Effect of an Educational Program on Self Efficacy for Patients with Type 2 Diabetes Mellitus

Bahia Galal Abdel-Razik [(1)], **Marwa Moustafa Ragheb**[(2)] **& Magda Abdel-Aziz Mohammed**[(3)]

[(1)] *Assistant lecture Medical-Surgical Nursing, Faculty of Nursing , port said University,*
[(2)] *Assistant Professor of Medical-Surgical Nursing, Faculty of Nursing Banha University,*
[(3)]*Professor of Medical-Surgical Nursing Faculty of Nursing -Ain Shams University*

Abstract:

Background: Self-efficacy has important theoretical and practical applications for health promotion and disease prevention among older adult. The present **study aimed** to evaluate the effect of an educational program on self efficacy for patients with type 2 diabetes mellitus. **Setting:** The study was conducted at outpatient clinic at Benha University Hospital in kaluobia governorate. **Sample:** The study was applied on 50 adult patients with type 2 diabetes mellitus aged between 20-50 years selected randomly from both sexes without disabilities and who can at least read and write. **Tools:** Data were collected through an interviewing questionnaire including (socio-demographic data and medical history), Patient's knowledge & practice questionnaire sheet, and Diabetes Management Self-Efficacy Scale (DMSES). **Results:** The results of the study concluded that there were highly significant statistical differences in total knowledge, practice, and self efficacy scores of the studied sample after implementation of the educational program; an extremely statistical significant difference was found in mean scores of glycosylated hemoglobin (A1c) levels after applying the educational program. **Conclusion:** After implementation of the educational program,A1C levels had been improved significantly (an extremely statistical significant difference was found in mean scores of hemoglobin A1C levels after applying the educational program, there was a highly statistical significance difference in total knowledge, practices, and self efficacy scores of diabetic patients after applying the educational program**. Recommendations:** The study recommended that further programs with continuous follow up for peoples with diabetes should be applied in all health care centers to help them to improve their self care behaviors and self efficacy.

Key words: Educational Program, Self-efficacy, Type 2 Diabetes Mellitus

Introduction:

Diabetes is a "group of diseases marked by high levels of blood glucose resulting from defects in insulin production, insulin action, or both" **(Centers for Disease Control, 2011).** Diabetes is a significant public health problem **(Latachan, Seereeram & Kamalodeen, 2010)**. It has been termed an epidemic, as the prevalence has skyrocketed **(Mainous, Diaz & Everett, 2007)**.

Type 2 diabetes is among the most devastating of all chronic illnesses. It accounts for 90-95% of all diabetics and is increasing at an alarming rate **(Narayan et al., 2006).** By definition, type 2 diabetes is a metabolic disorder characterized by chronically high plasma glucose or hyperglycemia. The hyperglycemia occurs and persists due to problems with insulin; the amount available, the body's inability to use it correctly, or both. In addition there are problems with fat, carbohydrate and protein metabolism **(Bennett & Knowler, 2006).**

The disorder develops gradually progressing through various stages of insulin resistance. There are often no symptoms present, and approximately 7 million out of the 25.8 million people

in Egypt with diabetes walk around unaware that they are affected. Left unchecked, type 2 diabetes will cause a domino-like effect of very serious and life altering complications throughout the body. Some of the most common complications include macro-vascular problems which include heart attack and stroke as well as the micro-vascular complications of kidney disease, retinal disease, and peripheral neuropathy which can lead to unhealed sores, serious infections, and amputations **[National Institutes of Diabetes and Digestive and Kidney Diseases (NIDDK), 2011].**

In order to avoid the complications mentioned above, the type 2 diabetic must undertake a treatment regimen which requires pervasive changes in lifestyle. These include strict adherence to a healthy diet, daily exercise and medication use as well as self monitoring of blood glucose levels (SMBG) and stringent medical follow up. Ultimately, most of the burden of management falls to the patient **(ADA, 2011).**

Self efficacy is one of the most critical aspects of successfully developing and applying problem-solving to diabetes-related barriers over a lifespan. Self-efficacy; a person's belief in his or her own ability to successfully perform the tasks involved in diabetes self-management **(Bandura, 1997).** Self efficacy has been noted to be an important influential factor related to successful diabetes self-management and has been found to be positively correlated with the performance of self-management behaviors **(Sousa, et al., 2005).**

The aim of diabetes care is to return the patient to as close non-diabetic state as is safe and practical for that person. There is clear evidence that good diabetes care reduces diabetic tissue damage **(Hillson, 2008).** The "ABCs" of managing diabetes are HbA1c, blood pressure control, and cholesterol management **(Deeg, 2005).**

The educational program for diabetic patients has several roles; the simplest one is to enable patients to perform the self management aspects of their treatment program. This involves education skills, teaching patients how to follow their diets, administer their medications, and monitor their glucose control **(Lewis, Heitkemper & drrksen 2007).** Moreover, health educational programs provide guidance about managing type 2 diabetes for people with diabetes and the whole range of clinical staff who work in primary and secondary care; that is to maximize the potential for reducing complications and improving the quality of life of people with the disease **(WHO, 2003).**

Aim of the study:

This study aimed to evaluate the effect of an educational program on self efficacy for patients with type 2 diabetes mellitus through:

1. Assess of patients' needs to manage safely the five aspects of diabetes good control.
2. Assess of self efficacy of patients through (Diabetes Self Efficacy Scale).
3. Design and implement an educational program according to the patients' needs.
4. Evaluate the effect of the educational program on patients' knowledge and practices according to the five aspects of diabetes management, self efficacy and glycemic control.

Research hypothesis:

After implementing the educational program, there is statistically significant improvement in total patients 'knowledge and practices'

scores and between mean scores of blood glucose & A1C.

