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Assessment of Personal Hygiene for Adults with Diabetic Foot

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الخـلاصـــة

الهدف: تهدف الدراسة لتقييم النظافة الشخصية للبالغين المصابين بالقدم السكرية.

المنهجية: دراسة وصفية أقيمت في مستشفى بغداد التعليمي مستشفى الكرامة التعليمي ومستشفى الكندي التعليمي واستغرقت الدراسة الفترة من 2006/1/10 إلى 2006/9/1 وشملت عينة البحث (100) مريضا، أختيرت بطريقة غرضية ريغ) احتمالية(. صممت استبانة البحث لغرض تحقيق أهداف الدراسة، وجمعت المعلومات من خلال هذه الاستبانة وبطريقة المقابلة وتم تحليل البيانات من خلال تطبيق أسلوب الإحصاء الوصفي ،رارتكلا) النسبة المئوية(والأسلوب الإحصائي الاستنتاجي لماعم) الارتباط ومربع كاي(باستخدام حقيبة التحليل الإحصائي 5155). (10.0

النتائج: أظهرت الدراسة أن معدل العمر يتراوح بين (60-56) سنة وأغلبهم من الذكور المتزوجين، يقرؤون ويكتبون ويدخنون منذ (15) سنة وهناك تأثير للنظافة الشخصية على مرضى سكر القدم.

التوصيات: أوصت الدراسة بتصميم أو بناء برامج تثقيفية في النظافة الشخصية للمرضى المشخصين حديثا بالسكري والحاجة إلى ممرض/ ممرضة اختصاص في مراكز مرضى السكري والإقلاع عن أو تقليل التدخين إن أمكن.

Abstract:

Objective: The aim of the study is to assess the personal hygiene of adult patients with diabetic foot.

Methodology: A descriptive study was carried out in Baghdad teaching hospital, Al-Karama teaching hospital and Al-Kindey teaching hospital for the period of 10/1/2006 to 1/9/2006. A purposive "non probability" sample of (100) patient.

Questionnaire was constructed for achieving the purpose of the study. Data were collected through the application of the questionnaire and interview technique. Data were analyzed through descriptive statistical approach (frequency & percentage) and inferential statistical approach (chi-square & correlation) by using of SPSS.

Results: The study results indicated that the range of age was between (56-60) year and most of them was male, married, read and write and the majority was smoking since (15) year ago and there is effect from personal hygiene on diabetic foot.

Recommendation: The study recommended that educational programs should be constructed or designed for personal hygiene of patient newly diagnosed with diabetes, need for specialized nurses in the diabetic center and quit or reduce smoking.

Keyword: Personal hygiene, adults diabetic foot

Introduction:

Diabetic foot based on (WHO) criteria is an infection, ulceration andOr destruction of deep tissues associated with neurological abnormalities and various degrees of peripheral vascular disease in the lower limb. Also, it is considered as a complication of chronic disorder of altered carbohydrate, fat, and protein metabolism due to either a relative or absolute lack of insulin or one of endocrine dysfunction (').

Diabetes can cause damage to nerves and vascular supply of the feet and legs. Patients with neuropathy have no sensation and therefore, might be unaware of any trauma to their feet (2). For all that it seems as a simple condition, diabetes is a daunting illness in that has so many potential complications such as eye disease, kidney disease, circulatory disease, the arterial disease and diseases of the nerves (3).

Among patient with diabetes mellitus, chronic foot ulcers remain one of the primary indicators for hospitalization that can result in adverse clinical outcomes with about (15%) of all diabetics who developing lower extremity ulceration, at some points in their life times (4). Diabetic foot is a major health problem, and the association with morbidity and mortality is unacceptably high, however, amputations are not inevitable, and the strategies that available

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to help patients with diabetes who have feet-related health problem can be effective in reducing morbidity (5).

Consequently, it is imperative that nurse recognizes the symptoms of early onset neuropathy and incorporates with patient teaching for proper foot care in order to minimize the likelihood of progression of diabetic foot ulceration .[1ه]

Foot is an integral part of nursing care and the nurse must be accountable and responsible for such care. The major focus of nursing care of any diabetic patient should include extensive information on foot care and the opportunity to practice it).

