ORIGINAL ARTICLE

Knowledge and Practices of foot care in Type Diabetic Patients Visiting OPD of a tertiary care hospital

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ABSTRACT

Aim: To assess the knowledge and practices of foot care in terms of frequency of good, averageorpoorintype2 Diabetic patients.
Study Design: Cross-sectional study.
Place and duration: Diabetic clinic, Jinnah Hospital Lahore. Six months, i.e.July2016 to January2017.
Methodology: Diabetic patients were interviewed using a structured questionnaire comprising of 7and 18 questions in knowledge and practices section respectively. The data were analyzed using SPSS version 20. A total of 220 patients with mean age of 52.9±12.5years were included.
Results: The mean knowledge score was 3.9±2.9 with 31.82% having good, 40% satisfactory & 28.18% having poor knowledge about diabetic foot care. In practices section, mean practices score was 10.50±4.5 with 16.82% good, 59.09% average, and 24.09% poor practices towards diabetic footcare.
Conclusion: We concluded that Poor education, low socioeconomic status and short history of diabetes were significantly associated with lower knowledge and practice scores in this study. Programs to increase patient's awareness about foot-care in diabetes should be employed.
Keywords: Diabetes Mellitus, Foot care, Knowledge, Practice.

INTRODUCTION

Diabetes mellitus is a chronic disease, which occurs when pancreas does not produce enough insulin or when body cannot effectively utilize the insulin produced. In 2014, the estimated global prevalence of diabetes was 9% among adults aged 18+years[1].The prevalence of diabetes is expected to rise from 6.4% in 2010 to 7.7% in 2030, with an estimated 69% rise in number of adult diabetics in developing countries[2] In 2012, an estimated 1.5 million deaths were directly caused by diabetes[3,4]. Healthy diet, regular physical activity, and avoiding to bacco can prevent or delay the onset of type 2 diabetes[5].

Pakistan has the seventh largest world population of diabetic patients and by 2025, it will take the fourth place[3]. According to International Diabetes Federation (IDF), Pakistan had 6.2 million people with Diabetes mellitus in 2003 and the number is expected to rise to over 14.5 million by 2025[5]. Pathogenesis include beta cell dysfunction and insulin resistance with consequent impaired carbohydrate, protein and fat metabolism[6].

Diabetes is associated with 10-30% decrease in life expectancy mainly due to its complications[6]. The direct and indirect effects of hyperglycemia on vascular tree are the major source of morbidity and mortality in both type 1 and type 2 diabetes. Generally, they are categorized into macro-vascular (coronary artery disease, peripheral arterial disease and stroke) and microvascular complications (diabetic nephropathy, neuropathy, and retinopathy)[7]. Several studies have shown that a majority of people with diabetes did not receive guideline recommended foot care. In a study by Marina et al on knowledge and practices of foot care, showed the mean knowledge score was 11.2 ± 6.4 out of 23. Low mean scores were associated with lack of formal education (8.3 ± 6.1), diabetes duration of < 5years (10.2 ± 6.7) and not receiving advice on foot care (8.0 ± 6.1). Among the 404 patients, 48% had received advice on foot care, and 27.5% had their feet examined by a doctor at least once since their diagnosis is. Majority of patients (58%) had poor foot care knowledge, 97 patients (61.8%) had poor practices, and 38.2% had adequate knowledge. The majority of patients received education from nurses (83.5%), only 16.6% received foot care information from doctors; and 6.2% were educated by other sources, such as media[8]. Due to lack of awareness, these preventable complications are rampant in Pakistani diabetic population. Illiteracy, poverty, and ignorance has made the life of diabetic patients miserable, consequently medical wards have been over burdened with diabetic complications, especially diabetic foot, all of them being potentially preventable by having proper knowledge and prevention practices. Patient's ability to self-care largely affects diabetes management therefore patient education has always been considered an essential element of diabetes management. Literature has shown that patients who are knowledgeable about their disease have better long term glycemic control. Thus, it is imperative to ensure that patient's knowledge, attitudes and practices are adequate[9]. Diabetes self-management education is teaching people how to manage their diabetes. But before expecting patients to assume self-care, it is very pertinent to assess patient's knowledge and practices about diabetes. This will help us develop various intervention strategies and educational material for helping people manage their disease more appropriately according to their background and educational status[10].

We conducted a detailed literature search on Google Scholar, Pub Med, Pak Medi Net, EMBASE, and Cochrane Library to find similar studies from Pakistan. There are few studies done to evaluate knowledge and practices of foot care among Pakistani diabetic population[11]. The studies

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were limited due to short sample size and inclusion of general population instead of actual diabetic patients. This study was conducted with the intention to assess the knowledge and practices of foot care in Pakistani population visiting outpatient department of a tertiary care hospital.

The objective of the study was to assess the knowledge and practices of foot care in terms of frequency of good, average or poor in type 2 Diabetic patients.

Diabetes Mellitus Type 2: It was defined as random plasma glucose >200mg/dL at time of diagnosis in patients on oral hypoglycemic or insulin for at least 3 years.

