

Knowledge Attitude and Practice of Diabetic Foot Care among Diabetics

Narmeen Ghafoor**, Gulraiz Enderyas*, Asim Raza*, Farooq Islam*, Faryal Ghafoor*

*Department of Rehabilitation Sciences, University of Chenab, Gujrat, Punjab, Pakistan

**University Institute of Physical Therapy, University of Lahore, Punjab, Pakistan

Abstract:

Background: Among diabetes complications, foot ulcers are quite common. The most important factor to save patients from future ulcers or amputations is their awareness of this problem. This study is carried out to evaluate the knowledge, attitudes, and practices of foot care among diabetes patients.

Method: A descriptive cross-sectional study was carried out in a tertiary care hospital in Gujrat city of Pakistan on 421 patients who had diabetes for more than six months. The data was collected through a pre-tested questionnaire which had sections for demographic, knowledge attitude, and practice.

Results: The results showed only 42.3% people had enough knowledge about foot care. The attitude and practice rates were lower than knowledge being only 25.2 and 9.5 respectively. There was a positive correlation between the knowledge and the educational status of patients.

Conclusion: More awareness is needed about diabetic foot care in Pakistan. People are at the risk of developing foot complications if enough steps are not taken. Patients need to be motivated by family members and healthcare providers for better lifestyle choices and practices.

KEYWORDS: Attitude, Diabetics, Diabetic foot, foot care, knowledge, practice

I. INTRODUCTION

Diabetes mellitus is a metabolic condition in which blood glucose levels are increased. About 422 million individuals worldwide have diabetes. They are primarily from underdeveloped nations. (1) It currently affects 78 million individuals in South East Asia, and by 2040, 140 million cases are expected there. (2)

Pakistan has the third-largest diabetes population in the world. According to the most recent International Diabetic Federation Atlas 2 estimate, 33 million people are suffering from type 2 diabetes. An estimated 11 million Pakistanis have reduced glucose tolerance. Undiagnosed diabetes affects about 9 million individuals. (3)

Diabetes increases the risk of developing serious, life-threatening health problems, which can raise the cost of medical care, lower quality of life, and increase mortality. (4)

Changes in the ecological and psychological landscape are primarily responsible for the significant rise in diabetes cases. The major reason for the rise in

diabetes patients is sedentary lifestyle, which include more time spent in front of screens and higher calorie intake.(5)

Among diabetics, foot issues continue to be the leading reason for hospital admissions. A diabetic patient has a 25% lifetime risk of developing ulcer, and there is an 85% risk that it will lead them to foot amputation at some point.(6)

Diabetic foot issues affect 131.0 million persons globally (1.77 percent of the population). Four million people have suffered an amputation, 18 million have foot ulcers, and 2.5 million have lost a limb..(7)

It is challenging to control the growing DM pandemic in Pakistan due to the lack of healthcare facilities and the country's subpar healthcare infrastructure. Despite the grave situation in the country, there are very few specialist diabetes centers and diabetic foot clinics that are accessible to the majority of people.

According to a Pakistani study, inadequate diabetic foot care is also related to low literacy rates, subpar education, and ignorance.(8)

No research had previously been published about the understanding and application of diabetic foot care and diabetic foot ulcers in the Gujrat city. This is true despite an increase in DFU cases in the city. This study evaluated the knowledge levels, attitude and practices of Diabetic foot care in Gujrat city in order to determine the awareness about this problem.

II. METHODOLOGY

This descriptive cross-sectional research was conducted on individuals with diabetes who had the

disease for more than six months. Patients having gestational diabetes and who have already gone under foot amputation were excluded from this study. A sample size of 421 was used for this study. Data was collected through a pre-tested questionnaire from outpatient department of Aziz Bhatti Shaheed teaching hospital of Gujrat City. The questionnaire is taken by a similar study carried out in Saudia by Al Amari with α -Cronbach's of 0.74(9). The questionnaire had questions about patient's personal data and about their knowledge level about foot care, the attitude and practices.

After collecting the data it was entered into statistical software SPSS version 20. One point was awarded for each correct answer, and the total points were added together. A person with more than 60% points was considered to have good awareness and with less than 60% was considered to have poor awareness. Mean age was calculated for descriptive analysis whereas Frequencies and percentage were evaluated for all other variable. Crosstabulation was used to determine the knowledge, attitude and practice levels according to patient's education. Chi square test was used and spearman correlation was calculated and P-value ≤ 0.05 was regarded as a statistically significant value.