Significance of the study:

It has been observed that diabetes mellitus is the commonest chronic disease among Egyptian s with increasing rate. **Abdel Hamid (2005)** stated that for every 100,000 people in Egypt, 44 suffer from diabetes. Besides, specified that about 6 millions Egyptians complain from diabetes

Diabetes represents one of the major challenges for health care systems all over the world while consuming a lot of health care resources. Researches had shown that adherence to recommended management routines of chronic diseases can be enhanced by increasing self efficacy. Providing an educational intervention for patients may promote their self efficacy as well as promoting their glycemic control and reducing diabetic complications.

Subjects and methods:

Research design:

A Quasi experimental research design was used in this study.

Setting:

The present study was conducted at diabetic outpatient clinic of Benha University Hospital in kaluobia governorate.

Subjects:

A convenience sample consisted of 50 patients with type 2 diabetes mellitus according to the following Inclusion Criteria:

- Adult patients with age ranged between 20-50 years.
- Both sexes (males and females) were involved.
- Patients who could read and write.

Tools for data collection:

Two tools were used for data collection in this study:

Tool (1): Diabetic knowledge and practices questionnaire sheet:

Diabetic knowledge and practices questionnaire sheet consisted of two parts:

part (A):

Patient' general characteristic data such as sex, age, marital status, education and occupation.Medical history including: the duration of diabetes (in years), associated chronic diseases, Prescribed medications, Finding of laboratory tests, Finding of physical medical examination type of diabetic coma during the last year, number of hospitalization for diabetes during the last year and schedule for follow-up visits to diabetes clinic, and patient's present, past, and family history.

Part (B): questions related to DM knowledge and practices covering the followings:

- Knowledge about diabetes mellitus such as, definition, causes, symptoms, and the five aspects of diabetic care.
- Practice related to the five aspects of diabetes care (Diet, Exercise, medication, self blood glucose measurement, and hygienic care).

The educational program covers the following items:

- Diabetes; definition, causes, types, manifestations, complications, and management.
- Medication and self injection of insulin.
- Nutrition and balanced diabetic diet.
- Physical exercise.
- Hygienic care.
- Methods of monitoring blood glucose level.

Tool (2): Diabetes Management Self-Efficacy Scale (DMSES):

The scale was developed by van der Bijl, van Poelgeest-Eeltink & Shorrtridge-Baggett, (1999) consisted of 20 items five items were omitted after pilot study to be more applicable.

Scoring system:

Scoring system was zero for incorrect answer, one for incomplete answer, and two for correct answer from total score (30). Less than 15 was considered poor, from 15 to 20 was average, and more than 20 was good.

Content Validity & reliability:

Content validity was used for the modified tools and the designed booklet to determine whether the tools cover the aim. The stage developed by a Jury of seven experts (assistant professors of medical-Surgical Nursing) from the Faculty of Nursing, Benha , Mansoura , and Ain Shams University.

Test reliability of the proposed tools was done by cronbach's alpha test, showed a strong significant positive correlation between test (A) and retest (B) in knowledge, practice, and self efficacy items.

Pilot study:

The pilot study was applied on five patients within the selected criteria to test the applicability of tools, arrangement of items, and estimate the time needed for each sheet, and then excluded from the study sample after modification of the tools.

Field Work:

The selection of the patients, the collection of data, and the implementation of the educational program lasted over a period of 12 months starting from September 2010 to august 2011. Data was collected two days a week at the out patient diabetes clinic of Benha University Hospital from 9:00 am to 1:00 pm.

The educational program consists of seven sessions:

The 1st session included interviewing the patients regarding general characteristics, past history, checking random blood glucose levels, checking vital signs, and making physical assessment (skin, mouth, eye, neurological, and foot condition). Time allowed: from 30- 40 minutes for each patient.

The 2nd session included assessment of patients' knowledge, practices, and self efficacy. Time allowed: from 30- 40 minutes.

From 3rd to 5th session (the educational sessions): the educational program was aided by using booklets, and learning aids as a glucometer for SMBG, urine strips for glucose and ketones. This program consisted of 3 sessions; each session lasted about 60 minutes and was accompanied by feedbacks. These educational sessions were done either individually or in groups (4-5) patients.

The 6th session (post test): This session included reassessment of patients' knowledge, practice, and self efficacy after applying the educational program. Questionnaires were filled by the patients under observation of the researcher.

Administrative and ethical considerations:

An official permission was obtained from Dean of faculty of Nursing and director of Benha University Hospital before conducting the study. Additional oral consents were taken from the patients who participated in the study after explanation of its purpose. They were given an opportunity to refuse the participation, and they were assured that there information which would be

used for research purposes only.

In the planning stage approval was obtained from the directors of the above mentioned settings. All patients were informed about the study and their rights according to medical research ethics that they were free to decide whether or not they would participate in the study. Then a written informed consent was obtained from each patient who agreed to participate in the study.

Statistical design:

All collected data were organized, categorized, tabulated, entered, and analyzed by using SPSS, (Statistical Package for Social Sciences), soft-ware program version 14, which was applied to frequency tables, statistical significance and associations were assessed using the arithmetic mean, standard deviation (SD), chi-square, t-test, Z test, and coefficient correlation (r) to detect the relations between the variables.

Non significant (NS) $p > 0.05$, Significant (S) $p \leq 0.05$, highly significant (HS) $P < 0.001$, extremely high $P < 0.0001$

Limitation of the study:

- Some of the follow up sessions were done through the phone as there were some obstacles in attending to the outpatient clinic due to their residence or fatigue.
- The highly costs of laboratory tests (hemoglobin A1c) were the main cause of the small number of the sample which led to inability to generalize the results.