Knowledge: Knowledge was defined as having understanding about diabetes mellitus with respect to its symptoms, risk factors & complications, especially diabetic foot and its prevention. Foot self-care was assessed on structured questionnaire including 7 questions for knowledge assessment and categorized as good, average, and poor on basis of the total knowledge score. A score of >5 was considered good, 3 -5 as average, and <3 as poor (Score Range: 0-7).

Practices: The actions taken by the individual respondents to manage their disease and prevent complications were defined as practices. This was assessed by a structured questionnaire having 18 questions for assessment of practices of foot care. The responses were categorized as good, average, and poor based on total practices score. A score of >14 was considered as good, 8-14 as average, and <8 as poor (Score range:0-18)

MATERIALSANDMETHODS:

This cross sectional study was conducted in the Diabetic Clinic, Jinnah Hospital, Lahore from July 15 to January 15, 2017.The sample size was calculated using software WINPEPI version 11.15 with 95% Confidence Interval, 4% margin of error and expecting percentage of good practices of diabetic foot care (i.e., score ≥70%) to be 10.2% (least among all) in type 2 Diabetic patients[11]. The calculated sample size was 220 cases for this study. Non-probability/ consecutive sampling technique was used.

Inclusion criteria*:*

1. All patients aged 40 to 70 years
2. Either gender.
3. Patients with type 2 diabetes mellitus as defined in operational definition (random plasma glucose level ≥200mg/dL in patients diagnosed at least for 3 years).

Exclusion criteria:

1. Patients having underwent amputation due to any other cause other than diabetes mellitus.
2. Health care professionals, nurses ,doctors, paramedics.

Ethical Considerations and Data collection: The study was done after approval from Ethical Review Board of Allama Iqbal Medical College/ Jinnah Hospital, Lahore. Informed written consent was obtained from all the participants. All data collected was recorded in the designed questionnaire from 220patients fulfilling the inclusion criteria. A detailed demographic profile was collected and knowledge and practices of foot care. Confounding variables like age, education status and economic status were addressed by data stratification.

The knowledge and practices of diabetic foot care were classified as follows:

Table1:Scoring System for Knowledge and Practices of Foot Care in Diabetes

Score/Grade	Knowledge	Practices
Total Score	**7**	**18**
Good	>5	>14
Average	3–5	8–14
Poor	<3	<8

Data Analysis: Data were analyzed with SPSSversion20.Meanand Standard deviation were calculated fornumerical variables like age, duration of illness. Frequency and percentages were calculated for qualitative variables like knowledge and practices of diabetic foot care. Percentages of correct and incorrect responses to each question in the questionnaire were also calculated. Average scores of knowledge and practices were calculated and presented as mean±SD. Data were stratified for age, gender, duration f diabetes, socioeconomic status and educational status to deal with effect modifiers. Post-stratification Chi-square test was used to assess the effect o f these variable on knowledge and practices of diabetic foot care. Ap-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 220 patients were enrolled to determine their knowledge, and practices towards foot care in diabetes. The mean age of the participants was 52.9±12.5 years (range=40–68 years). Gender distribution showed 93(42.27%) maleand 127(57.73%) females.

The mean duration of diabetes was 8.7±3.2 years (range=3–15years).(Table2) 142 individuals (64.55%) were literate with attainment of primary education or higher while 78(35.45%) were illiterate without any primary education. Considering duration of diabetes, 60(27.27%) had diabetes for more than the last 10 years, 91(41.36%) had diabetes for the last 5-10 years and 69(31.37%) had diabetes less than forthelast5 years. Mean duration of diabetes was8.9±5.1years. For treatment and control of diabetes mellitus 69(32.73%) administered insulin, 93(42.27%) used orally poglycemic, 50(22.72%) used both insulin and orally poglycemic, whereas 5(2.28%) patients took other measures to control diabetes mellitus (Table 4).

Results of Patients 'Knowledge about Foot Care in Diabetes: The mean knowledge scorecameouttobe3.9±2.9 (range 0–7) out of a total maximum score of 7. The results showed:

1. Good knowledge (score 5 or more):70(31.82%)
2. Average knowledge (score 3-5): 88(40%)
3. Poor knowledge (score 3 or less): 62(28.18%)

Results of Patients Practices about Diabetes and its complications: The mean practices score was 10.50± 4.5 (range: 0-18) out of a total score of18.

- Good practices (score 14 or more):37(16.82%)
- Average practices (score 8-14): 130(59.09%)
- Poor knowledge (score 8 or less: 53(24.09%)

In order to determine the impact of demographic factors on knowledge and practice of foot care the categorical variables were dichotomized and the chi-square test was used to assess the statistical significance. Poor education attainment and low socioeconomic status were significantly associated with lower knowledge and practices cores. Besides, the patients with diabetes for more than 10 years duration performed significantly better in knowledge and practice score as compared to their counter parts with relatively shorter history of diabetes.

