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ORIGINAL ARTICLE

Knowledge and Self-Care Practices on Diabetic Foot among Diabetic Patients in Public Hospitals of Lahore, Pakistan - A Descriptive Study

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ABSTRACT

Background: The purpose of this study is to examine the degree of knowledge and practise of diabetic foot self-care among people with diabetes mellitus, as well as to determine the variables that influence the level of knowledge and practise in a public hospitals of Lahore, Pakistan. It is also beneficial for raising awareness about foot-care in diabetic patients.

Methodology: A descriptive cross-sectional research was done in outpatient diabetes clinics on 153 adult patients with diabetes. Participants were given self-administered questionnaires about their knowledge and practise of diabetic foot self-care. Their responses were used to determine their scores. A total score of >60% was assessed as good and <40% as poor. SPSS was used for analyzing data frequency and percentages.

Results: Amongst 153 patients majority of patients 85(55.5%) had poor knowledge about diabetic foot care, 48(31.3%) had average knowledge, and 20(13.2%) had good knowledge about foot care. About 79(51.6%) participants had poor practices regarding diabetic foot care, 49(32%) had satisfactory practices, and 25(16.4%) had good practices of diabetic foot care. Patients with college level education had good level of knowledge about foot care. Knowledge of participants and self-care practices is significantly associated with age and education of participants.

Practical Implication: Knowledge and self-care practices of foot care were associated with age and education level of participants. Health-care professionals should concentrate on filling knowledge gaps in foot care, promoting good foot hygiene habits, and enticing patients to take part in diabetes education initiatives.

Conclusion: The results of study concluded that majority of participants had poor knowledge and self-care practices about foot care.

Keywords: Knowledge; Diabetic Foot; Diabetes Mellitus; Self-Care Practices

INTRODUCTION

Diabetes mellitus is one of the most common, incurable, and yet manageable diseases in the modern era of medicine. Particularly, type 2 diabetes mellitus has a variety of potentially fatal complications that can be avoided by properly managing these patients' blood sugar levels. Although there hasn't been a thorough analysis of the many studies on the relationship between type 2 diabetes and patients' awareness of their condition, the incidence of type 2 diabetes has been rising in Pakistan. According to data, patients who are properly informed about their diabetes have better disease control and are therefore less likely to develop its long-term problems (1).

About 20% of people with diabetes are at high risk of foot ulcers due to neurological disorders. (2). Diabetic foot ulcers (DFUs) account for 12-15% of the overall projected cost of diabetes in prosperous countries, compared to 40% in developing nations (3).

Serious problems like heart attack, stroke, hypertension, kidney disease, and leg amputations have been linked to poor glycemic management. Diabetes is a serious health issue because to its high prevalence, early morbidity and mortality, and heavy burden on the multidisciplinary health care team. In some nations or regions, malignancy and cognitive impairment are now the primary causes of death for persons with diabetes mellitus due to the decline in vascular disease-related death, which historically constitute for more than 50% of fatalities among those with diabetes mellitus. Diabetes mellitus has also been linked to a wide range of comorbidities, including cognitive decline, functional disability, affective disorders, chronic obstructive pulmonary disease, and liver disease, according to research (4).

Despite advances in medicine and medical equipment, the hardships of diabetes are still very significant. Individuals with diabetes across cultures and nations report unfavourable outcomes from the disease, not just in relations of glycaemia but also in regards to mental, psychological, societal, and economic health guides (5).

Diabetes is a full-time, unwelcome job without holidays, downtime, or set-it and-forget-it mobile apps. Diabetes mellitus can have long-term effects that have a major negative impact on quality of life, such as Visual Impairment, kidney failure, an amputation of a lower limb, cardiovascular disease, peripheral arterial disease, strokes, and other disorders. Most patients with DM suffer from the foot issues associated with diabetes. The most common A diabetic foot ulcer is a consequence of diabetes mellitus that includes deep tissue lesions connected to neurologic problems and peripheral vascular disease in the lower extremities (5).

