

A Study To Explore The Perceived Barriers In Foot Care and To Assess The Foot Care Practice Among Diabetic Patients Undergoing Treatment At A Selected Hospital In Mysuru With A View To Conduct A Demonstration Program On Foot Care

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ABSTRACT: This study has been undertaken to explore the perceived barriers in foot care and to assess the foot care practice among diabetic patients undergoing treatment at a selected hospital in Mysuru. A descriptive exploratory survey was used and 120 diabetic patients were selected using purposive sampling technique. Structured interview schedule was used to explore perceived barriers of foot care and foot care practice. Demonstration program on foot care was conducted for all patients. The data were collected and analysed using descriptive and inferential statistics.

Keywords: Diabetes mellitus, diabetic patients, perceived barriers, foot care, diabetic foot ulcers.

I. INTRODUCTION:

Diabetes mellitus is a chronic debilitating condition characterized by an increased blood glucose level and caused by an imbalance between insulin supply and demand. It is associated with significant morbidity, mortality, and increasing health care costs. Estimations in 2010 indicate that there are almost 285 million diabetic adults all over the world. It is expected that this number will continue to increase worldwide due to population aging, population growth, urbanization and high prevalence of obesity and sedentary lifestyle¹.

As per the WHO statistics of 2016, there are 422 million adults living globally with diabetes mellitus. It has been further estimated that the global burden of type-2 diabetes is expected to increase to 478 million by 2030 from 285 million people recorded in 2010. For India this increase is estimated to be 58%, from 51 million people in 2010 to 87 million in 2030².

Karnataka is currently undergoing epidemiological and socio-demographic transitions with increase in the prevalence of non communicable diseases. Karnataka is one of the top three states in having the highest prevalence of pre diabetic individuals. With 7.5% prevalence of diabetes, the southern state stands at the sixth position in India³.

Among the many complications associated with diabetes, issues related to foot disease represent a significant and often challenging clinical problem. An estimated 15% of patients with diabetes develop a lower extremity ulcer. The majority (60–80%) of foot ulcers will heal, while 10–15% of them will remain active, and 5–24% of them will finally lead to limb amputation within a period of 6–18 months after the first evaluation⁴.

In India, the prevalence of diabetic foot ulcers in the clinic population is 3.6%. Socio-cultural practices such as barefoot walking, religious practices like walking on fire, use of improper footwear and lack of knowledge regarding foot-care attributes towards the increase in the prevalence of foot complications. Studies have shown that hyperglycaemia control, cessation of smoking, proper foot hygiene, daily inspection of feet for any trauma, use of proper footwear and early medical help can prevent the incidence of foot ulcers by 50-60%⁵.

Foot ulcers are a significant complication of diabetes mellitus and often precede lower-extremity amputation. The most frequent underlying etiologies are neuropathy, trauma, deformity, high plantar pressures, and peripheral arterial disease. Thorough and systematic evaluation and categorization of foot ulcers helps and guides the appropriate treatment⁶.

The loss of sensation as a part of peripheral neuropathy exacerbates the development of ulcerations. As trauma occurs at the affected site, patients are often unable to detect the insult to their lower extremities. As a result, many wounds go unnoticed and

progressively worsen as the affected area is continuously subjected to repetitive pressure and shear forces from ambulation and weight bearing⁷.

Diabetic foot has great burden on the health system also, as it is the commonest reason for hospitalization of diabetic patients (about 30% of admissions) and absorbs some 20% of the total health-care costs of the disease more than all other diabetic complications. Especially in a developing country, like India, treating diabetic foot may account for 40 percent of health resources. Limb amputation itself is associated with many socioeconomic consequences for patients like, loss of productive hours at inpatient department, permanent loss of income, decreased social acceptance etc⁸.

Early detection of potential risk factors for ulceration can decrease the frequency of wound development. Poor knowledge of foot care and poor foot care practices were also identified as important risk factors for foot problems in diabetes. Additional factors that may affect healing include smoking, alcohol abuse and depression or other mental illness, which can affect the treatment compliance⁹.