Results:

Table (1) reflects the general characteristics of the studied sample shows that (76.0%) of the studied sample were in age group of 40-50 years old, (66.0%) of them were females, and (68.0%) of the patients were living in rural areas. Regarding marital status and level of education, it was observed that, (86.0%) of the studied sample were married and (50%) of them could just read & write. As regard to patients' occupation, the table shows that (44% and 10.0%) of the patients were not working (house wives and retired) respectively.

Table (2) shows that, (54.0%) of the studied sample had diabetes for a period of five years to less than ten years, while only (6.0%) of the patients had diabetes for less than one year. (76.0%) of patients had positive family history of diabetes (70.0%) of them 1st degree relativity. About medication used, the table showed that (72.0%) of the studied sample were treated with tablets, while (14.0%) of them were using insulin alone or in combination with tablets. As regard to patients' previous hospitalization, the results illustrated that, (92.0%) of the patients didn't hospitalized before, and (8%) of them were hospitalized due to hypoglycemia.

Figure (1) shows that there was a statistically significant difference in total knowledge scores of the studied sample with an extremely significant difference in mean knowledge scores after implementation of the educational program, $p = (0.000)$.

Figure (2) Show that there was a highly statistically significant difference in total practice scores of the studied sample after implementation of the educational program ($P < 0.000$).

Figure (3) show that there was a highly statistically significant improvement in total self efficacy scores with an extremely significant increase in their mean scores after implementation of the educational program ($P < 0.000$). This means that the total self efficacy scores of the studied sample has been

improved significantly after applying the educational program.

Table (3) Illustrates that there was no statistically significant difference in mean scores of random blood glucose levels after implementing the educational program (P=0.254), however there was an extremely significant difference in mean scores of hemoglobin A1c levels after applying the educational program (P < 0.000).

Table (4) Shows that patients' knowledge and practices had a significant effect on their A1C levels after implementation of the educational program, however A1C levels didn't influenced by their self efficacy scores.

Table (5) shows that patients' knowledge correlated positively with their practices and self efficacy

Table (6) Shows that self efficacy scores of the studied sample correlated positively with their practices.

Discussion:

General characteristics of the studied sample revealed that; more than three quarters of the patients were in a middle age ranged between 40 and 50 years old, this agreement with **Jain** and **Saraf (2008)**, **Lewis et al., (2007),** and **Fabian et al., (2006)** that stated, type 2 diabetes is the adult-onset diabetes which occurs most commonly in people older than 30 years.

As regard to **gender**, female patients represented about two thirds of the studied sample. This finding in accordance with **Hassan, (2009)** and **Selim (2000)** who found that the most of their patients shared in their studies were females. Regarding to **residence**, in the current study it was found that about two thirds of the studied sample was from rural areas. This finding in agreement with findings of **Hassan (2009)** and **Abdel Hamid (2005)** that reported most of their patients were from a rural area.

As regard to marital status, the study findings showed that, most of patients were married, this finding in accordance with **Hassan (2009)** and **Hassanein (2003)** who mentioned that the majority of their patients were married.

Concerning educational level of the studied sample, the results of the current study showed that about one half of the studied sample could just read and write. This finding is in contrary with **Abdel Hamid (2005)** who reported that most of the study sample was illiterate.

In relation to patients' occupation, the study findings showed that more than one half of the patients were not working (retired & house wives).

As regard to duration of diabetes, the present study revealed that most of patients had diabetes for more than five years, this finding in agreement with **Hassanein, (2003)** who reported that about one half of patients had diabetes for the same period, this may be due to the same characteristics of two samples and chronicity of the disease.

More than three quarters of the studied sample had positive family history of diabetes, most of them had first-degree relation, this finding is supported by **Brekke, (2005)** and **Simson, Shaw** and **Zimmet (2003)** who stated that there is a strong familial aggregation of type 2 diabetes and it is also known first degree relativity.

In relation to medication used, it was found that about three quarters of the studied sample were treated with tablets, while the minority of them had changed to insulin therapy to control their diabetes. These findings are supported by **(Levesque, 2008)** who demonestrated that oral hypoglycemic agents are the treatment of first choice in the management of type 2 diabetes. Unlikely **Ibrahim, (2009)** stated that

more than one half of his patients were receiving a combined therapy "oral hypoglycemic agents and insulin".

As regard to patients' previous hospitalization, the results illustrated that, most of the patients didn't hospitalize before, while less than ten percent of them were hospitalized due to hypoglycemia. This supports the importance of the education programs in preventing acute complications and delaying the long term ones **(Whitley et al., 2006).**

In relation to glycemic control; A1C had been improved significantly (an extremely statistical significant difference in mean scores of hemoglobin A1C levels after applying the education program). This means that most of patients had better glycemic control after applying the education program. This result is similar to the results of **Naccashian (2009)** who found that the mean of the post A1C was significantly lower than the pre-A1C levels. However there was no significant statistical difference in mean scores of random blood glucose levels after implementing the education program.

The results of the current study revealed that there was a highly statistically significant difference in total knowledge scores of diabetic patients with an extremely significant difference in mean knowledge scores after applying the education program. This goes in line with **Ibrahim, (2009)** who clarified that there was a highly statistically significant difference throughout his program phases regarding knowledge about diabetes and **Gutierrez, (2011)** who mentioned that a significant increase in the knowledge and confidence scores of his participants from pre- to post-test.

These findings are supported by **Bendik et al. (2009)** who stated that a structured teaching program is able to improve quality of life, self control, and diabetes knowledge in diabetic patients. Furthermore, the **ADA (2001)** emphasized that behavior modification through education together with regular monitoring and appropriate management of blood glucose control is essential to improve the health of people with diabetes.

This study showed that there was a highly statistically significant improvement in total patients' practices' scores after implementation of an education program: As regard to patients' practices scores during exposure to diabetic complications, the results clarified that there was an extremely significant difference in patients' practices scores after implementation of the education program.

