

## KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING FOOT CARE IN DIABETIC PATIENTS

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Article Received on 10/03/2020

Article Revised on 01/04/2020

Article Accepted on 21/04/2020

## ABSTRACT

**Background:** Diabetes mellitus is multifarious illness and foot ulceration is one among its common complication. Diabetic foot lesion is calculable to impact 15 to 25th of individuals with diabetes at some time in their lives and it precedes 25% to 90% of all amputations. **Objective:** Good knowledge and practice regarding diabetic foot care will reduce the risk of diabetic foot complications and ultimately amputation. This study is conducted to assess patients' knowledge and compliance of diabetic foot care. **Material and Methodology:** A cross sectional study was conducted at public diabetic clinic in Ibne-Seina hospital, Multan. A sample of 300 patients were chosen using nonprobability convenient sampling in the duration of one month. A questionnaire which included demographic details, knowledge and practice of functional foot care was administered. Data was compiled in SPSS V20 software and later analyzed in Community Medicine department, Multan Medical and College. **Results:** out of total of 300 diabetic patients studied, 182 patients (60.66%) had good knowledge regarding prevention of diabetic foot while total of only 110 patients (36.66%) were found to have a good level of practice. Poor educational status and long duration of diabetes was significantly associated with poor knowledge and poor practice of functional foot care. 250 (83.33%) diabetics knew the importance of taking anti diabetic drugs to prevent complications. 68 (22%) knew the warning signs regarding diabetic foot to consult the doctor. 182 patients (60.66%) knew the Importance of keeping feet dry to avoid foot complications. Regarding practices, 156 (52%) patients inspected their feet and toes regularly. 202 (67.3%) washed their feet regularly. 108 (36%) trimmed their nails in time properly. 136 (45%) had a habit of walking bare foot. 128 (42.66%) inspected the inside of the shoes they wore. 104 (34.66%) wore shoes with socks. **Conclusion:** Result demonstrate satisfactory data on diabetic foot care however practices of preventive techniques are extremely unsatisfying. The study has highlighted the gap in data and observe of foot care in DM patient. The majority of the patients collaborating in the study didn't have higher education and were of low socioeconomic standing. Only a few individuals knew the warning signs concerning diabetic foot to consult the doctor. Practices of correct timely trimming of nails, regular review of feet, carrying socks were found to be terribly poor. But regular feet washing and knowledge of the importance of taking anti diabetic medicine as safety measure was satisfactory.

**KEYWORDS:** Diabetes mellitus, foot care, knowledge and practice.

## INTRODUCTION

Diabetes mellitus (DM) refers to a bunch of common metabolic disorders that share the phenotype of hyperglycemia. The various kinds of DM are caused by a complex interaction of genetic and environmental factors. Looking on their etiology, the factors that contribute to hyperglycemia include reduced insulin secretion, a decrease in glucose utilization and a rise in its production. The associated metabolic dysregulation causes secondary pathophysiological changes in multiple organ systems that impose an incredible load on the individual and also the healthcare system. Diabetes mellitus could be a non-communicable illness with

multi-organ involvement. Till recently it absolutely was believed as a disease that happens chiefly in developed countries, however more recent findings show incidence of recent cases with diagnosed type 2 diabetes in developing countries. In addition as seeing increasing numbers of patients, several countries are coverage earlier onset of type 2 diabetes and its associated complications.<sup>[1,2]</sup>

