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Knowledge, Attitude and Practice of Foot Care Among Diabetes Mellitus Patients at The Buea And Limbe Regional Hospitals

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Abstract

This study was aimed at investigating the knowledge and practice of foot care in diabetes mellitus patients in Buea and Limbe Regional Hospitals. Via a structured questionnaire, a cross-sectional study was conducted on a total of 60 local diabetic patients, male and female, who were attending diabetic clinics at the Buea and Limbe Regional Hospitals. Discussion and analysis of the information received by way of this questionnaire highlighted significant gaps in patients' knowledge of foot care as well as their inadequate foot care practices. The patients' paucity of knowledge about foot care, as well as their unhealthy foot care practices, was associated with low levels of literacy, poor economic conditions, and healthcare providers' inadequate knowledge of their patients. Thus, the study evidenced not only that there is a need for diabetes patients at Buea and Limbe regional hospitals to effectively improve their knowledge and practice of foot care, but also that other humane changes must to be made with regard to the economic and educational status of diabetic patients and the healthcare providers' knowledge of them.

Keywords: *Diabetes Mellitus Patients, knowledge of foot care, foot care practices, attitude towards foot care, regional hospitals*

Introduction

Diabetic foot is one of the most feared complications of diabetes and is the leading cause of hospitalization among diabetic patients. Diabetes affects people worldwide and poses major public health and socioeconomic challenges (Fomboh, 2017). Diabetes mellitus (DM) is considered as one of the most challenging public health concerns, as globally 422 million adults were living with diabetes in 2014, compared to 108 million in 1980 (Beagley *et al.*, 2014), (WHO, 2016). According to WHO in 2016, the global prevalence of diabetes has nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population. Also, DM leads to both acute and chronic complications that result in morbidity and mortality from damage to end organs, the heart, blood vessels, eyes, nerves, kidneys, and the lower limbs.

Moreover, complications affecting the lower limbs are among the most common manifestations of diabetes, occurring in 15% of diabetic patients during their lifetime (Bild *et al.*, 2000). These complications are a frequent cause of hospitalizations and disability, with 1 in 5 hospitalizations among diabetic patients being directly related to foot ulcers. Moreover, the cost of treating these complications accounts for around 25% of the hospital costs of diabetes care, but the indirect costs can be greater (Songer, 2001). In addition, data on the diabetic foot in sub-Saharan Africa are sparse. In Africa, there are several other challenges that lead to poor foot care, challenges that include non-existent podiatry services, lack of programs for health care professionals and lack of surveillance mechanisms (Chiwanga & Njeleka, 2015).

In Cameroon, the prevalence of diabetes in adults in urban areas is estimated at 6-8% (Njonnou *et al.*, 2018). Mbanya *et al.* in 2001 in a retrospective hospital audit found that foot lesions were the second leading cause for hospitalizations in diabetic patients and were associated with a mortality rate of 19.3%.

Hence patients' heightened awareness about foot care is an important line of defense in preventing diabetic foot problems and amputation (Wu *et al.*, 2007). In addition, correct practices of foot health care are essential for reducing the incidence of foot ulcers and other medical complications (McInnes *et al.*, 2011). The nurse has the responsibility of educating the patients on how to perform physical examinations and how to take care of their feet on a daily basis. They must also be involved in the care of the patient by undertaking foot examinations and wound dressings, and by facilitating rehabilitation exercises involving such items as canes, wheel chairs and special foot wares.

Materials, Setting and Methodology

Two government-owned Buea and Limbe regional hospitals comprise the setting for this study. These hospitals are secondary level hospitals in Cameroon and serve as referral and teaching hospitals for health personnel in the south-west region. A cross-sectional descriptive study design was used to assess the knowledge and practices of diabetic patients in the prevention of diabetic foot disease. Patients attending diabetic clinic at these two hospitals were sampled via the purposive sampling technique. A total of 64 patients were recruited for this study, and 60 of them responded. Data for this study was collected within a three-month period.