Methodology:

A descriptive study used the assessment approach for determination of the level of personal hygiene for adults with diabetic foot. The study was carried out during the period of 10/1/2006 to 1/9/2006.

Data were collected from inpatient (surgical wards) from Baghdad teaching hospital, Al-Karama teaching hospital and Al- Kindey teaching hospital. These hospitals are composed of medical and surgical wards, and medical outpatients and surgical outpatients.

A purposive "non probability" sample of (100) patient with diabetic foot was selected from Baghdad Teaching Hospitals.

The study instrument was a questionnaire which was developed by the investigator for the purpose of data collection. It was consisted of two parts: 1- General information that was consisted of (8) items which included (age, gender, marital status, educational level, duration of disease, smoking habit, number of cigarette and duration of smoking). 2- Personal hygiene that consisted (21) item which were concerned with hygienic factors for diabetic foot problems(8), and some modified by researcher. The items were measured on scale of "always, sometime and never" and rated as 3 for always, 2 for sometimes, and 1 for never.

The content validity of the instrument was established through a panel of (10) experts to investigate its clarity and adequacy. The mean of experience was (21.4) year and (50-4.1), the experts agreed that (21) item of personal hygiene were clear and adequate.

In order to determine the reliability for personal hygiene score, a test re-test was done. A pilot study was carried out on (10) patients with diabetic foot for two different periods, Pearson Correlation Coefficient was (r 0.87).

The data were collected through the utilization of structured interview technique with the adult's patients with diabetic foot. Interview took a timetable of (25) minute for each patient. The data were collected during the period of 1/3/2006 to 1/6/2006.

Data were analyzed through the application of the descriptive statistical data analysis approach (frequency, percentage, mean of scores, and b- inferential statistical data analysis approach (Pearson correlation coefficient, Chi-square).

Results:

Table 1. Distribution of the study sample according to their age and the association between age and diabetic foot occurrence

Age	Frequency	%/	Cumulative %
40-45 years	6	6.0	6.0
46-50 years	19	19.0	25.0
51-55 years	23	23.0	48.0
56-60 years	24	24.0	72.0
61-65 years	18	18.0	90.0
66-70 years	10	10.0	100.0
Total	100	100.0	
005=72.80	df=5	X2 Crit.=11.07	P≤ 0.05

df= degree of freedom, p=probability level, X² Crit.: critical chi-square, * 005.= observed chi-square

This table shows that the majority of the sample was (56-60) years old (1-24: 24%), and there was a significant association between their age and diabetic foot occurrence.

Table 2. Distribution of the study sample according to their gender and the association between gender and diabetic foot

Gender	Frequency	°/°	Cumulative 0/
Male	65	65.0	65.0
Female	35	35.0	100.0
Total	100	100.0	
01559.0	01	[13:84	P≤ 0.05

[degree of freedom, • probability level, X2 Crit.= critical chi-square, X2 05.- observed chi-square

This table shows that the majority of the sample was males (1-65: 65%), and there was a significant association between their gender and diabetic foot occurrence.

Table 3. Distribution of the study sample according to their marital status and the association between marital status and diabetic foot

Marital status	Frequency	0/	Cumulative %
Married	83	83.0	83.0
Single	10	10.0	93.0
widowed	7	7.0	100.0
Total	100	100.0	
χ^2 obs=111.14	012	X2Crit.=5.99	P≤ 0.05

df= degree of freedom, • probability level, * Crit.= critical chi-square 72 obs.= observed chi-square

This table shows that majority of the sample was married (1=83: 83%), and there was a significant association between marital status and diabetic foot occurrence.

Table 4. Distribution of the study sample according to their educational level and the association between educational level and diabetic foot

Educational level	Frequency	0/	Cumulative O
Read & write	53	53.0	53.0
Primary graduate	31	31.0	84.0
Secondary ك above	16	16.0	100.0
Total	100	100.0	
015520.78	df=2	X2Crit.=5.99	120.05

df= degree of freedom, p= probability level, X2 Crit.= critical chi-square
X2 obs.= observed chi-square

This table shows that the majority of the sample was able to read and write (1-53: 53%), and there was a significant association between their educational level and diabetic foot occurrence.

