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Educational Program Toward Parents Practices of Diabetic Children Care

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ABSTRACT

Diabetic Type I is a metabolic disorder which occur mostly in children, it is distinguished by hyperglycemia due to beta cell of pancreas stopping from insulin secretion which has function in transport of glucose to cells, mostly occur result of viruses, genetic and autoimmune factors and causes many body complications.

The Study Objectives: are to identify parent's practices towards diabetic children and to find-out the relationship between parent's practices and socio-demographic characteristic.

Material And Method: A quasi experimental study is applied to identify effectiveness of the educational program of parents practices toward your diabetic children care in the diabetic and endocrine center of Al-Najaf province by use the method of pretest/ posttest 1 then posttest 2 by application it on both Experimental and Non-experimental groups for period of 28. July 2024 until 6. October 2024.

Study Results: Finding revealed that parents practices level of study sample altered significantly ($P<0.05$), where it's in pre-test the practices mean was (1.407) then became in post-test one (2.087) and in post-test two the mean is (2.10), while the parents practices in control group stayed the same without any change. the research explained that the higher percentage of study group in regarding disease period in both group was with disease period (≤ 1–3) years. the parents practices in experimental study improved the application finding of educational program this indicated that the applied educational program was effective interventional approach to improve targeted parents practices. Also finding refer to a scientific association among parent practices about diabetic children care and demographic data in age, disease period, father educational and mothers educational levels.

Keywords: *Educational Program, Parents Practices and diabetic children care*

1. INTRODUCTION

Diabetes mellitus is a metabolic disorder with multiple underlying causes chronic disease is defined by persistently high blood sugar levels and disturbances in the metabolism of carbohydrates, fats, and proteins as a result of defects in insulin secretion, insulin function, or both, it include the chronic impairment, malfunction, and breakdown of various organs. Therefore, the metabolic irregularities of diabetes stem from insufficient insulin activity on target tissues caused by inadequate insulin release, insensitivity to insulin, or a combination of both. (Hossain, 2024)

It is marked by the failure of the beta cells display within the pancreatic Langerhans cells to create affront since they have failed, the reason is related to the immune system framework that assaults the beta cells dependable for creating affront. This sort of diabetes affects all individuals within the world, and there's no way to anticipate this illness, which influences children in mostly, it causes blood glucose levels to rise above normal levels and is accompanied by a group of clinical symptoms and complications. (Bartolomé, 2023)

Numerous distinct factors are involved in or cause type I diabetes, such as viruses, genetics, etc., which usually appear during childhood and adolescence, but it is very likely that it will develop to include adults as well to date, there is no definitive treatment that cures type 1 diabetes. However, it is dealt with by directing people with this type to monitor amount of glucose in blood and control it using insulin therapy and following a healthy lifestyle to prevent progression of the disease and control of complications resulting from it. (Peng & Hagopian, 2020)

As a result of rapid or insulin secretion, it is thought being an autoimmune condition which kills the beta cells in the pancreas make insulin. Individual differences in metabolic, genetic, and immunological characteristics necessitate a personalized treatment plan. Diabetic Young individuals with type I diabetes are more likely to experience ketoacidosis, and detectable C-peptide is linked to improved blood sugar control. Gradual loss can be observed in early adulthood, starting in youth. (Popoviciu, 2023)

Individuals with diabetes are advised to improve their daily physical activities in order to maintain lasting health and strive to reach the highest level of recovery and health and overcome the risks of disease, parents must teach and advise their children to exercise and participate in physical activities and guide them to give appropriate exercise which important as one of ways that enhance children's health and contribute to managing the condition and working to provide adequate time and social support for them, taking into account the risks resulting from excessive exercise for long hours or poor planning in exercising appropriate for the child, which may reflect negatively on the child's health, while avoiding sports that cause physical harm to the child, such as wounds, fractures, and other injuries. (Fitzpatrick & Al, 2022)

