

# Knowledge and Behavior of Patients with Diabetes Mellitus Type II toward of Diabetic Foot Care at Endocrinology and Diabetes Center in AL-Samawa City, Iraq

Mohammed K. Mezher\* and Rajaa Ibrahim Abed

**Abstract---** *This study aims to detect the outcome of the instructional program's effectiveness in the knowledge and behavior of patients with diabetes type 2 regard to diabetic foot care. A quasi-experimental study to determine the effectiveness of the counseling program on the patient's knowledge and behavior towards diabetic foot care, the study was conducted at the Center for Endocrinology and Diabetes in the city of Samawah from (October 2019 to May 2020), A non- Probability (purposive Sample) of (30) patients with diabetes Type 2 selected. The results of the study showed that the majority of respondents were between (54-60 years), about (26.7%), about half of the respondents are (either they do not read or write or read and write only) and (66.7 - 70%) live in rural areas, and about (70%) of them have less than (300,000) Iraqi dinars for monthly income. The majority do not receive information about foot care. Also, most of the participants had poor knowledge and behavior towards the foot care of the pre-test, which improved after the application of the program (post-test). The study recommended conducting a new survey for diabetics in the city of Samawah and issuing a booklet on patient behaviors related to foot care and distributing it to patients during their visit to health institutions, providing the Center for Diabetes and Endocrinology in the city of Samawah with professional nurses from nursing colleges to provide periodic lectures to patients on diabetic foot care*

**Keywords---** *Effectiveness, Instructional Program, Knowledge, Behavior, Diabetic Foot.*

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## I. INTRODUCTION

Diabetes Mellitus (DM) is a metabolic disorder resulting from the body's inability to insulin production or by the ineffective use of the insulin produced (1). Diabetes-related hyperglycemia affects the immune system, neurologic system, and circulation, causing a higher rate of foot infections and peripheral neuropathy in diabetic patients than non-diabetic patients. One of the main complications associated with (DM) is diabetic foot disease (DF).

This complexity leads to the amputation of the lower limbs by 35% of all hospital admissions, (DF) complications are the main cause of significant loss of quality and years of life for people with diabetes<sup>(2)</sup>. The risk foot problem and lower-extremity amputations can increase with poor knowledge and incorrect self-care behavior related to foot care (3).

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*Mohammed K. Mezher\*, MSc Student, Department of Adult. Nursing, College of Nursing, University of Baghdad, and Clinical Nurse in the Ministry of Health and Environment at AL. Muthana Health Directorate, AL. Muthana Province, Iraq. E-mail mkazem577@gmail.com  
Rajaa Ibrahim Abed, Ph.D., Assist. Professor, Department of Adult. Nursing, College of Nursing, University of Baghdad, Baghdad City, Iraq. E-mail: dr.rajaia@yahoo.com*

Solving this problem requires close cooperation between the health system and people, developing or improving national and international strategies, and participating with other health team members. By this method, providing effective health services is necessary for diabetic and their families. Also, improving the quality of nurses' clinical performance can lead to enhance in client and patient societies (4).

The proper foot care behavior for a patient with diabetes may reduce foot ulcers and amputation; the practice of diabetic foot care measures such as daily foot inspection and appropriate footwear is necessary for the early detection and prevention of future complications. Foot care behavior reduces common foot problems and enhances the healing of foot ulcers (FU) (5). Foot ulcer a preventable problem by simple interventions and decrease amputation by up to 70% through programs that could reduce its risk factors (6). Improving foot care knowledge or foot ulcer behaviors are important to prevent or delay the complications in a person with diabetes who are susceptible to occur DFU (7).

## **II. METHODOLOGY**

### ***2.1 Ethical Consideration***

Ethical approval obtained before the research, and participants are explained on the topic of the study. To help the participants understand the goal of the study, it will raise the level of knowledge towards foot care.

### ***2.2 Design and Setting of the Study***

A quasi-experimental design that includes (pre& post-test) was used to determine the effectiveness of the educational program on patient knowledge and behaviors towards diabetic foot care, as the study was conducted in the center for endocrinology and diabetes in Samawah city. Initiated from (7-10-2019/ 10-5-2020), a non-probability sample was selected for (30) patients with diabetes type2.

### ***2.3 Instrument of Study***

The study instrument has consisted of three major domains, which include: general information, foot care knowledge scale, and diabetes foot care behavior scale to measure the confidence diabetics have in performing foot care behaviors pre and post the implementation of the program.