A structured questionnaire was designed. It was based on literature review and used for data collection. The questionnaire was divided into three sections: demographic data, knowledge on diabetic foot care, and challenges to the prevention of diabetic foot. Participants' knowledge was assessed in the following areas: their awareness of lack of sensation in their feet, their awareness of the need to check their feet, and their practice of daily foot care—washing of feet,

moisturizing dry areas of the foot, and checking for fallen objects (such as debris) in shoes before wearing them.

Results

Socio-Demographic Data

As Table #1 (below) reflects, of the 60 respondents, 73% were females, 27% were males, and 37% of the respondents were aged between 51 and 70 years. 25% of the respondents were housewives and 25% were farmers. Only 40% of the respondents had attained a primary level of education and just 12% of the respondents had attained a tertiary level of education. Also, up to 43% of respondents had an income level of less than 5000 francs CFA per month (Table 1)

Table #1: Socio-Demographic Data

Variables	Frequency	Percentage
Gender		
Female	44	73.33
Male	16	26.67
Age		
31-50	12	20.00
51-70	37	61.67
70 and above	11	18.33
Educational level		
No education	13	21.67
Primary	24	40.00

Secondary	16	26.67
Tertiary	7	11.66
Occupation		
House wife	15	25.00
Farmer	15	25.00
Student	1	1.67
Business	8	13.33
Others	21	35.00
Income/ month		
<5000 frs	26	43.33
5000-10000 frs	3	5.00
10000-50000frs	10	16.67
>50000	21	35.00

Knowledge of foot care

According to data received concerning patients' knowledge of foot care (see Table #2 below), most of the respondents (85%) reported having been taught foot care by nurses at the diabetic clinic. Up to 55% did not know that a diabetes patient could develop a lack of sensation in the feet, and 30% were not aware that diabetes patients could develop a foot ulcer. Moreover, 57% of the respondents were not aware of the fact that a loss of sensation in the foot makes a patient more prone to developing a foot ulcer, and 12% did not know that a foot infection can

develop into an ulcer. Only 16.3% could correctly identify that a diabetic patient should cut nails straight through—that is, from corner to corner. (See Table #2 below.)

Table #2 :Knowledge of foot care

Knowledge Items	Frequency(N)	Percentage
Have you been taught foot care by nurses at the diabetic clinic?		
No	9	15.00
Yes	51	85.00
Can diabetes patients develop lack of sensation in their feet?		
No	33	55
Yes	27	45
Can diabetes patients develop foot ulcers?		
No	18	30
Yes	42	70
Loss of sensation in the foot makes a patient prone to having foot ulcers?		
No	34	57
Yes	26	43
Can a foot infection develop into a foot ulcer?		
No	7	12
Yes	53	88

Patients knowledge on how to trim nails		
Cutting along the edges	28	46.67
Cutting straight through that is from corner to corner	11	16.33
I don't know	17	28.33
Using a nail file	4	6.67
Knowledge scores	N	Percentage
Scored < 3 points	12	20
Scored 3-4 points	16	27
Scored > 4 points	32	53

Foot Care Practices

In the area of patients' foot care practices—as evidenced in Table #3 below—18% of the respondents said they do not dry between their toes, and 55% reported that they apply moisturizing lotion on their feet daily even between their toes. Also, 72% of the respondents reported that they do not cut their nails straight through and up to 52% reported that they do not check whether their shoes or socks leave marks on their feet. Notwithstanding, 88% of the respondents reported that they do check for fallen objects in their shoes before wearing them, and 98% said they wash their feet daily. Additionally, up to 25% of respondents reported not wearing slippers or shoes all the time indoors and outdoors, and 40% of the respondents said they change their foot wear only when the foot wear gets damaged. Up to 43% of respondents said they would prefer managing any abnormality they find on their feet at home, rather than going to the hospital for treatment, and up to 77% of the respondents reported that they never go to the hospital for foot checkup (table 3).