Table 5. Distribution of the study sample according to their duration of the disease and the association between the duration of disease and diabetic foot

Duration of disease	Frequency	0/	Cumulative O
(1-5) years	41	41.0	41.0
(6-10) years	31	31.0	72.0
(11-15) years	12	12.0	84.0
(16-20) years	7	7.0	91.0
(21-25) years	6	6.0	97.0
(26-30) years	3	3.0	100.0
Total	100	100.0	
2 01572.80	Df=5	X2Crit.=11.07	120.05

df=degree of freedom, p: probability level, X2 Crit.= critical chi-square
02 005.- observed chi-square

Table (5) shows that the majority of the sample was having the disease for (1-5) years (1-41: 41%), and there is a significant association between duration of the disease and diabetic foot occurrence.

Table 6 Distribution of the study sample according to their smoking habit and the association between the habit of smoking and diabetic foot

Smoking	Frequency	O	Cumulative %
Yes	86	86.0	86.0
No	14	14.0	100.0
Total	100	100.0	
obs=51.84	411	X2Crit.=3.84	P≤ 0.05

df= degree of freedom, p= probability level, X2 Crit.= critical chi-square
X2 005.= observed chi-square

This table shows that the majority of the study sample was smokers (1286: 86%) and there is a significant association between the smoking habit and diabetic foot occurrence.

Table 7. Distribution of the study sample according to their number of cigarette consumed and the association between number of cigarette and diabetic foot

No. of cigarettesday	Frequency	%	Cumulative %
0.00	14	14.0	14.0
10.00	1	1.0	15.0
20.00	47	47.0	62.0
30.00	22	22.0	84.0
40.00	16	16.0	100.0
Total	100	100.0	
X2 obs=57.30	df=4	X2Crit.=9.48	120.05

df=degree of freedom, p= probability level, X2 Crit.= critical chi-square
X2 005. observed chi-square

This table shows that the majority of those who smokes (20) cigarette (1-47: 47%) and there was a significant association between the number of cigarettes smoked and diabetic foot occurrence.

Table 8. Distribution of the study sample according to their duration of smoking and the association between duration of smoking and diabetic foot

Duration of smoking	Frequency	%	Cumulative %
0.00	14	14.0	14.0
1-5 years	11	11.0	25.0
6-10 years	31	31.0	56.0
11-15 years	22	22.0	78.0
16 -20 years	12	12.0	90.0
2125 years	5	5.0	95.0
2630 years	5	5.0	100.0
Total	100	100.0	
*05=36.92	df=6	X2 crit.=12.59	P≤ 0.05

probability level, * crit.= critical chi-square, X2 cbs.= observed chi-square

This table shows that the majority of those who smoke was smoking for (15) year (1-22: 22%), and there was a significant association between duration of smoking and diabetic foot occurrence.

Table 9. Pearson correlation between (age, gender, marital status, educational level, duration of disease, smoking, number of cigarettes, duration of smoking and personal hygiene) with the same variables of the study sample

Correlation	Age	Gender	Marital status	Education	Duration of disease	Smoking	Number of cigarette
Age	**1**						
Gender	**.0.296**	**1**					
Marital status	**-0.204**	**0.96**	**1**				
Educational level	**-0.156**	**-0.171**	**0.234**	**1**			
Duration of disease	**0.332**	**0.261**	**-0.231**	**-0195**	**1**		
Smoking	**-0.233**	**0.248**	**-0.096**	**-0.109**	**0.019**	**1**	
ما of cigarettes	**0.106**	**-0.031**	**0.211**	**0.152**	**-0.043**	**-0.776**	**1**
Duration of smoking	**0.368**	-0.117	**0.171**	**0.056**	**0.160**	**-0.625**	**0.691**
Personal hygiene	**-0.041**	0.171	**0.372**	**0.032**	**-0.042**	**-0.020**	**0.188**

This table shows that there were strong positive relationship between {number of cigarettes smoked and duration of smoking (0.681)} and strong negative relationship between smoking and (number of cigarettes (-0,776) duration of smoking (-625) and the table indicated that there is a moderate relationship between other variable.

