Effectiveness of Health Education Program for Type 2 Diabetes Mellitus Patient's Self-efficacy toward Managing Feet at Endocrinology and Diabetes Center in Al-Rusafa Sector

فاعلية البرنامج التثقيفي الصحي على الكفاءة الذاتية لمرضى السكري- النوع الثاني حول العناية بالقدم في مركز الغدد الصم والسكري في قاطع الرصافة

Amer M. Gabish, MScN*

Widad K. Mohammed , PhD**

*** Academic nurse**
****Assistant Professor, Adult Nursing Department, College of Nursing, University of Baghdad, dr.widadkm@gmail.com**

الخلاصة

الهدف: لتقييم فاعلية البرنامج التعليمي على الكفاءة الذاتية لمرضى السكري – النوع الثاني بشأن العناية بالقدم السكري. .

المنهجية : دراسة وصفية شبة تجريبية شملت (٨٠) من المصابين بداء السكري- النوع الثاني المراجعين لمركز السكري والغدد الصم في الرصافة للفترة من ٢ تشرين الأول إلى ٢٧حزيران ٢٠١٧ .وكانت العينة غير احتمالية(غرضيه) من المراجعين للعيادات الخارجية (الذكور والإناث) .تم تصميم استمارة من جزئيين رئيسيين اهتم الجزء الأول بالمعلومات الاجتماعية و الديموغرافية للمراجعين . أما الجزء الثاني والذي تكون من مقياس الكفاءة الذاتية اهتم بقياس مستوى الثقة بسلوكيات العناية بالقدم السكري للمرضى من خلال الاختبار القبلي ثم قدم البرنامج التعليمي المتكون من ثلاث محاضرات ، مدة كل منها ساعة واحدة بعد ذلك ، اجري الاختبار ألبعدي. كما تم تحليل البيانات باستخدام الأساليب الإحصائية الوصفية و الاستدلالية.

النتائج : أظهرت نتائج الدراسة أن مستوى الثقة بممارسات الرعاية بالقدم كانت ٦٠,٠% (مقبول) لمرحلة الاختبار البعدي بينما كانت 37.5% (ضعيف) في الاختبار القبلي .

التوصيات :أوصت الدراسة على إشراك مرضى السكري النوع الثاني في البرامج و الدورات التدريبية والندوات الخاصة بالعناية بالقدم السكري واثرة في رفع الكفاء الذاتية والاجتماعات وورش العمل .

الكلمات المفتاحية: الكفاءة الذاتية، الرعاية الذاتية، السكري النوع الثاني، رعاية القدم.

Abstract:

Objective(s): to assess the effectiveness of educational program on improving diabetic foot self-efficacy concerning managing their feet.

Methodology: A descriptive analytic (quasi – experimental) design study was carried out at Diabetic and Endocrinology Center in Baghdad- Rusafa Sector from 2nd of May 2017, to27th June 2018. Non-probability sample of (80) male and female diabetic patients were selected. The study instruments consisted of two major parts: first part related to sociodemographic characteristic and the second part is related to diabetic foot self-efficacy. The researcher examined the patients' self-efficacy by introducing the pre-test then, the teaching program of three lectures was given. one – hour lecture was given. Afterward, the post-test. The data were analyzed by using two statistical approaches: Descriptive and Inferential statistics.

Results: The study revealed that the diabetic foot self-efficacy regarding foot self-care was 60.0% (acceptable) for the post-test as opposed to the pre-test which was 37.5% (weak).

Recommendation: The study recommended that type 2 diabetic patients should be encouraged to attend specific educational programs and workshops concerning diabetic foot self-care and effect of self-care to improve self-confidence.

Keywords: Self- efficacy, Self-care, Type 2 diabetes mellitus, Foot care.

