



Assessment of Knowledge And Practice Among Diabetic Patients Regarding Diabetic Foot Care Attending Tertiary Care Hospital In Haryana

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Abstract

Diabetes mellitus (DM) is a serious health problem worldwide. It is associated with increased morbidity and mortality. Diabetic foot is one of the major complications of DM. Adequate and proper knowledge and practice about foot care in diabetics leads to huge morbidity and mortality benefits. This study was conducted to determine the knowledge and practice of foot care among DM patients attending a rural tertiary health care centre and to counsel them regarding diabetic foot ulcer and self-foot care. This is a descriptive type of cross-sectional study performed on an out-patient diabetic population. Randomized convenient sampling was done. total of 130 DM patients were enrolled. A pre-tested questionnaire was used to collect the data. Sample size was calculated using Cochran's formula taking prevalence of diabetes in India to be 8.8%. The data was compiled and analyzed for descriptive statistics by using SPSS software. For 130 study participants, the mean knowledge score was 4.48+2.96 out of maximum possible score of 11. Out of all participants, 73(56.15%) had poor knowledge of diabetic foot care. The mean practice score was 4.72+-1.76 out of maximum possible score of 11 and 58(44.61%) patients had poor practices of foot care. The result of this study concluded that majority of DM patients had poor knowledge and poor practices of foot care.

Keywords: Diabetes Mellitus, Diabetic foot care, Diabetic foot ulcer

Introduction

Diabetes has emerged as a major health problem worldwide, with serious health-related and socio-economic impact on individual and population alike.

Diabetes can lead to disability in a variety of ways. The physical manifestations of diabetes become more significant with the development of complications. With the increasing incidence of diabetes in an aging population, there is a parallel increase in the incidence of complications of diabetes.

Diabetic foot is one of the clinical complication of diabetes mellitus.

In DM, the annual incidence of foot ulcer ranges from 1.0%–4.1% to 4%–10% of prevalence rate, which suggests that the lifetime incidence may be as high as 25%.^[1]

DF is described by a decrease in pain and temperature sensation first and later by

a decrease in vibratory sensitivity and superficial touch.^[2] As a result, DF patients may not be able to feel painful mechanical, chemical or thermal stimuli in normal situations.^[2,3]

Foot complications increase the risk for amputation in diabetics by 12.3 folds as compared to the normal population.^[4]

This potentially devastating sequelae causes significant mortality and morbidity and poses a substantial amount of financial burden on the individual and the healthcare system.

Education and awareness of diabetic foot ulcer pathway and the existing foot care measures that are intended to control them are paramount in foot ulcer prevention strategies.

Nonetheless, having knowledge of the foot care alone will not be beneficial unless practiced with good compliance.

Efforts have been made to increase public awareness of diabetic foot in the forms of health campaigns, public service advertisements and education by primary healthcare workers. However there are no studies in the literature that assess the current level of awareness of diabetic foot care in our diabetic patient.^[5]

The direct and indirect cost involved in the treatment of foot problems in patients with diabetes is enormous.

The American Diabetes Association recommends that people with diabetes should have a comprehensive foot examination once per year.^[6]

Previous studies have suggested that persons with foot ulcers risk lack knowledge and skills. Therefore, are unable to provide appropriate foot self-care.^[7] People need to be informed of the risk of having insensate feet and the need for regular self-inspection, foot hygiene, and chiropody and podiatry treatment as required, they must be told what action to take in the event of an injury or the discovery of a foot ulcer.^[8, 9]

Methods: This is a descriptive type of cross sectional study performed between January 2019 until September 2019 on an out-patient diabetic population

at Bhagat Phool Singh Government Medical College, Khanpur Kalan, Sonapat. A non-randomized convenient sampling method was performed and informed consent was obtained from the participants. The inclusion criteria was patients diagnosed of type 2 diabetes mellitus and taking treatment for at least 6 months and had not developed foot complications yet. Patients with poor consciousness level and clinically delirious or demented were excluded.

From the outpatient department at the point of exit of medicine department, convenient sampling was done a total of 130 diabetic patients were enrolled. Sample size was calculated using the Cochran’s formula taking prevalence of diabetes in India to be 8.8%, standard normal deviation to be 1.96 which corresponds to 95% confidence interval and degree of accuracy is set as 0.05. The calculated minimum sample size was 124.

A pre-tested structured questionnaire was used to collect data. The outcome variables are knowledge and practice regarding foot care. The knowledge and practice scores were classified as good if score was ≥ 8 ($\geq 70\%$), satisfactory if score was 5-7 (50-69%) and poor if score was < 5 ($< 50\%$).^[10]

The data was compiled and analysed for descriptive statistics by using SPSS software.

Results: A total of 130 participants were included in the study with the mean age of 55.46 ± 11.15 years. 57.69% patients were < 55 years old and 42.30% patients ≥ 55 years. There were 61 (46.92%) males and 69 (53.07%) females. The mean duration of illness of patients was 5.49 ± 4.50 years.