Multidisciplinary management programs that focus on prevention, education, regular foot examinations, aggressive intervention, and optimal use of therapeutic footwear have demonstrated significant reductions in the incidence of lower-extremity amputations¹⁰.

Management of diabetes is complex for patients and providers and requires good patient-provider communication skills. Recent research studies have reported that many individual, educational, and system barriers have limited the diabetes patients' self management practices. Studies have reported that several social and cultural practices such as barefoot walking, inadequate facilities for diabetes care and education and poor socioeconomic conditions as the barriers for foot care practices of diabetic patients¹¹.

During researcher's clinical experience with diabetic patients, it was observed that majority of diabetic patients are developing foot complications. Exploration of the perceived barriers in foot care and the foot care practices will help the health care professionals to plan and implement appropriate teaching strategies for diabetic patients which in turn will reduce their risk of developing foot problems.

OBJECTIVES:

The objectives of the study are

1. To explore the perceived barriers of foot care among diabetic patients.
2. To assess the foot care practice among diabetic patients.
3. To determine the association between foot care practice and the selected personal variables of diabetic patients.
4. To conduct a demonstration programme on foot care among diabetic patients.

HYPOTHESIS:

The following hypothesis was formulated for the study and will be tested at 0.05 level of significance.

H₁: There will be significant association between the foot care practice and the selected personal variables of diabetic patients.

II. METHODOLOGY:

2.1 RESEARCH APPROACH/DESIGN: Research design of this study was descriptive exploratory survey.

2.2 VARIABLES UNDER STUDY:

Research variables:

- Perceived barriers of foot care among diabetic patients.
- Foot care practices among diabetic patients.
- Selected personal variables of diabetic patients viz. age, gender, religion, educational status, occupation, marital status, monthly family income, type of family, duration of illness, place of residence, distance of residence from health care institution and previous exposure to teaching program on foot care.

2.3 SETTING OF THE STUDY

The setting for the present study was outpatient and inpatient Departments of Medicine and Surgery of selected hospital, Mysuru.

2.4 Population:

In the present study population refers to the Type 2 diabetes mellitus patients.

2.5 Sample and sampling

120 Type 2 diabetes mellitus patients attending inpatient and outpatient departments of surgery and medicine of selected hospital were selected for the study.

2.6 Sampling technique

Purposive sampling technique was used to select the 120 diabetic patients for the present study.

2.7 Sampling criteria

Inclusion Criteria for Sampling:

Diabetic patients who are:

- Attending the outpatient and inpatient departments of Medicine and Surgery of selected hospital in Mysuru during the period of data collection.
- Diagnosed as having type 2 diabetes mellitus and with duration of illness of minimum 3 months.
- Available during the period of data collection.

Exclusion Criteria for Sampling:

Diabetic patients who are:

- Diagnosed as having type 2 diabetes mellitus recently (less than 3 months).
- In a debilitated condition with co-morbid illnesses.
- Not willing to participate in the study.

III. RESULTS:

Table 1

Frequency and Percentage distribution of diabetic patients according to their selected personal variables

n=120

SI No	Sample characteristics	Frequency	Percentage (%)
1	Age in Years		
	1.1 30-45 years	27	22.7
	1.2 > 45-60 years	59	49.2
	1.3 > 60 years	34	28.3
3	Occupation		
	3.1 Agriculture	68	57.0
	3.2 Employee & Others	52	43.0
4	Monthly family Income in rupees		
	4.1 Up to 5000/-	40	33.3
	4.2 5001-10000/-	32	26.7
	4.3 10001-15000/-	20	16.7
	4.4 >15000/-	28	23.3
5	Duration of Illness		
	5.1 3 months-1 year	11	09.1
	5.2 >1-5 years	18	15.0
	5.3 >5-10years	26	21.7
	5.4 >10-15years	33	27.5
	5.5 >15years	32	26.7
6	Place of Residence		
	6.1 Rural	67	55.8
	6.2 Semi urban/Town	21	07.5
	6.3 Urban	32	26.7
8	Previous exposure to teaching programs on foot care		
	8.1 Yes	18	15
	8.2 No	102	85

The data presented in the Table 1 shows that 49.2% of diabetic patients were in the age group of > 45-60 years, majority of the diabetic patients (57%) were doing agriculture, 33.3% of the diabetic patients were having the monthly income up to Rs.5000 and majority (27.5%) of diabetic patients were having duration of illness of more than 10-15 years. 55.8% of diabetic patients were from rural areas and 85% of the diabetic patients were not having previous exposure to teaching program on foot care.

