

Original Research Article

Awareness of Foot Care in Patients Having Diabetes Mellitus

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Abstract: Background: Poor foot care habits and a lack of information have been found to be significant risk factors for diabetic foot issues. Therefore, it is crucial to stress effective and prompt foot self-care to diabetic patients in order to reduce, if not completely prevent, foot issues. My study's goal is to determine how well-informed diabetic individuals are about foot care.

Methodology: This descriptive cross-sectional study was carried out by the Shahida Islam Teaching Hospital's Department of Medicine in Lodhran between 12th June 2025 and 11th October 2025. All patients aged 20–70 years, regardless of gender, who have diabetes mellitus and have been on insulin or oral hypoglycemics for more than six months. Exclusion criteria included being pregnant, having a significant condition like coronary artery disease or stroke, having a mental disability, being unable to hear or speak, or already having a diabetic foot ulcer. The researcher evaluated each patient's level of foot care awareness by asking eight questions about diabetic foot awareness. For awareness, an 8 was the highest possible score. A score of 0 to 2 was regarded as low awareness, a score of 3 to 6 as moderate awareness, and a score of 7 or 8 as high awareness. **Results:** The awareness score was 5.04 + 1.26 on average. The descriptive awareness statistics showed that the scores for good knowledge were 132 (34.37%), 109 (28.39%), and 143 (37.24%). **Conclusion:** The current study emphasizes how poorly the community under study practices appropriate foot self-care and how little the diabetic patients know about it.

Keywords: Awareness, diabetes mellitus, foot care

INTRODUCTION

According to estimates, the number of persons with diabetes mellitus (DM) will rise by 7.7% worldwide, impacting 439 million by 2030 and 642 million by 2040. In 2014, the disease's burden was over 400 million adults, with an older population (those over 65) being disproportionately affected.¹ The complex illness has been linked to aging, urbanization, and sedentary lifestyles. Diabetic foot is the most frequent consequence, affecting 50% of diabetic patients and accounting for 80% of all non-traumatic lower limb amputations.² The development of diabetic foot

abnormalities is mostly caused by angiopathy, neuropathy, and mechanical stress.³ Reduced sensation from sensory neuropathy makes the foot more vulnerable to injury, which ultimately causes skin deterioration and the development of foot ulcers. Global estimates place the prevalence of foot ulcers in diabetic people between 8% and 17%.⁴

In order to recognize diabetic foot disease early and stop its progression and the emergence of new issues, it is also critical to adhere to excellent diabetic foot care practices, such as wearing appropriate footwear

and doing daily foot exams. Diabetes foot ulcers are reported to be more common in those who don't know enough about diabetic foot care and don't take good care of their feet.^{5,6} Diabetic patients' understanding and application of diabetic foot care might be enhanced by straightforward health education initiatives.⁷ It has also been demonstrated that adopting foot care practices can help heal foot ulcers and lessen foot issues including corns and callosities.⁸ In a descriptive cross-sectional study, 100 patients with ages ranging from about 38 to 65 years, taking into account standard deviation, participated in a structured, closed-ended KAP (Knowledge, Attitude, Practice) questionnaire based on their level of awareness about the risk factors of diabetic foot. Of these, 230 (65.71%) were male and 120 (34.29%) were female, with 38% of subjects having poor awareness, 26% having moderate awareness, and 36% having good awareness.^{9,10}

Poor foot care habits and a lack of information have been found to be significant risk factors for diabetic foot issues. Therefore, it is crucial to stress effective and prompt foot self-care to diabetic patients in order to reduce, if not completely prevent, foot issues. My study's goal is to determine how well-informed diabetic individuals are about foot care. Clinicians and other healthcare professionals can learn about appropriate foot care from the study's findings. The findings of this study may be used by educators and health care professionals to develop diabetes management policies, oversee awareness campaigns, and create diabetes-related education modules that involve podiatrists to advise diabetic patients on appropriate footwear selection, foot hygiene, injury prevention, early detection of foot ulcers and callus infections, and prompt treatment to avoid serious complications, such as amputations.

METHODOLOGY:

This descriptive cross-sectional study was carried out by the Shahida Islam Teaching Hospital's Department of Medicine in Lodhran between 12th June 2025 and 11th October 2025. The WHO sample size calculator indicates that 384 cases is the sample size, with a 95% confidence level, a 5% margin of error, and an average foot care awareness level of 26.0% in DM patients.⁹ All patients aged 20–70 years, regardless of gender, who have diabetes mellitus (RBS $\geq$ 200 mg/dl, FBS $\geq$ 126 mg/dl, and HbA1c $\geq$ 6.5% on several occasions) and have been on insulin or oral hypoglycemics for more than six months. Exclusion criteria included being pregnant, having a significant condition like coronary artery disease or stroke, having a mental disability, being unable to hear or speak, or already having a diabetic foot ulcer.