III. RESULTS

Data was collected from 421 diabetic patients who met the inclusion criteria. The age range of participants were from 19 to 75 years with mean age of 54.67 ± 9.12 . Out of 421 299 (71%) were female and 122 (29%) were male. Majority of the participants had little education. 51 (12.1%) out of 421 were university graduate and 143 (34%) had completed high school. About 270 (64.1%) of them had a family member with diabetes. (Table 1)

Regarding diabetic foot care, 42.3% of the participants had high knowledge, whereas 57.7% had inadequate knowledge. The highest number of correct answers were seen with the question “Diabetic patient can suffer from a lack of sensation in the feet?” with a percentage of 89.8% followed by “Diabetes can reduce blood flow to the feet of diabetic patients?” (85%). In terms of attitude only 25.2% had good attitude regarding foot care while 74.8% had poor attitude. The question “Diabetics should check for any wounds on their feet frequently” had highest number of correct answer (79%) while the question with lowest number of correct answers was whether the Diabetics should be going for routinely checkups in the diabetic clinics with 27.8 percent. Out of 421 only 40 (9.5%) diabetic patients had good practice while 381 (90.5%) had poor practice. (Table 2)

The association between education and knowledge, attitude & practice was found to be statistically significant. There was a weak association of 0.24 between knowledge and education. The association between education and attitude was even lesser 0.22.

The weakest association was found between education and attitude of patients.(Table 3)

	Female	299(71.01)
Marital Status	Single	39(9.32)
	Married	382(90.71)
	Illiterate	37(8.82)
	Primary School	112(26.61)
	Middle School	78(18.52)
	High School	143(34.02)
	Graduate	51(12.13)
Family member with Diabetes	Yes	270(64.11)
	No	151(35.91)

Table 2: Knowledge, attitude and practice level of patients

	Category	n (%)
Knowledge Level	Poor	243 (57.71)
	Good	178 (42.30)
Attitude Level	Poor	315 (74.83)
	Good	106 (25.21)
Practice Level	Poor	381(90.53)
	Good	40 (9.51)

Table 1: Personal data of patients

Personal Data		N(%)
Age of participants in Years	<20	2(0.5)
	20-40	56(13.30)
	40-60	250(59.40)
	>60	113(26.80)
Gender	Male	122(29.00)

Table 3: Association of Education with knowledge, attitude and practice

Education									
Variables	Categories	Illiterate	Primary school	Middle school	High school	Graduate	Spearman correlation	Chi square value	p value
		N(%)							
Knowledge of Diabetic foot care	Poor	29 (78.40)	69 (61.60)	59 (75.60)	72 (50.30)	14 (27.50)	0.249	39.759	<0.001*
	Good	8 (21.60)	43 (38.40)	19 (24.40)	71 (49.70)	37 (72.50)			
Attitude of Diabetic foot care	Poor	36 (97.30)	86 (76.80)	65 (83.30)	93 (65.00)	35 (68.60)	0.178	21.459	<0.001*
	Good	1 (2.70)	26 (23.20)	13 (16.70)	50 (35.00)	16 (31.40)			
Practice of Diabetic foot care	Poor	33 (89.20)	107 (95.50)	77 (98.70)	133 (93.00)	31 (60.80)	0.221	62.923	<0.001*
	Good	4 (10.80)	5 (4.50)	1 (1.30)	10 (7.00)	20 (39.20)			

IV. DISCUSSION

With the increasing surge of diabetic cases in Pakistan the rate of diabetic foot complications is also increasing. Being a developing country Pakistan is facing major challenges in order to support the increasing needs of diabetes related complications. This study was carried out to evaluate the knowledge attitude and practice of diabetic foot care in Gujrat city. The findings of this study revealed that diabetic individuals had inadequate levels of knowledge. While this finding was consistent to many others(10, 11)Several studies had showed good knowledge.(12-14) The level of knowledge had a direct and significant relation to education of patients which was similar to many other studies. (11, 15)

Study conducted by Yahya Solan et al in Saudi Arabia showed only 46% had enough knowledge of foot care. Study published by Hasnain conducted at Jinnah hospital showed 29% knowledge.(16) Some studies showed good knowledge of diabetic foot care which may be due to guidelines issued by different health care settings.(17)(18)This study discovered that the majority of participants were aware of the

possibility of sensory loss in the feet, one of the earliest symptoms of developing diabetic foot complications. The question with highest number of incorrect answers was about the knowledge of ill effects of smoking on foot circulation. This matched the findings of a study Desalu et al. conducted in Nigeria.(15)

64% participants of this study had a family member with diabetes but it had negative correlation with the knowledge level of participants.