Diabetes is associated with complications such as cardiovascular diseases, nephropathy, retinopathy and neuropathy, which can lead to severe morbidity and mortality. One of the complications associated with

diabetes is peripheral vascular disease, the damage caused to the large blood vessels supplying the lower limbs. Major complication is neuropathy, which can lead to loss of sensation in feet. Later the foot can secondarily become infected, often with polymicrobial invasion and it may need to be amputated if not managed appropriately. On an average every 30 seconds an extremity is amputated due to complications of diabetes mellitus (DM) and the majority of these amputations are secondary to foot ulcers.<sup>[7]</sup> Treatment of infection in diabetic ulcer is difficult and expensive. On the other hand, more than 70% of patients who have developed foot ulcer, experience exacerbation of the disease in the next 5 years.<sup>[8]</sup> The ulcer usually appears in the same extremity or the extremity of the opposite side; at least a quarter of these ulcers do not heal.<sup>[9,10]</sup> Therefore, based on the noble quote in health care profession "prevention is better than the treatment of the disease." Pakistan is a developing country with 39% poor population<sup>[12]</sup> who have little awareness about almost everything. According to the International Diabetes Federation (IDF) Pakistan had 6.2 million people of age group 20-79 years with diabetes in 2003. By 2025 this number is expected to reach 11.5 million. More than 6 million or more people currently suffer from impaired glucose tolerance. This makes the diabetes population of 20-79 years age group in Pakistan the seventh largest in the world. This makes the diabetes population of 20-79 years age group in Pakistan the seventh largest in the world and if the predictions are accurate, it will take fifth place by 2025. In Pakistan, deaths from diabetes alone are projected to increase by 51% over the next 10 years.<sup>[13]</sup> These figures make diabetes an epidemic which places an enormous burden on our healthcare systems and economy. Foot ulcers are among the most common complications of diabetes with prevalence of 4-10%.<sup>[14]</sup>

The common component causes of diabetic foot ulcer formation are trauma, neuropathy and deformity.<sup>[4]</sup> 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 patients. It has been estimated that up to 50% of the major amputations in diabetic patients can be prevented with

effective education. International Consensus on the Diabetic Foot is a prominent guide which has been found effective previously.<sup>26</sup> The Diabetes Committee of the American Orthopedic Foot and Ankle Society has also issued a guideline on proper foot care.<sup>27</sup> Foot care education is the most crucial tool for preventing lower leg amputation. Educating healthcare professionals involved in the patients daily life and also educating the patient's next of kin may constitute a more effective intervention, in combination with improved footwear, education during or even prior to ulceration.

## METHODS

**Study design:** Descriptive Cross sectional study design  
**Study population:** -Patients attending Ibne-Seina hospital, Multan OPD.

**Setting:**-The study was carried out on the patients visiting Ibne-Seina hospital, Multan, diabetic clinic.  
**Study Duration:** Data was collected in a period of about one month from 20th July to 25th August.

**Sampling technique:**-Non probability convenient sampling.

**Sample size:** - 300 patients.

**Inclusion criteria:**-Patients having Diabetes type I  
 Patients having Diabetes type II  
**Exclusion criteria:**-Patients having diabetic foot ulcer. Patients who have already developed complications (Nephropathy, retinopathy, neuropathy) of diabetes. Data collection procedure:-Data was collected by distributing a questionnaire approved by Community Medicine Department, NMU. Total 10 questions were asked, 3 to assess the knowledge and 6 to assess the practice about diabetic foot care. Each positive answer was assigned one mark. Because controlling blood glucose level by drugs is of primary importance so this question was assigned 2 marks. On the basis of total marks obtained by each patient, score for knowledge and that for current practice for each respondent was determined. Their knowledge and current practice for foot care were classified as good and poor depending upon the score obtained. For the knowledge, if the score was >75% (3-4), it was regarded as good and if lesser it was considered poor. For practice, if score was >66% (4-6), it was regarded as good and lesser score was considered poor. Data analysis:-The data was entered and analyzed in a computer program SPSS V20 and reports were generated accordingly.

## RESULTS

**Table No. 1: Frequency distribution table of patients on gender basis.**

n= 300 Gender	Frequency	Percentage
Male	168	56
Female	132	44

Table No. 2: Frequency distribution table of patients on basis of education.

Status	Frequency	Percentage
Illiterate	70	23
Primary	48	16
Secondary	66	22
Higher	116	39

Table No. 3: Frequency distribution table of patients on basis of duration of diabetes.