An extremely significant difference was found in patients' practices scores during following diabetic diet and a highly statistically significant difference was found in patients' practices scores during doing physical exercises after implementation of the educational program. These results in accordance with **Abdel Salam, (2006)** who found that the majority of his patients were not practicing exercise before applying the intervention program.

Regarding patients' practices toward medication use, the results showed that after the implementation of the educational program; patients' practices' scores improved among statistically significant, highly statistically significant and an extremely significant during most steps of taking medication and applying self-injection of insulin, while there were no statistically significant differences in some practices (regularity of taking medication, self-injection of insulin, changing site every time, keeping insulin in refrigerator, and choosing suitable syringe) after implementation of the educational program as the

patients had already good practice's scores before implementing the educational program. These findings in accordance with **Hassan, (2009)** who found that about three quarters of his patients had good practices scores.

As regard to self monitoring of blood glucose level, the results of this study showed that there was no statistically significant difference in patients' practices scores among patients after implementation of an education program, this finding may be due to poor economic status of the patients and high costs of blood test strips. This finding supported by **Ibrahim, (2009)** who found that almost no one of his patients performed SMBG and consequently they didn't know the importance of it.

Individuals with high diabetes self-efficacy are more likely to follow an ideal diet and adjust their insulin as need, are less likely to skip testing of blood glucose levels and taking of their medications. Self-efficacy has also been noted to be a significant predictor of exercise self-care in individuals with diabetes **(Wen, Shepherd & Parchman 2004** and **Williams & Bond, 2002**).

In the current study, there was a highly statistically significant improvement in total self efficacy scores after implementation of the educational program. There were extremely statistically significant differences in relation to all items of patients' self-efficacy towards different regimens of diabetes treatment except item number 1(Check my blood sugar if necessary?).

The results revealed that, there was a strong positive relation with a highly statistically significant difference between duration of diabetes and complications occurred. This means that it is possible to develop microvascular complications with an increasing duration of diabetes. This finding is approved by **Klein (2007)** and **Roy et al., (2004)** who concluded that approximately 80% with more than 15 years duration of diabetes have some degree of retinopathy**.** In addition, **Boulton, Cavanagh** and **Rayman (2006)** added that diabetic neuropathy affects about 30% of all diabetic people at any time and 50% after 15 years of diabetes.

As regard to relation between general characteristics (age, sex, marital status, level of education, and occupation) of the studied sample and their knowledge, practice, and self efficacy scores , the results of this study revealed that all socio-demographic characteristics had highly significantly different effect on their knowledge, practice, and self efficacy after implementing of the educational program. This differentiation approved individual variation among the patients in relation to their characteristics.

There was a strong positive correlation with an extremely statistical significant difference between mean scores of blood glucose & A1C levels after implementing the educational program. This finding clarify that A1C is influenced by levels of random blood sugar and support the importance of self monitoring of blood glucose level in management of diabetes mellitus.

The results of this study revealed that patients' knowledge correlated positively with their practices and self efficacy. Self efficacy scores also correlated positively with their practices. These results mean that, self efficacy is influenced by knowledge and practices. These findings in accordance with **Shah** and **Booth, (2009)** and **Atak, Tanju** and **Kose (2008)** who demonstrated that the level of self-efficacy is highly improved or increased by education, and also **Sousa, et al. (2005)** stated that self-

efficacy has been noted to be an important influential factor related to successful diabetes self-management and has been found to be positively correlated the performance of self-management behaviors.

Conclusion:

Based on the results of the present study, the following can be concluded:

After implementation of the educational program,A1C levels had been improved significantly (an extremely statistical significant difference was found in mean scores of hemoglobin A1C levels after applying the educational program, there was a highly statistical significance difference in total knowledge, practices, and self efficacy scores of diabetic patients after applying the educational program**.**

Recommendations:

In research (further researches):

- Conducting separate studies about preventive measures of type 2 diabetes is very important at diabetes center.
- Replication of the current study on a long probability sample is recommended to achieve generalization and wider utilization of the designed program.

In service

- Establishing a specialized diabetes clinic in all health centers to guide the patients about preventive measures and caring of diabetes mellitus.
- Continuous follow up care for patients with diabetes through home visits to improve their diabetes.

In education

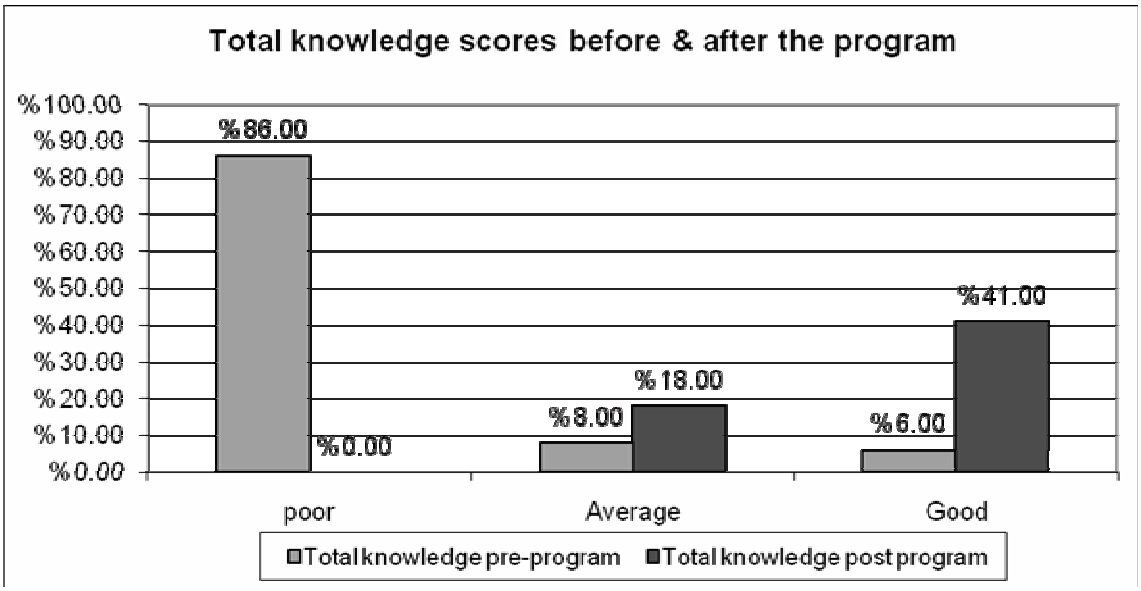
Current health education throughout mass media for teaching preventive measures of all types of diabetes for healthy people, teaching healthy life style for diabetics, and ways of decreasing diabetic complications.