Introduction

Patients with diabetes at highly risk to vascular and nerve damage which can result in loss of protective sense in the foot, changed biomechanics for poor circulation of foot and skin trauma. The risk of foot problem and lower-extremity amputations can increase with insufficient knowledge and incorrect self-care behavior related to foot self-care [(1)]. Lower extremity amputation (LEA) among patients with diabetes is associated with high personal, family, social, and economic burden [(4)]. Little is known about the effects of educational interventions for patients who are at low risk for foot ulceration. Therefore, it is important to examine the feasibility, acceptability and effects of the educational intervention in adult patients with diabetes at low risk for foot ulceration. The most common complications of patients with diabetes mellitus are ulceration of foot and lower extremities amputation. These complications are more serious, common and highly cost chronic complications with type 2 diabetic. Most of international organizations concerned the importance of self-care has been defined as 'the ability of individuals, families and communities to promote health, prevent disease and maintain health and cope with illness and disability with or without the support of healthcare professionals' [(1)]. Self-care can be understood as a part of day-to-day living, whether a person is healthy or ill. It ranges from simple actions to promote health, including daily hygienic activities and avoiding hazards in the environment, to more complex actions to restore health, such as, understanding symptoms and taking appropriate action, selecting appropriate treatment, taking medicine, monitoring treatment, and rehabilitation activities [(7)].

Methodology

A descriptive analytic (quasi – experimental) design study was carried out at Diabetic and Endocrinology Center in Baghdad- Rusafa Sector from 2nd of May 2017, to27th June 2018. Non-probability sample of (80) male and female diabetic patients were selected from the center. The study instrument (questionnaire) was consisted of two major parts to meet the purposes of study. The first part is related to diabetic patients demographic characteristics such as age, gender, educational level, years of diabetes mellitus foot care confidence scale used 12 items questionnaire for measuring self-efficacy scale to one's feet. Each client completed questionnaire by interview (foot care confidence scale) questionnaire to measure foot care self-efficacy beliefs. This scale guided was developed depending on self-efficacy theory. The foot care confidence scale consists of twelve items around the "confidence" client have in activity different foot self-care activity by a five-point Likert scale response.

The content validity of the program and the study instrument program Self Care are determined by the panel of [(2)] experts, who have experience in their fields – with arithmetic mean of (20.07) – to investigate the content of the program. The experts who have been surveyed in this research are professors, assist. professors, consultants and specialist practitioners with extensive experience working in several areas, including (1) community health nursing, (1) pediatrics nursing, (1) psychiatric nursing, (2) physicians and (7) adult nursing, inside and outside Iraq. Those experts have been asked to review the instrument, program for content, clarity, relevancy, and adequacy, some items are excluded (such as that have not related to the subject) and some others are added (such as that have a close relationship with the subject that may researcher forgotten to mentioned) after a face-to-face discussion with most experts and

the instrument is considered valid after taking all the comments and recommendations into consideration.

A pilot study was carried out in order to determine the reliability of the program and study instrument, a pilot study is carried out on (20) patients who have the same criteria of the original study sample; it is conducted at diabetic center during the period of 13nd August to 27th August 2017. This sample was excluded from the original sample of the study and inferential statistic (r –test, Chi-square test) and p- value by using SPSS version 20.

Results

Table (1): Participants' Sociodemographic and Clinical Characteristics

List	Variable	Study		Control	
		Mean	**SD**	**Mean**	**SD**
	Age	54.15	7.2	55.9	6.2
	Age groups (Years):	**F**	**%**	**F**	**%**
	30-40	1	2.5	0	0.0
	41-50	11	27.5	7	17.0
	51-60	22	55.0	24	60.0
	≥ 61	6	15.0	9	22.5
	Total	40	100.0	40	100.0
	Gender:				
	Male	24	60.0	20	50.0
	Female	16	40.0	20	50.0
	Total	40	100.0	40	100.0

