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Research Article

**DIABETIC FOOT ULCER PREVALENCE KNOWLEDGE  
AND PRACTICE AMONG DIABETIC PATIENTS.**<sup>1</sup>Dr Saba Aeman, <sup>2</sup>Dr Narmeen Zafar, <sup>3</sup>Dr Hassan Zia<sup>1</sup>MBBS, Islam Medical and Dental College, Sialkot<sup>2</sup>MBBS, Central Park Medical College, Lahore.<sup>1</sup>MBBS, Frontier Medical College, Abbotabad.**Article Received:** December 2019    **Accepted:** January 2020    **Published:** February 2020**Abstract:**

Approximately 415 million people in the world are affected by major systemic disease is known as Diabetes mellitus (DM). The outbreak will rapidly increase in the next few years which is an alarming state. Pakistan is having the prevalence rate of 8.7% in adult population which is the highest number worldwide. In 2015, there were 69.1 million patients of DM whereas it would be more than 101.2 million by 2030 [2]. Out 103 patients, 62 (61.1%) patients belonged to the age group 51-70 years, 33 (30.1%) patients were from the age group 31-50 years and 8 (7.8%) patients were 71 years and above age group. Among them, 79 (75.7%) patients were male and 26 (24.3%) patients were female. Total 45 (43.4 %) participants were having diabetes for more than ten years, 27 (26.2%) patients had diabetes for 5-10 years and 21 (20.4%) were suffering from DM for less than 5 years duration. 74 (71.8%) participants had diabetic foot problem first time, while rest of the 29 (28.2%) participants had diabetic foot problem second or more time. Present study reports that overall population has poor knowledge and poor practice of diabetic foot care which is the major cause of limb amputation in the diabetic foot ulcer from diabetic foot. By emphasizing regarding the foot care knowledge and practice the prognosis of the diabetic foot ulcer will be improved involuntarily. This may minimize the morbidity and rate of amputation in the diabetic patients.

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## INTRODUCTION:

Approximately 415 million people in the world are affected by major systemic disease is known as Diabetes mellitus (DM).<sup>1</sup> The outbreak will rapidly increase in the next few years which is an alarming state.

Pakistan is having the prevalence rate of 8.7% in adult population which is the highest number worldwide. In 2015, there were 69.1 million patients of DM whereas it would be more than 101.2 million by 2030 [2]. However at some point in the future DM leads to many other complications. One of the most catastrophic and significant complication in the diabetic patient is diabetic foot Which is defined as ulceration of foot caused by neuropathy or compromised peripheral arterial disease of the lower limb in patients suffering from diabetes [3] [4]. The most vulnerable factors of diabetic foot ulcer in diabetic patient is a triad of neuropathy, angiopathy and trauma. [5] Approximately 15% of the population suffering from DM will suffer from diabetic foot ulcer in their life [6]. With the negligence of proper treatment of Diabetic foot ulcer, its further progression may end up in limb amputation due to necrosis and gangrene.

Literature has reported that approximately 3-10% patients who are having DFU will must undergo limb amputation [7]. Globally 30-40% limb amputations occur due to DM which is non-traumatic. Because of DM somewhere in the world there is loss of limb every 30 seconds as a result of diabetes [8].

Diabetic foot has great burden on the health system [9]. Limb amputation itself is associated with many socioeconomic consequences for patients like, loss of productive hours at inpatient department, permanent loss of income, decreased social acceptance etc. But with practice of proper prevention and treatment guidelines, 85% of these amputations are preventable, the prevalence of diabetic foot ulcers in the clinic population is 3.6% [11]. Socio-cultural practices such as barefoot walking, religious practices like walking on fire, use of improper footwear and lack of knowledge regarding foot-care attributes towards increase in the prevalence of foot complications [12]. Studies have shown that hyperglycemia control, cessation of smoking, proper foot hygiene, daily inspection of feet for any trauma, use of proper footwear and early medical help can prevent the incidence of DFU by 50-60% [13]. Current study was aimed to know the prevalence of the knowledge and practice of preventive guidelines among the patients with diabetic foot.

## MATERIALS AND METHODS:

It was a cross-sectional study conducted in a tertiary care Centre.

