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### **Knowledge and Practice of Foot Care Among Patients With Type II Diabetes Mellitus Attending Urban Health Centres**

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#### **ABSTRACT**

Diabetes, a global escalating public health problem, primarily because of the increasing prevalence. Both macro vascular and micro vascular complications cause significant morbidity and mortality among diabetic subjects. Lower limb amputations in patients with diabetes are preceded by a foot ulcer, there are no studies in the literature which assess the current level of awareness of diabetic foot care in diabetic patients. Hence, the present community based study is conducted with the objective of assessing the knowledge and practice of foot care among patients with type II diabetes mellitus attending urban health centres.

This community based cross-sectional study was done among 270 people more than 25 years of age with a diagnosis of diabetes mellitus. The study period was between October to November 2017 residing in an slum under urban field practice area administrated by Medical College in north Karnataka, using predesigned and pretested questionnaire. Statistical analysis was done by using percentages and chi square test.

Out of 270 study participants, 130 (48%) suffered for more than 4 years duration, 51.89% were aware about proper foot care practices. majority (94%) said that they are regularly taking their anti diabetic medications. Sixty three percent of study participants said that they regularly monitor blood glucose level. About foot care 57% of participant told that they regularly inspect their feet and 96% told that they daily wash their feet to avoid foot ulcer. About trimming toe of nails and fingers, 95% participants said that they practice it. Among the study participants 66% told that they are aware of they should not walk bare foot and only 30 % told that protection of feet should be done from extremities of temperature.

In this study awareness about foot care measures is poor among known diabetic patients and needs better education about the disease. This can be achieved by strengthening the information, education and communication (IEC) activities. There is an urgent need of training programmes for doctors to educate and raise awareness regarding identifying risk factors and managing complicated foot ulcers.

**KEY WORDS:** Diabetes mellitus, Knowledge, Urban health centre

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## **INTRODUCTION**

Diabetes, a global escalating public health problem, primarily because of the increasing prevalence, is estimated to affect 285 million individuals worldwide.<sup>1</sup> Approximately 90% have type 2 diabetes mellitus and causes hundreds of billions of dollars of economic damage each year. Global estimates for the year 2030 predict a further growth of almost 50%.<sup>2</sup> Type 2 diabetes mellitus is a complex and pleomorphic metabolic disorder, characterized by defects in insulin secretion and insulin action which lead to hyperglycemias.<sup>3</sup> Diabetes mellitus is a complex metabolic disease that can have devastating effects on organs of the body.<sup>4-5</sup> Diabetes mellitus is associated with slowly progressive end-organ damage in the brain. Both macro vascular and micro vascular complications cause significant morbidity and mortality among diabetic subjects.<sup>6</sup> Among the complications of diabetes, lower limb amputation is considered to be potentially preventable.<sup>7</sup> Most lower limb amputations in patients with diabetes are preceded by a foot ulcer, whose risk factors apart from PVD and PN, are barefoot walking, inappropriate footwear, poor foot hygiene and delay in seeking medical attention. These non-traditional risk factors can be modified if identified early, and if patients have adequate knowledge of foot care and put that knowledge into practice.<sup>8</sup>

It is need of hour to increase public awareness about diabetic foot in the forms of health education, health campaign and public service advertisement by primary health care workers. However there are no studies in the literature which assess the current level of awareness of diabetic foot care in diabetic patients. Hence, the present community based study is conducted with the objective of assessing the knowledge and practice of foot care among patients with type II diabetes mellitus attending urban health centres.