DFUs are among the most prevalent diabetic complications, affecting 4 to 10% of those with the disease. It can be costly to treat foot ulcers, but by increasing awareness and adopting the right precautions, between 49 and 85% of DFUs can be avoided (6).

The majority of diabetic patients who require hospitalization do so because of complications involving their feet. The risk of foot ulceration and limb amputation increases with age, problems managing for a long time diabetes, poor glycemic control, peripheral nerve damage, tobacco use, foot abnormalities, coronary artery disease, a history of foot ulcers and amputations, impaired vision, and kidney failure due to diabetes (especially in those who receive dialysis).Patients who have foot ulcers and infections are at considerably higher risk of having their legs amputated, which is a devastating outcome for most individuals (7).

Worldwide, 6.3% of people have diabetic foot sores. A diabetic person could have a 25% lifetime risk of developing a foot ulcer. Foot ulceration rates in Africa vary by region and have been calculated to range from 4% to 19% (8).

Treatment for the condition is expensive. Diabetic adults currently number 537 million worldwide. By 2045, the number of adults is anticipated to surpass 783 million. 25% of grown-ups will get foot ulcers at some point in their lives. There are serious and persistent problems with the feet and lower limbs associated with diabetes. Globally, they have an impact on 40–60 million diabetics. Diabetes patients' quality of life is drastically decreased and their risk of death is raised by chronic foot ulcers and amputations. One of the most prevalent, expensive, and debilitating challenges of diabetes is diabetes foot. Compared to non-diabetics, patients with diabetes get amputations 10–20 times more frequently (9).

Discharge, debridement procedures, revascularization, and antibiotic medication are all fundamental medical procedures for the prevention and management of DFUs. Although there are few studies that have evaluated therapeutic footwear's effectiveness and the prevention of first ulcers, it reduces ulcer recurrence. Improved revascularization and debridement techniques, including the use of larvae, have been applied to accelerate the healing of ischemic ulcers. It has been demonstrated that they are helpful in lowering pain, boosting arterial flow to the ischemic limb, and lowering the chance of amputation (10).

To ascertain the patient populations for whom these medicines are useful and their cost-benefit ratios, more research is required. AMPs are effective weapons against a variety of diseases, including bacteria that are resistant to antibiotics, fungi, and viruses. Worldwide, there are 422 million persons who have diabetes, which has an 8.5% prevalence in 2014 and a 9.3% prevalence in 2019 (10).

Objective

1. To assess the knowledge on diabetic foot among diabetic patients in public hospitals of Lahore.
2. To assess the self-care practices on diabetic foot among diabetic patients in public hospitals of Lahore, Pakistan.

METHODOLOGY

A descriptive a cross-sectional research investigation was conducted among patients with diabetic foot ulcer who checked at the Jinnah Hospital Lahore and Sheikh Zayed Hospital, Lahore. A convenience sample technique was used to select participants. Sample size (n) calculated was 153. Written informed test was taken from the participants to contribute in the study. An adopted questionnaire was distributed among participants. The questionnaire consists of three sections. Section I consists of demographic questionnaire. Section II consists of Knowledge form developed by Hasnain and colleagues (2009) (11). Knowledge questionnaire had 15-items with yes, no, and don't know options. If the score was greater than 60% (out of 153 patients), the degree of knowledge was considered to be good. Scores of 50 to 60 accurate answers were considered good, while those under 50 were considered to have weak knowledge. Section III consists of Nottingham Assessment of Functional Foot Care (NAFFC) checklist list to assess the self-care practices of participants (Lincoln etal. (2007) (12). The NAFFC scale consists of 29 questions. On a category scale from 0 to 3 (Never=0, Rarely=1, Sometimes=2, and Often=3), responses to NAFFC questions were recorded. Practise scores over 60% were arbitrarily considered to be good scores. Scores between 50 and 60 percent were seen to be adequate practise, whereas those below 50 percent were deemed to be bad practise. The research study period was from December, 2022 to March, 2023. Patients who were diagnosed with diabetes and diabetic foot are included in the study. Patients with mental illness or chronic diseases were excluded from the study. SPSS version 24 was used to analyze the results. Descriptive statistics (frequency and percentages) were used to determine the characteristics of the patients. Chi square test was used to determine significant predictors for good knowledge and practice of diabetic patients.