Table 2

Frequency and Percentage distribution of perceived barriers of foot care among diabetic patients

n = 120

SI.No	Statements	Response	
		Yes (f) %	No (f) %
a) Patient-related factors			
1	Not aware of the importance of regular foot care	81 (67.5)	39 (32.5)
2	Not aware of the correct technique of foot	98 (81.6)	22 (18.4)

	care		
3	Difficult to detect the foot problems	78 (65)	42 (35)
4	Not getting enough time	70 (58)	50 (42)
5	Work pattern inhibits from wearing recommended foot wears	77 (64.2)	43 (35.8)
6	Religious/cultural practices	100 (83)	20 (17)
b) Health care system related factors			
8	Not getting information about foot care	36 (30)	84 (70)
9	Difficult to follow instructions given by the health care personnel.	12 (10)	108 (90)
10	Prefer the traditional way of healing	74 (61.7)	46 (38.3)
11	Difficult to visit the doctor frequently	46 (38.3)	74 (61.7)

a) Patient-related factors

Majority of diabetic patients expressed that lack of adequate knowledge regarding the importance of foot care and the technique of foot care was a major barrier which has affected the daily care of their feet.

81.6% of diabetic patients agreed that they were not aware about correct technique of foot care practice. 67.5% of diabetic patients were not aware of the importance of regular foot care and 60% were not aware of the importance of wearing correct/appropriate size foot wear. 50% of patients expressed that were not able to detect early manifestations of nerve damage.

Similar findings are reported in other studies conducted to assess the barriers of foot care among diabetic patients which also reported that lack of adequate knowledge regarding the importance of foot care was a barrier for their regular foot care practice⁴.

Many diabetic patients expressed that advancing age and age related physical problems were hindering factors for their daily foot care practice. Majority (65%) of diabetic patients agreed that it is difficult to detect foot problems due to numbness/lack of sensation in their feet. 50% patients expressed that the advancing age and visual problems inhibited them to perform regular foot care examination. 38.3% of patients agreed that they are unable to do regular foot exercises due to frequent illnesses.

Study findings are supported by the results of another study which has assessed the foot care practice of diabetic patients in Egypt, which also reported that musculoskeletal problems, presence of co morbidities and physical disability related to advancing age were a major barrier to their regular foot care practice³⁴. Majority (60%) of patients agreed that they are not able to visit their doctor regularly because of time constraints as they are engaged in agricultural fields most of the time. (58%) of diabetic patients expressed that they are not getting enough time to take care of their feet daily. Majority (67%) of diabetic patients expressed that they are not able to afford the recommended foot wear due to their economic constraints. 83% of diabetic patients agreed that their cultural and religious factors inhibited them from wearing chappals always. Many patients expressed that they cannot wear chappals to temples, and the agricultural fields as they have the specific religious beliefs.

Study findings are consistent with the result of another study conducted among 678 diabetic patients in North India, which reported that many rural patients preferred to walk bare foot on roads as a part of religious rituals, which has predisposed them to develop diabetic foot ulcers¹².

b) Health care system related factors

Majority (73.3%) of patients expressed that they avoid visit to health care centers because of longer queues in the hospital. 70.8% of diabetic patients agreed that they find it difficult to approach the doctor for minor foot problems. 61.7% of patients agreed that they prefer traditional way of healing for foot injuries and problems. Few patients (29.2%) expressed that they do not have the practice of going to doctor for minor foot problems and they prefer to apply home remedies such as applying turmeric powder over the wounds

30% of diabetic patients agreed that they are not getting adequate information about foot care from their health care personnel. Only 10% of patients expressed that they find it difficult to follow the instructions from the health care personnel.