Age, gender, length of diabetes, height, weight, BMI, history of diabetic foot ulcers, location of residence (rural/urban), monthly income (<25000/25000-

50000/>50000), education (illiterate/primary/middle/matric & above), and employment (unemployed/employed) were recorded following informed written consent. The researcher evaluated each patient's level of foot care awareness by asking eight questions about diabetic foot awareness. For awareness, an 8 was the highest possible score. A score of 0 to 2 was regarded as low awareness, a score of 3 to 6 as moderate awareness, and a score of 7 or 8 as high awareness. A custom created proforma was used to record all of this information.

Level of Awareness

Instructions: Please read each question carefully and choose the answer that you believe is best. There is only one correct answer for each question.

1. People with diabetes should inspect their feet:

- (a) Once a week
- (b) Every day
- (c) Only when they have a problem
- (d) It doesn't matter

2. The best way to clean your feet is:

- (a) With hot soapy water and a brush
- (b) In a basin of cool water
- (c) With wet wipes
- (d) It doesn't matter

3. After washing your feet, you should:

- (a) Leave them wet to air dry
- (b) Dry them carefully with a soft towel, specially between the toes
- (c) Rub them with lotion
- (d) It doesn't matter

4. Cuts and blisters on your feet should be:

- (a) Ignored
- (b) Treated with antiseptic and covered with a bandage
- (c) Soaked in warm water
- (d) It doesn't matter

5. Wearing well-fitting shoes is important for people with diabetes because:

- (a) It prevents blisters
- (b) It helps to control blood sugar levels
- (c) It reduces the risk of foot ulcers
- (d) It improves balance

6. People with diabetes should avoid:

- (a) Going barefoot
- (b) Wearing high heels
- (c) Using hot water bottles on their feet
- (d) All of the above

7. If you notice any changes in your feet, such as redness, swelling, or numbness, you should:

- (a) Wait and see if it goes away

- (b) Apply a cream
- (c) See your doctor immediately
- (d) It doesn't matter

8. The best way to prevent foot problems in diabetes is:

- (a) Eating a healthy diet
- (b) Checking your feet regularly
- (c) Controlling your blood sugar level
- (d) All of the above Scoring:

Each correct answer is worth 1 point. A score of 8 indicates excellent awareness of diabetic foot care, while a score of 0 indicates poor awareness . Scores between 1 and 7 suggest varying levels of awareness . Interpretation:

Scores of 7 or 8: This indicates good awareness of diabetic foot care practices. Individuals with these scores likely understand the importance of foot care and may be able to manage their feet effectively.

Scores of 3 to 6: This suggests moderate awareness of diabetic foot care. Individuals with these scores may have some understanding of foot care practices but may benefit from additional education and support.

RESULTS

According to the age distribution, 321 cases (83.59%) were between the ages of 46 and 70, while 63 cases (16.41%) were between the ages of 20 and 45. It was 54.96 + 8.71 years old on average. 237 cases (61.72%) were male, and 147 cases (38.28%) were female, based on the gender distribution. On average, the BMI was 27.34 ± 2.92 kg/m². Diabetes mellitus lasted 5.88 ± 2.40 years on average. Descriptive education statistics showed that 137 (34.11%), 54 (14.06%), 142 (36.08%), and 57 (14.84%) were illiterate, primary, middle, and matriculated as well as above. Descriptive statistics on socioeconomic status showed that there were 124 upper-limit cases (32.29%), 211 middle-level cases (55.95%), and 49 lower-level patients (12.76%). There

Scores of 0 to 2: This indicates poor awareness of diabetic foot care. Individuals with these scores are at increased risk of foot problems and require immediate education and support to learn proper foot care practices.

SPSS version 25.0 was used to conduct the statistical analysis. The data's normality was examined using the Shapiro-Wilk test. For age, height, weight, BMI, and length of DM, the mean and standard deviation were displayed. Gender, prior history of diabetic foot ulcers, place of residence (rural/urban), monthly income (<25000/25000-50000/>50000), education (illiterate/primary/middle/matric & above), employment (unemployed/employed), and awareness level (good/moderate/poor) were among the qualitative variables for which frequency and percentage were computed. Stratifications were used to control factors such as age, gender, BMI, length of diabetes mellitus, prior history of diabetic foot ulcers, site of residence (rural/urban), monthly income (<25000/25000-50000/>50000), education (illiterate/primary/middle/matric & above), and employment (unemployed/employed). Chi square/Fisher was applied post-stratification and a p value of less than 0.05 was deemed significant.

were 138 instances (35.94%) in rural areas and 246 cases (64.06%) in urban areas, based on descriptive information on residential status (Table I).

