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RESEARCH ARTICLE

Assessment of Diabetic Patient's Knowledge about Early Complications of Type I and Type II Diabetes Mellitus

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ABSTRACT

Background: *Diabetes mellitus may be a serious, incessant condition that happens when there are lifted levels of blood glucose since the body cannot convey any or adequate of insulin or cannot effectively utilize the insulin it produces.*

Objective(s): *The aim of this study is to assess diabetic patient's knowledge about early complications of type I and type II diabetes mellitus.*

Methodology: *This paper is the published part of a larger study in which a quasi- experimental design used with the application of a pre-test/ post-test approach for the study group and control group after implementation of educational program. Data collection was done at two times: baseline data (before any intervention was provided to the study group) and 21 days after giving the educational program (in the study group). The study started December at 30th 2021.*

Results: *Findings of the study revealed that the participants have poor level of knowledge about Diabetes mellitus.*

Conclusion: *The study results demonstrate that most of the study participants were not attended any previous educational programs, have type I diabetes mellitus, for more than ten years, with a family history of diabetes mellitus, hypertensive in their chronic diseases, taking insulin injections as a treatment, not smokers, practicing mild exercise, and have no information about diabetes mellitus according to their clinical manifestations.*

Recommendations: *Using pictures and educational booklets about diabetes mellitus, with instructional tips regarding treatment, and focusing on how to control and prevent early complications of diabetes should be provided to all diabetic patients visiting endocrinology center.*

Keywords: *Assessment, Diabetic Patient's, Type I Diabetes Mellitus, Type II Diabetes Mellitus.*

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INTRODUCTION

Diabetes mellitus (DM) characterized by WHO (2016) as a bunch of metabolic disorders delineated by excess blood glucose levels over a delayed period, is extending rapidly in many countries (WHO, 2016). In addition, characterized by American Diabetes Association (ADA, 2016) as a set of metabolic diseases characterized by extended levels of glucose inside the blood coming around from defects in insulin secretion, insulin activity, or both.

International Diabetes Federation [IDF] (2019) communicated that Diabetes mellitus may be a serious, incessant condition that happens when there are lifted levels of blood glucose since the body cannot convey any or adequate of insulin or cannot effectively utilize the insulin it produces. Besides, Insulin deficiency, in case cleared out unchecked over the long term, can cause hurt to various of the body's organs, driving to devastating and life-threatening prosperity complications such as cardiovascular diseases (CVD), nerve harm (neuropathy), kidney harm (nephropathy) and eye disease (driving to retinopathy, visual incident and undoubtedly visual impedance). Be that because it may, on the off chance that reasonable management of diabetes is fulfilled, these sever complications can be conceded or expected overall.

Fuller et al. (2014) point out that blood glucose enters the cells for vitality utilize as a result of insulin, which is made by the pancreas. Other than, in a couple of cases, the human body's insulin generation is deficiently or non-existent, causing blood glucose to remain inside the blood vessels instead of being made into vitality inside the cells. Additionally, over time health issues can be induced as a result of having as well much blood glucose.

Toumpanakis et al. (2018) stated that diabetes management concentrates on keeping blood sugar levels as close to typical, without causing low blood sugar. This may more regularly than not be wrapped up with dietary changes, exercises, weight loss, and utilize of suitable medicines (insulin, oral drugs).

Graham and Abel (2013) indicated that results of diabetes imply the major causes of morbidity and mortality that are related with this inveterate metabolic disorder. Moreover, specified that an individual having diabetes is at threat for a range of complications.

The complications of diabetes mellitus incorporate issues that develop quickly (intense) or over time (constant) and may influence numerous organ systems. The complications of diabetes can significantly impair quality of life and cause long-lasting incapacity. Moreover, brief term complications happen in case blood glucose levels go as well low or as well high for the body to operate appropriately within the present state.it can show quick danger and thus have to be treated rapidly to avoid emergencies. The foremost common brief term complications of diabetes are hypoglycemia, ketoacidosis, hyperosmolar hyperglycemic condition and coma (the global diabetes community, 2012).

METHOD

Design of the study

A quasi- experimental design used in the present study with the application of a pre-test/ post-test approach for the study group and control group after implementation of educational program. Data collection was done at two times: baseline data (before any intervention was provided to the study group) and 21 days after giving the educational program (in the study group). The study started December at 30th 2021.

Setting of the study

The study conducted at AL-Russafa Health Directorate/ Specialist Center for Endocrinology Diseases and Diabetes, this center was the designated agency for data collection, because it is a specialized setting that comprise the cases which facilitated the process of data collection.

Population of the study

The population of the current study are diabetic patients who were admitted or taking follow up attainment in Specialist Center for Endocrinology Diseases and Diabetes. Who was totally (90) Participants.

Sample of the study

A non-probability purposive sample of diabetic patients who were admitted or taking follow up appointments in Specialist Center for Endocrinology Diseases and Diabetes. The sample divided into two groups (30) Participants as a study group, and another (30) Participants considered as the control group. The study group was exposed to an educational program, while the control group was not.

