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IMPACT OF MOBILE PHONE HEALTH CARE PROGRAM ON KNOWLEDGE OF A SAMPLE OF PATIENTS WITH TYPE 1 DIABETES MELLITUS IN BAGHDAD

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ABSTRACT

Background*:** Diabetes is the greatest common chronic metabolic illness. Patients have to learn extensive ranges of cognitive skills to keep good glycemic control. ***Objective: To assess diabetics patient's knowledge about their illness and to identify change in knowledge of patients about diabetes mellitus after implementation of instructional program for a sample of patients with type-1 diabetes mellitus. ***Subject and methods*:** this study was an experimental study conducted in Al-kindy endocrine and diabetic center in Baghdad city from the period of 1st December 2017 to 6th March 2018. Data were collected using special designed questionnaire. ***Results:*** The study findings revealed that the knowledge of diabetes reasult from lack of seacreation of insulin showed that the pretest was (43.3%) of the studied samples answered correctly. In the study groups there was a significant difference after application the teaching program were (80%) answered correctly. then there were a significant improvement in knowledge after applying the mobile phone program (93.3%) answered correctly.

INTRODUCTION

Diabetes is still increasing as an epidemic in both developed and developing countries it will affect more than 230 million people worldwide. Prevalence of diabetes patients in Iraq was found to be around 365606 (MOH, 2016). Insufficient knowledge about insulin is likely to affect its acceptance and adherence.[1,2] patient with diabetes needs to have sufficient knowledge, practices and attitude to reach a state of well-being. Related to self-care activities such as exercise, diet, self-administration of insulin, medication, food care and follow-up the patient with diabetes needs to be understand by patient.[1] In order to control diabetes and

have good glycemic control patients must have good Knowledge about the disease and positive attitude towards self-administration which will reduce the cost of management and related mortality[3] The dose of insulin must be adjusted according to the amount of carbohydrate eaten, physical activity, lifestyle to minimize the risk of hypo- or hyperglycaemia[4,5] poor glycemic control may rise by incorrect technique of injecting insulin due to mismatch of peak insulin effect and maximal glucose load.[6]

OBJECTIVEOF THE STUDY: To assess the impact of mobile phone health care messages on knowledge of patients.

METHODOLOGY

Setting of the study: The study was conducted at Al-kindy endocrine and diabetic center in Baghdad city. This center is considered as the more appropriate setting in which subject for the study can be selected. Each patient had an electronic record in the center.

The sample of the study: A non- probability convenient sample of (30) patients were selected from the center Al-kindy.

Data Collection: Data were collected through the use of special prepared questionnaire through five phases. The first phase was assessment of basic knowledge of patient by pre test. The second phase was implementation of education program. The program was implemented at the lecture hall in center for one hour per day for five consecutive days. The third phase was assessment which carried out after implementation of the education program by performing post test 1 to study the effect of the program on patients knowledge. The fourth phase was implementation of the mobile education program for 3 months during the 3 months period communication with the patients by creating group on social media and every other day an educational message was delivered to all group and then reply to their questions through group discussion. The fifth phase was assessment of knowledge by post test2 to study the effect of the mobile phone program on patients' knowledge.

Data analysis: Data were presented in simple measures of frequency, percentage, mean. The significance of difference of different percentages (qualitative data) was tested using Pearson Chi-square test.

RESULTS: Greatest percentage of the studied samples (23.3%) was in the age groups (50 – 59) years. Most of the studied samples were females (73.3%) shown in table 1.

Table 1: Demographic characteristics of the studied samples.

SDCv	Groups	Study	
	Classes	No.	%
Age Groups	< 20	5	16.7
	20 - 29	4	13.3
	30 - 39	4	13.3
	40 - 49	6	20
	50 - 59	7	23.3
	60 >	4	13.3
	Total	30	100
	Mean ± SD	40.8 ± 17.68	
Gender	Male	8	26.7
	Female	22	73.3
	Total	30	100
	Total	30	100

Knowledge about Symptoms of Hyperglycemia & Hypoglycemia

Regarding the knowledge about symptoms of hypoglycemia table 2 showed that (23.3%) of the studied samples answered correctly. there was a significant difference after application of the teaching program were (56.7%) answered correctly. Then there was a significant improvement in knowledge after applying the mobile phone program (86.7%) answered correctly.