Table (1): Percentage distribution of patients with type 2 DM according to their socio-demographic characteristics (No=50).

Item	No.	%
Age in years:		
• 20-	1	2.0
• 30-	11	22.0
• 40-50	38	76.0
Mean±SD=44.14±5.66		
Gender:		
• Male	17	34.0
• female	33	66.0
Residence:		
• Rural	34	68.0
• Urban	16	32.0
Marital status:		
• Single	1	2.0
• Married	43	86.0
• widowed	6	12.0
Level of education:		
• Read& write	25	50.0
• Secondary	18	36.0
• University	7	14.0
Occupation:		
• Official	9	18.0
• Worker	14	28.0
• Retired	5	10.0
• House wife	22	44.0

Table (2): Percentage distribution of patients with type 2 DM according to their medical history (No=50).

Item	No.	%
Duration of diabetes:		
• <1	3	6.0
• 1-	9	18.0
• 5-	27	54.0
• ≥ 10	11	22.0
Mean±SD=6.8±3.8		
Family history of diabetes:		
• Positive	38	76.0
• Negative	12	24.0
Degree of relativity:		
• 1st degree	35	70.0
• 2nd degree	3	6.0
Medication used:		
• Tablets	36	72.0
• Insulin	7	14.0
• Both	7	14.0
Previous hospitalization:		
• Yes	4	8.0
• No	46	92.0
Causes of Previous hospitalization:		
• hypoglycemia	4	8.0
• DKA	0	0.0



Mean ± SD: pre: 60.92±23.01 post: 118.30±15.41 P = (0.000)***

Figure (1): Distribution of patients with type 2 DM according to their total knowledge about different items of diabetes mellitus before & after implementation of the program

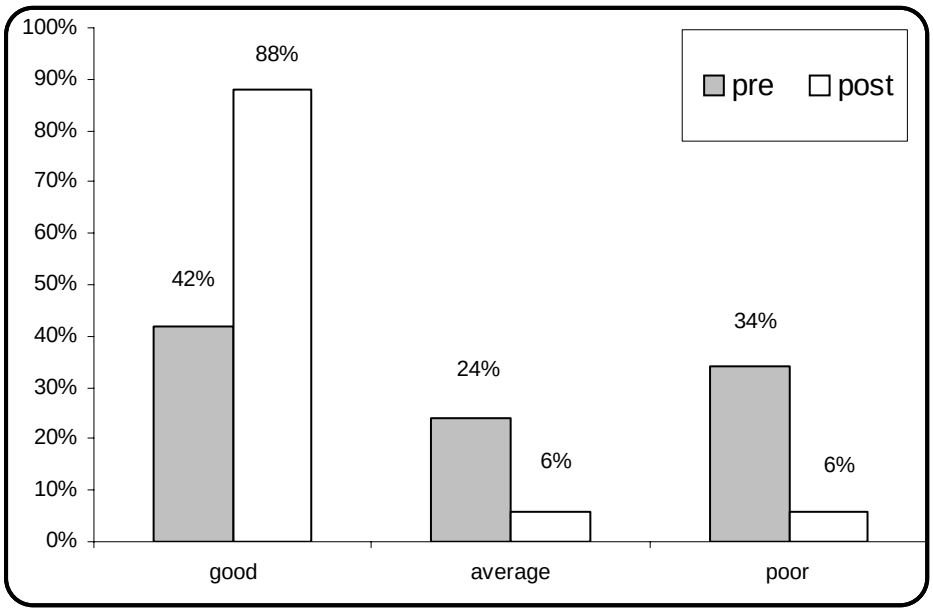


Figure (2): Distribution of patients with type 2 DM according to their total practice toward different items of diabetes mellitus before & after implementation of the program.

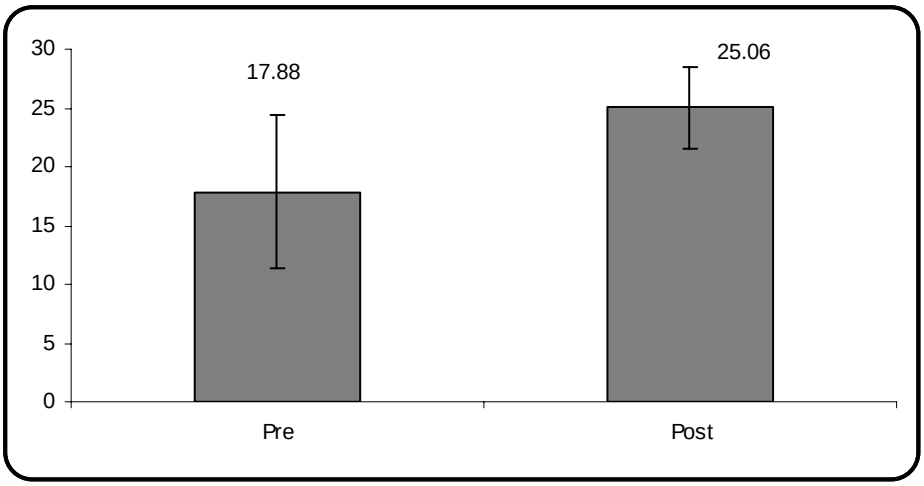


Figure (3): Distribution of patients with type 2 DM according to their total self efficacy toward diabetes mellitus before & after implementation of the educational program

Table (3): Distribution of patients with type 2 DM according to their glycemic control before & after implementation of the program

Item	Pre-program	Post-program	Test of Significance	
	Mean ± SD	Mean ± SD	T	P
Random Blood Glucose	206.48±81.243	196.48±51.126	1.155	0.254
glycosylated hemoglobin	8.41±1.817	7.10±.929	7.013	0.000**

(**) Highly statistically significant difference, P<0.001.