The awareness score was 5.04 + 1.26 on average. The descriptive awareness statistics showed that the scores for good knowledge were 132 (34.37%), 109 (28.39%), and 143 (37.24%). (Tabel II)

To take effect modifiers into consideration, stratification was employed. Following stratification, the Fisher exact/chi square test was employed. A statistically significant P-value was one that was less than 0.05. Table III.

Table I: Distribution of different variables (n=384)

Confounding variables		Frequency	%age
Age (years)	20-45	63	16.41
	46-70	321	83.59
Gender	Male	237	61.72
	Female	147	38.28
Duration (years)	≤5	227	59.11
	>5	157	40.89
BMI (kg/m ²)	≤25	107	27.86
	>25	277	72.14
previous h/o diabetic foot ulcer	Yes	51	13.28
	No	333	86.72
Residence	Rural	138	35.94
	Urban	246	64.06
	Poor	49	12.76

Socioeconomic status	Middle	211	55.95
	Upper	124	32.29
Education	Illiterate	57	14.84
	Primary	54	14.06
	Middle	142	36.98
	Matric & above	131	34.11
Employment	Unemployed	210	54.69
	Employed	174	45.31

Table II: Awareness of foot care in patients having diabetes mellitus (n=384)

Awareness	No. of patients	%
Poor	109	28.39
Moderate	143	37.24
Good	132	34.37
Total	384	100.0

Table IV: Descriptive statistics of knowledge by effect modifiers (n=384)

Age(years)	Knowledge			P value
	Poor	Moderate	Good	
20-45	17 (26.98%)	29 (46.03%)	17 (26.98%)	0.245
46-70	92 (28.66%)	114 (35.51%)	115 (35.83%)	
Gender				
Male	76 (32.07%)	92 (38.82%)	69 (29.11%)	0.475
Female	56 (38.10%)	51 (34.69%)	40 (27.21%)	
Duration of DM (years)				
≤5	81 (35.68%)	75 (33.04%)	71 (31.28%)	0.0007
>5	28 (17.83%)	68 (43.31%)	61 (38.86%)	
BMI (kg/m²)				
≤25	36 (33.64%)	43 (40.19%)	28 (26.17%)	0.096
>25	73 (26.35%)	100 (36.10%)	104 (37.55%)	
Previous h/o diabetic foot ulcer				
Yes	15 (29.41%)	21 (41.18%)	15 (29.41%)	0.709
No	117 (35.14%)	122 (36.64%)	94 (28.23%)	
Education				
Illiterate	08 (14.04%)	28 (49.12%)	21 (36.84%)	0.0001
Primary	01 (1.85%)	40 (74.07%)	13 (24.07%)	
Middle	50 (35.21%)	60 (42.25%)	32 (22.54%)	
Matric & above	73 (55.73%)	15 (11.45%)	43 (32.82%)	
Socioeconomic status				
Poor	19 (38.78%)	05 (10.20%)	25 (51.02%)	0.0001
Middle	58 (27.49%)	100 (47.39%)	53 (25.12%)	
Upper	55 (44.35%)	38 (30.65%)	31 (25.0%)	
Residence				
Urban	50 (36.23%)	51 (36.96%)	37 (26.81%)	0.815
Rural	82 (33.33%)	92 (37.40%)	72 (29.27%)	
Employment				
Unemployed	88 (41.90%)	49 (23.33%)	73 (34.76%)	0.0001
Employed	44 (25.29%)	94 (54.02%)	36 (27.91%)	

DISCUSSION

According to our research, a significant number of participants had poor foot care habits and insufficient knowledge. Individual foot care knowledge was not more than 50%. These findings are consistent with other international research that found diabetic

individuals had inadequate foot care knowledge and practices.^{11,12} More than 400 adult diabetic patients in Jazan, Saudi Arabia, participated in a previous similar study, which revealed that 56% of the patients answered incorrectly to questions about foot care.¹³ According to the characteristics of the patients under

research, only 132 patients (34.37%) had the level of good knowledge found in this study. A recent study on slightly more than 400 diabetic patients who visited the Heraa Diabetes Center in Makkah, Saudi Arabia, during June and July 2020 revealed a much lower degree of good understanding. Just 4.2% of participants obtained an excellent knowledge score, whereas the majority (72.4%) received a poor knowledge score.¹⁴ In a similar vein, 25.1% of 1080 diabetic patients in North China who participated in a recent cross-sectional study showed inadequate knowledge scores about diabetes foot care and foot care practices.¹⁵ On the other hand, 55.1% of respondents in another Saudi survey reported having strong knowledge.¹⁶