However, the level of attitude and practice was much lower than the level of knowledge. Most of the patient didn't agree with the idea of routine checkups which could be due to lack of communication between healthcare providers and patients. The patients agreed with the need of wearing specialized medicated shoes and seeing a specialist in case of wound or infection on the foot. Majority agreed they should check for wounds in their feet daily. (79%).

This study showed only 9.5% good practice among diabetic patients which is an alarming situation. There is negative correlation between knowledge and

level of practices of care. The findings of several research revealed a same pattern of scoring with relation to diabetic foot care. In Most of the studies practice level is lower than the knowledge (9, 19, 20). Pourkezmi et al from Iran observed that only 8.8% diabetics had good foot care practice. (21)

Poor practices observed by patients include walking barefoot, not going for routinely checkups and not changing their footwear on time. This point is worth mentioning that most of people in this study belonged to low socioeconomic status. The poor practice of not going for routine check-ups and changing footwear could be attributed to increasing healthcare costs. The highest number of positive responses came with the question of daily washing of feet which was due to religious obligation of ablution (wadhū) for prayer in Muslim community of Pakistan in which this study was carried out. Muslims are obligated to wash their feet five times a day for prayer.

The contribution made by the health care system has a considerable impact on how this condition may be improved. The results of our study is reminder for healthcare workers to educate patients and ensure their compliance in diabetic foot care. Good knowledge will increase patients' confidence in managing their illness or complications.

V. CONCLUSION

Developing new strategies to spread knowledge about diabetic foot care is very important at this time when the cases are rapidly increasing and an alarming number of people are at the risk of foot complications. There need to be more mass media coverage with emphasis on good foot care practices. Patients need to be motivated by family and healthcare supporters to improvise their lifestyle choices for the prevention of diabetic foot complication

Conflict of interest

There was no conflict of interest.

Financial statement

No funding was given by authorities. It was a project thesis of doctor of physical therapy.

Data availability

Data will be provided on demand by corresponding author.

REFERENCES

1. Tuglo LS, Nyande FK, Agordoh PD, Nartey EB, Pan Z, Logosu L, et al. Knowledge and practice of diabetic foot care and the prevalence of diabetic foot ulcers among diabetic patients of selected hospitals in the Volta Region, Ghana. 2022;19(3):601-14.
2. Sulisty A, Sae-Sia W, Maneewat KJGJoN, Care H. Diabetic foot care knowledge and behaviors of individuals with diabetes mellitus in Indonesia. 2020;5(1).
3. Bhutta ZA, Haq ZU, Basit AJTLD, Endocrinology. Diabetes in Pakistan: addressing the crisis. 2022;10(5):309-10.
4. Cho NH, Shaw J, Karuranga S, Huang Y, da Rocha Fernandes J, Ohlrogge A, et al. IDF Diabetes Atlas: Global estimates of diabetes prevalence for 2017 and projections for 2045. 2018;138:271-81.
5. Basit A, Fawwad A, Siddiqui SA, Baqa KJD, metabolic syndrome, targets o, therapy. Current management strategies to target the increasing incidence of diabetes within Pakistan. 2019;12:85.
6. Hanley G, Chiou PY, Liu CY, Chen HM, Pfeiffer SJIWJ. Foot care knowledge, attitudes and practices among patients with diabetic foot and amputation in St. Kitts and Nevis. 2020;17(5):1142-52.
7. Edmonds M, Manu C, Vas PJJCoCO, Trauma. The current burden of diabetic foot disease. 2021;17:88-93.
8. Saeed H, Saleem Z, Naeem R, Shahzadi I, Islam MJPH. Impact of health literacy on diabetes outcomes: a cross-sectional study from Lahore, Pakistan. 2018;156:8-14.
9. Al Amri AM, Shahrani IM, Almaker YA, Alshehri DM, Argabi MA, Alghamidi FA, et al. Knowledge, Attitude and Practice Regarding Risk of Diabetic Foot Among Diabetic Patients in Aseer Region, Saudi Arabia. Cureus. 2021;13(10).