Table #3: Foot Care Practices

Foot care Practices	FREQUENCY	PERCENTAGE
If respondents dry between their toes.		
No	11	18.33
Yes	49	81.67
If respondents put moisturizing lotions on their feet daily (except between their toes).		
No	33	55.00
Yes	27	45.00
If respondents wear shoes or slippers all the time indoors and outdoors.		
No	15	25.00
Yes	45	75.00
What patients would do if they find an abnormality.		
Manage yourself	26	43.33
Consult a doctor	34	56.67
Rate at which patients change foot wear.		
When slippers are damaged	24	40.00
once in a year	1	1.67
More than once in a year	5	8.33
Interchange	30	50.00
Rate at which patients go for foot checkup.		
Once in a month	11	18.33



Once in 6 months	1	1.67
Once in a year	2	3.33
Never	46	76.67
If patients wash their feet daily		
No	1	2
Yes	59	98
If patients moisturize dry areas of their feet daily.		
No	11	18
Yes	49	82
If patients check the temperature of water with their hand before putting their foot in it.		
No	16	27
Yes	44	73
If patients cut toe nails straight through regularly.		
No	43	72
Yes	17	28
If patients check whether shoes/socks leave marks on their feet.		
No	43	72
Yes	17	28
If patients check whether shoes/socks leave marks on their feet.		
Yes	29	48



No	31	52
If patients check for fallen objects in their shoes daily before putting them on.		
No	7	12
Yes	53	88
Practice assessment	N	Percentage
Scored < 7 points	10	17
Scored 7 – 8 points	23	38
>9 points	27	45

Discussion

Findings of this study showed that the participants were from a lower socioeconomic class and had attained basic level education. This finding is similar to that of the study conducted by Reda *et al.* (2017) in Saudi Arabia, in which 37% of the participants had attained only primary education. Additionally, findings suggest that nurses who work in diabetic clinic do inform patients about foot care but that the nurses' knowledge of foot care is very limited. A good majority (55%) of the respondents did not know that diabetes could cause a lack of sensation in their feet with and that this lack of sensation can lead to foot ulcers 34 (57%). Noticeably, the high percentage of participants with poor knowledge regarding loss of sensation in diabetes patients, is consistent with Mesale *et al.*, also in Saudi Arabia. Such poor knowledge may be due to the fact that foot complications in diabetes are not effectively taught to patients during visits to diabetic clinics in our two hospitals. Indeed, some participants (15%) reported they had never been taught foot care

in the diabetic clinic. Nonetheless, the number who reported receiving education on diabetic foot care from nurses was comparatively higher than in the study by Kishore *et al.* (2015) in India, where only 13% of the respondents were advised about foot care by a health care professional.

In this study, 47% of the participants were not sufficiently knowledgeable about foot care practices, a finding which is in line with a study conducted by Solan *et al.* in 2016, where 46% of the respondents did not know correct foot care practices.

The results of this study generally highlight various good and poor foot care practices of the respondents. A significant majority of them reported washing their feet daily, always drying between their toes, cutting their nails straight through and checking for fallen objects (such as debris) in their shoes before wearing them. These findings are in line with several studies in the published literature (Chiwanga & Njeleka, 2015), (Mesale *et al.*, 2017), (Solan *et al.*, 2016), and (Teli & Pannappa, 2017). Notwithstanding the generally good efforts in ensuring these important foot care measures, there is still need for education and follow-up to empower all diabetic patients to observe these good practices.

However, the practice of not wearing slippers or shoes all the time (indoors and outdoors), as reported in a previous study (Reda *et al.*, 2017), needs to be condemned among diabetic patients, as this practice predisposes them to foot injury. Equally, the practice of attempting homecare remedies for diabetic foot prior to seeing a healthcare provider needs to be condemned, and patients need to be taught the right approach to diabetic foot care during diabetic clinics.

From the study 45% of the respondents had high scores (performed at least 9 footcare practices correctly out of the 13 foot care practices the respondents were evaluated on) in foot care evaluation, a significantly lower finding than in Mesale *et al.* (2017) in Saudi Arabia, where 55%

of the respondents had high scores. This difference may be due to the fact that the patients are less educated about foot care practices than those patients reported in Mesale *et al.*

Conclusion

Regrettably, the participants of this study have very limited knowledgeable about foot care, and their actual practice of foot care is equally regrettable. This situation can be ameliorated by government-supported advancement of patient education regarding foot care practices in general and diabetic foot prevention in particular. Obviously, the nurses should become more familiar with their patients, and patients' families or guardians should become more educated on the topic of foot care, especially as it applies to diabetes patients.

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