Health education promotes healthy behaviors of individuals & families and improves their performance, it is a pivotal part of prevention efforts in managing diabetes and controlling it comprehensively to include education about diet, physical activity patterns, regular medication/ insulin intake and personal hygiene care to contribute to enhancing the health condition. The health care of patients and the cultural level is affected by several factors, such as age, educational level, profession, experience, information, social and cultural domain. (Reads, 2023)

The purpose of educating parents is to introduce them to how to deal with their children effectively so that they can keep up with their healthy peers in spending their daily lives and make them well prepared for education by providing a sound educational environment for diabetic students and contributing to the entry of diabetic children into school, their continued commitment to school and the completion of the school curriculum through taking a healthy approach to supporting children and gradually increasing their independence in managing their health so that they can meet their essential needs without anyone's help. (Sobri, 2022)

Diabetes as a disease was not known to physicians, the mechanism of its occurrence was unknown but they knew it as a group of symptoms that affect individuals until about 3,500 years in the past, when a group of people with similar symptoms were discovered in Egyptian Civilization. However, in 1862, a papyrus from 1550 BC so it was discovered in a cemetery in the southern Egyptian area of Thebes, labeled after the Egyptologist. The papyrus includes an explanation of a number of illnesses, including uric syndrome which likely refers to diabetes, Egyptians proposed various treatments for this syndrome such as boiling onions and wheat and Verdi's medical treatises from India described it, the ancient cases resembled diabetes in detail and they divided them they also identified the links between diabetes and diet, sedentary lifestyle, obesity, and heredity, splitting the condition into congenital and late forms. (Ahmed, 2022)

History of diabetes is millennium of years old and there is no ultimate cure yet, Even though diabetes has been known for more than 200 years, the term "diabetes" was initially coined by the Greek physician Aretaeus in 250 BC. Diabetes is originated from the Greek word the "siphon," which serves as a warning indicator for diabetics about how the illness can lead to moisture through increased frequency and magnitude of urination. Afterward by Thomas Willis, the personal physician of King Charles II, coined the term "mellitus" in 1674 to the already-defined diabetes formula has long been used to describe the urine of diabetic patients with diabetes, a Latin word, it means honey. (Mohajan, 2023)

2. METHODOLOGY

1) Quasi - Experimental of (120) diabetic children parents at Diabetes and Endocrinology Center in Al- Najaf.

2) An assessment tool is adopted by the researcher. Consist of five subparts, where the first subpart includes 23 questions related to the administration of insulin to children with type I diabetes by parents, the second subpart includes12 questions related to dietary management by parents of children with diabetes, the third subpart it includes10 questions related to the necessary exercise for diabetics, the fourth subpart includes 10 questions related to clinical tests for diabetes and the fifth subpart includes 10 questions related to the personal hygiene that must be provided to children with type I diabetes by their parents. each question has three options: (always, sometimes and never). where 3 = always, 2 = sometimes, 1 = never, and 3 represents the high value scale

3) Samples were collected from the period 29. July 2024 until 7. October 2024, by interviewed and medical assessments of diabetic children parents

4) The reliability of the take a look at was used to decide the accuracy of the questionnaire, it changed into received via evaluating the questionnaire, the reliability coefficient of (Cronbach Alpha) becomes (0.840)

5) The data collection is assessed and analyzed by version (25) statistical package of social sciences (SPSS) and the Microsoft excel 2010.

3. RESULTS

Table 4.1. Socio – demographical distribution of diabetic children

Groups		**Study**		**Control**
Age (Years)				
	1-5	F	13	13
		%	21.7	21.7
	6-10	F	24	23
		%	40	38.3
	11-15	F	16	16
		%	26.7	26.7
	16 – above	F	7	8
		%	11.6	13.3
Total (%)			**60 (100)**	**60 (100)**
Disease Period (Years)				
	≤ 1 – 3	F	29	30
		%	48.3	50
	4 – 6	F	22	22
		%	36.7	36.7
	> 6	F	9	8
		%	15	13.3
Total (%)			**60 (100)**	**60 (100)**
Father educational level				
	No read and write	F	4	7
		%	6.7	11.7
	Read and write	F	10	6
		%	16.7	10
	Elementary School	F	17	18
		%	28.3	30
	High School	F	12	16
		%	20	26.7
	Diploma	F	11	7
		%	18.3	11.7
	Bachelor and above	F	6	6
		%	10	10
Total (%)			**60 (100)**	**60 (100)**