The method of the study was purposive non probability sampling method. Total 113 patients were included in the study who were in the OPD of surgery department. Informed written consent was taken from the participants for the interview. A written informed consent was given to the patients and the purpose of the study was explained to them in to their first language. A self-administering questionnaire was given to evaluate the patient's level of knowledge and practice of foot care measures.

14 questions for current foot care practice and twenty questions for knowledge of foot care were included in the questionnaire. On the basis of total marks obtained by each patient, score for knowledge and that for current practice for each respondent was determined. The knowledge and current practice for foot care were classified as good, satisfactory and poor depending upon the score obtained. For the knowledge, if the score was  $\geq 70\%$  (14-20), it was regarded as good, score of 50-69% (13-10) was regarded as satisfactory and that less than 50% (<10) was regarded as poor. For the practice, if score was  $\geq 70\%$  (10-14), it was regarded as good, score of 50-69% (9-7) was regarded as satisfactory and anything less than 50% (<7) was regarded as poor. The classification explained above was scored by using score by O. O. Desalu et al in their own study. The data was described in frequency distribution of the variables whereas to compare the variables cross-tabulation was performed. To find out the statistical significance Chi-square was used. Statistical significance was  $P < 0.05$ .

## RESULTS:

Out of 113 participants 8 did not want to enroll in the study and other two did not meet the inclusion criteria.

Out 103 patients, 62 (61.1%) patients belonged to the age group 51-70 years, 33 (30.1%) patients were from the age group 31-50 years and 8 (7.8%) patients were 71 years and above age group. Among them, 79 (75.7%) patients were male and 26 (24.3%) patients were female. Total 45 (43.4 %) participants were having diabetes for more than ten years, 27 (26.2%) patients had diabetes for 5-10 years and 21 (20.4%) were suffering from DM for less than 5 years duration. 74 (71.8%) participants had diabetic foot problem first time, while rest of the 29 (28.2%) participants had diabetic foot problem second or more time. Majority of the participants had correct knowledge concerning the regular use of anti-diabetic drug for prevention of complication (90.3%), checking of the leg every

night (95.1%) and which part should be checked (86.4%) and most of them (75.7%) also knew that what should be checked in the legs. Almost 90% of the participants were having the knowledge of not to walk bare foot.

But only 20 to 25% knew that they should not sit cross legged or stand for longer time, the kind of shoes they should wear and detrimental effect of smoking in diabetic foot problem. Nearly 75% respondents took anti-diabetics drugs regularly. Nearly 3/5 participants checked their legs at night. Almost 50% respondents clean their legs at night, check temperature of water before using, pat dry the leg after washing their legs, antiseptic solution on the foot and apply lotion or cream if skin is dry and rough. Nearly 85% respondents did not walk bare foot but only 45% wore comfortable shoes regularly. Only 2/5 participants had consulted for their foot to doctor immediately

### DISCUSSION:

The diabetic foot care practice should be encouraged from the initiation of disease. Current study shows that more than 90% participants were having the knowledge of regular use of ant diabetic drug for avoiding the complications the findings relate with the results of another study conducted by O.O. Desalu et.al. [14].

Current study has reported that almost 95% of the participants were having the idea of checking the foot every night is important to avoid the complications whereas 76% of them were sensible enough about the parts of the legs to be examined and only 60% of them knew about how to clean legs. An observation study conducted on Seid A et al, which reported that 95.8 participants were aware about how many times feet must be washed out [15].

Whereas in the current study only 33% of the participants were aware of the temperature of water must be checked before using it.

Similar findings were observed by AR Muhammad Lutfi et al. in their study in which 31 % respondents knew about this [16].

In current study, 92.2 % participants knew that they should not walk bare foot, which relates with the study conducted by AR Muhammad Lutfi [17].

In current study, nearly half of the participants pat dry their legs after washing them, which is remarkably lesser as compared to the observation done by Lutfi ARM et al in his study (80%) [18]. In our study, only one fourth of the participants were aware about the importance of proper and comfortable footwear and nearly 43% of the participants were having the knowledge of inspection of the inside of the footwear before

wearing them to prevent leg trauma, which was found significantly higher (70%) in the study done by Lutfi ARM et al[19]. The difference could be due to the variation in the education level and socioeconomic level in both study groups.