## **MATERIALS AND METHODS**

The present study was carried out in Urban Health Centres, Ashok Nagar and Rukmini Nagar of Belagavi City which are the urban field practice area of department of community medicine, Jawaharlal Nehru medical college, Belagavi. This is a community based cross sectional descriptive study which included 270 people more than 25 years of age with a diagnosis of diabetes based on the American Diabetes Association (ADA) criteria. The study period was between October to November 2017. Patient's demographic data were collected for the purpose of analyzing the factors that were associated with knowledge and practice of diabetic foot care. Information such as age, gender and the duration since diagnosed with diabetes mellitus were collected together with educational levels. The study included new and follows up patients. Informed consent was taken from all the patients. Data was collected from total 270 patients who were suffering from diabetes and who had attended OPD of urban health centres. The information gathered using semi structured questionnaire, which included 18 questions related to knowledge about diabetes and good foot care practice in the areas of

feet washing techniques, skin and nail care and foot wear. These questions were based on foot care practices advised by ADA as part of the National Diabetes Education program. The data was tabulated using MS Excel sheet and analysis was done using percentages, rates and ratios.

## **RESULTS**

The present study was conducted among 270 diabetic patients attending the Urban Health Centres of Ashok Nagar and Rukmini Nagar, Belagavi. Of the 270 participants, 100 (37%) were male and 170 (63%) were female. 28(10%) participants were between age group 25 to 45, 72 (27%) were between 45 to 55years, 170 (63%) were more than 55 years. 86 (32%) were illiterate, 125 (46%) schooled between 1 to 10 standard, 31 (12%) between 11 to 12 standard, 28 (10%) were graduate and more than half of the participants were sedentary workers 169(62%) (Table 1) .In the present study, among 270 participants, 45 (17%) suffered diabetes mellitus for less than a year, 58 (21%) suffered between 13-24 months, 37(14%) suffered between 25-36 months, and 130 (48%) suffered for more than 3 years duration (Table 2). In the present study, among 270 participants, 45 (16.7%) were on sulfonylurea, 119 (44.07%) were on biguanides, 3 (1.1%) were on DPP4i inhibitor, 91(33.7%) were on combination of 2 to 3 drugs, 12(4.4%) were on insulin (Table 3). In the present study, among 270 participants, 6% have history of ulcer over the foot which took more than 2 weeks to heal while 94% have no such history (Table 4). Of the participants interviewed, 130 (48%) suffered for more than 4 years duration, 94% of the participants had no history of ulcer over the foot which took more than 2 weeks to heal and only 51.89% were aware about proper foot care practices. In this study among the study participants majority (94%) said that they are regularly taking their anti diabetic medications. Sixty three percent of study participants said that they regularly monitor blood glucose level. When asked about foot care 57% of participant told that they regularly inspect their feet and 96% told that they daily wash their feet to avoid foot ulcer. When asked about trimming toe of nails and fingers, 95% participants said that they practice it. In this study among the study participants 66% told that they are aware of they should not walk bare foot and only 30 % told that protection of feet should be done from extremities of temperature. Twenty percent of study participants told that miniaturization of feet should be done. In this study 63% of participants told that they know that they should dry well in between their toes. In our study only a small part of participants ( 23% ) are aware about the need of special shoes for foot ulcer patients and only 17% use to wear slippers/shoes both indoors and outdoors. In this study majority of diabetic patients knew that they should not smoke and only 55% of participants knew about the importance of exercise for sugar control. (Table 5)