Majority of the patients i.e. 80.76% had uncontrolled blood sugar levels (Random blood sugar ≥ 200 mg/dl). Among the enrolled patients 52.30% were illiterate and 47.69% were literate. Majorly the patients were unemployed (52.30%).

TABLE 1: Characteristics Of The Patients In The Study (N=130)

VARIABLE	n%
AGE	
<55 years	42.30%

>=55 years	57.69%
GENDER	
Male	46.92%
Female	53.07%
EDUCATION LEVEL	
Illiterate	52.30%
Literate	47.69%
OCCUPATION	
Unemployed	52.30%
Unskilled worker	17.69%
Semi-skilled worker	5.38%
Skilled worker	3.84%
Clerical/Shop/Farmer	16.92%
Semi-professional	2.30%
Professional	1.53%
DURATION OF ILLNESS	
≤10 years	86.15%
>10 years	13.84%
BLOOD GLUCOSE LEVELS (RBS)	
≤200 mg/dl	19.23%
>200 mg/dl	80.76%

Knowledge Of Footcare:

The mean knowledge score was 4.48±2.96. The range of knowledge score obtained in this study was 0-11 out of maximum possible score of 11. Seventy (53.84%) of the DM patients were unaware that smoking leads to complications of diabetes mellitus, sixty seven (51.53%) of the DM patients were unaware that diabetic patients

should look after their feet to prevent foot ulcer. Ninety (69.23%) were unaware about the first thing to do if they notice redness/ bleeding between their toes, and likewise eighty nine (68.46%) if they found a corn/hard skin lesion. Ninety nine (76.15%) were unaware about the feet hygiene to be maintained. Majority of the respondents i.e. hundred (76.92%) were unaware about inspecting the inside of their footwear for objects or torn lining. Hundred and ten (84.61%) of the respondents had no idea about the temperature of the water used to wash their feet. The distribution of the response to questions related to the knowledge of foot care are shown in Table 2

TABLE 2: Distribution Of The Responses To Questions Related To Knowledge Of Footcar

KNOWLEDGE OF FOOT CARE		
QUESTION	YES	NO
Should DM patients take medication regularly because they are liable to get DM complications?	103 (79.23%)	27(20.76%)
Should DM patients look after their feet because they may not feel a minor injury to their feet?	56 (43.07%)	74(56.92%)
Should DM patients look after their feet because wounds and infections may not heal quickly?	84(64.61%)	46(35.38%)
Should DM patients look after their feet because they may get a foot ulcer?	63(48.46%)	67(51.53%)
Should DM patients not smoke?	60(46.15%)	70(53.84%)
Should DM patients inspect their feet regularly?	55(42.31%)	75(57.69%)
If you found redness/bleeding between your toes would you consult a doctor?	40(30.77%)	90(69.23%)
Even if you have never had a corn/hard skin lesion, what would you do if you had one (consult a doctor)?	41(31.53%)	89(68.46%)
Is it necessary for DM patients to wash their feet regularly?	31(23.84%)	99(76.15%)
Should DM patients look for any objects and torn material inside their footwear regularly?	30(23.07%)	100(76.92%)
What temperature of water do you think you should wash your feet in (normal temperature)?	20(15.38%)	110(84.61%)

Practice Of Footcare

The mean practice score was 4.72 ± 1.76 . The range of the practice score obtained in this study was 2-11 out of maximum possible score of 11. Eighty six (66.15%) of the respondents did not inspect their feet regularly. Similarly, sixty seven (51.53%) did not wash their feet regularly. Eighty eight (67.69%) of them washed their

feet with warm water. Hundred and eleven (85.38%) did not know about the correct technique of trimming their nails, hundred and seventeen (90%) added irritants to water before cleaning feet. The distribution of response to questions of foot care is shown in Table 3.

TABLE 3: Distribution of response to questions related to the practice of foot care

PRACTICE OF FOOT CARE		
QUESTION	YES	NO
Do you inspect feet regularly?	44(33.84%)	86(66.15%)
Do you wash feet regularly?	63(48.46%)	67(51.53%)
Do you wash feet with warm water?	42(32.30%)	88(67.69%)
Do you trim toe nails straight across?	19(14.61%)	111(85.38%)
Do you measure your feet size when you last bought your footwear?	10(7.69%)	120(92.30%)
Did you seek any advice when you last bought footwear?	5(3.84%)	125(96.15%)
Did you ever inspect inside of footwear?	44(33.84%)	86(66.15%)
Do you regularly walk bare foot?	48(36.92%)	82(63.07%)
Do you clean nails with sharp instrument?	39(30%)	91(70%)
Do you add irritants to water before cleaning feet?	13(10%)	117(90%)
Do you wear elasticated hosiery?	80(61.53%)	50(38.46%)

On classifying the knowledge score of the study participants, 24(18.46%) had good knowledge of diabetic foot care, 33(25.38%) had satisfactory knowledge and 73(56.15%) had poor knowledge of the diabetic foot care.

Similarly, on classification of the practice score of participants, 9(6.92%) had good practice of diabetic foot care, 63(48.46%) had satisfactory practices and 58(44.61%) had poor practices of diabetic foot care.

