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Self-care practices among type II diabetics attending primary health centre, Thiruvallur district, Tamil Nadu

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ABSTRACT

Background: Increasing prevalence of diabetes in India is resulting in an epidemiological transition. The care of the people with diabetes is traditionally seen as doctor centered, but the concept of self-care of people with diabetes is a new domain and is proven beneficial in averting long term complications. A diabetes self-care activities measure, together with glycaemic control, can provide essential data for clinicians, diabetes educators, and patients to evaluate and modify treatment. The objective of the study was to determine the practice of self-care activities among people with diabetes attending primary health centre.

Methods: A facility-based cross-sectional study was conducted in primary health centre, Tiruvallur health unit division during July–September 2016. A total of 308 patients with >1 year duration of diabetes mellitus (DM) were asked to respond to summary diabetes self-care activities questionnaire after obtaining the consent from them and analysed by proportions.

Results: A healthy eating plan on a daily basis was followed by 76.9% (237/308) of the participants, daily exercises for 30 min were followed by 57.1% (176/308), and regular blood sugar monitoring was done by 84.1% (259/308). Regarding the adherence to oral hypoglycemic agents and insulin, daily adherence to medication was seen among 89.7% (226/252) and 75% (42/56) were found to be adherent to insulin injections on a daily basis.

Conclusions: Self-care practices were found to be unsatisfactory in fruit and vegetables intake and foot care especially drying in between toes and inspecting inner surface of shoes. Realizing the multi-faceted nature of the problem, a systematic, multipronged and an integrated approach is required for promoting self-care practices among diabetic patients to avert any long-term complications.

Keywords: Type II diabetes mellitus, Self-care, Cross sectional study

INTRODUCTION

Diabetes is characterized by a state of chronic hyperglycemia resulting from several environmental and genetic etiologies acting jointly. The prevalence of the diabetes is increasing at an alarming rate particularly in developing countries. Estimate of global diabetes prevalence predict 8.8%, affecting 422 million adults in

2016, and will increase to 10.4% and 642 million adults by 2040.¹ India harbors the largest number of diabetic patients in the world. The International Diabetes Federation (IDF) reported that the total number of diabetic subjects in India is 69.2 million in 2015 and that this would rise to 87 million by the year 2030.² Increased prevalence in India is attributed to the lifestyle transition coupled with urbanization, industrialization.³ Diabetes is

also a major risk factor for cardiovascular disease, stroke, and kidney failure.

Diabetes self-care activities are behaviors undertaken by people with or at risk of diabetes in order to successfully manage the disease on their own. There are seven essential self-care behaviors in people with diabetes which predict good outcomes. These are healthy eating, being physically active, monitoring of blood sugars, taking regular medications, good problem-solving skills, healthy coping skills and risk-reduction behaviors, all of which have been reported to be positively correlated with glycaemic control, reduction of complications and improvement in quality of life.⁴ In the Indian socio cultural scenario, it has been reported that adherence to treatment regimens is very poor due to poor attitude towards the disease and poor health literacy. Poor access to drugs, high cost, unequal distribution of health providers between urban and rural areas and cultural barriers further hamper self-care activities in developing countries such as India. This study was planned to estimate the existing self-care practices among adult patients with diabetes attending primary health centre as a self-management baseline for initiating good programmes.

Objectives

To determine the practices of self-care activities among people with diabetes attending primary health centre.

METHODS

A facility based Cross sectional study was conducted among diagnosed type-2 DM patients with duration of illness of minimum 1 year attending Primary health centre in Tiruvallur during the period between July and September 2016. Based on the prevalence of self -care activities (45%) in diabetic patients, a sample size of 308 was calculated considering a power of 80%, confidence level of 95% and an absolute precision of 6%. The participants were selected using convenient sampling. After obtaining permission from necessary authorities and informed consent from study participants, the information regarding self-care activities among patients with diabetes was collected using the revised version of summary diabetes self-care activities questionnaire (SDSCA).⁵ The revised SDSCA consists of five components on diet, exercise, blood sugar testing, foot care and smoking. In addition to these items, medication practices are included. Under each section, the participants are asked to respond in past seven days how often they are able to practice the self-care behaviors. Based on their responses, the scoring is done on an ordinal scale of 0-7. The pattern was uniform for all aspects, except blood sugar testing for which the timeframe was taken for past 3 months. Apart from the self-care aspects, information related to sociodemographic characteristics of the participants such as age, gender, marital status, literacy level, alcohol

consumption, socio-economic status, random blood sugar etc., were included in the instrument. Participants with the random blood sugar <180 mg were considered to be under glycaemic control. The socio-economic status of the participants was calculated using B. G. Prasad scale (2016). Current drinking was defined as drinking at least one drink of an alcoholic beverage during the past 30 days of the study. Data was analysed by proportions and Chi square was used to find the association between glycaemic control and variables such as blood glucose monitoring, family history of DM, education and duration of DM.

