

A Study to Assess the Awareness and Practices of Foot Care among Diabetic Patients in the Selected Secondary Hospitals in Tamil Nadu

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Abstract: **Background:** Diabetic foot syndrome is one of the most common complications in diabetes mellitus which causes permanent disability and mortality in India. Foot complications can be prevented much earlier if adequate health education is given to the patients on time. The knowledge has a greater impact over the practice of an individual; therefore this study aims at assessing the awareness and practices of foot care among diabetic patients in selected secondary hospitals catered by the Community Health Department of Christian Medical College, Vellore, Tamilnadu. **Materials and Methods:** This descriptive co-relational study was conducted among diabetic patients aged 18 years and above chosen from the diabetic clinic in the outpatient department of CHAD and RUHSA hospitals by systematic sampling. The sample size for the study is 100. A structured questionnaire developed by the investigator was used to collect data from the diabetic patients regarding their awareness and practice of foot care. **Results:** The majority of the subjects were in the age group of 45-60 years, most of them belonged to lower middle socioeconomic status and were illiterates. Majority of the participants had only moderate knowledge regarding foot care. Most of them had only moderately adequate practice of proper foot care. The study reveals that there was a positive correlation found between the knowledge and practice of the diabetic patients towards foot care which was statistically significant. **Conclusion:** The results of this study suggest that health education on foot care at the earliest can change the practice of the patients and prevent them from devastating foot complications.

Keywords: diabetic foot syndrome, foot care, foot complications, diabetes mellitus

1. Introduction

India is set to become the diabetes capital of the world with a projected 109 million individuals with diabetes by 2035. India ranks second (after China) with more than 66.8 million diabetics in the age group of 20-70. The prevalence of Diabetes in India is 8.6% and, as of 2013, more than 1 million Indians die each year due to diabetes related causes¹. Diabetic foot is one of the most significant and devastating complication of diabetes and is defined as a group of syndromes in which neuropathy, ischemia and infection lead to tissue breakdown, and possible amputation. Around 15% of diabetic patients will develop foot ulcers in their life time and this is known to precede amputation in 85% of the cases². Diabetic foot care is one of the most ignored aspects of diabetes care in India. Due to social, religious, and economic compulsions, many people walk barefoot. Poverty and lack of education lead to usage of inappropriate footwear and late presentation of foot lesions. Many non-medically qualified persons are interfering in the treatment of diseases, including diabetes and diabetic foot ulcers. Patients also try home remedies before visiting their physicians³. It is estimated that 90% of diabetic patients in India do not see a specialist in their lifetime. Problem is further worsened by a delay in accessing healthcare due to patient approaching informal care providers and alternative medicine prescribers⁴.

2. Material and Methods

A descriptive co-relational study design was adopted. Consecutive sampling technique was used to select a sample of 100 diabetic patients who are attending the outpatient departments of secondary hospitals - CHAD and

RUHSA. Male and female diabetic patients above the age of 18 years who has diabetes for more than 6 months were included for the study.

Study Design: A descriptive co-relational study design

Study Location: This was conducted in the out-patient departments of secondary hospitals - CHAD and RUHSA in Tamilnadu.

Study Duration: One month - June 2020.

Sample size: 100 patients.

Sample size calculation: The sample size was estimated on the basis of a previous similar study.

Subjects & selection method: The study population was drawn from consecutive diabetic patients who presented to the out-patient departments of secondary hospitals - CHAD and RUHSA in Tamilnadu, in the month of June 2020.

Inclusion criteria:

1. Diabetic patients
2. Either sex
3. Aged \geq 18 years
4. Duration of more than 6 months

Exclusion criteria:

1. Pregnant women
2. Patients who cannot comprehend and respond the questions

Procedure methodology

The data were collected in the diabetic clinic on Fridays in CHAD and RUHSA hospital out-patient departments. After explaining the purpose of the study and getting the informed consent, the structured questionnaire was administered. Their demographic profile was collected and foot assessment was performed. The questions were read to the patients and their answers were marked.

The data collection instrument consists of three sections - Section A, B and C.

Section A consists of demographic variables of the subjects which includes their gender, age, religion, socio-economic status, occupation and education. No scoring will be given for the demographic variables.

Section B consists of questionnaire on awareness to assess the knowledge of the subjects regarding foot care. This section consists of 10 questions on causes, risk factors, signs and symptoms, investigations, foot care and complications of improper foot care and footwear. Each correct response will be given one point and wrong answer will be given no points. After the final scoring the results will be interpreted as follows:

- 75-100% - adequate awareness
- 50-74.99% - moderately adequate awareness
- 0-49.99% - inadequate awareness

Section C consists of questionnaire on practice of subjects related to foot care. This section consists of 10 questions which will be rated on a five-point likert scale with ratings from 5 to 1 as always, frequently, often, sometimes and never. The possible score range will be from 5-50. The final scoring will be interpreted as follows:

- 75-100% - adequate practice
- 50-74.99% - moderately adequate practice
- 0-49.99% - inadequate practice

Statistical analysis

The statistical package for social sciences (SPSS) version 20.0 computer programme was used for analysis of data. Descriptive statistics were used to analyze socio-demographic variables and clinical variables. The relationship between awareness and practice of the diabetic patients on foot care was assessed using Pearson’s correlation coefficient, p value of <.05 was considered statistically significant.

