparable with a few studies done in developed and developing countries. Comparison of the findings of this study with other studies is difficult as critical literature review showed that no two studies had similar location, sample size, and methodology.

In the present study, out of 79 diabetic patients 41 were females showing slight female preponderance for diabetes. This was also reported by Ramankutty et al.,[7] Makinga and Beke,[3] Abidin et al.[4] In the present study, the mean age for the occurrence of the disease was 61.5 years. Similar age distribution was reported by studies conducted in urban elderly population.[6,8,9]

In the present study, the majority of participants (51.9%) were retired individuals which is more than 13.3% reported by Akari et al.[10] while the Malaysian study showed 15.2% of the pensioners among diabetics.[4] Most of diabetic individuals in this study 63.3% belonged to upper class. In contrast to the observation of our study Hjelm and Atwine.[11] in a study done in Uganda showed higher incidence of diabetes in lower socioeconomic class.

In the present study, family history of diabetes mellitus was observed in 39.2% of patients which is in line with 36% patients with family history of diabetes mellitus reported by Khongbuh et al.[12] but is much <55% and 54.3% positive family history reported by Valliyot et al.[9] and Abidin et al.,[4] respectively.

In our study, 27.8% of the individuals were addicted to smoking and alcohol. Similar observation is reported by Mookambika et al.,[13] Valliyot et al.,[9] and Mangaiarkkarasi et al.[14]

Out of the 79 diabetic patients, 82.3% took treatment regularly which is more than 74% regular treatment reported in the study done at Kulashekharan[13] and <85% reported in study conducted at Pondicherry.[14] The reasons for not taking treatment were financial constraints and lack of nearby health facility. Study done in Malaysia has shown similar reasons for not taking treatment regularly.[4]

In the present study, 82% people took regular treatment; 67% of them had regular monthly checkups. Study done by Khongbuh et al.[12] in village of Dhanas, U.T, Chandigarh reported that even though 93% of individuals were on regular treatment only 20% diabetics had monthly checkup.

In the present study, 78.5% individuals used oral antidiabetics while 6.3% were on insulin. The study done by Hjelm and Atwine[11] revealed use of oral hypoglycemic agents by 13% and insulin use by 4% of the individuals.

The majority (65.9%) of the diabetics in this study visited a private hospital for obtaining treatment for diabetes, remaining 34.1% visited government hospital. A similar study done in Chandigarh reported that 53.3% of patients preferred private health agencies for treatment for diabetes.[12] Study done in Malaysia has shown that 82% patients took medication from government hospitals or clinics as there is good network of public health services in that country.[4]

The mean total monthly expenditure required for treatment was Rs. 1793 which included cost of drugs, traveling, consultation, laboratory investigations, and hospitalization. Ramachandran et al.[6] reported total annual median expenditure of diabetic individuals as Rs. 10,000 in urban and Rs. 6260 in rural area. The treatment cost increased with duration of diabetes, presence of complications, hospitalization, surgery, and insulin therapy, etc. In the study of Zhuo et al.,[15] the annual medical spending for people with diabetes was $13966 which was almost double the medical expenses of people without diabetes. In our study, 69.6% of the individuals had comorbidities associated with diabetes. A study by Abidin et al.[3] and Kapur et al.[8] reported comorbidities in 61.5% and 58% of the participants, respectively.

In the present study, 78.5 % of diabetics were aware of benefits of physical exercise but only 43% exercised regularly. In the study of Basotho,[3] 82% of individuals were aware of the benefits of the exercises and 58.3% of them were practicing it regularly.

Small sample size and cross-sectional design of study are the main limitations of study and so that results cannot be generalized.

CONCLUSION

This study has shown that appropriate healthcare-seeking behavior among diabetic patients in Kerala is still less than that in developed countries. On the other hand, it is better than that reported by similar studies conducted in India. Diabetic patients have to spend significant amount for traveling, consultation, and laboratory investigations along with expenditure for drugs and hospitalization.

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