Table (4): Relation between means of A1C levels & total knowledge, practice, and self efficacy scores of diabetic patients before and after implementation of the program:

Item	No.	%	AIC level		Test of significance	
			Pre program	Post program		
			Mean±SD	Mean±SD	P1	P2
Pre program knowledge:						
• Poor	41	82.0	8.42±1.94	7.09±0.91	0.962	0.000***
• Average	6	12.0	8.48±0.94	7.43±1.13		
• Good	3	6.0	8.13±1.80	6.53±0.85		
Post program knowledge:						
• Average	9	18.0	10.59±2.02	7.76±0.95	0.396	0.01*
• Good	41	82.0	7.94±1.39	6.95±0.87		
Pre program practice:						
• Poor	49	98.0	8.46±1.81	7.12±0.92	0.267	0.03*
• Average	1	2.0	6.40±0.0	5.90±0.0		
Post program practice:						
• Poor	4	8.0	9.53±0.97	7.63±0.59	0.196	0.05*
• Average	8	16.0	9.60±1.87	7.66±1.03		
• Good	38	76.0	8.05±1.75	6.92±0.88		
Pre program self-efficacy:						
• Poor	15	30.0	8.59±2.11	7.29±1.04	0.53	0.56
• Average	13	26.0	8.75±1.97	7.32±0.95		
• Good	22	44.0	8.09±1.53	6.83±0.80		
Post program self-efficacy:						
• Poor	1	2.0	7.00±0.0	6.10±0.0	0.19	0.55
• Average	3	6.0	9.20±1.56	7.03±0.21		
• Good	64	92.0	8.39 ± 1.84	7.12 ± 0.96		

Table (5): Correlation co-efficient between total knowledge of patients with type 2 DM and their practices and self efficacy before and after the educational program:

Item	Total knowledge			
	Pre		Post	
	T	P	T	P
Total practice				
Pre	0.479	0.000***	0.657	0.000***
Post				
Total self efficacy				
Pre	0.510	0.000***	0.405	0.000***
Post				

(***) Extremely significant difference, P < 0.0001.

Table (6): Correlation co-efficient between total practice of patients with type 2 DM and their self efficacy before and after the educational program:

Item	Total self efficacy			
	Pre		Post	
	T	P	T	P
Total practice				
Pre	0.479	0.000***	0.657	0.000***
Post				

(***) Extremely significant difference (P < 0.0001).

References:

- **Abdel Hamid, S.H. (2005):** Self Care Practice Among Home Based Diabetic Elderly in Dakahlia Governorate. Master Thesis, Faculty of Nursing, Alexandria University.
- **Abdel Salam M. (2006):** Health Education Program for Non-Insulin Dependent Diabetes Mellitus Patients in Port Said. Doctorate Thesis, Faculty of Nursing, Port Said University.
- **American Diabetes Association (ADA) (2001):** Standard of Medical Care for Patients with Diabetes Mellitus. Diabetic Care; (1): PP.1-23.
- **American Diabetes Association (ADA) (2011):** Executive Summary: Standards of Medical Care in Diabetes. Diabetes Care, 34 (Suppl 1), S4-S10.
- **Atak, N., Tanju, G., & Kose, K. (2008):** The Effect of Education on Knowledge, Self Management Behaviors and Self Efficacy of Patients with Type 2 Diabetes. Australian Journal of Advance Nursing, 26 (1): 66-74.
- **Bandura, A. (1997):** Self-efficacy, The Exercise of Control. Am J Health Promot, 12 (1): 8-10.
- **Bendik, C.F., Keller, U. &Moriconic, N., (2009):** Training in Intensive Insulin Therapy Improves Quality of Life, Decreases The Risk of Hypoglycemia, and Ameliorates Poor Metabolic Control in Patients with Type 1 Diabetes. Diabetes Research and Clinical Practice. 83 (3): 327-333.
- **Bennett, P., & Knowler, W. (2006):** Definition, Diagnosis, and Classification of Diabetes Mellitus and Glucose Homeostasis. In C. Joslin's Diabetes Mellitus (14 ed.),

Philadelphia: Lippincott Williams & Wilkins. Pp. 331-339.

- **Boulton, A.J., Cavanagh, P.R., & Rayman, G. (2006):** The Foot in Diabetes. 4th ed. England, Wiley & Sons Co. PP: 31-38.

- **Brekke, H.K. (2005):** Long–Term (1- and 2- years) Effects of Life Style Intervention of Type 2 Diabetes Relatives. Diabetes REs. Clin. Pract. 70: 225-234

- **Centers for Disease Control (2011):** National Diabetes Fact Sheet. Retrieved June 20, 2011 from: http://www.cdc.gov/diabetes/pubs/factsheet11.htm

- **Deeg, M. (2005):** Basic Approach in Managing Hyperglycemia for the Non Endocrinologist, Impending of Obesity, Metabolic Syndrome and Diabetes Mellitus, the Role of Prevention. The American Journal of Cardiology. 96 (4): 37-40.