RESULTS

A total of 153 patients participated in the study, of which all participants were agreed to participate in the study.

The demographic data about the respondents is displayed in Table 1. Majority of the patients 67(43.7%) were aged above 50 year and male patients 81(53%). In terms of marital status, majority of participants were married 83 (54.2%), 36(23.5%) were divorced, and 34(22.2%) were single. About 62(40.5%) patients had primary level education, 49(32%) were illiterate, 30(19.6%) had secondary level education, and 12(7.8%) had college level or above education. In term of residency, majority of participants 78(51%) were from rural regions and 75(49%) were from city regions.

Table 1: Socio-demographic characteristics of the respondents

Variable	Categories	Frequency	Percentage
Age	17-27	15	9.8
	28-38	27	17.6
	39-49	44	28.7
	≥ 50	67	43.7
Sex	Male	72	47
	Female	81	53
Marital Status	Married	83	54.2
	Single	34	22.2
	Divorced	36	23.5
Education	Illiterate	49	32
	Primary Education	62	40.5
	Secondary Education	30	19.6
	College or above	12	7.8
Occupation	No job	38	24.8
	Government job	32	21
	Non- Government job	32	21
	House wife	29	18.9
	Student	12	7.8
	Others	10	6.5
Residence	Rural	78	51
	Urban	75	49

Table 2: knowledge of participants about diabetic foot care

Variable	Frequency	Percentage (%)
Poor Knowledge	85	55.5
Average Knowledge	48	31.3
Good knowledge	20	13.2

Table 2 shows the overall knowledge of participants regarding diabetic foot care. Majority of patients 85(55.5%) had poor knowledge about diabetic foot care, 48(31.3%) had average knowledge, and 20(13.2%) had good knowledge about foot care.

Table 3: Practices of participants about diabetic foot care

Variable	Frequency	Percentage (%)
Poor Practices	79	51.6
Satisfactory Practices	49	32
Good Practices	25	16.4

Table 3 shows the overall practices of participants regarding foot care. About 79(51.6%) participants had poor practices regarding diabetic foot care, 49(32%) had satisfactory practices, and 25(16.4%) had good practices of diabetic foot care.

Table 4: Association of demographic characteristics with Knowledge of participants about diabetic foot care

Variable	Knowledge			P value
	Poor	Average	Good	
Age				
17-27	23%	38%	29%	0.003
28-38	21%	33%	35%	
39-49	30%	38%	21%	
≥ 50	36%	28%	21%	
Sex				
Male	62%	44%	34%	0.342
Female	38%	56%	66%	
Marital Status				
Married	59%	29%	26%	0.556
Single	21%	61%	55%	
Divorced	20%	10%	19%	
Education				
Illiterate	59%	19%	6%	0.004
Primary Education	21%	20%	29%	
Secondary Education	12%	30%	26%	
College or above	8%	31%	39%	

Table 4 shows the association between demographic characteristics (age, sex, marital status, and education) and knowledge of participants about foot care. Results showed that

knowledge of participants significantly associated with age and education of participants. As patients with college level education had good level of knowledge about foot care. Marital status and sex of participants is not associated with knowledge of participants about foot care.