10. Ramirez-Perdomo C, Perdomo-Romero A, Rodríguez-Vélez M. Knowledge and practices for the prevention of the diabetic foot. *Revista gaucha de enfermagem*. 2019;40.
11. Qadi MA, Al Zahrani HA. Foot care knowledge and practice among diabetic patients attending primary health care centers in Jeddah City. *J King Abdulaziz Univ Med Sci*. 2011;98:1-34.
12. Magbanua E, Lim-Alba R. Knowledge and practice of diabetic foot care in patients with diabetes at Chinese general hospital and medical center. *Journal of the ASEAN Federation of Endocrine Societies*. 2017;32(2):123.
13. Alshammari ZJ, Alsaid LA, Paramaswari P, Alzahrani AA. Attitude and knowledge about foot care among diabetic patients in Riyadh, Saudi Arabia. *Journal of family medicine and primary care*. 2019;8(6):2089.
14. Mustafa A, Iqbal M, Parvez MA. Assessment of knowledge, attitude and practices of diabetics regarding their foot care. *Annals of Punjab Medical College (APMC)*. 2017;11(1):43-7.
15. Desalu O, Salawu F, Jimoh A, Adekoya A, Busari O, Olokoba A. Diabetic foot care: self reported knowledge and practice among patients attending three tertiary hospital in Nigeria. *Ghana medical journal*. 2011;45(2).
16. Hasnain S, Sheikh NH. Knowledge and practices regarding foot care in diabetic patients visiting diabetic clinic in Jinnah Hospital, Lahore. *JPMMA The journal of the Pakistan Medical Association*. 2009;59(10):687.
17. Haq NU, Durrani P, Nasim A, Riaz S. Assessment of knowledge and practice of diabetes mellitus patients regarding foot care in tertiary care hospitals in Quetta, Pakistan. *Specialty J Med Res Health Sci*. 2017;2(4):35-43.
18. Muhammad-Lutfi A, Zaraiyah M, Anuar-Ramdhan I. Knowledge and practice of diabetic foot care in an in-patient setting at a tertiary medical center. *Malaysian Orthopaedic Journal*. 2014;8(3):22.
19. Hanley G, Chiou PY, Liu CY, Chen HM, Pfeiffer S. Foot care knowledge, attitudes and practices among patients with diabetic foot and amputation in St. Kitts and Nevis. *International Wound Journal*. 2020;17(5):1142-52.
20. Tuglo LS, Nyande FK, Agordoh PD, Nartey EB, Pan Z, Logosu L, et al. Knowledge and practice of diabetic foot care and the prevalence of diabetic foot ulcers among diabetic patients of selected hospitals in the Volta Region, Ghana. *International Wound Journal*. 2022;19(3):601-14.
21. Pourkazemi A, Ghanbari A, Khojamli M, Balo H, Hemmati H, Jafaryparvar Z, et al. Diabetic foot care: knowledge and practice. *BMC endocrine disorders*. 2020;20(1):1-8.

AUTHORS

First Author – Narmeen Ghafoor, Student, University Institute of Physical Therapy, University of Lahore, Lahore, Punjab, Pakistan, Jinnahlink31@gmail.com
<https://orcid.org/0000-0001-7414-2843>

Second Author – Gulraiz Enderyas*, MS, Lecturer, Department of Rehabilitation Sciences, Allied Health Sciences, University of Chenab, Gujrat, Punjab, Pakistan. gulraizpt@gmail.com

Third Author – Asim Raza, PhD (Scholar), Assistant Professor, Allied Health Sciences, University of Chenab, Gujrat, Punjab, Pakistan. asimrazathakur@gmail.com

Fourth Author: Farooq Islam, PhD (Scholar), Assistant Professor, Department of Rehabilitation Sciences, University of Chenab, Gujrat, Punjab, Pakistan.
farooq.islam@uipt.uol.edu.pk

Fifth Author: Faryal Ghafoor, Student, Agha Khan university, Karachi, Sindh, Pakistan
faryalghafoor123@gmail.com

Correspondence Author – Narmeen Ghafoor, Student, University Institute of Physical Therapy, University of Lahore, Lahore, Punjab, Pakistan,
Jinnahlink31@gmail.com +923446211758