Mother educational level				
	No read and write	F	2	2
		%	3.3	3.3
	Read and write	F	9	7
		%	15	11.7
	Elementary School	F	19	19
		%	31.7	31.7
	High School	F	13	16
		%	21.7	26.7
	Diploma	F	11	9
		%	18.3	15
	Bachelor and above	F	6	7
		%	10	11.7
Total (%)			**60 (100)**	**60 (100)**

4.1. Explain a highly percent of age of children were (6-10) years for both study and control groups were present as (40 %) for study and (38.3 %) from control group.

In relative to disease period were (48.3%) from experimental group and (50 %) of control group were with (≤ 1 – 3) year period.

Regarding to fathers educational level, (28.3%) of study group have elementary school and (30%) of control group have elementary school.

Regarding to mothers educational level, (31.7%) of study group have elementary school and (31.7%) of control group have elementary school.

Table 4.2: Normality tests of parents practices regarding to diabetic children care (pre – test)

Groups		Shapiro-Wilk		
		Statistic	df	P. Value
Practices	Study	.939	60	.224*
	Control	.911	60	.136*

**Normal distribution*

Table 4.2. show that the distribution of both study and control group is normal distribution and it is significance at p. value (.224) and (.136) for study & control group respectively

Table 4.3: Overall assessment of parents practices regarding to diabetic children care (Pre-test)

		Study		Control		t-observed	P value
		F	%	f	%		
Administration of Insulin	Poor	38	63.3	37	61.7	0.426	0.13 N.S
	Fair	22	36.7	23	38.3		
	Good	0	0	0	0		

	Total	60	100	60	100		
Dietary Management	Poor	34	56.7	32	53.3	0.338	0.06 N.S
	Fair	26	43.3	28	46.7		
	Good	0	0	0	0		
	Total	60	100	60	100		
Physical Exercises	Poor	37	48.3	29	65	0.822	0.11 N.S
	Fair	23	41.7	21	35		
	Good	0	0	0	0		
	Total	60	100	29	100		
Clinical Tests	Poor	33	55	34	56.7	0.921	.07 N.S
	Fair	27	45	26	43.3		
	Good	0	0	0	0		
	Total	60	100	60	100		
Personal Hygiene	Poor	35	58.3	34	40	0.243	0.11 N.S
	Fait	25	41.7	26	50		
	Good	0	0	0	0		
	Total	60	100	60	100		
Overall assessment of parents practices regarding to diabetic children care	Poor	36	60	38	63.3	**0.970**	**0.60 NS**
	Fair	24	40	22	36.7		
	Good	0	0	0	0		
	Total	60	100	60	100		
Mean ± SD		**1.28 + 0.454**		**1.21 + 0.486**			

df=118

Table 4.3. appear the major parents at study and control group were have a poor practice level regarding to diabetic children care where their percent (60 %) of study and (63.3%) of control group have poor practice level respectively and that is mean non-significance difference in the study and control group with their practice about diabetic children care at p. value <0.05%.

Table 4.4. Normality tests of parents of practices of diabetic children care (Post – test one)

Groups		Shapiro-Wilk		
		Statistic	df	P. Value
Practice	Study	.653	60	.178*
	Control	.532	60	.184*

**Normal distribution*

Table 4.4. Show that the distribution of both study and control group is normal distribution and it is significance at p. value (.178) and (.184) for study & control group respectively.