- **Fabin, W., Majkwska, L., Moleda, P., & Stefanski, A. (2006):** Diabetes Control in Type 2 Subjects Treated in Primary Health Care. Pol Arch Med Wewn. 116 (2): 706-765.

- **Gutierrez, C. (2011):** A Study to Evaluate The Effectiveness of The Salus Education Online Diabetes Training Program For Improving Knowledge and Self-Efficacy of School District Employees. Doctorate degree, Degree of Doctor of Philosophy, Faculty of the Graduate School, College of Health.

- **Hassan B. (2009):** Factors Affecting Compliance of Diabetic Patients toward Therapeutic Managements. Unpublished Master Thesis, Faculty of Nursing, Zagazig University**.** PP.5-40.

- **Hassanein A. (2003):** Compliance to Treatment Regimen among Insulin Dependent Diabetic Patients, Unpublished Master Thesis, Faculty of Nursing, Zagazig University, PP.105-118.

- **Hillson, R. (2008):** Diabetes care, A practical Manual, 1st ed. Oxford University, Oxford New York. PP: 35-42.

- **Ibrahim, D.A. (2009):** Effect of life Style Modification Pattern on Quality of Life for Patient with Diabetes Mellitus. Master Thesis, Faculty of Nursing, Ain Shams University. PP: 162-180.

- **Jain, S & Saraf, S. (2008):** Type 2 Diabetes Mellitus: Its Global Prevalence and Therapeutic Strategies, Diabetes and Metabolic Syndrome. Clinical Research and Reviews. Electronic Publication, Retrieved May 24, 2010 from: URI: http://www.eulc.edu.org/

- **Klein, R., & Klein, B.E. (2007).** The Epidemiology of Eye Disease: From Glycemia to Genetics: The Friedenwald Lecture. Invest Ophthalmol Vis Sci, 47(5), 1746-1753.

- **Latachan, Z., Seereeram, R., & Kamalodeen, A. (2010):** TRAQ-D (Trinidad Risk Assessment Questionnaire for Type 2 Diabetes Mellitus): A cheap, Reliable, Non-invasive Screening Tool for Diabetes. British Journal of Diabetes & Vascular Disease, 10, 187-192.

- **Levesque, L.E. (2008):** Pharmacological Interventions in Type 2 Diabetes: Observational Studies and Bias Related Issues. Doctor of Philosophy,McGill University.

- **Lewis,F.M, Heitkemper,S, & Dirksen.L.M. (2007):** Medical-Surgical Nursing, Assessment and Management of clinical problems. 7th ed. USA: Mosby Co., PP: 425- 32.

- **Mainous, A.G, Diaz, V.A., & Everett, C.J. (2007):** Assessing Risk for Development of Diabetes in

Young Adults. Annals of Family Medicine, 5, 425-429.

- **Naccashian, Z. (2009):** The Impact of Diabetes Self-Management Education Glucose Management in Ethnic Armenals with Type 2 Diabetes. Doctorate degree, Degree of Doctor of Philosophy, School of Nursing, Azusa Pacific University.

- **Narayan, K. M., Boyle, J. P., Geiss, L. S., Saaddine, J. B., & Thompson, T. J. (2006):** Impact of Recent Increase in Incidence on Future Diabetes Burden: U.S. 2005-2050. Diabetes Care, 29 (9), 2114-2116.

- **National Institutes of Diabetes and Digestive and Kidney Diseases, (2011):** National Diabetes Statistics. (NIH Publication No.113892) Retrieved November 17, 2011 from: http://diabetes.niddk.nih.gov/dm/pubs/statistics/#13

- **Roy MS., Klein R., O'Colmain BJ., (2004):** The Prevalence of Diabetic Retinopathy among Adult Type 1 diabetic Persons in The United States. Arch Ophthalmol; 122(4): 546-551.

- **Selim, M. (2000):** Adherence to Treatment Regimen among Selected Sample of Egyptian Insulin Dependent Diabetic Patients. The New Egyptian Journal of Medicine; 1(3): 128-35.

- **Shah, B. R., & Booth, G. L. (2009):** Predictors and Effectiveness of Diabetes Self-management Education in Clinical Practice. Patient Education & Counseling, 74, 19-22.

- **Simson, R.W., Shaw, J.E., & Zimmet, P.Z. (2003):** The Prevention of Type 2 Diabetes Life Style Change or Pharmacotherapy? A challenge for the 21st Century. Diabetes Research and Clinic Practice. 59 (3): 165-180.

- **Sousa, V.D., Zauszniewski, J., Lea, P., & Davis, S. (2005):** Relationships among Self-Care Agency, Self-Efficacy, Self-Care and Glycemic Control. Research and Theory for Nursing Practice: An International Journal, 19, 217-228.

- **Van der Bijl, J., van Poelgeest-Eeltink, A., & Shorrtridge-Baggett, L. (1999)**: The Psychometric Properties of the Diabetes Management Self Efficacy Scale for Patients with Type 2 Diabetes Mellitus. Journal Advanced Nursing; 30(2), 352-359.

- **Wen, L., Shepherd, M., & Parchman, M. (2004):** Family Support, Diet, and Exercise among Older Mexican Americans with Type 2 Diabetes. The Diabetes Educator, 30, 980-993.

- **Whitley, H.P., Fermo, J.D., Ragucci, K., & Chumney, E.C. (2006):** Assessment of Patient Knowledge of Diabetic Goals, Self-Reported Medication Adherence, and Goal Attainment. Pharmacy Practice; 4 (4): 183-190.

- **Williams, K., & Bond, M. (2002):** The Roles of Self-Efficacy, Outcome Expectancies and Social Support in the Self-Care Behaviors of Diabetics. Psychology, Health and Medicine, 7, 127-141.