RESULTS

Among the 308 patients with diabetes included in the study, 47.1% (145/308) were males compared to females 52.9% (163/308). The mean age of the study participants was found to be55.6 (10.4) years. Most of the subjects 188 (61%) were illiterate and had duration of DM<10 years 81.5% (251/308). The socio-demographic details of the study participants are shown in Table 1.

Table 1: Socio-demographic characteristics of study participants.

Variables	No.	Percentage (%)
Age	_	
<40 years	22	7.1
>40 years	286	92.9
Sex		
Male	145	47.1
Female	163	52.9
SE status*		
I	38	12.3
II	97	31.5
III	90	29.2
IV	53	17.2
V	34	9.7
Family H/O DM		
Both parents	7	2.3
Single parent	121	39.3
No	180	58.4
Education		
Illiterate	188	61
Literate	120	39
Occupation		
Dependant	11	3.6
Daily wages	60	19.5
Employee	47	15.3
Business	4	1.3
Agriculture	30	9.8
Retired	33	10.7
Home maker	123	39.9
Alcohol consumption	_	
Current drinker	22	7.1
Past drinker	66	21.4
Never	220	71.4

Age of onset of DM		
<40years	62	20.1
≥40years	246	79.9
Duration of DM	_	
≤10years	251	81.5
>10 years	57	18.5
Blood glucose		
monitoring (once in 3m)	_	
Yes	259	84.1
No	49	15.9
Glycaemic control		
Yes	209	67.9
No	99	32.9

Table 2: Practice of diabetic self-care components among study participants.

Self care component	n (%)
Following healthy eating plan on all days of the week	237 (76.9)
Incorporating fruits /vegetables in the diet on all days of the week	18 (5.8)
Consumption of high fat diet on all days of the week	5 (1.6)
Atleast 30min of daily activity on a daily basis on all days of the week (exwalking)	176 (57.1)
Specific exercise session apart from the routine physical activity on a daily basis	57 (18.5)
Blood sugar testing atleast for once in 3 months	233 (75.6)
Adherance to oral hypoglycaemic agents on all days of the week (n=252)	226 (89.7)
Adherance to insulin injection on all days of the week (n=56)	42 (75)
Washing feet on all days of the week	228 (74.1)
Drying in between the toes on all days of the week	113 (36.7)
Examining feet on all days of the week	255 (81.5)
Inspecting the inner surface of shoes on all days of the week	61 (19.8)
Smoking (even one puff) in the past seven days	50 (16.2)
≤10 cigarettes per day	37
>10 cigarettes per day	13

Among the study participants, 76.9% (237/308) had a healthy eating plan for all days of the week (Table 2). Whereas, only 5.8% (18/308) participants consumed fruits/vegetables on all days of the week and 1.6% (5/290) participants consumed high fat diet on all days of the week.

Regarding the physical activity component, of the participants 57.1% (176/308) practiced a physical activity of at least 30 min on all days of the week. A separate

exercise session apart from their day to day physical activities was carried out by 18.5% (57/308) participants.

A total of 252 participants were on oral hypoglycemic agents (OHAs), among them adherence to OHAs on all days of the week was practiced by 60.5% (226/252) of study participants. Among the participants who were on daily insulin injections (n=56), adherence to insulin injections on all days of the week was followed by 75% (42/56) of them. A high proportion of our study participants 75.6% (233/308) underwent blood sugar testing at least once in past 3 months.

Most of the study participants 74.1% (228/290) washed their feet daily. Among them 36.7% (113/308) dried between their toes daily after washing and 81.5% (255/308) participants checked their feet on all days of the week and only 19.8% (61/308) participants examined the inner surface of their shoes on all days of the week.

Table 3: Association between glycaemic control and certain variables.

Vowiahlas	Glyca	emic control	X^{2} (p
Variables	Yes	No	value)
Duration of DM			
<10 Years	174	77	3.09 (>0.5)
≥10 Years	35	21	3.09 (>0.3)
Education	_		
Illiterate	124	64	0.7 (>0.5)
Literate	85	35	0.7 (>0.3)
Family h/0dm			
Yes	86	42	0.04 (>0.5)
No	123	57	0.04 (>0.3)
Blood glucose			
monitoring			
Yes	178	81	0.5 (>0.5)
No	31	18	0.5 (>0.5)

Among 308 study participants, 67.9% (209/308) were under glycaemic control and 83.2% (174/308) of participants under gyycaemic control were having diabetes duration less than 10 years. The association between glycaemic control and variables like duration of Diabetes, education, family history of DM, blood glucose monitoring was found insignificant (Table 3).