Table 4.5. Overall assessment of parents practices regarding to diabetic children care (post-test one)

		Study		Control		t-observed	p≤0.05
		F	%	f	%		
Administration of Insulin	Poor	4	6.1	37	61.7	18.690	0.01 Sig
	Fair	43	71.7	23	38.3		
	Good	13	21.7	0	0		
	Total	60	100	60	100		
Dietary Management	Poor	7	11.7	32	53.3	17.310	0.01 Sig
	Fair	30	50	28	46.7		
	Good	23	38.3	0	0		
	Total	60	100	60	100		
Physical Exercises	Poor	7	11.7	29	65	17.431	0.01 Sig
	Fair	31	51.7	21	35		
	Good	22	36.7	0	0		
	Total	60	100	29	100		
Clinical Tests	Poor	8	13.3	34	56.7	17.587	0.03 Sig
	Fair	36	60	26	43.3		
	Good	16	26.7	0	0		
	Total	60	100	60	100		
Personal Hygiene	Poor	7	11.7	34	40	19.763	0.02 Sig
	Fair	28	46.7	26	50		
	Good	25	41.7	0	0		
	Total	60	100	60	100		
Overall assessment of parents practices regarding to diabetic children care	Poor	1	1.7	38	63.3	21.113	0.01 Sig
	Fair	40	66.7	22	36.7		
	Good	19	31.6	0	0		
	Total	60	100	60	100		
Mean ± SD		**2.08 + 0.314**		**1.21 + 0.680**			

df=118

Table 4.5. revealed that the most of parents in study group were have a fair practices level regarding to diabetic children care where their percent (66.7%) while (63.3 %) of control group have poor practices level regarding to diabetic children care respectively and that is mean there are significance difference in the study and control group with their practices about diabetic children care at p. value > 0.05%. where mean of study group was (2.08) while mean of control group was (1.21) and (t– observed) was (21.113) and p. value was (0.01) that is mean there are scientific variance among experimental and control groups

Table 4. 6. Normality tests of parents of practices of diabetic children care (Post – test two)

Groups		Shapiro-Wilk		
		Statistic	Df	P. Value
Practices	Study	.648	60	.166*
	Control	.527	60	.172*

**Normal distribution*

Table 4. 6. Show that the distribution of both study and control group is normal distribution and it is significance at p. value (.166) and (.172) for study & control group respectively.

Table 4. 7. Overall assessment of parents practices regarding to diabetic children care (Post – test two)

		study		Control		t-observed	p≤0.05
		F	%	F	%		
Administration of Insulin	Poor	4	6.7	37	61.7	18.690	0.01 Sig
	Fair	44	73.3	23	38.3		
	Good	12	20	0	0		
	Total	60	100	60	100		
Dietary Management	Poor	7	11.7	32	53.3	17.310	0.01 Sig
	Fair	30	50	28	46.7		
	Good	23	38.3	0	0		
	Total	60	100	60	100		
Physical Exercises	Poor	7	11.7	29	65	17.418	0.01 Sig
	Fair	31	51.7	21	35		
	Good	22	36.7	0	0		
	Total	60	100	29	100		
Clinical Tests	Poor	8	13.3	34	56.7	17.571	0.03 Sig
	Fair	36	60	26	43.3		
	Good	16	26.7	0	0		
	Total	60	100	60	100		
Personal Hygiene	Poor	7	11.7	34	40	19.771	0.02 Sig
	Fair	28	46.7	26	50		
	Good	25	41.7	0	0		
	Total	60	100	60	100		
Overall assessment of parents practices regarding to diabetic children care	Poor	1	1.7	38	63.3	21.113	0.01 Sig
	Fair	40	66.7	22	36.7		
	Better	19	31.6	0	0		
	Sum	60	100	60	100		

MS ± SD	**2.10 + 0.308**	**1.21 + 0.680**		
df=118				

Table 4. 7. revealed that the most of parents in study group were have a fair practices level regarding to diabetic children care where their percent (66.7%) while (63.3 %) of control group have poor practices level regarding to diabetic children care respectively and that is mean there are significance difference in the study and control group with their practices about diabetic children care at p. value > 0.05%. where mean of study group was (2.10) while mean of control group was (1.21) and (t–observed) was (21.113) and P. value was (0.01) that is mean there are scientific variance among experimental and control groups**.**

Overall comparison among pre, post one and post two in each groups

Table 4.8. Comparison among pre, post one and post two in parents practices of diabetic children care within Study group

Time	Sample	MS	S.D	P. value
Pre. test	60	1.2772	.09785	0.001
Post test1	60	2.0874	.31446	H.S
Post test2	60	2.0974	.30981	

**One-Way ANOVA, H.S = High significance*

Table 4.8. Show that a significant differences between pre, post one, and post two test in in parents practices of diabetic children care within study group that mean highly significance at p. value = 0.001.