Table 2: Distribution of knowledge about symptoms of hyperglycemia & hypoglycemia.

Knowledge about symptoms of		Study sample				
			No.	%		Pv
hypoglycemia	Pre	False	23	76.7	PreXpost1	0.002
		True	7	23.3		
	Post1	False	13	43.3	PreXpost2	0.000
		True	17	56.7		
	Post2	False	4	13.3	Post1Xpos2	0.004
		True	26	86.7		
hyperglycemia	Pre	False	25	83.3	PreXpost1	0.001
		True	5	16.7		
	Post1	False	14	46.7	PreXpost2	0.000
		True	16	53.3		
	Post2	False	6	20	Post1Xpos2	0.008
		True	24	80		

Knowledge about Diabetes

Regarding the knowledge of diabetes result from lack of secretion of insulin table 3 showed that (43.3%) of the studied samples answered correctly. There was a significant difference after application the teaching program when (80%) answered correctly, and then there were a

significant improvement in knowledge after applying the mobile phone program (93.3%) answered correctly. As well as the pretest was (70%) answer correctly. The question about the gland responsible for insulin production. There was a significant difference after application of the teaching program were (100%) answered correctly.

Table 3: Distribution of knowledge about diabetes.

Knowledge about diabetes			Study			
			No.	%	Comb. test	Pv
What is diabetes	Pre	False	17	56.7	PreXpost1	0.003
		True	13	43.3		
	Post1	False	6	20	PreXpost2	0.000
		True	24	80		
	Post2	False	2	6.7	Post1Xpt2	0.219
		True	28	93.3		
		True	29	96.7		
The gland responsible for the insulin production is	Pre	False	9	30	PreXpost1	0.000
		True	21	70		
	Post1	False	0	0	PreXpost2	0.000
		True	30	100		
	Post2	False	0	0	Post1Xpost2	1.000
		True	30	100		
You can control diabetes using	Pre	False	9	30	PreXpost1	0.125
		True	21	70		
	Post1	False	5	16.7	PreXpost2	0.008
		True	25	83.3		
	Post2	False	1	3.3	Post1Xpost2	0.125
		True	29	96.7		
You need to visit ophthalmologist	Pre	False	26	86.7	PreXpost1	1.000
		True	4	13.3		
	Post1	False	26	86.7	PreXpost2	1.000
		True	4	13.3		
	Post2	False	25	83.3	Post1Xpost2	1.000
		True	5	16.7		

Knowledge about Administration & Storage of Insulin

Regarding the knowledge of reason for changing the areas of insulin injection this table showed that the pretest was (6.7%) of the studied samples answered correctly. There was a significant difference after application of the teaching program where (53.3%) answered correctly. then there were a significant improvement in knowledge (96.7%) after applying the mobile phone program. As well as (46.7%) of the sample answered correctly. The question about the distance between the sites of insulin injection. There was a significant difference after application the teaching program were (93.3%) answered correctly. then there were a

significant improvement in knowledge after applying the mobile phone program (100%) answered correctly.

Table 4: Distribution of knowledge about administration & storage of insulin.

Knowledge about administration & storage of insulin			Study			
			No.	%	Comb. test	Pv
Sites of the insulin injection	Pre	False	10	33.3	PreXpost1	0.000
		True	20	66.7		
	Post1	False	0	0	PreXpost2	0.000
		True	30	100		
	Post2	False	0	0	Post1Xpost2	1.000
		True	30	100		
		True	29	96.7		
Reason for changing the areas of insulin injection is to prevent	Pre	False	28	93.3	PreXpost1	0.000
		True	2	6.7		
	Post1	False	14	46.7	PreXpost2	0.000
		True	16	53.3		
	Post2	False	1	3.3	Post1Xpost2	0.000
		True	29	96.7		
The distance between the sites of insulin injection is	Pre	False	16	53.3	PreXpost1	0.000
		True	14	46.7		
	Post1	False	2	6.7	PreXpost2	0.000
		True	28	93.3		
	Post2	False	0	0	Post1Xpost2	1.000
		True	30	100		
The injection area must be change	Pre	False	8	26.7	PreXpost1	0.070
		True	22	73.3		
	Post1	False	2	6.7	PreXpost2	0.000
		True	28	93.3		
	Post2	False	0	0	Post1Xpost2	1.000
		True	30	100		
In thin person the angle of insulin injection is	Pre	False	23	76.7	PreXpost1	1.000
		True	7	23.3		
	Post1	False	23	76.7	PreXpost2	0.063
		True	7	23.3		
	Post2	False	18	60	Post1Xpost2	0.125
		True	12	40		
Insulin stores in	Pre	False	0	0	PreXpost1	1.000
		True	30	100		
	Post1	False	0	0	PreXpost2	1.000
		True	30	100		
	Post2	False	0	0	Post1Xpost2	1.000
		True	30	100		