TABLE 4: Classification Of Knowledge Score And Practice Score Of The Study Participants

SCORE	KNOWLEDGE (n=130)	PRACTICE (n=130)
GOOD (>=70%)	18.46% (24)	6.92% (9)
Satisfactory (50-69%)	25.38%(33)	48.46% (63)
POOR (<=50%)	56.15%(73)	44.61% (58)

Association Of Demographic Factors With Knowledge And Practice Of Foot Care

In order to determine the impact of demographic factors on knowledge and practice of foot care the categorical variables were dichotomized and the student t test was used to compare the mean of the scores. Poor education attainment was significantly associated with lower knowledge of diabetic foot care and thereby leading to poor practices of diabetic foot care.

TABLE 5: Impact of demographic profile

Demographic Factor	Knowledge score	P value	Practice score	P value
Age				
<55	4.65	0.577	4.75	0.902
≥55	4.36		4.71	
Sex				
Male	4.64	0.578	4.62	0.545
Female	4.35		4.81	
Education				
Illiterate	3.78	0.004	4.60	0.419
Literate	5.26		4.85	
Occupation				
Unemployed	4.35	0.598	4.78	0.705
Employed	4.63		4.66	
Duration of illness				
≤10 years	4.30	0.082	4.71	0.888
>10 years	5.61		4.78	

Corelation Between Knowledge And Practices Of Foot Care

Among all the study participants, 73 had poor knowledge regarding the foot care and out of these 2.7% subjects had good practices and 56.2% subjects had poor practices. Similarly, 24 respondents had good knowledge about foot care and among them only 25.0% had good practices and 16.7% had poor practices. The distribution of all the co relations is shown in Table 6.

TABLE 6: Co Relation Between The Knowledge And Practices Of Foot Care

	Practice Score			Total
	A	G	P	

Knowledge Score	A	Count	19	1	13	33
		% within Knowledge Score	57.6 %	3.0%	39.4%	100.0%
	G	Count	14	6	4	24
		% within Knowledge Score	58.3 %	25.0%	16.7%	100.0%
	P	Count	30	2	41	73
		% within Knowledge Score	41.1 %	2.7%	56.2%	100.0%
Total	Count	63	9	58	130	
	% within Knowledge Score	48.5 %	6.9%	44.6%	100.0%	

*A= Average/ Satisfactory, G= Good, P=Poor

Discussion:

The result of this study highlighted that greater proportion of diabetic patients had poor knowledge and poor practices of diabetic foot care. These lacunae are the yield of lack of awareness about the effect of smoking in causing poor foot circulation; medical consultation when the signs of impending diabetic foot like redness, bleeding, corn, callosity and hard skin like lesions occur; significance of regular inspection and foot care; poor cognizance of diabetic footwear. The lack of knowledge of foot care found in our study is consistent with the findings of other publications worldwide.^[10-14]

It is highlighted in our study that poor education level has significantly lead to poor knowledge and poor practices of diabetic foot care. However gender, age and employment had no significant co relation with the knowledge regarding diabetic foot care. The knowledge of appropriate foot care has been suggested to be positively influenced by patient education which in turn reduces the risk of foot ulceration and amputation in high-risk diabetics.^[10] The evident co relation between education and knowledge accounts to the fact that educated people are able to read and follow various guidelines more efficiently. Moreover education paves path for the utilization of information technology which in

today's era is an indispensable part of the modern human society.

Males and those patients who had duration of illness >10 years had better knowledge and followed better practices of diabetic foot care than the counterpart. However these factors were not statistically significant in our study. This study also showcased that the majority of respondents had poor knowledge (56.15%) and poor practice (44.61%) of foot care.

This poor level of foot care practices is also in agreement with previous studies.^[10-12] The various deficiencies in practices of foot care in our study population include poor adherence to regular inspection of foot and maintenance of foot hygiene; usage of improper technique and sharp instrument for trimming the nails; ill fitted and uncomfortable footwear, bare foot walking and use of elasticated hosiery. All these ultimately predispose the diabetic patients to injuries, infections, diabetic ulcer, gangrene and amputation.

Based on current practices there are no established guidelines or programs in educating patients regarding diabetic foot care during their hospital visits or admissions.^[15] here comes the pivotal role of proper counselling of diabetic patients during their regular health check-up visits. Poor communication

between healthcare workers and patients and little amount of time allocated to educate patients due to a busy clinic schedule are usually the reasons for inadequate patient education. [10, 16, 17] therefore educating diabetic patients about the disease, its complications and their prevention should be prime motive of clinicians and health care workers. In addition to this the clinician as well as the family of diabetic patients should consistently reinforce the importance of strict compliance. [15]

Conclusion

The knowledge and practices of diabetic foot care in majority of the study population was poor. There was a positive correlation with the education level of the subjects i.e. more education subjects had better knowledge of foot care. However other demographic variables were not significantly related with the knowledge and practice. This study outshines the lacunae on the part of clinicians and proper counselling of patients. This study also marks the urgent need for patient friendly educational interventions and reinforcement of compliance. These all interventions should begin from the primary health care and involve all the levels upto tertiary care. A holistic approach is the need of the hour.

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