Data collection

Data collection performed through the use of the study instrument and the application of the educational program. The Implementation was carried out in Specialist Center for Endocrinology Diseases and Diabetes in Baghdad city, in the

period from February 16th 2022 to March 23th 2022.

RESULTS

Table (1): Distribution of the study samples (Study and control) according to their clinical characteristics.

Variable	Groups	Study Group		Control group	
		Freq.	%	Freq.	%
Participation in educational program	1-2 Programs	2	6.7	3	10.0
	Attend regularly above 2 programs	0	0.0	1	3.3
	Not Attend	28	93.3	26	86.7
	Total	**30**	**100.0**	**30**	**100.0**
Diabetes Mellitus Type	Type I	19	63.3	21	70.0
	Type II	11	36.7	9	30.0
	Total	**30**	**100.0**	**30**	**100.0**
Duration of Diabetes Mellitus	Less than 5 years	3	10.0	4	13.3
	5-10 years	6	20.0	4	13.3
	10 years and more	21	70.0	22	73.4
	Total	**30**	**100.0**	**30**	**100.0**
Family History of Diabetes Mellitus	Yes	21	70.0	22	73.3
	No	7	23.3	8	26.7
	Unknown	2	6.7	0	0.0
	Total	**30**	**100.0**	**30**	**100.0**
Chronic Diseases	Hypertension	18	60.0	18	60.0
	Heart diseases	8	26.7	6	20.0
	Others	0	0.0	0	0.0
	Non	4	13.3	6	20.0
	Total	**30**	**100.0**	**30**	**100.0**
Methods of treatment	Oral agents	6	20.0	5	16.7
	Insulin Injection	19	63.3	21	70.0
	Oral agents + Insulin injections	5	16.7	4	13.3
	Total	**30**	**100.0**	**30**	**100.0**
Smoking	Yes	2	6.7	1	3.3
	No	24	80.0	27	90.0

	Former smoker	4	13.3	2	6.7
	Total	**30**	**100.0**	**30**	**100.0**
Do you practice exercises	No	9	30.0	8	26.7
	Mild	19	63.3	21	70.0
	Moderate	2	6.7	1	3.3
	Sever	0	0.0	0	0.0
	Total	**30**	**100.0**	**30**	**100.0**
Information about diabetes mellitus	No	19	63.3	19	63.3
	Social Media	5	16.7	3	10.0
	Internet	0	0.0	0	0.0
	Books and scientific journals	0	0.0	0	0.0
	Medical staff	3	10.0	5	16.7
	Friends and collagenous	0	0	1	3.3
	Audiovisual media	3	10.0	2	6.7
	Total	**30**	**100.0**	**30**	**100.0**

Most of participants in are not attended any previous educational programs in the study and control groups (n=28; 93.3%), (n= 26; 86.7%) respectively. Most of participants in the study group have type I diabetes mellitus (n=19; 63.3%), while the participants in the control group have almost the same proportion (n=21; 70.0%).

The table also shows that most of participants in the study group are (10 years and more) in the duration of being diabetic (n=21; 70.0%), and almost the same in the control group (n=22; 73.4%). Most of participants in the study and control groups have a family history of diabetes mellitus (n=21; 70.0%), (n=22; 73.3%) respectively. A lot of participants in both groups have the same number of hypertensions as a chronic diseases associated with their condition that is (n=18; 60.0%). Most of the participants in the study group are taking insulin injections as a treatment for diabetes mellitus (n=19;63.3%) that is almost the same number of the participants in the control group which is (n=21;70.0%). The most of participants in the study group are not smokers (n=24;80.0%), while almost the same in the control group which is (n=27; 90.0%).

Levels of knowledge	Study Group								Control group							
	Pre-test				Post-test				Pre-test				Post-test			
	F	%	MS	SD	F	%	MS	SD	F	%	MS	SD	F	%	MS	SD
Poor	28	87.5	1.20	0.40	0	0	1.66	0.47	29	90.6	1.17	0.37	28	87.5	1.20	0.40

Table (2): Overall Assessment of participant's knowledge regarding their general information about diabetes mellitus and early complications of diabetes mellitus

Fair	4	12.			1	46.8			3	9.4			4	12.5		
Good	0	0			17	53.13			0	0			0	0		
Total	32	100			32	100			32	100			32	100		

Most of participants in the study and control groups practiced mild exercise (n=19;63.3%) (n=21;70.0%) respectively. Most of the participants in the study group have no information about diabetes mellitus (n=19;63.3%) which is the same number in the control group.

DISCUSSION

Most of participants in are not attended any previous educational programs in the study and control groups (n=28; 93.3%), (n= 26; 86.7%) respectively. A study done by Faraj (2016) which stated that most of the participants (n=92; 92.0%) did not participate in educational sessions, which is agree with the study results. Most of participants in the study group have type I diabetes mellitus (n=19; 63.3%), while the participants in the control group have almost the same proportion (n=21; 70.0%).