Duration	Frequency	Percentage
Less than 5 years	124	41.33
5-10 years	104	34.66
More than 10 years	72	24

Table No. 4: Frequency distribution table showing level of knowledge with reference to education status. n =300.

Knowledge	Education Status							
	Illiterate (70)		Primary (48)		Secondary(66)		Higher(116)	
	Frequency	%age	Frequency	%age	Frequency	%age	Frequency	%age
Good knowledge	22	31.4 %	24	50.00%	52	78.7%	84	72.4%
Poor knowledge	48	68.5%	24	50%	14	21.3%	32	27.5%

Table No. 6: Frequency distribution of people knowing the importance of taking anti diabetic drugs to prevent complications. n=300.

Status	Frequency	Percentage
Yes	250	83.33
No	50	16.66

Table No. 7: Frequency distribution table of people knowing the importance of keeping feet dry.

Status	Frequency	Percentage
Yes	182	60.66
No	118	40.44

Table No. 8: Frequency distribution table showing no. of diabetics knowing the warning signs when to consult the doctor. n=300.

Status	Frequency	Percentage
Yes	68	22
No	232	78

Table No. 9: Frequency distribution of patients inspecting their feet and toes regularly. n=300.

Status	Frequency	Percentage
Yes	156	52
No	144	48

Table No. 10: Frequency distribution of people who wash their feet regularly.

Status	Frequency	Percentage
Yes	279	93.33
No	21	6.77

Table No. 11: Frequency distribution of people who trim their nails on timely basis.

Status	Frequency	Percentage
Yes	108	36
No	192	64

Table No. 12: Frequency distribution of patients who are in a habit of walking bare foot. n=300.

Status	Frequency	Percentage
Yes	72	24%
No	228	76%

**Table No. 13: Frequency distribution of patients who inspect the inside of shoes they wear. n=300.**

Status	Frequency	Percentage
Yes	128	42.66
No	172	57.33

**Table No. 14: Frequency distribution of patients who wears shoes with socks. n=300.**

Status	Frequency	Percentage
Yes	104	34.66
No	196	65.33

We enrolled a total of 300 diabetic patients to the study, 168 (56%) were males and 132 (44%) were females. The mean age of the respondents was  $50 \pm 5.5$ . Of 300 patients, 70 (23.33%) had no formal or primary education, 48 (16%) had primary, 66 (22%) secondary and 112 (38.66%) higher. A total of 182 patients (60.66%) had good knowledge regarding prevention of diabetic foot while total of 110 patients (36.66%) were found to have a good level of practice. Poor educational status and long duration of diabetes was significantly associated with poor knowledge and poor practice of functional foot care as shown by table 4 and 5. 250 (83.33%) diabetics knew the importance of taking anti diabetic drugs to prevent complications. 182 patients (60%) knew the Importance of keeping feet dry to avoid foot complications. 68 (22%) knew the warning signs regarding diabetic foot to consult the doctor. Regarding practices 156 (52%) patients inspected their feet and toes regularly. 202 (93%) washed their feet regularly. 108 (36%) trimmed their nails in time properly. 136 (45%) had a habit of walking bare foot 128 (42.66%) inspected the inside of the shoes they wore. 104 (34.66%) wore shoes with socks.

## DISCUSSION

Our study is predicated on KAPS studies that suggests that the correct information (knowledge) can influence attitudes and thus change the behavior. Diabetic foot care is a crucial a part of diabetic treatment and preventions because the lack of its information might result in several complications like redness/bleeding between toes; foot ulcers etc. therefore the knowledge concerning its prevention is critical and is that the responsibility of the health care provider and the patient as well.