Table 5: Association of demographic characteristics with Practices of participants about diabetic foot care

Variable	Self-care practices			P value
	Poor	Satisfactory	Good	
Age in years				
17-27	33%	48%	19%	0.010
28-38	11%	33%	45%	
39-49	20%	38%	20%	
≥ 50	46%	18%	12%	
Sex				
Male	51%	54%	39%	0.342
Female	49%	46%	61%	
Marital Status				
Married	47%	39%	22%	0.556
Single	31%	49%	52%	
Divorced	22%	12%	26%	
Education				
Illiterate	62%	10%	11%	0.003
Primary Education	16%	17%	32%	
Secondary Education	12%	41%	23%	
College or above	10%	32%	34%	

Table 5 shows the association between demographic characteristics (age, sex, marital status, and education) and practices of participants about foot care. Age of participants and level of education is significantly associated with self-care practices of participants.

DISCUSSION

The study's findings indicate that the majority of patients 67(43.7%) were aged above 50 year and were male. In Pakistan, majority of participants had diabetes mellitus at the age of 50 or above 50 year and majority of males are effected from this disease. These results are consistent with the results of a study conducted in Malaysia and Pakistan, where majority of participants had problem of diabetic foot above 50 year (11, 13).

In term of knowledge of participants about diabetic foot care, more than half of participants had poor knowledge regarding foot care. A third of the participants were unaware that socks should be changed every day and that feet should be thoroughly dried after wash. More than one third of the patients were unaware of how to properly apply talcum powder and lotion on their feet. Most people used petroleum jelly as moisturizer on feet. Talcum powder use is not much in practice. As we know that Pakistan lies in temperate zone and also the socio-economic status of people living here is low, most people never check the water temperature. They let the water run through tap until cool water starts flowing. As they don't have thermometers or other devices, they just hand-check the water heat. Additionally, since open-toed sandals are a prevalent style of footwear among Pakistanis, it's possible that the respondents did not feel the need to apply talcum powder to keep the interdigital regions on their feet dry. These findings are consistent with a study conducted in Ethiopia, where majority of participants had poor knowledge about foot care (9). Similarly, a study a study conducted in Lahore Pakistan also revealed the same findings (11). In addition, these findings concur with those of a research carried out in China and Nigeria., where 78% and 45% had poor knowledge (14, 15). In contrast, these findings are inconsistent with the findings of a study conducted in India, while 75% were knowledgeable (16). With proper education and practise in diabetic foot care, complications like ulcers due to diabetes and lower extremity amputations can be avoided. The most important method of preventing lower limb amputations brought on by problems is foot care education (16).

In terms of foot care processes, just 25 (or 16.4%) people had good procedures in place, compared to 79 (or 51.6%) people who had inadequate procedures. In terms of habits, the majority of respondents did not follow daily application of moisturizing cream or lotion, post-use inspection of feet and footwear, wearing of appropriate footwear, breaking-in of shoes, wearing of seamless socks, checking water temperature when washing feet, and application of dressing for wounds and wounds on the feet. Poor foot care habits and footwear selection may have had an impact on practise test scores. Most of the patients were dressed comfortably. These results are in line with a research among Filipinos who have diabetes on their preferred first choice of footwear (17). Diabetes patients went barefoot inside in India and Iran at rates of 41% and 62%, respectively (18, 19).

However, the current study revealed that knowledge of participants was significantly associated with age and education level of participants. These findings are consistent with a study conducted by Li et al, where knowledge of participants was associated with education level (20). The current study revealed that Practices of participants were significantly associated with age and education level of participants. These findings were consistent with a study conducted in Faisalabad, Pakistan, where self-care foot practises and participant age and education level were related (21). Medical resources, diagnosis, and treatment must improve in developing countries. There are limited resources: access to medical and health resources; knowledge about disease; awareness, trainings, and awareness about health. Health literacy is mandatory for any disease and facilitates the patients access to resources, databases, and trainings about the disease in print and electronic (hybrid) format.[22-29]

CONCLUSION

The results of study concluded that diabetic patients from have poor understanding of foot care knowledge and practices. Knowledge and self-care practices of foot care were associated with age and education level of participants. Health-care professionals should concentrate on filling knowledge gaps in foot care, promoting good foot hygiene habits, and enticing patients to take part in diabetes education initiatives.

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