Table 10. Descriptive statistics for items of personal hygiene

No	Item	Always	Sometime	Never	M.S	Severity
1	Daily feet washing with warm water and natural soap	6	15	79	1.27	L
2	Drying the feet gently from the tarsal, metatarsal, instead of using traction	5	17	78	1.27	L
3	Avoid walking without wearing shoes	70	22	8	2.62	H
4	Avoid drying the skin by using cosmetic ointment, and avoid using ointment between metatarsal bone	46	36	18	2.29	M
5	Cleaning the nails, with careful attention for the inside and around them	7	12	81	1.26	L
6	Examining the nail of the big toe for any thickness, dryness or else	52	27	21	2.31	M
7	Cutting the nails directly after bathing and in straight form	65	32	3	2.62	H
8	Examining the nails and spaces between toes for any fungal infection	79	10	11	2.58	H
9	Don't apply any heat (thermal effect) on the feet without physician counseling	77	14	9	2.68	H

Table 2. (continued)

No.	Items	Always	Sometime	Never	M.S	Severity.
10	Daily feet examination for any change in the skin color, temperatures and make comparison between the Rt & Lt foot for any skin breakdown, redness, and avoid slipping the foot while exam	75	17	8	2.67	H
11	Avoid wearing constructed shoes	76	18	6	2.68	H
12	Wearing shoes made from gently materials	45	35	20	2.25	M
13	Take the medical advice when wearing the shoes	82	12	6	2.76	H
11	Examine the shoes for any folding in the internal coat by using the hand	66	11	23	2.43	M
15	Make sure about the socks softening	83	7	10	2.73	H
16	Don't use curative substances more than need it for the foot and nails	58	23	19	2.39	M
17	Treating for any injuries, infections occurred at once	74	22	4	2.70	H
18	Don't use iodine or chloride detergent	79	13	8	2.71	H
19	If you have injury, putting the feet in relax position at the body level until explain it to doctor	69	12	19	2.50	H
20	Take counseling from the doctor about any disorders in the feet like pain, swelling, redness and inflammation	44	32	24	2.20	M
21	Periodic foot exam	42	30	28	2.14	M

Mean of Score

This table indicated that the mean of score is of low severity for the items (1,2 and 5), and of moderate severity for the items (4,6,12,14, 16, 20 &21), and of high severity for the remaining items.

Table 11. Distribution of personal hygiene score and the association between personal hygiene and diabetic foot occurrence

Score of Personal Hygiene	Frequency	0/	Cumulative %
40.00	4	4.0	4.0
42.00	7	7.0	11.0
46.00	16	16.0	27.0
47.00	10	10.0	37.0
48.00	33	33.0	70.0
49.00	6	6.0	76.0
50.00	12	12.0	88.0
52.00	7	7.0	95.0
59.00	5	5.0	100.0
Total	100	100.0	
X2Obs=58.76	df=8	X2Crit.=15.50	?ة 0.05

df= degree of freedom, حم probability value, χ2 Crit.= critical chi-square,

72 05.- observed chi-square

Table (11) shows that the majority of the study sample has a score of (48.00) (n=33; 33.0%), and there is a significant association between personal hygiene and diabetic foot occurrence.

Discussion:

The results of table (1) indicated that the majority of the study sample was aged (56-60) year old which was accounted for (24%). This result was consistent with another research who noted that the mean age of the sample was (58) years (9). This age period is considered essential for individuals to be independent in terms of their occupation and financial resources and what make them productive ones. Preoccupation with jobs might make individuals take less self-care in general, and especially for their feet.

Most of the patients was males (65%), and married who were accounted for (83%) (Tables 2 and 3), this result was in agreement with another research who had found that (63%) from the study sample was males and (78%) of them were married (10) These mean personal hygiene between parents more than the single because of the home care from each to another.

The majority of the study samples was not educated and they were just read and write (53%) (Table 4), this result is supported by another study who had found that the level of education of the study sample among Bahraini adults with diabetes mellitus was illiterate (11).