The study comprised of 300 subjects taken from Ibne-Seina hospital, Multan. During this study out of the 300 respondents, the mean age was found to be fifty, the age at that diabetes type 2 is extremely common. These patients were elder and symptomless and had diabetes for extended durations that resulted in sensible knowledge however poor medical seeking behavior and practice. Moreover, we have a tendency to found that the bulk of the patients taking part within the study failed to have secondary education and were of low socioeconomic standing. The data of applicable foot care has been steered to be absolutely influenced by patient education that successively reduces the danger of foot ulceration and amputation in risky diabetics. The association between education and knowledge may be

due to the fact that, educated patient were able to read and understand some of educational supportive materials and also use information technology to obtain more information about the disease. Furthermore, it is showed that 60.66% had good knowledge regarding prevention of diabetic foot and 39.34% had poor knowledge. This is in contrast to the study conducted in Jinnah hospital Lahore<sup>[18]</sup> where only 40% had satisfactory knowledge and 60% had poor knowledge. Thus we can say that the probability of good knowledge may arise from staying in diabetes for long periods. So a good proportion of the people (83.3%) knew about the complications which could arise by not taking the diabetic treatment but they didn't know about the warning signs after which they should consult the doctor. This deficiency in the knowledge may be due to poor communication between the doctors and the patients and also lack of counselling by the doctors and nurses as result of busy clinic schedule.

Regarding the practice, this study shows 36.66% of the respondents with good practice only and 63.34% with poor practice. Similar and comparable results of poor practice of 61% people was found in the study conducted in Pakistan in September 13-14 in a tertiary care unit.<sup>[22]</sup> But contrasting results were obtained from the study carried out in Sri Lanka in 2010 where only 47.3% had poor practice.<sup>[20]</sup> The other findings on two most important behavioral risk factors leading to diabetic foot complications that are walking barefoot indoors and outdoors showed that only 45% had a habit of walking barefoot. This is compatible with a South Africa study where 35% reported of walking barefoot whereas this proportion was much less in Saudi Arabia study<sup>[19]</sup> where only 18% walk barefoot. This shows that the individuals were poorly knowledgeable regarding the fact that walking bare foot could lead to further complications like foot ulcers. In our study 93% of the individuals washed their feet regularly similar to 88.87% people in the study of Jinnah Hospital Lahore Pakistan(2009).<sup>[17]</sup> The low levels of knowledge reported by the participants may be due to different factors, such as lack of properly trained personnel in interventions involving the care of people diagnosed with DM; insufficient time allotted to medical and nursing consultations; and lack of clear and precise communication between the different parties involved in caring for the sick person, which hinders the acquisition and consolidation of knowledge that helps reduce the impact of the devastating effects of the disease. In this regard, it is recognized that scant

communication, lack of counseling by health professionals and insufficient diabetic foot prevention education negatively influence the level of knowledge of people receiving treatment.<sup>[20]</sup> Therefore, it is necessary to strengthen educational strategies and promote their inclusion into the routine practices of the different care services, as a protection factor to mitigate the impact of the disease and reduce the risk of foot ulcers which, in turn, can lead to amputations and all the resultant effects on the quality of life of people in this situation. Thus patient education on the prevention of diabetic foot is imperative and should be incorporated into the routine care of patients with diabetes both in the hospital and in the community. It is a hospital based observational study evaluating patients who were referred to the tertiary care hospital. So our study does not properly reflect the total population and thus cannot be generalized.

### CONCLUSION

Result demonstrate satisfactory knowledge on diabetic foot care but practices of preventive techniques are highly unsatisfactory. The study has highlighted the gap in knowledge and practice of foot care in diabetes mellitus patient. The majority of the patients participating in the study did not have higher education and were of low socioeconomic status. Very few people knew the warning signs regarding diabetic foot to consult the doctor. Practices of proper timely trimming of nails, regular inspection of feet, wearing socks were found to be very poor. However regular feet washing and knowledge of the importance of taking anti diabetic drugs as preventive measure was satisfactory. The data collection tool was self-generated and carried the risk of recall bias by the participants. It is recommended that patients with diabetes should be educated regarding all risk factors for diabetic foot ulcer, Foot care education should be given at Primary Health Care (BHU RHC), and all individuals with diabetes should receive an annual foot examination to identify high risk foot conditions.

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