Knowledge regarding exaggerating side effects of smoking on diabetic foot problem was present among 21% respondents, which is comparable with the results documented by Desalu OO et al [20] Regarding practice of the foot care, in this study, only 3/4 participants were taking anti-diabetic drugs regularly. Half of the respondents checked and cleaned their legs every night and pat dry legs after washing. Seid et al, in his study, observed that 41.2% patients checked their legs every day and 60% pat dry their legs after washing [21] In current study, 85% participants did not walk bare foot, which is comparable with observation done by Dikeukwu RA et al that 82% respondents did not walk bare foot [22] Similarly, Lutfi ARM et al, also reported in his study that 77.1 % patients did not walk bare foot [23] It is important to check the shoes from inside the before wearing it and to wear comfortable shoes to prevent the trauma to feet which was observed only in 2/5 respondents of this study, which is lower than the findings mentioned by Desaul OO et al in his study in which 52.3% participants checked inside the shoes [24] In this study, nearly 40 % participants consulted the doctor immediately for this foot problem. Remaining patients had consulted a doctor even a month of the occurrence of the problem, which can be considered as a major issue as foot problem may progress further and may end up in amputation. Present study revealed, 27 (28%) participants had poor knowledge for diabetic foot care which is higher as compared to the observation made by Gholap MC et al in their study that showed 18% of the participants had poor knowledge for the diabetic foot care [15]. In present study, majority of the patients i.e., 53 (51%) had poor practice for foot care in contradiction to the observation of Manisha et al where only 20 % participants had poor practice and 48 % had average practice for foot care [26]. This can be explained by the fact that the study conducted by Manisha et al was in the diabetic patients, while our study was in the patients of the diabetic foot.

Less knowledge among the population about care of feet is more prone to have diabetic foot.

In current study, 16% participants showed good practice of the foot care which is familiar with the results documented by Desalu et al, where 14% respondents had good practices for foot care. In this study, the difference between knowledge and practice of the respondents was found to be statistically significant as the knowledge of the participants was satisfactory while poor practice

was observed in as high as half of the respondents [27]. This finding was comparable with other related studies, which also reported the same pattern of level of knowledge and practice of foot care, where the score of practice was always poorer than the score of knowledge. The study revealed that the sex of the respondents had shown no significant statistical association with knowledge and practices regarding foot care. This finding supported study finding of Desalu et al. Faraja S et al, reported that duration of diabetes had no correlation with the knowledge and practice behavior of the patients, which was not compatible with our finding, in which, duration of the diabetes had significant association with knowledge and practice [28]. Present study concludes that younger participants had better practice for the foot care than older ones, so concentration for the education should be more on old age population. In this study, duration of the diabetes and previous problem of the diabetic foot had significant association with knowledge and practice, wherein, patients with short history of the disease and first time development of DM foot had poor knowledge and practice behaviour. This indicates that education is needed from the early stage of the disease.

### CONCLUSION:

Present study reports that overall population has poor knowledge and poor practice of diabetic foot care which is the major cause of limb amputation in the diabetic foot ulcer from diabetic foot. By emphasizing regarding the foot care knowledge and practice the prognosis of the diabetic foot ulcer will be improved involuntary. This may minimize the morbidity and rate of amputation in the diabetic patients.