### ***2.4 Statistical Analysis***

The data were statistically described and analyzed through use of the descriptive (frequency, percentage, mean, mean of scores, and standard deviation) and statistical inferential (t-test, person correlation coefficient )and Statistical Package of Social Sciences (SPSS, version 25).

## **III. RESULTS AND DISCUSSION**

The results of this study indicate, in terms of demographic characteristics, that the age of the participants in the study group is between (54-60) years (26.7%), and this is in line with (sari al Hayek, 2018)(8), (Aqil Noman, 2017) (9) where these studies found that was (40%) of them were over 60 years because of the diabetes type2.

Regarding gender, most of the participants in the study group were male (53.3%). This result is an agreement

with (Kayo Yokota & others 2019) (10), which the males were about (58%) compared to the females.

The concerning of marital condition, the results of the study indicate to the most participants are married by 73%, supported by (Marwa M. & Samah E., 2019)(11), which was(76-70 percent) of the study and control groups are married.

Regarding the level of education, nearly half of the study and control groups between (no reading or writing to read and write) this is an agreement with (Marwa M. and Samah E., 2019) (11). as (41.2%) of the respondents in this study do not read or write,

Respect to the occupation, about (40-53%) in both groups are housewives, and this is consistent with a study (Yahya M. Solan & others, 2016) (12), in which women were housewives (38%).

About (70%) of the respondents are less than (300,000) Iraqi dinars for the monthly income, this agreement with (O. O. Desalu & others, 2011) (13). as low monthly income for people has an important impact on knowledge and behaviors towards self-care.

The duration of DM, the majority of the experimental and control group, has (1-10) years in (DM) (53.3 - 73.3%), where the results are consistent with a study (Yunita Sari & others.2020) (14) where the percentage of diabetes incidence ten years ago was approximately (73.6%).

Regarding receiving information on foot care, the majority of participants did not receive information on foot care about (86-90%) supported by (Yahya M. Solana. 2016) (12) conduct to assess the Diabetic Foot Care Knowledge and Practice.

A diabetic patient was (24-30%) had a diabetic foot. The study results were agreement with the study (Mohammed T. Al-Hariri, 2017) (15) where (26%) of diabetics have observed diabetic foot ulcers.

The results showed that the respondents in the pre-test regarding general knowledge about diabetes were 80% are poor, 20% are middle in the study group, and in the control group 90% were poor and 10% are middle, while the results in the post-test for the study group 93.3% are high and 6.7% are middle, while in the control group they were 63.3% are poor and 30% are middle. These results are supported by (Nagwa Ahmed & others,2018)(16) which study and control groups showed a statistically significant improvement in patient knowledge concerning the subjects related to knowledge of diabetes, knowledge of diabetic foot and knowledge of foot care enhanced after protocol application among the study group.

The knowledge of diabetic foot care, the results of the study indicate the significant difference in the study group between the pre-test and the post-test comparison with the control group, where the mean was (17.5333) knowledge of the study group before the application of the program while the mean became (27.7333) after the program, these results were similar to (Satyam Singh & others, 2020) (17) in the present study, The evaluation was carried out on the basis of a standardized pre-test and a post-test questionnaire. The mean score for the pretest was (13.91), and the mean score for the post test was (24.68).

The findings of this study indicated a significant difference to the degree of conduct on the intervention group

following the provision of education in foot care compared to the control group. As a result, the foot care program has been significantly effective in increasing foot care behavior among patients with type 2 diabetes mellitus. The results of this study were supported (Mahdalena, Ningsih, 2016) (18) this study was the results (12%) poor, (9%) moderate, (79%) high in a study group, while (70%) poor, (13%) moderate, (17%) high in the control group. Based on results, an Effective foot care education program could significantly improve health behavior to positive if good foot care behavior could effectively prevent the incidence of diabetic foot complications.

#### IV. CONCLUSIONS

The results of this study showed a decrease in the study group concerning level knowledge diabetic foot care in the pre-test, which improved after applying for the educational program. In addition, there are statistically significant differences in the foot care behaviors for (study and control groups).

#### V. RECOMMENDATIONS

The study recommended conducting a new survey for diabetics in the city of Samawah and making regular home visits by health teams to follow up and reduce complications of diabetes, issuing a booklet on patient behaviors related to the foot care, providing the diabetes center with professional nurses from nursing colleges to provide patients periodic lectures regarding diabetic foot care.