In a Chinese study, many of the patients reported taking care of their own corns, calluses, and wounds, demonstrating the high level of foot care practices.¹⁴ More than 80% of participants said they practiced good foot care, while there were some locations with subpar standards.¹⁴ 56.5% of participants in a cross-sectional study of 519 diabetic patients conducted in Saudi Arabia received scores ranging from 6 to 10 out of 15 on an assessment of their foot care practices.¹⁷ According to our study, 35.83% of patients aged ≥ 46 years had good knowledge, which is a considerably high level. Likewise, housewives and other unemployed people had a larger percentage of good knowledge (34.76%). On the other hand, a different Saudi cross-sectional study that included 747 diabetic patients from seven primary health care centers in Jeddah City found no significant correlation between knowledge and sociodemographic factors, with the exception of participants who were unemployed, who showed a significant correlation.¹⁸ However, in a Makkah study, having T2DM, having a job, and depending on medical professionals as their main information source were all strongly linked to a better degree of knowledge.¹⁴ Variations in the study's methodology, the questionnaire employed, and the characteristics of the patients may be the cause of these inconsistent results.

Another significant impediment was the sex of the patient. Men are typically more aware of the symptoms and indicators of their illnesses and are more preoccupied with their body appearance. On the other hand, women are frequently reluctant to admit that they have a health issue and to seek medical attention.¹⁹ Furthermore, while admitting to having a chronic illness, many women do not seek the appropriate medical care, most likely because of time constraints and a discrepancy between their working and health clinic hours.²⁰

Regarding other patient characteristics, a number of research have looked at the relationship between diabetic patients' knowledge scores, education level, and foot care practices. In comparison to their peers,

these investigations consistently revealed that patients with lower educational attainment knew less about foot care.^{16,18} In high-risk diabetics, patient education is essential for improving understanding of proper foot care, which lowers the risk of foot ulcers and amputation.²¹ Because educated people are more health-conscious, have greater access to educational resources, and use technology to learn more about their disease, there may be a correlation between education and foot care knowledge.²² Patients who have had diabetes for a longer period of time knew a lot more. This could be explained by patients gaining greater knowledge and expertise with time. These results, however, run counter to recent research that found a patient's understanding of diabetes is unaffected by the length of their diabetes.²³

According to the results of this study, 13.28% of patients had a history of diabetic foot ulcers. The prevalence of diabetic foot ulcers has been the subject of numerous investigations in Saudi Arabia, with findings ranging from 26.0% to 61.8%.^{15,16} Such ulcers were 10.8% common in the Qassim region of Saudi Arabia, while amputations of a toe, foot, or entire leg were 2.5% common.²⁴ According to Goweda et al.²⁵, 77.1% of patients looked at their feet as part of their foot care routine. 49.1% of participants were given a foot care handout, indicating their level of foot care knowledge.²⁵ Diabetic foot was a leading cause of lower limb amputation in Saudi Arabia, according to a prior Ministry of Health (MOH) report.²⁶ These findings are supported by the findings of other similar research, which showed that diabetic individuals without problems from the disease had far greater knowledge and practiced better foot care.^{27,28} These results were in line with those of Guell et al.²⁸, who found that patients may be more susceptible to problems if they had lower knowledge and practice scores.

Strengths and Limitations of the Study:

In our research, we have examined the issue in light of various sociodemographic and diabetes-related variables. Additionally, a questionnaire used for in-person interviews during the data gathering process verified the data collected for the study. Furthermore, the use of validated and structured questionnaires has increased confidence in getting reliable data in a consistent way. Our study does have several limitations, though. It is impossible to prove causation of correlation with such a cross-sectional design. However, this study's primary goal was to raise awareness of this significant public health concern and to inspire further in-depth research in the future, ideally at the national level.

CONCLUSION:

The current study emphasizes how poorly the community under study practices appropriate foot self-care and how little the diabetic patients know

about it. These findings should be a critical warning to clinicians, nurses, and policy makers in public health authorities about the significance of putting in place patient-centered, physician-friendly educational programs to improve and maintain appropriate foot self-care knowledge and practice among diabetic patients. As this could have a greater impact on the sustainability of learned information about personal foot care than traditional educational material, we think that future educational programs should concentrate more on helping patients improve their attitude toward their personal foot care and on practicing personal foot care in an educational activity (practical sessions).

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