### REFERENCES:

1. International Diabetes Federation. IDF diabetes atlas, Mission. Available on <http://www.idf.org/mission>. Accessed on 05 July 2016.
2. International Diabetes Federation. South East Asia. India. Available on <http://www.idf.org/membership/sea/india>. Accessed on 05 July 2016.
3. International Diabetes Federation. IDF diabetes atlas. In: IDF, eds. A Book. 6th edition. Brussels, Belgium: International Diabetes Federation;2013.
4. Mohan V, Madan Z, Jha R, Deepa R, Pradeepa R. Diabetes social and economic perspectives in the new Millennium. *Int J Diab Dev Countries*. 2004;24:29-35.
5. Alexiadou K, Doupis J. Management of diabetic foot ulcers. *Diabetes Ther*. 2012;3(4):1-15.
6. Katsilambros N, Dounis E, Makrilakis K, Tentolouris N, Tsapogas P. Atlas of the diabetic foot. 2nd ed. Oxford: Wiley-Blackwell; 2010.
7. Lauterbach S, Kostev K, Kohlmann T. Prevalence of diabetic foot syndrome and its risk factors in the UK. *J Wound Care*. 2010;19:333-7.
8. Andrew J, Gunne R, Jan A. The global burden of diabetes foot disease. *Lancet*. 2005;366:1719-24.
9. Abbas ZG. Reducing diabetic limb amputations in developing countries. *Expert Review of Endocrinology and Metabolism*. 2015;10(4):425-34.
10. International Diabetes Federation Time to Act: diabetes and foot care. Brussels: International Diabetes Federation, 2005.
11. Thomson FJ. A team approach to diabetic foot care: the Manchester experience. *Foot*. 1991;1:75-82.
12. Williams R, Airey M. The size of the problem: economic aspects of foot problems in diabetes. In: Boulton AJM, Connor H, Cavanagh PR, eds. *The Foot in Diabetes*, 3rd edition. Chichester:Wiley, 2000:3.
13. Manisha c. Gholap, Vaishali M. To assess the knowledge and practice regarding foot care among diabetes patients at krishna hospital, karad. *Indian J Sci Res*. 2013;4(2):69-75.
14. Pendsey SP. Epidemiological aspects of diabetic foot. *Int J Diab Dev Countries*. 1994;14:37-8.
15. Boulton AJM, Vileikyte L, Ragnarson TG, Apelqvist J. The global burden of diabetic foot disease. *Lancet*. 2005;366:1719-24.
16. Vijay V, Snehalatha C, Ramachandran A. Sociocultural practices that may affect the development of the diabetic foot. *IDF Bulletin*. 1997;42:10-2.
17. Lavery LA, Wunderlich RP, Tredwell JL. Disease management for the diabetic foot: effectiveness of a diabetic foot prevention program to reduce amputations and hospitalizations. *Diabetes Res Clin Pract*. 2005;70:31-7.
18. Snehil Dixit, Arun Maiya, Himanshu Khetrpal et al. A questionnaire based survey on awareness of diabetic foot care in Indian population with diabetes: A cross-sectional multicentre study. 2011;65(10):411-23.
19. Desalu OO, Salawu FK, Jimoh AK. Diabetic foot care: self-reported knowledge and practice among patients attending three tertiary hospital in Nigeria. *Ghana Med J*. 2011;45(2):60-5.
20. Seid A, Tsige Y. Knowledge, practice, and barriers of foot care among diabetic patients attending felege hiwot referral hospital, bahir dar, northwest ethiopia. *Advances Nursing*. 2015;12(4):1-9.

21. Lutfi M, Zaraihah MR, Anuar IM. Knowledge and practice of diabetic foot care in an in-patient setting at a tertiary medical center. *Malaysian Orthopaedic Journal*. 2014;8(4):22-6.
22. Dikeukwu RA. The awareness and performance of appropriate foot self-care practices among diabetic patients attending, Dr. Yusuf Dadoo Hospital, Gauteng, South Africa. 2012.
23. Hasnain S, Sheikh NH. Knowledge and practices regarding foot care in diabetic patients visiting diabetic clinic in Jinnah Hospital, Lahore. *J Pak Med Assoc*. 2009;59(10):687-90.
24. Chellan G, Srikumar S, Varma AK, Mangalanandan TS, Sundram KR, Jayakumar RV, Bal A, Kumar H. Foot care practice the key to prevent diabetic foot ulcers in India. *Foot*. 2012;22(4):298-302.
25. Chiwanga FS, Njelekela MA. Diabetic foot: prevalence, knowledge, and foot self-care practices among diabetic patients in Dar es Salaam, Tanzaniaa cross-sectional study. *J Foot Ankle Res*. 2015;8(20):1-7.
26. Khawaja N, Abu-Shennar J, Saleh M, Dahbour SS, Khader YS, Ajlouni KM, et al. The prevalence and risk factors of peripheral neuropathy among patients with type 2 diabetes mellitus; the case of Jordan. *Diabetol Metab Syndr*. 2018;10:8
27. Dikeukwu RA. The Awareness and Performance of Appropriate Foot Self-Care Practices among Diabetic Patients Attending Dr. Yusuf Dadoo Hospital. Gauteng Province, South Africa. 2012