

Assessment of Preventive Foot Care Practices among Patients with Diabetes Mellitus Type II

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Abstract:

Background: Diabetic foot problems are one of the most important complications of diabetes mellitus which causing a worldwide high cost morbidity which could be due to poor self-practices.

Objectives: To assess the preventive food care practices among diabetic patients and to find out any significant association of these practices with selected socio-demographical and diabetic related characteristics.

Patients and Methods: A descriptive cross-sectional study was conducted in Baquba city from the period of 20th Septembers, 2016 up to 20th March, 2017, by selecting a sample of (120) patients by using a structured questionnaire, the questionnaire composed of three parts, the first part contains information related to patients' demographic characteristics, the second part contains some information related to diabetic characteristics and the third part of the questionnaire consists of different questions about preventive foot care practices which consist of 14 positive items. Each one of these items must be answered either with (Always, Never or Sometimes). A three levels Likert scale was used to measure the variables. Finally, the data analyzed using SPSS (Ver.18) and the Chi-square was used to find out any association between studied data and preventive foot care practices. $P \leq 0.05$ was considered significant in the present study.

Results: Out of 120 diabetic patients, (40%) of them were over 60 years, (52.5%) were male patients, about one third (32.5%) were illiterate, most of them (40.8%) had moderate monthly income, majority of them (66.7%) were living in urban areas. Also the current study showed that the patient responses to preventive foot care practices were satisfactory at all studied items, except at the these items "drying my feet after washing, regular use of lotion or oil to moisturizing foot, taking care when clipping my toenail and visiting doctor after foot injury", their responses assessment were unsatisfactory. It was found that (62.5%) of the studied patients had an acceptable and good foot care practices.

Conclusions: It concluded from this study that most of the diabetic patients had an acceptable and good foot care practices, and didn't indicates a significant association between the patients' age, gender, residency, duration of disease and previous history of foot ulcer with overall assessment of preventive foot care practices, and there was only significant association with overall assessment of the studied preventive diabetic foot care practices with patients' educational level and monthly income.

Keywords: Diabetic patients, preventive practices, diabetic foot, demographic characteristics, foot ulcer.

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Introduction:

Diabetes is a worldwide chronic metabolic disease can be treated and its complications can be avoided. It is one of the top ten of outpatient causes in Iraq (1). Where, its prevalence has estimated at 7.8 % in 2011 (2). And 9.3% in 2015 according to statistics published on International Diabetes Federation (3). This rapid increase among Iraqis might be attributed by low physical activity or lack of exercise, obesity as well as rapid urbanization. Any failure in treating and caring diabetes may lead to diabetic foot problems which are one of the most important complications which causing a worldwide high cost morbidity (4). In Iraq, type II diabetic patients had high prevalence of diabetic foot problems (5). In term of morbidity, these problems are clinically present as complications with one or more of the following manifestations: foot infection, ulceration,

neuropathy, deformity, gangrene and/or ischemia (6). While in term of cost, the diabetic foot represents 12-15% of the overall cost and up to 40% in developing countries including Iraq (7). Patients' awareness about proper foot care practices is important in preventing above mentioned foot complications (4), because these complications increase the risk for amputation in diabetic patients by 12.3 folds as compared to the normal population (8). Thus, the education and awareness of foot care measures are intended to control them (8). A preventive foot care practices such as annual foot examination by health care providers can substantially reduce the risk of amputation in the lower extremities (9). Diabetic foot should be managed by a trained multidisciplinary team at any part in the world (10), the cause is that foot problems may account for as much as forty percent of the total available resources and can be improved by the good foot care practice (11), therefore; that may prevent previously mentioned foot complications should be

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focusing the foot skin hygiene, better toenails care including right cutting and trimming, regular inspection of feet and legs and as well as choosing a suitable footwear (11). Several published articles reported that physician lack interest in managing their diabetic patients (12) and the situation is more dramatic in developing countries like Iraq as a result to high prevalence of type 2 DM and alarmed foot ulceration (12). The aim of this study was to assess the preventive food care practices among diabetic patients and to find out any significant association of these practices with selected socio-demographical and diabetic related characteristics.