Table 2: Knowledge of patients about foot care in diabetes

Score/Grade	Correct Answers	n	%
Good	>5	70	31.82
Average	3–5	88	40.00
Poor	<3	62	28.18
Total score	**7**	**220**	**100.00**

MeanKnowledgeScore:3.9± 2.9(Range:0–7)

Table 3: Patient's responses to the questions asked in knowledge section

No.	Question Statement	Correct	Incorrect
1	Diabetes is raised blood sugars only?	97(44.10%)	123(55.90%)
2	Diabetes can affect any part of the body?	67 (30.45%)	150 (69.55%)
3	Diabetes can effect on your feet?	85 (38.64%)	135 (61.36%)
4	Diabetic patients need special foot care?	73 (33.18%)	147 (66.82%)
5	Diabetics should look after their feet as they may not feel injury/ trauma to their feet?	96(43.64%)	124(56.34%)
6	Foot infections in diabetes may not heal properly and quickly?	114 (51.82)	106 (48.18%)
7	Smoking affects foot ulcer healing in diabetics?	61 (27.72)	159 (72.28%)

Table 7: Practices of patients about foot care in diabetes

Score/Grade	Correct Answers	n	%
Good	>14	37	16.82
Average	8–14	130	59.09
Poor	<8	53	24.09
Total score	18	220	100

Mean Practices Score:10.50± 4.5 (Range:0–18)

Table 8: Patients' responses to the questions asked in foot care practices section

No.	Question Statement	Correct	Incorrect
1	Do you inspect your feet regularly?	86(39.09)	134(60.91)
2	Do you wash your feet regularly?	171(77.73)	49(22.27)
3	Do you regularly walk bare foot?	62(28.18)	158(71.82)
4	Do you wear elasticized hosiery?	13(5.91)	207(94.09)
5	Do you trim your foot nail straight across?	98(44.55)	122(55.45)
6	Do you clean your nails with sharp instruments?	75(34.09)	145(65.91)
7	Do you prefer covered foot wear?	101(45.91)	119(54.09)
8	Do you wear flat shoes mostly?	136(61.82)	84(38.18)
9	Do you prefer shoe with wide forepart?	105(47.73)	115(52.27)
10	Have you ever sought advice on foot- care from health care professional?	74(33.64)	146(66.36)
11	Do you have regular follow up in foot-care clinic?	39(17.73)	181(82.27)
12	Do you inspect your shoes before putting them on?	152(69.09)	68(30.91)
13	Do you dry your feet well after washing?	71(32.27)	149(67.73)
14	Do you use emollients on foot for skin dryness?	125(56.82)	95(43.18)
15	Do you wear your shoes without socks?	70(31.82)	150(68.18)
16	Do you smoke?	80(36.36)	140(63.64)
17	If you have any calluses or cuts on your feet, do you consult doctor immediately?	83(37.73)	137(62.27)
18	You wash your feet with Luke warm water?	103(46.82)	117(53.18)

DISCUSSION:

The primary objectives of the study to determine foot care knowledge and practices in type 2 diabetic patients were successfully met. Assessment of knowledge revealed only 31.82% participants had good knowledge about foot care. Respondents having primary education and above scored significantly better than the individuals who did not had. ($p<0.05$).

Viswanathan et al had earlier showed that lower educational status was significantly associated with lower knowledge and practices in diabetic patients regarding foot-care[12]. Similar results were found out in our study. Berardis et al further confirmed the role of formal/school education where the presence of foot complications was correlated with insulin treatment, cigarette smoking and low levels of school education[13].

In our study, 59% of the patients had average practices regarding foot care, whereas only 16%hadgoodpractices. Khamseh et al also found that low knowledge scores were attributed to low level of education

and lack of advice on foot care[14].. Similarly, a study conducted in UK to assess the knowledge and practices of foot care in people with diabetes showed positive correlation between knowledge score and having received advice on foot care[15].

Our study revealed that only 16.82% of the respondents had good practices for foot care which indicates an alarming situation and one should take appropriate actions for it. Another striking feature revealed was that 40% of the respondents had average knowledge whereas 59% had average practices regarding foot care. The deficiency in the knowledge may be due to poor communication between the health care professionals and the patients and also lack of counselling. Time must be allotted to communication, information and education during clinic sessions[16]. Furthermore, the education of physician is highly imperative to complement and reinforce the behaviors of patient with regards to foot care; they need to learn and imbibe the skills of counseling and risk assessment. Foot self-care was shown to have improved among those who had received advice on foot care and those whose feet had been examined by a doctor at least once[11]. Bell et al made similar observations in evaluating long-term diabetes self-management among an elderly population in the United States[17].

Proper foot self-care behaviors can reduce the risk of injury, infection, and amputation in someone with an at risk foot. Foot injuries and ulceration have been associated with poor Type 2 DM-related foot care knowledge and foot self-care skills[18].This lack of knowledge has been recognized as a contributing factor to why people with Type 2DM do not undertake foot self-care practices[19].The results of our study area wake-up call on the clinicians and nurses to establish a patients and physician friendly educational programs that will enhance and sustain the good knowledge &practice of foot care in Pakistan.

CONCLUSION:

Knowledge and practices about foot-care in diabetes were poor and yielded low results in every section. High literacy level, more monthly income and prolonged duration of diabetes were significantly related to good knowledge and practices regarding foot-care in diabetes. Though majority of the patients knew basics of diabetes foot care but only a few could transform their knowledge into actual practice.

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