WO reported that to save feet from gangrene, ulceration and infection by providing preventive medicine and patient education, and also prevention of diabetic foot depends very largely upon patient's education. That means the low education of the patients was the risk factors for diabetic foot.

The findings of the study shows that the majority of the patients was smokers (86%), who smoke about (20) cigarettes/day and for (15) year (Tables 6, 7, and 8). This result was in agreement with another study result who mentioned that (62%) from the patients was smokers (12). There was association between hyperglycemia and number of cigarettes smoked/day and a positive association with total smoking exposure as measured by pack-years (12). WHO reported that diabetes leads to impaired circulation making the extremities, especially the feet are very vulnerable to injury and infection, and also diabetes is a leading cause of narrowing and hardening of the blood vessel in the feet and the smoking is main cause for atherosclerosis that mean the smoking was one from the risk factors for diabetic foot of the study sample.

The result also indicated that there was moderate positive relationship between personal hygiene and marital status that means there was a higher level of personal hygiene in married patient (Table 9). This could be attributed to that married patients could get more mutual body care from the spouse than others who are single.

The results of the study shows that highly significance association in items of avoiding walking without shoes; cutting the toe nails; examining the nails; don't apply any heat (thermal effect); daily feet examination; avoiding wearing constricted shoes; taking the medical advice were wearing shoes; make sure about the socks softening, treating any injuries and putting the feet in relax position. There are no significance association between daily feet washing with warm water and instead of using fraction (Table 10), this result is agreed with another researcher who said that personal hygiene items were the key to prevent diabetic foot ulcer or reduce it (5). National Diabetes Education Program reported that for the diabetic patient to check their feet for (cuts, sores, red spots, swelling, and infected toe nails), washing their feet in warm not hot water, drying their feet well, be sure to dry between toes, do not put lotion cream between their toes, if they have coms and calluses, checking with your doctor foot care specialist about the best way to care for them, do not cut coms and calluses, trim their toe nails with clippers after they wash and dry their feet (trim toe nails straight across and smooth them with an emery board or nail file, don't cut into the comers of the toe nails).

wearing shoes and socks at all time (do not walk barefoot, always wear socks, choose clean, highly padded socks, check the inside of their shoes before they put them on, wear shoes that fit well and protect their feet), put their feet up when they are sitting, don't smoke (15).

Care plans should identify special care that is required for each person with diabetes e.g. nails, skin treatment, heal, pads appropriate foot wear, extreme of heat should be avoided as this can cause skin ulceration (14). Foot care was more common among insulin users than non users and those who self-monitored their blood glucose level daily than those who did not (١٥). Increasing the chance of injury of the diabetic foot lesion resulted from a break in the skin leading to infection then must be treated at once (16). The key to maintaining healthy feet is to prevent injury and foot problem by following daily foot care quits, wash the feet everyday with mild soup and dry it well, keep the toe nails neatly trimmed, checking the feet for any cracks, skin dry, cut, redness, reporting signs of ingrown toe nails and swelling, avoiding exposure to the sun with the protection of sunscreen, do not apply heating pad, do not cross legs, do not use hard equipment to smooth coms and never walk barefoot(17).

People with diabetes have to pay special attention to the health and care of their feet, with regular visits to their physicians for neurological, vascular and skin assessment (16). Moderate of mean of score for personal hygiene it means that the patients with diabetic foot were un aware for the complications of diabetic foot.

The findings of the study indicated that there are significant differences between personal hygiene and diabetic foot (Table 11), this result is in an agreement with another researcher who wrote that diabetic patient were susceptible to infections, and foot infections are the most common and that personal hygiene will decrease the infection of diabetic foot(١٣). Another researcher recommended that medical practitioners must not be aggressive with wound care, especially in diabetics and that special attention should be paid to the foot hygiene of these patients in order to prevent limb loss (١٥). Also, some researchers indicated that educational services can be directed toward populations at risk and those who ignore the recommended foot-care practices (١٤).

Recommendations: The study recommended that educational programs should be constructed or designed for personal hygiene of patient newly diagnosed with diabetic, they need for specialized nurses in the diabetic center and stop or reduce smoking.

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