A descriptive study which has assessed the barriers of foot care among 313 diabetic patients in Ethiopia also stated that poor communication between patients and nurses or physician was a major barrier of their regular foot care practice of diabetic patients⁴.

Table 3
Frequency and Percentage distribution of the foot care practice of diabetic patients
n = 120

Foot care Practice	Frequency	Percentage (%)
Good Practice (25-34)	27	22.5
Poor Practice (0-24)	93	77.5

It is evident from Table 3 that, majority (77.5%) of diabetic patients were having poor practice regarding foot care and only 22.5% of diabetic patients were having good practice on foot care.

Results are consistent with the findings of another cross-sectional study conducted among 103 diabetic patients in Puduchery which also revealed that practice of foot care among diabetic patients was poor and the study emphasized the need for foot care education in primary care settings to improve the foot care practice of diabetic patients¹³.

Similar findings were reported by other studies conducted among adult diabetic patients which also stated that patients were having poor foot care practice¹⁴.

Table 4
Chi-square values between the foot care practice of diabetic patients and their selected personal variables

Sl. No	Sample characteristics	Poor Practice	Good Practice	Chi-square value
n = 120				
1	Age in Years			
	1.1 30-45 years	25	02	6.052*
	1.2 > 45-60 years	45	14	
	1.3 > 60 years	23	11	
2	Occupation			
	5.1 Agriculture	59	09	7.72*
	5.2 Employee & others	34	18	
2	Monthly family Income			
	7.1 Up to 5000/-	37	03	15.15*
	7.2 5001-10000/-	28	04	
	7.3 10001-15000/-	12	08	
	7.4 >15000/-	16	12	
3	Duration of Illness			
	8.1 3 months-1 year	10	01	8.23
	8.2 >1-5 years	16	02	
	8.3 >5-10years	22	04	
	8.4 >10-15years	25	08	
	8.5 >15years	20	12	
4	Place of Residence			
	10.1 Rural	58	09	9.75*
	10.2 Semi urban/Town	15	06	
	10.3 Urban	20	12	
5	Previous exposure to teaching programs on foot care			
	12.1 Yes	10	08	5.84*
	12.2 No	83	19	

$\chi^2_{(1)} = 3.84$, $\chi^2_{(2)} = 5.99$, $\chi^2_{(3)} = 7.82$, $\chi^2_{(4)} = 9.49$ * $p < 0.05$, $p > 0.05$ *Significant

Data presented in Table 4 shows that, there was statistically significant association between the age and the foot care practice of diabetic patients indicating that diabetic patients who were aged above 45 years were having better foot care practice compared to younger patients. Statistically significant association was found between the occupation and the foot care practice of diabetic patients. Diabetic patients who were employed were having good foot care practice compared to the patients who were doing agriculture. Similarly there was statistically significant association between the monthly family income and the foot care practice of diabetic patients. Diabetic patients who were having high monthly family income were having good foot care practice compared to patients with less family income. There was statistically significant association between the place of residence and

the foot care practice of diabetic patients indicating that diabetic patients who were residing in urban areas were having good foot care practice compared to the patients who were staying in the rural areas. Statistically significant association was found between the previous exposure to teaching programs on foot care and the foot care practice of diabetic patients indicating that diabetic patients who had previous exposure to teaching programs on foot care were having good foot care practice compared to the patients who were not exposed to teaching programs previously on foot care.

CONCLUSION:

Findings of the study revealed that the personal variables of patients viz. age, occupation, monthly family income, rural residence and previous educational programs on foot care had statistically significant association with the foot care practice of diabetic patients.

Study findings revealed that majority of diabetic patients had poor foot care practice and the patients expressed many barriers that had an influence on their foot care practice. Findings stress the need for educational and motivational strategies for diabetic patients to comply with effective foot care.

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