Patients and Methods:

A descriptive cross-sectional designed study was conducted in Baquba city from the period of 20th September, 2016 up to 20th March, 2017. All diabetic patients (type II) attending the outpatient clinic were selected and the sample size was (120) patients by using a structured questionnaire depending on a previous literature studies. The questionnaire composed of three parts, first part contains information related to patients' demographic characteristics including (age, gender, educational level, monthly income and residency) and second part contains some information related to diabetic characteristics including (duration of disease and previous history of foot ulcer). The third part of the questionnaire consists of different questions about preventive foot care practices which consist of 14 positive items. Each one of these items must be answered either with (Always, Never or Sometimes). A three levels Likert scale was used to measure the variables (3) for always, (2) for some time and (1) for never. The cut-off point was calculated by using the following formula $(3 \times \text{always} + 2 \times \text{sometimes} + 1 \times \text{never}) / \text{sample size}$, if the mean of score was < 2 , the response is unsatisfactory, and if it was ≥ 2 , the response is

satisfactory, also the overall assessment of preventive foot care practices was rated as follows:

- Poor practices = less than 7 items.
- Acceptable and good items = 7-14 items

Finally, the data analyzed using SPSS (Ver.18), and then variables were presented as number, percent and mean of score. The Chi-square was used to find out any association between studied data and preventive foot care practices. $P \leq 0.05$ was considered significant in the present study.

Results:

The higher proportion of the study sample 40% was among patients aged over 60 years, higher percentage of them 52.5% was among male patients, higher percentage 32.5% were illiterate, most of patients 40.8% their monthly income was moderate, majority of them 66.7% were living in urban areas and as shown in table 1.

Table 2 reveals that highest percentage of study sample 66.7% was among patients who had diabetes mellitus for a period ≤ 10 years; majority of them 82.5% had no previous history for foot ulcer.

It notes that the patient response to preventive foot care practices is satisfactory at all items, except at the items (5, 6, 8 and 13) their response is unsatisfactory, as shown in table 3.

Most of the studied patients 62.5% had an acceptable and good foot care practices, and as shown in figure 1.

Table 4 shows that there is no significant association between the patients' age, gender and residency with overall assessment, but results of the study reveals that there was a significant association between patients' educational level and monthly income and overall assessment of preventive foot care practices. Also this study did not indicate a significant association between both duration of disease, previous history of foot ulcer and overall assessment of preventive foot care practices, as shown in table 4.

Table (1): Distribution of patients according to Socio-demographical characteristics

Socio-demographical characteristics	Variables	No.	%
Age groups/ years	≤ 30	6	5.0
	31-40	10	8.3
	41-50	17	14.2
	51-60	39	32.5
	> 60	48	40
	Total	120	100
Gender	Men	63	52.5
	Women	57	47.5
	Total	120	100
Educational level	Illiterate	39	32.5
	Read and write	21	17.5
	Primary education	28	23.3
	Secondary education	18	15
	University education	14	11.7
	Total	120	100
Monthly income in ID	< 500000	33	27.5
	500000-1000000	49	40.8
	> 1000000	38	31.7
	Total	120	100.0
	Residency	Urban	80
Rural		40	33.3
Total		120	100

Table (2): Distribution of patients according to diabetic related characteristics

Diabetic characteristics	Variables	No.	%
Disease duration	≤ 10 years	80	66.7
	> 10 years	40	33.3
	Total	120	100
Previous history for foot ulcer	Yes	21	17.5
	No	99	82.5
	Total	120	100

Table (3): Distribution of patients according to response to preventive foot care practices