3. Result

After the data collection, results are analyzed and presented as follows:

Table no 1 Shows the socio-demographic profile of the study participants, majority of the participants were from the age group of 45-60 years(44%), 33% of them were illiterates, 58% of them were house wives and 43% belonged to lower middle socio-economic status.

Table no 1: Shows the socio-demographic profile of the study participants

Socio-demographic Variables	N	%
Age (in years)		
18-45	14	14
45-60	44	44
>60	42	42
Gender		
Male	28	28
Female	72	72
Type of family		
Joint	51	51
Nuclear	48	48
Extended	1	1
Religion		
Christian	7	7
Hindu	91	91
Muslim	2	2
Educational level		
Illiterate	33	33
Primary	29	29
Middle school	9	9
High school	21	21
Graduate	6	6
Post graduate	2	2
Occupation		
House wife	58	58
Driver	3	3
Farmer	9	9
Businessman	6	6
Coolie	20	20
Others	4	4
Socioeconomic status		
Lower socioeconomic status	26	26
Lower middle socioeconomic status	43	43
Upper middle socioeconomic status	27	27
Higher socioeconomic status	4	4

Table no 2 Shows the diabetic history of study participants, which reveals that 91% of them were type II diabetic, 82% of them were taking only oral medications, 4% had history of amputation and 45% of them had history of hypertension also.

Table no2: Diabetic history of study participants

Diabetic history	n	%
Type of diabetes		
Type I DM	9	9
Type II DM	91	91
Duration of illness		
6-12 months	7	7
1-5 years	32	32
5-10 years	32	32
>10 years	29	29
Medications		
Oral medications	82	82
Insulin only	8	8
Insulin and oral medications	10	10
Previous history of		

Debridement	2	2
Amputation	4	4
Comorbid illness		
Only diabetes	30	30
Hypertension	45	45
Hypertension and dyslipidimia	14	14
Dyslipidemia	5	5
Others	6	6

Level of Awareness

Figure no 1 shows the distribution of patients based on their awareness regarding foot care. The mean awareness score of the participants in this study regarding foot care was 11.41 out of the total score 20. Majority of the participants had moderately adequate awareness regarding foot care (68%).

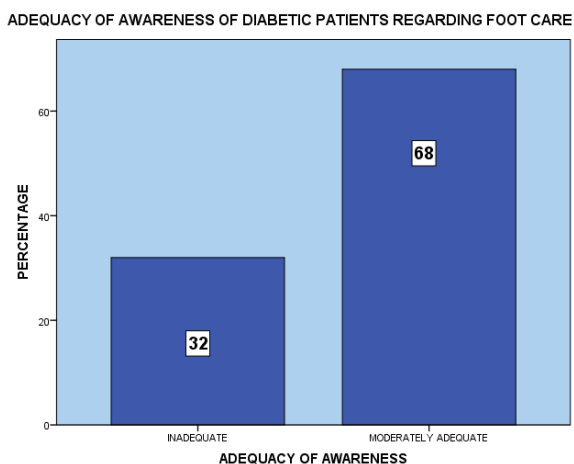


Figure no 1: Adequacy of awareness of diabetic patients regarding foot care

Level of Practice

Figure no 2 shows the distribution of diabetic patients based on their practice about foot care. The mean practice score of the participants was 37.7 out of the total score 50. Most of them had moderately adequate practice regarding foot care (88%).

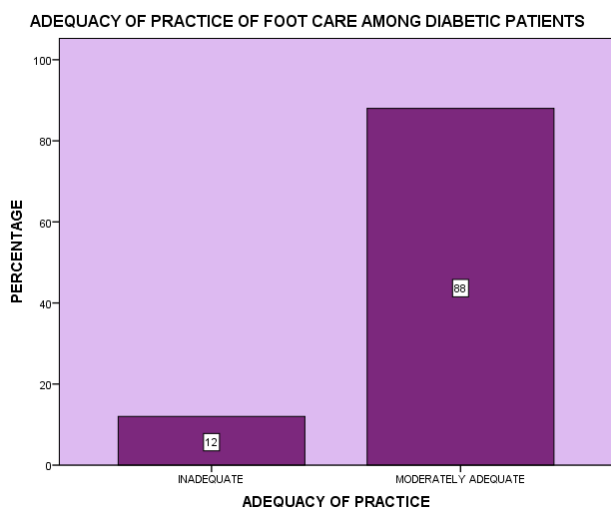


Figure no 2: Adequacy of practice of foot care among diabetic patients

Relationship between awareness and practice

The study reveals that there was a positive correlation found between the awareness and practice of the diabetic patients towards foot care which was statistically significant ($p < 0.016$).