Table 5-1: Distribution of Sample According to Demographic Information of the Study Group

Demographic data		Samples	
		F.	%
Age/years	<= 39	6	20
	40-46	5	16.7
	47-53	3	10
	54-60	8	26.7
	61-67	5	16.7
	68+	3	10
Gender	Male	16	53.3
	Female	14	46.7
Marital status	Single	1	3.3
	Married	22	73.3
	Widowed	6	20
	Divorced	1	3.3
Education level	No reading &no writing	5	16.7
	Reading & writing	12	40
	Primary	3	10
	Secondary	4	13.3
	Middle school stage	5	16.7
	Diploma	1	3.3
Residence area	Urban	9	30
	Rural	21	70
Occupation	Worker	3	10
	Farmer	7	23.3
	Officer	3	10
	Sparking	4	13.3
	Housewife	12	40
	No working	1	3.3
Type of setting	Owner	26	86.7
	Rent	4	13.3
	Less than 300.000	20	66.7

Income/Iraqi dinars	301.000-600.000	7	23.3
	601.000-900.000	3	10
<b>Total</b>	<b>n</b>	30	100

Freq.=Frequencies, %=Percentages, n= size of sample

Table 5-2: Distribution of Samples According to Clinical Characteristics of the Study Group

Clinical information		Sample	
		F.	%
Duration of DM/years	1-10	22	73.3
	11-20	8	26.7
	21 & more	0	0
Type of treatment	Diet	8	26.7
	Tablet	13	43.3
	Insulin	8	26.7
	Other	1	3.3
Other diseases	Hypertension	9	30
	No disease	21	70
	Heart disease	0	0
Do you receive information about foot care?	No	26	86.7
	Yes doctor	1	3.3
	Yes other	3	10
Smoking	No	24	80
	Yes 10-20 year	5	16.7
	Yes 21-30 year	0	0
	Yes 31 & more	1	3.3
Do you have a diabetic foot?	No	21	70
	Yes less than 6month	2	6.7
	Yes with one year	4	13.3
	Yes with more one year	3	10
Is there a health center close to your residence?	Yes	14	46.7
	No	16	53.3
Your visit to the doctor	Never	4	13.3
	Weekly	1	3.3
	Monthly	8	26.7
	Every three months	8	26.7
	Every six months	7	23.3
	Every year	2	6.7
<b>Total</b>	<b>n</b>	30	100

Table 5-3: Assessment of the Patient's Knowledge and Behavior at the Pre-test According to Foot Care of the Study Group

Variables		Sample		Sig.
		F.	%	
General knowledge DM	Poor	24	80	Chi-square=1.176 df =2 value=0.278 non-Significant
	Moderate	6	20	
	High	0	0	
Knowledge foot care	Poor	30	100	Chi-square=2.069 df =2 value=0.150 non-Significant
	Moderate	0	0	
	High	0	0	
Behavior foot care	Poor	30	100	Chi-square=1.017 df =2 value=0.313 non-Significant
	Moderate	0	0	
	High	0	0	
<b>Total</b>	<b>N</b>	30	100	

Df=degree of freedom

Table 5-4: Assessment of the Patient's Knowledge and Behavior at the Post-test According to Foot Care of the Study Group

Variables		Study		Sig.
		F.	%	
General knowledge DM	Poor	0	0	Chi-square=45.988 df =2 value=0.001 High- Significant
	Moderate	2	6.7	
	High	28	93.3	
Knowledge foot care	Poor	0	0	Chi-square=49.183 df =2 value=0.001 High- Significant
	Moderate	1	3.3	
	High	29	96.7	
Behavior foot care	Poor	0	0	Chi-square=60.000 df =2 value=0.001 High- Significant
	Moderate	0	0	
	High	30	100	
<b>Total</b>	<b>n</b>	30	100	

Table 5-5: Comparison between the Pre-test and Post-test to the Study Group for all Domains (General Knowledge DM, Knowledge Foot Care, and Behavior Foot Care)

study group	pairs	Mean	Sd.	T-test	df.	p-value	Sig.
General knowledge DM	Pre-test	12.0333	1.32570	16.390	29	0.001	High-Significant
	post-test	17.9000	1.86344				
Knowledge foot care	Pre-test	17.5333	1.04166	25.537	29	0.001	High-Significant
	post-test	27.7333	1.99885				

Behavior foot care	Pre-test	27.4667	2.28539	58.149	29	0.001	High-Significant
	post-test	54.2667	2.62525				

df= degree of freedom, P= P-value, S. = significant, N.S. = non-significant

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