DISCUSSION

The present study was done to assess the practice of diabetes self-care activities among patients attending a primary care hospital. About 76.9% of the study participants follows a healthy diet plan regularly on all days of the week. Similar findings were observed by Padma et al.⁶ The importance of following a regular dietary plan in terms of both quantity and quality lies in the fact that adequate blood sugar control and proper weight management are linked to it. Also, about 5.8% of study participants only included vegetables and fruits in

their diet on all days of the week where as a study done by Gopichandran et al and Rajasekharan et al showed only 26% consume fruits and vegetables regularly in their diet. 7,8 This low consumption in our study could be due lack of awareness about the importance of fruits and vegetable intake and also due to their mis-perception that fruit intake will increase blood sugar levels. The World Health Organization (WHO) recommends a minimum of 400 g of fruit and vegetables per day. Adequate intake of fruits and vegetables not only helps in better control of blood sugar levels but also keeps at bay complications such as cardiovascular diseases, stroke, gastrointestinal tumors, etc. ⁹ Better awareness in this direction is essential for patients with diabetes and hence more efforts should be made for this component. However, it was encouraging noting that very few participants consumed high-fat diet (1.6%) on all days of the week. Similar findings were observed in a study by Gopichandran et al.⁷ Consumption of diet rich with fats, especially unhealthy fats such as saturated and trans fats is a major risk factor for cardiovascular events such as arteriosclerosis, myocardial infarction and stroke. The risk of cardiovascular disease is more among people with DM. Hence, it is important to stress upon this aspect of dietary self-care behaviors for all the patients with diabetes.

The physical activity component of self-care activities appeared to be practiced poorly among our study participants, as only 57.1% of them did a 30 min exercise every day and 18.5% carried out a separate exercise session apart from daily exercise. Similar findings were observed in studies conducted in India and abroad. Regular exercises are recommended for people with diabetes as they have got many beneficial effects like better blood sugar control, reduction in insulin resistance, better control of blood pressure levels and cardio protective action. More stress should be placed on the physical activity component of diabetes self-care education.

More than three-fourth of our study participants (75.6%) checked blood sugar levels at least once in 3 months. Similar findings were observed in studies conducted elsewhere. 7,9,10 Regular monitoring of blood sugar levels is vital in the management of diabetes, as it helps in assessing the effectiveness of the ongoing treatment regimen of the patient. Blood glucose monitoring at home is not prevalent in the study area, and thus assessment of practice of home blood glucose level monitoring was not done in our study. Adherence to oral hypoglycemic drugs (89.7%) and insulin injections (75%) was found to be high among our study participants. The adherence rates to pharmacotherapy in our study is consistent with the study conducted by Gopichandran et al in which an adherence rate of 79% was identified. This finding may be due to repeated health education messages given by heath care professionals as strict adherence to medications will prevent or minimize acute or chronic complications of diabetes.

The practice of washing of feet every day (74.1%) and examining feet (81.5%) were found in the majority of our study participants. This finding is in contrast to a study done in Pakistan in which only 20% of the participants practiced washing feet on a daily basis and 17% inspected feet daily. 11 This difference may be due to the practice of frequent washing of feet in India due to religious and cultural reasons. However, the practice of other important aspects of foot care, such as drying in between toes and inspection of inner surface of shoes for any discharge were found to be low among our study participants which is consistent with findings observed in studies conducted in Pakistan and Srilanka. 11,12 The practice of foot care components is essential for the prevention of foot ulcers and subsequent development of a gangrenous lesion that can lead to limb amputations thus resulting in increased disability and handicap. A study done in Tanzania found those who received foot care advice from doctors were more likely to practice foot care than who hadn't received advice. 13 This fact should alert the doctors treating diabetes in primary care set up to have interest in evaluating patients feet as routine which has positive effect on patients foot care practices.

The association between glycaemic control and variables such as duration of diabetes, education, blood glucose monitoring, family history of DM was not significant which is not consistent with study finding done in Bangalore. Therefore the needs of diabetic patients should not be limited to adequate glycaemic control instead focus on self-care practices which have been found to be positively correlated with good glycaemic control, reduction of complications and improvement in quality of life.

Limitations of this study include first, the use of RBS values to decide the glycaemic control. HBA1c value to determine blood sugar control was not used as most of the subjects could not afford the test. Second, our study was cross-sectional and a purely hospital-based study. Subjects included were those who attended the outpatient clinic at the primary health centre. There could be a larger population of diabetic patients in the community who have not been to hospital for a follow-up visit, and with varying glycaemic control. Third, our sampling was convenience based.

CONCLUSION

To prevent diabetes related morbidity and mortality, there is an immense need of dedicated self-care behaviors in multiple domains, including food choices, physical activity, proper medications intake and blood glucose monitoring from the patients. Though multiple demographic, socio-economic and social support factors can be considered as positive contributors in facilitating self-care activities in diabetic patients, role of health care professionals in promoting self-care is vital and has to be

emphasized. Realizing the multi-faceted nature of the problem, a systematic, multipronged and an integrated approach is required for promoting self-care practices among diabetic patients to avert any long-term complications.

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Institutional Ethics Committee

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