List	Variable	Study		Control	
		F	%	F	%
	Level of Education				
	Unable to read and write	3	7.5	1	2.5
	Reads and writes	2	5.0	2	5.0
	Elementary school graduate	10	25.0	5	12.5
	Middle school graduate	6	15.0	10	25.0
	High school graduate	10	25.0	12	30.0
	Institute degree	2	5.0	6	15.0
	Bachelor's degree and above	7	17.5	4	10.0
	Total	40	100.0	40	100.0
	Duration of having DM (Years)	**Mean**	**SD**	**Mean**	**SD**
		8.18	4.3	8.1	3.0
		F	**%**	**F**	**%**
	2-5	16	40.0	4	10.0
	6-9	8	20.0	28	70.0
	10-13	12	30.0	5	12.5
	≥ 14	4	10.0	3	7.5
	Total	40	100.0	40	100.0

F =Frequency, % =percentage, SD=standard deviation

Table (1) shows the demographic characteristics of the study sample which was males (n = 24; 60.0%) and two-fifth are females (n = 16; 40.0%). At age group of (51-60) years-old 40.0%. Elementary school graduates (n = 10; 25.0%), duration mean for participants in the study group is 8.18 ± 4.3 years.

Table (2): Difference in Diabetic Foot Care Self-Efficacy between Groups Over Time

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
SE Study Group – Pretest SE Study Group - Posttest	7.60000	8.50279	1.34441	4.88068	10.31932	5.653	39	.000
SE Control Group – Pretest SE Control Group - Posttest	-.275	2.501	.395	-1.075	.525	-.695	39	.491

T=TEST, df=degree of freedom, sig= significant

There is a statistically significant difference in foot care self-efficacy in the study group over time (p-value = .000),

Table (3): Difference in Foot Care Self-Efficacy among Age Groups Over Time for the Study Group

Ranks				**Exact test**	**df**	**Asymp. Sig.**
	Age Group Study	N	Mean Rank			
Self-Efficacy Pretest	30-40	1	31.50	1.635	3	.651
	41-50	11	22.27			
	51-60	22	19.98			
	≥ 61	6	17.33			
	Total	40				
Ranks				**Exact test**	**df**	**Asymp. Sig.**
	Age Group Study	N	Mean Rank			
Self-Efficacy Posttest	30-40	1	34.50	2.796	3	.424
	41-50	11	16.91			
	51-60	22	21.84			
	≥ 61	6	19.83			
	Total	40				

Ext=Exact, df=degree of freedom, sig= significant

In the pretest time, participants; in the study group, of the (30-40) years-old age group have a greater foot care SE, followed by those who are in the (41-50) years-old age group, those who are of the (51-60) years-old age group, and those who are (61 years and older) group. This indicates that the younger the age, the greater the foot care SE. However, there is no statistically significant difference in foot care SE among age groups (Exact test = .727, df = 3, p-value = .695).

In the posttest time, the foot care SE didn't almost differ; participants of the (30-40) years-old age group have a greater foot care SE, followed by those who are in the (51-60) years-old age group, those who are of the (41-50) years-old age group, and those who are (61 years and older) group. This indicates that the younger the age, the greater the foot care SE. However, there is no statistically significant difference in foot care SE among age groups (Exact test = 2.796, df = 3, p-value = .424).

Discussion:

Part I: A: Discussion of the Socio-demographic Characteristics of the Study Sample.

1. **Gender of diabetic patients:**

The present results revealed that 60.5% of the sample were female. The findings of the present study supportive evidence is available in the study that showed (the high percentage of their sample were female, (78.3%).[8]

2. **Age of Diabetic patients:**

According to the results, 45.7% of nurses were at the age (31-40). These results supportive evidence is available in the study that showed (55% of nurses in his study group were (31-40) years old) [8] But disagree with the results that showed (the highest percentage of nurses 42% at the age (20-24) years). [2]

3. **Diabetic patients Level of Education:**

The majority of the sample were less than a third are high school graduates (30.0%). The findings of the present study supportive evidence are available in the study that showed (highest percentage of nurses 65% are nursing institute graduates[8]But the study results disagree with the study that showed (42.5% of her study samples were graduates from a secondary school)[9]