Positive Preventive practices	Patient's response (N= 120)						MS	Assessment
	Always		Never		Sometimes			
	No.	%	No.	%	No.	%		
1. Daily self- inspection of the foot	71	59.2	28	23.3	21	17.5	2.35	Satisfactory
2. Depending on myself to caring foot	94	78.3	17	14.2	9	7.5	2.65	Satisfactory
3. Washing feet daily	98	81.7	9	7.5	13	10.8	2.75	Satisfactory
4. Testing water temperature before using it	81	67.5	28	23.3	11	9.2	2.45	Satisfactory
5. Drying my feet after washing	47	39.2	53	44.2	20	16.6	1.95	Unsatisfactory
6. Regular use of lotion or oil to moisturizing foot	40	33.3	64	53.4	16	13.3	1.80	Unsatisfactory
7. Not to walk barefooted	51	42.5	50	41.7	19	15.8	2.08	Satisfactory
8. Taking care when clipping my toenail	55	45.8	62	51.7	3	2.5	1.95	Unsatisfactory
9. Not to use sharp scissor to nail cutting	58	48.3	51	42.5	10	9.2	2.05	Satisfactory
10. Buying footwear with a suitable size	91	75.8	23	19.2	6	5	2.57	Satisfactory
11. Using diabetic footwear	63	52.5	46	38.3	11	9.2	2.14	Satisfactory
12. Changing socks daily	73	60.8	22	20.8	22	18.3	2.38	Satisfactory
13. Visiting doctor after foot injury	47	39.2	59	49.2	14	11.7	1.90	Unsatisfactory
14. Checking inside the footwear before wearing	75	62.5	38	31.7	7	5.8	2.31	Satisfactory

M.S= Mean of Score, Satisfactory (if mean of score is equal or more than 2), Unsatisfactory (if mean of score is less than 2).

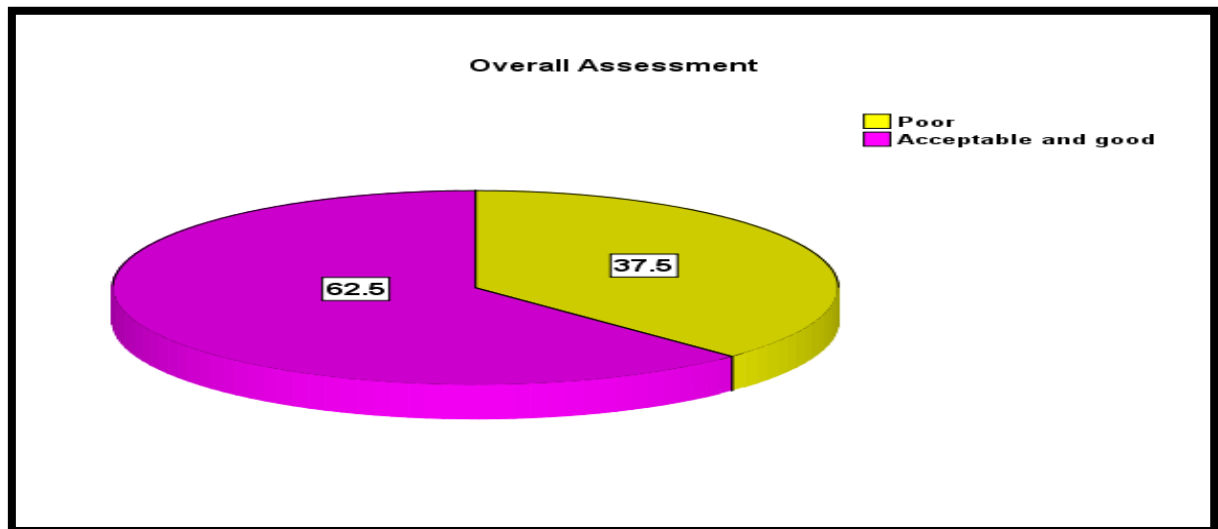


Figure: (1): Distribution of patients' foot care practices according to overall assessment

Table (4): Association between socio-demographical characteristics and overall assessment

Socio-demographical and disease characteristics	Chi-square value	DF	P-value
Overall foot care assessment			
Age groups/ years	4.607	4	0.330 (NS)
Gender	0.804	1	0.370 (NS)
Educational level	13.287	4	0.010*
Monthly income	7.248	2	0.027*
Residency	0.000	1	0.581 (NS)
Duration of disease	2.560	1	0.081 (NS)
Previous history of foot ulcer	2.036	1	0.118 (NS)

DF= Degree of freedom, NS= Non-significant, * = Significant.

Discussion:

The finding that 40% of diabetic patients aged > 60 years is similar to that in other studies (13, 14). The rate of diabetes mellitus was more among male patients. It is consistent with other studies (15, 16).

