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A STUDY TO EVALUATE SELF-FOOT CARE BEHAVIOUR IN INDIAN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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ABSTRACT

BACKGROUND: The benefits of self-foot care management are well recognized in type 2 diabetes subjects. However, a substantial proportion of patients don't perform self-foot care assessment at all. We aimed to enumerate the barriers to self-foot care management in Type 2 Diabetes Mellitus (T2DM) patients and factors associated with these barriers.

METHODOLOGY: A cross-sectional study of successive 600 type 2 diabetes patients attending routine out-patient diabetes clinics in tertiary care hospitals in Kolkata, India from 1st June 2018 to 31st March 2019.Besides demographic details, patient particulars, laboratory investigations, the questionnaire included 2 direct questions on possible barriers to self-foot care management. The questions were grouped into five categories viz. environmental (4 questions), behavioral (9 questions), occupational (2 questions), physical inability (7 questions) and medical reason (1 question).

RESULTS: An overwhelming 60% of the study population have more than one barrier to self-foot management. A larger proportion of females (69.9%) were not taking self-foot care management compared to their male counterparts (55.5%). Around one-third of the male participants cited lack of time as a major barrier to self-foot care management. Around 40% females reported lack of foot care education and training as the major obstacle to self-foot care management.

CONCLUSION: This study elaborates the need for awareness regarding possible barriers when counseling T2DM patients. Behavioral causes seem to be the commonest barrier to self-foot care management and hence strategies to target the same needs to be thought of.

KEYWORDS : Diabetic Foot, Self-care, India

INTRODUCTION:

The vast majority of people with diabetes, around 80 %, live in 'developing' countries, and it is in these countries that the largest increases in the burden of diabetes will occur over the coming decades.[1] Diabetic foot problems are a major cause of morbidity and premature mortality in people with diabetes and contribute substantially to the health care costs associated with diabetes.[2–4] Interventions to reduce the burden of diabetic foot ulceration and amputation are estimated to be highly cost-effective, indeed cost saving, in both developed and developing country settings.[5,6] The challenge, particularly in less well-resourced health care systems, is how to implement effective foot care that realizes these potential health gains and cost savings.[7-10]

Studies aimed at finding these barriers to self-foot care management are scarce, especially in the Asian subcontinent. Moreover, most of the available studies have targeted a small population of patient with DM. With that in mind, this study was devised with a goal to describe the possible barriers to self-foot care management, in an Indian context.

OBJECTIVES/AIMS:

1. To enumerate the barriers to self-foot care management in Type 2 Diabetes Mellitus (T2DM) patients.
2. To enumerate the relationship of the most common barriers to age, sex, lifestyle and duration of diabetes.

RESEARCH DESIGN & METHODOLOGY:

All patients attending the Diabetes clinic in tertiary care hospital in Kolkata, India during the time 1st June,2018 to 31st March 2019 were approached. Exclusion criteria included:

(i) Refusal to provide written informed consent
(ii) Pre-existing physical disability requiring long-term support
(iii) Type 1 Diabetes Mellitus
(iv) Pregnancy
(v) Patients below age of eighteen
(vi) Recent hospital admission for any cause within the last 6 months
(vii) Any documented psychiatric illness likely to impair judgment

Consecutive patients attending diabetes clinic in the hospitals were approached and briefed about the study. Following written informed consent, willing candidates fulfilling our criteria were interviewed by diabetes care providers using a structured questionnaire available in English, Bengali and Hindi. The questionnaire was devised from but not limited to a systematic review of similar studies(6) tailoring it to circumstances relevant to our regional population. They were offered 23 direct questions on possible barriers to self-foot care management. The responses were grouped into 5 categories viz.

(i) Environmental (4 question)
(ii) Behavioral (9 question)
(iii) Occupational (2 question)
(iv) Physical Inability (7 question)
(v) Medical reasons (1 question)

The questionnaire also included demographic details, patient particulars (BMI, duration of T2DM, Insulin or anti-hypertensive use) and recent laboratory investigations (HbA1c, Fasting and Postprandial glucose levels).

STATISTICAL METHODS:

Descriptive statistical analysis has been carried out in the present study. Significance is assessed at a level of 5%. Results on continuous measurements are presented as Mean ± SEM and results on categorical measurements are presented in Number (%). Significance is assessed at a level of 5%.

The following assumptions were made of the data: 1) Cases of the samples should be independent, 2) The populations from which the samples are drawn have the same variance (or standard deviation) and 3) The samples are drawn from different populations are random. Normality of data was tested by Anderson Darling test, Shapiro-Wilk, Kolmogorov-Smirnoff test and visually by QQ plot.

STATISTICAL SOFTWARE:

The Statistical software namely Statistical Package for Social Sciences (SPSS Complex Samples) Version 21.0 for windows, SPSS, Inc., Chicago, IL, USA were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs and tables.

RESULTS:

A total of 600 patients were included in our study. The demographic and clinical variables of the patients are shown in Table1.