- **World Health Organization (WHO) (2003):** Study Group Diabetes Mellitus, World Health Organization Technical Report Series 727 Geneva: 85.

تأثير برنامج تعليمي على الكفاءة الذاتية للمرضى المصابين بالنوع الثاني من السكر

بهيه جلال عبدا لرازق[١] ، مروه مصطفى راغب[٢] ، ماجدة عبد العزيز محمد[٣]
[١] مدرس مساعدالتمريض الباطنى الجراحى- كلية التمريض- جامعة بورسعيد ، [٢] أستاذ مساعد ورئيس قسم التمريض الباطني والجراحي- كلية التمريض- جامعة بنها ،[٣] أستاذ التمريض الباطني و الجراحي- كلية التمريض- جامعة عين شمس

مقدمة:

مرض السكري هو مشكلة خطيرة ومكلفة من مشاكل الصحة العامة في العالم اليوم، بل هو السبب الرئيسي للعجز، ومساهما رئيسيا في تكاليف الرعاية الطبية في معظم البلدان، ومدى انتشاره ما زال يتزايد على الصعيدين الوطني و العالمى. الكفاءة الذاتية هي مؤشرهام للسلوكيات الصحية للمرضى الذين يعانون من مرض السكري، وبالتالي فلها تأثير نظري وعملي فعال في تحسين المستوى الصحي لهؤلاء المرضى.

هدف البحث :

تهدف هذه الدراسة إلى تحسين الكفاءة الذاتية للمرضى ذوى النوع الثاني من السكرى، عن طريق تصميم وتنفيذ برنامج تعليمي وتقييم تأثيره على الكفاءة الذاتية لديهم .

طرق البحث:

مكان البحث : هذه الدراسة تم تنفيذها في العيادات الخارجية لمرضى السكر بمستشفى بنها الجامعي.

عينة الدراسة :تكونت عينة البحث من (٥٠) مريض من المرضى البالغين المصابين بالنوع الثاني من السكر بصفات معينة :

- المرضى من كلا الجنسين تتراوح أعمارهم ما بين (٢٠-٥٠) سنة.
- المرضى الذين يستطيعون القراءة والكتابة.
- تم استبعاد المرضى الذين يعانون من أمراض تحول دون نشاطهم اليومي.

أدوات جمع البيانات:

١. استمارة استبيان تحتوى على جزئيين:

الجزء الأول: تشمل البيانات الديموغرافية والاجتماعية للمريض مثل العمر والجنس والحالة الاجتماعية وعدد الأطفال ومستوى التعليم والوظيفة.

الجزء الثاني: تشتمل على البيانات الطبية والتاريخ المرضى للمريض.

٢. استمارة استبيان تحتوى على جزئيين:

الجزء الأول: تقييم معلومات المرضى عن المرض ووسائل العلاج.

الجزء الثاني: تقييم سلوكيات المرضى تجاه طرق العلاج.

٣. مقياس الكفاءة الذاتية لمرضى السكر:

يتكون من ١٥ سؤال يوضح درجة الكفاءة الذاتية لمريض السكر تم تطويره لكي يتناسب مع مستوى المرضى.

برنامج تعليمي لمرضى السكر يشتمل على كل المعلومات اللازمة عن مرض السكر وطرق علاجه.

النتائج:

أهم النتائج التي استنبطت من الدراسة يمكن تلخيصها فيما يلي:

- إن أكثر من ثلاث أرباع المرضى تتراوح أعمارهم مابين ٤٠- ٥٠ سنة.
- أكثر من ثلثي عينة البحث كانوا إناثا.
- نسبة قليلة فقط من المرضى قد أكملوا دراستهم الجامعية.
- أن الغالبية العظمى من المرضى لديهم المرض من خمس سنوات فأكثر.
- الغالبية العظمى من المرضى لديهم تاريخ عائلي للسكرى وأكثرهم قرابة من الدرجة الأولى.
- أكثر من ثلاث أرباع المرضى مصابون بمضاعفات السكر.
- أكثر من ثلاث أرباع المرضى مصابون بسمنة متوسطة.
- هناك علاقة طردية مع وجود فروق ذات دلائل إحصائية بين مدة الإصابة بالمرض و الإصابة بمضاعفات السكر.

- هناك علاقة طردية مع وجود فـروق ذات دلائل إحـصائية بـين مـستوى الـسكر العشوائي والهيموجلوبين السكري.

الخلاصة :

- بعد تطبيق البرنامج وجد تحـسن إيجـابي إحـصائي ملحـوظ فـي متوسـط الهيموجلوبين السكري للمرضى بعد تطبيق البرنامج التعليمي.
- كما وجد تحسن إيجابي إحصائي ملحـوظ فـي معلومـات المرضـى وسـلوكياتهم ومستوى الكفاءة الذاتية لديهم بعد تطبيـق البرنامج التعليمي.

التوصيات:

- إجراء دراسات أخرى فى مراكز الـسكر عن التدابير الوقائية من مرض السكر مـن النوع الثانى.
- تطبيق الدراسة الحالية على عينـة أكبـر لتحقيق تعميم وتوسيع نطاق الاستفادة مـن البرنامج المصمم.
- إنشاء عيادة متخصصة بمرض السكر في جميع المراكز الصحية لتوجيه المرضـى حول التدابير الوقائية ورعايـة مرضـى السكر.
- متابعة مستمرة للمرضى الذين يعانون من مرض السكر من خلال الزيارات المنزلية.
- التثقيف الصحي في جميع وسائل الإعلام لتعليم تدابير وقائية لجميع أنـواع الـسكر للأشخاص الأصحاء، وتعليم نمط الحيـاة الصحي وسبل تقليل المضاعافات لمرضى السكر.