Currently, the higher proportions of diabetic patients were illiterate. This finding was similar to other Iraqi and Arabic studies (17, 18, 19), and this may be due to bad lifestyle and unaccepted dietary habits among

illiterates. The study revealed that more than third of diabetic patients, their monthly income was enough to some extent (500000-1000000 ID), and this was comparable with other Iraqi study (20). The highest proportion of diabetic patients was from urban areas; this was similar to other studies (18, 19). This study revealed that highest percentage of study ample 66.7% their diabetic duration was ≤ 10 years, this finding was found in other researches (8, 19).

It was noted that 17.5% of the study subjects had previous foot ulcer. This finding was with accordance with a recent study conducted in Jazan, Saudi Arabia (7), but was not comparable to study conducted in South Africa by Robert, he found that third of respondents 34.2% had affected with foot sore/ulcer previously (9), this wide difference may be due to differences in patient related factors like literacy, walking barefoot or low compliance. Also the health care related services are different among two countries like insufficient experience of persons undertaking foot care to patients and shortage of finances in South Africa. The study showed that most of patient's responses to preventive foot care practices were satisfactory especially in (self-foot care, daily foot washing, ensuring that shoe size before buying it). The proportions of these positive practicing responses were high, whereas majority of them reported that they personally depending on themselves to caring foot, this positive practice has shown in other studies (9, 21). Majority of diabetic patients reported that they always practicing foot washing daily, and this important practice has come in accordance with other studies (4, 8).

More than three quarters of study subjects in the present study reported that they always buying footwear with a suitable size this can prevent injuries. The assessment of some positive practices towards foot care among diabetic patients in the present study were unsatisfactory, and these practices including (drying feet after washing, regular use lotion or oil to moisturizing dried areas on the foot, caring nails during cutting, visiting doctor after foot injury). All these above mentioned practices are important and should be applied to prevent foot injuries and further complications, whereas more than third of diabetic patients reported that they always drying their feet after washing, let foot without moist can develop infections [22], this finding was comparable to the another study conducted in Jordan (17). The moisturizing skin with a suitable cream or lotion can restore skin softness and elasticity by improving cell hydration (23). The moisturizing skin of the foot was observed in 33.3%. It is almost similar to that in Saudi Arabia 31.4% (4). It is unsatisfactory finding which might be explained by the fact the eastern human being regards moisturizing as shameful act, or they thought the moisturizing of skin is a cosmetic act. The study revealed that 50% of diabetic patients were not taking care during the clipping toes. It is similar to that in articles (11). This unsatisfactory practice might be attributed to tolerating risk among Iraqi population. The

comprehensive examination of the foot by the diabetic physician to assessing the neurological and vascular status of the foot, as well as biomechanical parameters is an important and fundamental to identifying risk factors of the diabetic foot patient and to do an appropriate plan for timely interventions (14). Accordingly, the results of this study showed that about half of the patients applied unsatisfactory practice, and reported they never visit doctor after foot injury. The present study confirmed that most of the studied patients 62.5% had acceptable and good foot care practices; these findings were better than findings reported by several Arabic studies (7, 17, and 24) and non-Arabic studies (8, 9, 11), all these previous studies revealed that the practices either inadequate, improper or unsatisfactory, these patients may be low educated or jobless. The current study showed that there was no significant relationship between patient's age, gender, residency as well as disease duration and previous history of foot ulcer with the overall practice assessment. Comparably, a study conducted in America by Ronny, *et al* to, they found that there was no significant association between diabetic patient age and overall foot self-care index Scores (25). Regarding the patient gender, this study was comparable to a study conducted in Jordan by Reem, *et al* (2016), they found that there was no significant relationship between patients' gender, diabetes duration and total diabetic foot practice score (17). The role of education and monthly income were significantly associated with overall foot care assessment in the present study; whereas a study conducted in Pakistan by Seema, *et al* has showed a significant association between education and general foot care practices (26), and another study conducted in Chamchamal District/ Iraq by Hawar and Samir, they found there were a significant association between both diabetic patient's educational level and their monthly income with overall foot care practice assessment (27).

Conclusion:

It concluded that most of the diabetic patients had acceptable good practices in foot care and the results didn't indicates a significant association between the patients' age, gender, residency, duration of disease and previous history of foot ulcer with overall assessment of preventive foot care practices, and there was only significant association with patients' educational level and monthly income.

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