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Table 1 Study Sample Characteristics

Clinical Profile Variables	
Age, Mean ± SD	52.39 ± 11.49
BMI, Mean ± SD	26.81 ± 3.31
Duration of Diabetes, Mean ± SD	10.68 ± 6.52
Hypertension, %	200 (33.33%)
Smoking, %	200 (33.33%)
Ex-smoker, %	102 (17%)
Alcoholic, %	49 (8.17%)
Ex-Alcoholic, %	109 (18.16%)
Anti-diabetic Drug Intake-Insulin & Orals, %	135 (22.5%)
Anti-diabetic Drug Intake-Oral agents, %	409 (68.17%)
Married, %	402 (67%)
Family History of Diabetes, %	344 (57.33%)

Table 2: Gender wise barriers to self-foot care management:

Parameters-Category (Total N)		Top 5 Barriers	N (%)
Gender	**Male (N=300)**	Lack of Time	108 (36%)
		I don't know how to take care	68 (21%)
		Lack of motivation	56 (18.67%)
		Barefoot walking is common in my place	44 (14.67%)
		I cannot afford to buy shoes	24 (8 %)
	Female (N=300)	I don't know how to take care	94 (31.33%)
		I have a problem reaching my foot	76 (25.33%)
		I cannot afford to buy shoes	66 (22%)
		I don't think it is important to take care of foot	40 (13.33%)
		Lack of Time	24 (8%)

We tried to explore the barriers to the self-foot care amongst our study participants. In the male subgroup, amongst all the reported barriers, the most commonly identified barrier for not being able to take care of the feet is lack of time which has been reported by 108 study participants (36%). In the female sub-group, the most common barrier which was reported by 94 (31.33%) of the study participants was that the patients were not able to take care of their feet due to lack of training and education. This was followed by a third most common barrier 66 (26.4%) primarily due to musculoskeletal problem due to which the patients found it difficult to reach their feet and to perform foot care accordingly. The fourth most common barrier reveals that 72 of the study participants don't know how to take care of their foot which is primarily due to lack of education and proper training wither by the treating clinician or by the paramedical staff. The next barrier 66 which was sited is the lack of ability to buy expensive shoes, particularly in the female sub-group. On further exploratory analysis, most of the females reported that as they were financially dependent on their husband, it is difficult for them to convince their husband to generate fund for buying of the expensive diabetic shoes. The next most common barrier which was reported by males was lack of motivation. As considerable amount of time has to be spent on adequate self-foot care management on regular basis, it was found to be started by most of the study participants, but it was waned gradually in the long run. This was particularly highlighted in the male sub-group as compared to the female sub-group. The next common barrier reported by the male subjects is that bare foot walking is quite common in their place and it was found to be one of the reasons for inflicting injuries to the feet and further diabetic foot complications. Another barrier which was reported by 39 out of 300 females was that they don't think it is important to take care of their foot. When we have interviewed and conducted a case study we found that most of the women reported that there is much important work to perform in their day to day work rather than sitting and spending so much of time in taking care of their feet. The fifth most common reason cited by the females is that they also don't have time to take care of their feet due to competing priorities. (Table 2)

DISCUSSION:

Although studies highlighting barriers to self-foot care management in T2DM come up from time to time, to our knowledge this is one of the largest studies addressing the barriers to self-foot care management in T2DM patients.

Foot conditions are highly prevalent amongst diabetic patients. Globally the lifetime risk of a diabetic patient developing a foot ulcer is 15%. They potentially result in decreased function and quality of life for patients. They result in either loss of limb and loss of life and diabetes is by far the leading cause of amputation in the developed world. Such negative outcomes are preventable. To a large extent, these negative outcomes occur due to late diagnosis and improper diabetic foot care. In fact, the majority of people with diabetes do not receive or practice the foot care recommended by current guidelines.[11-14]

The present study is the first of its kind to enlighten on the perceived barriers to self-foot care in the Indian population. Our study results confirm that self-foot care is low in the Indian T2DM diabetes population, with an overwhelming 80% of the study population have more than one barrier to self-foot management. A larger proportion of females (69.9%) were not taking self-foot care management compared to their male counterparts (55.5%). Around one-third of the male participants cited lack of time as a major barrier to self-foot care management. Around 40% females reported lack of foot care education and training as the major obstacle to self-foot care management.

LIMITATIONS OF THE PRESENT STUDY:

All the patients did not have HbA1C done at the time of survey and hence correlation of self-foot care management with good glycemic control could not be done.

STRENGTH OF THE PRESENT STUDY:

On the other hand, the interview-based design ensured more complete response for this study. Participants were offered the chance to discuss the questionnaire with the care providers before they filled in the form.

CONCLUSION:

This study elaborates the need for awareness regarding possible barriers when counseling T2DM patients. Behavioral causes seem to be the commonest barrier to self-foot care management and hence strategies to target the same needs to be thought of.

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