DISCUSSION

Knowledge about symptoms of hyperglycemia& hypoglycemia: Respect to knowledge of hypoglycemia (23.3%) of the studied sample answered correctly in the pretest. there was a significant difference after application the teaching program (56.7%) answered correctly.

Other study that done in Cairo found that (12.6%) of the studied sample answered correctly in the pretest and there was a significant difference after application the teaching program (46.6%) answered correctly.[13]

Concerning to knowledge of hyperglycemia in this study the pretest showed that (16.7%) of the studied sample answered correctly and there was a significant difference after application the teaching program (53.3%) answered correctly. This finding is in agreement with other study that done in South Carolina in 2015 which found that (28.4 %) of the studied sample were answered correctly and there was a significant difference after application the teaching program (63.7%) answered correctly.

Other study that done in Cairo found that (10.7%) of the studied sample were answered correctly. There was a significant difference after application the teaching program (64.7%) answered correctly.[13]

Knowledge about Diabetes: Regarding diabetes result from lack of secretion of insulin the current study results indicate that (43.3%) of the studied sample were answered correctly. There was a significant difference after application the teaching program (80%) answered correctly. Other study that done in India found that (75%) of the studied sample were answered correctly. There was a significant difference after application the teaching program (92%) were answered correctly.[17] Regarding to knowledge about diabetes in this study it was found that (37.1%) of the studied sample were answered correctly. There was a significant difference after application of the education program (78.6%) answered correctly. This result is in agreement with other studies done in India and Sudan which found that (46.4%), (47%) of the studied sample were answered correctly and (79.4%), (78%) in posttest were answered correctly respectively.[16, 18]

This result disagreed with other study that done in India which found that (65%) in the pretest of the studied sample were answered correctly. While in posttest (97.40%) were answered correctly.[12] This difference due to India study in the sample type 1 and type 2diabetes. But

this finding is higher than other studies done in India and Brazil that found that pretest (20%), (22.7%) respectively were answered correctly. While in posttest (40%), (51.7%) respectively were answered correctly (Vimalavathini et.al, 2008; Dalma et.al, 2012).

Knowledge about administration & storage of insulin: Regards to the knowledge about areas of insulin injection in this study it was found that (33.3%) were answered correctly and there was a significant difference after application the teaching program (100%) was answered correctly. This finding is disagreed with other study that done in Erbil which found that (68%) were answered correctly in the pretest, and in the posttest (84%) were answered correctly (Dara &Saadia 2015).

Regarding to reason for changing the areas of insulin injection the current study result indicate that (6.7%) of the studied sample were answered correctly and there was a significant difference after application of the teaching program (53.3%) were answered correctly. This result disagreed with other study that done in Egypt which found that (21%) were answered correctly in the pretest, while in Posttest1 (51%) were answered correctly and rise in posttest2 (60%) (Hanan, 2016). Other finding of this study knowledge about Insulin stores that (100%) in both tests were answered correctly. This finding is higher than other studies done in Erbil that found that (82%) in the pretest were answered correctly. while in posttest (98%) were answered correctly (Dara and Saadia 2015).

CONCLUSION

Levels of awareness of diabetes mellitus patients concerning knowledge about symptoms of hyperglycemia & hypoglycemia, knowledge about diabetes, administration & storage of insulin were inadequate at the beginning of the study at pre- test period.

Levels of knowledge of diabetes mellitus patients after applying the instructional program were significantly improved at post test period. Health education of diabetic patient's knowledge was significantly improved their awareness were raised after the applying of the mobile health program at post test2 period.

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