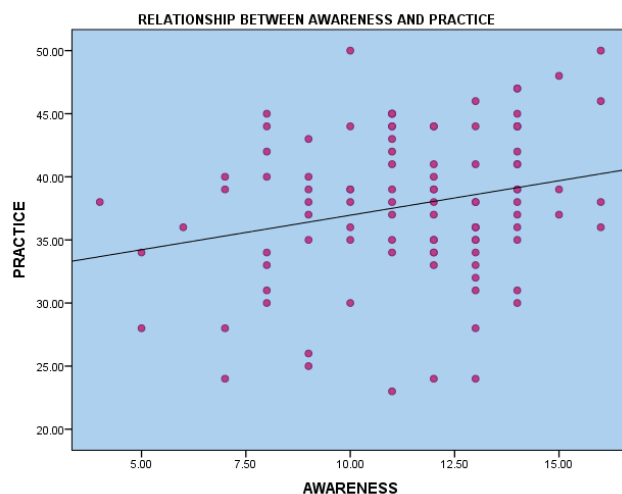


Figure no 3: Correlation between the awareness and attitude of the diabetic patients on foot care

4. Discussion

Diabetic Foot is one of the most common complications for admissions imposing tremendous medical and financial burden on our healthcare system. The lifetime risk of a person with diabetes having a foot ulcer could be as high as 25% and is the commonest reason for hospitalization of diabetic patients (about 30%) and absorbs about 20% of the total health-care costs, more than all other diabetic complications. The prevalence of foot ulcers in diabetics attending a centre managing diabetic foot (both indoor and outdoor setup) in India is 3%. Foot ulcers among outpatient and inpatient diabetics attending hospitals in rural India were found to be 10.4%. Peripheral vascular disease (PVD) occurs in about 3.2% diabetics below 50 years of age and rises to 55% in those above 80 years of age¹. Knowledge about the foot care enhances the patients to practice good foot care.

In similar study done by Sutariya and Kharadi, (2016) only 24(23%) patients had good knowledge, 51 (50%) patients had satisfactory knowledge and 28(27%) had poor knowledge about diabetic foot care. The study concludes that good knowledge and practice regarding diabetic foot care will reduce the risk of diabetic foot complications and that will decrease the chances of amputation of the limb⁵. Similar to this study a moderately adequate knowledge was observed among the diabetic foot patients who have attended the diabetic OPD, which indicates need of giving proper knowledge to diabetes patients by health education.

The findings of the present study are in congruent with the findings of Jain and Rajagopalan, (2018) who studied the usage and type of footwear practices in patients with diabetic foot; in which only 5.3% of patients were on therapeutic foot wear with 94.7% using inappropriate

footwear. 81.6 % of patients walked barefoot outside house and 94.7% walked barefoot inside the house with only 5.3% of patients use some footwear even in house⁶. Only 15.8% of patients with diabetic foot had received advice on footwear by their doctors. Boulton et al (2008) says that it cannot be overstated that the complications of the diabetic foot are common, complex, and costly, mandating aggressive and proactive preventative assessments by generalists and specialists⁷. All patients with diabetes must have their feet evaluated at least at yearly intervals for the presence of the predisposing factors for ulceration and amputation (neuropathy, vascular disease, and deformities). Similarly Lakshmi et al (2018) conducted a study to know the magnitude of the foot ulcer and to assess the level of foot care practice among diabetic patients which revealed that 11.3% (n = 17) had foot ulcer and had poor foot care practices⁸.

Similarly Sutariya and Kharadi, (2016) studied the relationship between knowledge and practice of the respondents which was found to be statistically significant ($p < 0.0017$). Average Knowledge and poor practice were observed among the diabetic foot patients who have attended the diabetic OPD which in turn contributes to the foot complications. The study recommends that early health education and early identification and timely intervention will prevent patients from foot complications⁵.

5. Conclusion

Diabetic foot is undoubtedly a debilitating disease that results in amputation. Prevention and protection of foot thus become essential. There is negligence both from patients and healthcare professionals in taking things lightly in diabetic foot even in today's era of awareness and technology. There needs to be a joint effort by both patients and the doctors on improvement on usage of good footwear. It is through systematic examination and risk assessment, patient education, and timely referral that we may further reduce the unnecessarily high prevalence of lower-extremity morbidity in this population.

Poor knowledge and poor practice of diabetic foot care among the patients of diabetic foot is a major reason for the progression of diabetic foot to Diabetic foot syndrome and lately it may end with amputation of the limb. An adequate health education can improve the knowledge and practice of the patients on their foot care and thereby prevent diabetic foot syndrome.

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