The results totally agree with the findings obtained in Saleh et al (2017) which mentioned that most of the study participants have type I diabetes mellitus (n=102; 86.4%), and disagree with Hasan, AL-Azawi and AL-salihy (2017) which declared that most of the study participants (n=67; 63.8%) have type II diabetes mellitus.

The table also shows that most of participants in the study group are (10 years and more) in the duration of being diabetic (n=21; 70.0%), and almost the same in the control group (n=22; 73.3%). The result supported in a study done by Al-malki et al (2018) which mentioned that most of the study participants are more than ten years in the duration of diabetes mellitus (n=150; 31.0%). In contrast disagree with the findings that done by Abed and yusif (2014) which concluded that most of the study participants are (1-5 years) in the duration of diabetes mellitus (n=19; 63.3%).

Most of participants in the study and control groups have a family history of diabetes mellitus (n=21; 70.0%), (n=22; 73.3%) respectively. The results supported by a study done by Jassim, Dawood and Hussien (2021) which mentioned that most of the study participants have a family history with diabetes mellitus (n=59; 59.0%), as well Mahdi, AL-Mukhtar and jaff disagree with the results which stated that most of the study participants have no family history of diabetes mellitus (n=55; 79%).

A lot of participants in the both groups have the same number of hypertension as a chronic diseases associated with their condition that is (n=18; 60.0%). The results supported by a study done by Khudur, Bakey and Kadhim (2017) which stated that the most of the participants have hypertension (n = 43; 86.0%). Another study is agreeing with the findings result that done by Al-gersha and jasim (2012) which mentioned that most of the participants were hypertensive (n = 39; 39.0%).

Most of the participants in the study group are taking insulin injections as a treatment for diabetes mellitus (n=19;63.3%) that is almost the same number of the participants in the control group which is (n=21;70.0%).

A study done by Al-musally et al (2017) agree with that most of the participants are taking insulin injections as management for diabetes mellitus (n=35; 40.0%), furthermore another study done by Jassim, Dawood and Hussien (2021) which declared that most of the study participants are taking insulin injection as a treatment for diabetes mellitus (n=47; 47.0%).

The most of participants in the study group are not smokers (n=24;80.0%), while almost the same in the control group which is (n=27; 90.0%). The results supported by findings

obtained in Hussein (2020) which showed that most of the participants are not smokers which is (n = 86; 86.0%). Another study done by Abdulwahid (2017) that is agree with the results which mentioned that most of the participants are not smokers (n = 120; 80.0%).

Most of participants in the study and control groups practiced mild exercise (n=19;63.3%) (n=21;70.0%) respectively. The study findings disagree with the study results that done by Yassin and Hassan (2020) which mentioned that most of the study participants not practiced exercise (n=31; 62.0%).

Most of the participants in the study group have no information about diabetes mellitus (n=19; 63.3%) which is the same number in the control group. A study done by Hussein and Ahmed (2020) disagree with the study results which stated that most of the study participants received information about their medical condition (n=22; 88.0%).

The participant's knowledge showing that they have poor knowledge at the pre-test period and good level in their knowledge at the post-test period regarding their subdomain and sub item of the general information about diabetes mellitus and additionally towards items of early complications of diabetes mellitus.

Those results is supported in a study done by Ryan, Jennings, Vittoria, & Fedders (2013) which revealed that there is significant improvements observed for participants' knowledge level after application of a multisession diabetes education program. Also, agree with McEwen et al. (2015) which confirmed the effectiveness of implementation of an educational program on an individualized type 2 diabetes by investigation of better disease outcomes. Moreover, in agree with AL-Shahrani (2018).

It is well known that prolonged length of disease results in different disease-associated complications basically as a result of low knowledge and poor disease control, in this way contributing to the disease-related morbidity. The objectives of the study targeted towards improving knowledge level for those participated in the study by implementation of an educational program based on deficits found (the researcher).

CONCLUSIONS

The study results demonstrate that most of the study participants were not attended any previous educational programs, have type I diabetes mellitus, for more than ten years, with a family history of diabetes mellitus, hypertensive in their chronic diseases, taking insulin injections as a treatment, not smokers, practicing mild exercise, and have no information about diabetes mellitus according to their clinical manifestations.

The study results for the pre-test period display that the majority of study and control groups show a poor knowledge regarding general information about diabetes mellitus and early complications about diabetes mellitus.

RECOMMENDATIONS

Using pictures and educational booklets about diabetes mellitus, with instructional tips regarding treatment, and focusing on how to control and prevent early complications of diabetes should be provided to all diabetic patients visiting endocrinology center.

The study findings could promote all those concerned to embrace more diabetes mellitus articles in their curricula; especially secondary school curriculum should include topics concerning diabetic mellitus.

ETHICAL CONSIDERATIONS COMPLIANCE WITH ETHICAL GUIDELINES

This study was completed following obtaining consent from the University of Baghdad.

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AUTHOR'S CONTRIBUTIONS

Study concept, Writing, Reviewing the final edition by all authors.

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The authors report no conflict of interest.

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