4. **Years of duration in diabetes mellitus:**

Finding of the present study revealed that the highest percentage two-fifth have been living with DM for (2-5) years (40.0%) of experience in diabetes. The result of this study disagrees with result that showed[9]. a majority of studies population was living with diabetes mellitus more than 10 year approximately (53.2%). [9]

Part II: A: Difference in Foot Care Self-Efficacy among Educational Levels Groups Over Time for the Study Group Table (2):

There is a statistically important difference in self-efficacy (FCSE) of foot care in the study group over time. This reflects the positive influence of the health educational program in enhancing FCSE.[6] reported the patients' self-efficacy and belief changes improvement after five weeks of an educational program and at the end of three months. Diabetes self-management program (had reported that beneficial effects on the improvement of patient total self-efficacy at the end of treatment. For specific self-efficacy, showed a positive effect on home blood glucose monitoring (HBGM) at the end of follow-up. [6]

Part III: Part II: F: Differences in Foot Care Self-Efficacy among Duration of Having Diabetes Mellitus Groups Over Time for the Study Group.

Concerning the difference in FCSE among the duration of having DM, there is a statistical important difference in feet care self-efficacy among the duration of having DM. The lesser the duration of having DM, the better the FCSE. It is demonstrated in a study reported that adult patients had better diabetes self-care and a better self-efficacy level than younger patients [(5).]

Recommendations:

1- To increase foots elf-efficacy and foot care behavior of patients with type 2 diabetes, patients need to have fully understanding, confidence and receive support from families and health care provider.

2- The healthcare provider should provide a specialized foot care education depend on selfe-fficacy theory to improve the information and realization so motivate clients to perform better foot self- care.

References

1. American Diabetes Association [ADA] (2010). Diagnosis and Classification of Diabetes Mellitus. Position Statement. Diabetes Care. 35 (Suppl. 1):S62–S69.
2. Byron, Hal ang craige. The association between foot care self efficacy beliefs and actual foot care behavior in people with peripheral neuropathy. Journal of foot unkle research. 2009.2:3
3. Cochrane Database of Systematic Reviews 2011, Issue 6. Art. No.: CD007374.DOI:10.1002/14651858. CD007374.pub2
4. Driver VR, Goodman RA, Fabbi M, French MA, Andersen CA. The impact of a podiatric lead limb preservation team on disease outcomes and risk prediction in the diabetic lower extremity: a retrospective cohort study. J Am Podiatr Med Assoc. 2010;100(4):235–41PubMedGoogle Scholar
5. Howteerakul N, Suwannapong N, Rittichu C, Rawdaree P (2007) Adherence to regimens and glycemic control of patients with type 2 diabetes attending a tertiary hospital clinic. Asia Pac J Public Health 19: 43-49.
6. Li T, Wu HM, Wang F, Huang CQ, Yang M, Dong BR, Liu GJ. Education programmes for people with diabetic kidney disease.
7. Newman, S., Steed, L., & Mulligan, K. (2009). Chronic Physical Illness: Self-management and Behavioral Intervention. Berkshire: Open University Press.
8. Stacy & Vera,(2015). The relationship between self-efficacy and diabetic foot self-care. Journal of clinical and & Translational Endocrinology 2(2015)37-41
9. 14. Sloan H. Developing and testing of the foot care confidence scale to measure self-efficacy in foot care. Louisiana state university health sciences center school of nursing;2002.
10. Ting & Chen,Couldn't or Wouldn't? The Influence of Privacy Concerns and Self-Efficacy in Privacy Management on Privacy Protection(2014) Cyberpsychology, Behavior, and Social NetworkingVol. 18, No. 1
11. World Health Organization. (2009). *Preventing Chronic Disease: A Vital Assessment*.Geneva: World Health Organization.