## **DISCUSSION**

In this community based cross sectional study only 57% of participants inspected their feet daily which not an encouraging scenario and will likely lead too many avoidable complications, related to diabetic foot ulcers, occurring in diabetic participants. In a study conducted by Shyam Kishore et al showed that Less than 1 in 10 patients inspected their feet daily.<sup>9</sup> Diabetes foot care knowledge and practice have been found lacking to varying extents in other studies from India.<sup>10,11,12,13</sup> There was an increase in awareness of foot care with an increasing duration of diabetes. Patients with a higher foot care score had a higher educational level. This too was similar to other studies.<sup>11</sup> When asked about trimming toe of nails and fingers, 95% participants said that they practice it. In this study among the study participants 66% told that they are aware of they should not walk bare foot and only 30 % told that protection of feet should be done from extremities of temperature. In a study conducted by Chiwanga and Njelekela found that cutting toenails and fingers with sharp instruments (e.g., razor blade or knife) were performed by over 80 % of study patients.<sup>14</sup> In our study among the study participants 66% told that they are aware of they should not walk bare foot comparable with observation made by Dikeukwu RA et al that 82% respondents did not walk bare foot.<sup>15</sup> Similarly, Lutfi ARM et al, also mentioned in his study that 77.1 % patients did not walk bare foot.<sup>16</sup> In our study only a small part of participants ( 23% ) are aware about the need of special shoes to prevent foot ulcer and 57 % of participants had the knowledge of inspection of the inside of the footwear before wearing them to prevent leg trauma which was similar to study conducted by Sutariya PK et al in which only one fourth of the participants were aware about the importance of proper and comfortable footwear and nearly 43% of the participants were having the knowledge of inspection of the inside of the footwear before wearing them to prevent leg trauma.<sup>17</sup> Both of these were found significantly higher (70%) in the study done by Lutfi ARM et al.<sup>16</sup>

## **CONCLUSION**

In this study awareness about foot care measures is poor among known diabetic patients and needs better education about the disease. This can be achieved by strengthening the information, education and communication (IEC) activities. There is an urgent need of training programmes for doctors to educate and raise awareness regarding identifying risk factors and managing complicated foot ulcers. Foot care services should be incorporated among other routine services which are provided in health care facilities so that early identification of risk factors for foot ulcer can be done and we can improve patients' knowledge about foot self-care practices.

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**Table No 1: Distribution of study participants according to their Socio-demographic characters**

Socio-demographic characters		Number	Percentage
SEX	Male	100	37
	Female	170	63
AGE ( years)	25-44	28	10
	45-54	72	27
	55 and above	170	63
EDUCATIONAL STATUS	Illiterate	86	23
	1-10 std	125	46
	11-12 std	31	12
	Graduate	28	10
OCCUPATION	Heavy Worker	10	04
	Moderate Worker	91	34
	Sedentary Worker	169	62

**Table 2: Distribution of Study Participants According To Duration of Diabetes:**

Duration Of Diabetes	Number	Percentage
≤12 Months	45	17
13 – 24 Months	58	21
25 – 35 Months	37	14
36 Months And Above	130	48
<b>Total</b>	<b>270</b>	<b>100</b>

**Table 3: Distribution of Study Participants According To the Class of anti Diabetic Drug Taken:**

Class of anti diabetic drug	Number	Percentage
Sulfonylurea's	45	16.7
Biguanides	119	44.07
Dpp4i Inhibitors	3	1.1
Combination Of 2-3 Drugs	91	33.7
Insulin	12	4.4
<b>Total</b>	<b>270</b>	<b>100</b>

**Table 4: Distribution of Study Participants According To History of Foot Ulcer:**

History Of Foot Ulcer	Number	Percentage
Yes	17	6
No	253	94
<b>Total</b>	<b>270</b>	<b>100</b>

**TABLE 5: AWARENESS REGARDING DIABETES AND DIABETIC FOOT CARE:**

Sl. No	Response To Question(Awareness About)	Number	Percentage
1.	Regularity With Medications	254	94
2.	Regular Blood Glucose Check Up	170	63
3.	Daily Inspection of Feet	154	57
4.	Daily Washing of Feet	259	96
5.	Trimming of Toe Nails & Filings of Nails	257	95
6.	Do You Know You Shouldn't Walk Barefoot?	178	66
7.	Protection of Feet From Extremes Of Temperature	81	30
8.	Moisturization of Feet	54	20
9.	Do You Know That You Should Dry Well In Between Your Toes?	170	63
10.	Special Shoes For Foot Ulcer Patients	62	23
11.	Do You Wear Shoes/Slippers Both Indoors & Outdoors?	46	17
12.	Do You Know That You Shouldn't Smoke?	262	97
13.	Crossing of Legs	230	85
14.	Regular Exercise	148	55