Table 4.9. Comparison among pre, post one and post two in parents practices of diabetic children care within Control group

Time	Sample	MS	S.D	P. value
Pre test	60	1.2105	.06801	0.976
Post test1	60	1.2115	.06876	N.S
Post test2	60	1.2132	.06701	

**One-Way ANOVA,*

Table 4.9. show that non - scientific variance among tests, pre, post one, and post test2 in parents practices at diabetic children care within control group that mean no significance at p. value ≤ 0.05.

Table 4.10. Post hoc (Bonferroni) among pre, post one and post two in parents practices of diabetic children care within study sample

					95% Confidence Interval	
Mean Difference (I-J)			Std. Error	Sig.	Lower Bound	Upper Bound
Pre test	Post test1	-.68026-*	.04766	.000	-.7743-	-.5862-
	Post test2	-.69026-*	.04766	.000	-.7843-	-.5962-
Post test1	Pre test	.68026*	.04766	.000	.5862	.7743
	Post test2	-.01000-	.04766	.834	-.1041-	.0841
Post test2	Pre test	.69026*	.04766	.000	.5962	.7843
	Post test1	.01000	.04766	.834	-.0841-	.1041

*. Refer to a scientific mean variance in the 0.05 level.

4. DISCUSSIONS

Discussion of the Socio-demographical Data that related to The Parents who Shared in the Study

The result appear most present children in the study are at (6-10) years age group for the control and study group, where their percentage reached 40 % (24 children) from control group and 38.3% from experimental group (23 children). These finding are agree to a finding appear in 2023 when applied study to identify diabetic children care where largest percentage of the study sample was also under the age of 13 years, as their percentage reached 30% of the main sample size. (Elsayed & Al, 2023)

The study showed that most parents in experimental group and control group had an elementary level of academic education, as the percentage of fathers reached 28.29 % of experimental group & 30% in control group, while 31.7 % of mothers in both experimental group and control group. Research results are consistent to another research conducted in Baghdad Governorate in Iraq, in 2024 year, where most parents of the children participating in the sample had a primary level of education and They represented (33.9) of the total sample. (Jabbar & Yawuz Jamal, 2024)

Discussion of the Parents Practices before apply Educational Programs (pre - test)

Regarding to the diabetic children parents in control group and experimental group follow normal distribution & significant at value .224 for study group and.136 for control group this test were according to Shapiro-wilk test in table 4.2.

Study finding estimated a most parents in experimental group and control groups had a poor level of practice related to caring for diabetic children care, as their percentage reached 60 % to experimental group and 60.3 % of control group and p. appear in table was 0.60, that indicates They are no scientific variance among experimental and control groups in table 4.3.

Finding of the research in Ethiopia to identify practices of health care provider for diabetic children revealed that most of them have poor practices, as (58.6%) do not have sufficient skills introduce care regarding to their children with diabetes. Finding of the research is agree to results reached by my research, as they showed experimental group parents level skills is (1.28) and (1.21) for the control group, which indicates their need for an educational health program that enhances their skills in providing health care to their children. (Girma & Berhane, 2023)

Discussion of the Parents practices after apply Educational Programs (post - test one)

In (table 4.4), it showed that the parents practices distribution about diabetic children care for post-test1 of the applied educational program has a distribution normally for study group in a p-value was .178, and also a control group has normal distribution and a p-value was 0.184

Finding of post one test showed that (1.7 %) of parents have poor practices, (66.7 %) of parents have fair practices and (31.6 %) of parents have good practices regarding to diabetic children care in study group , while in control group (63.3 %) of parents have poor practices, (36.7 %) of parents have fair practices and (0%) of parents have good practices regarding to diabetic children care and p. value 0.01 this results are consider highly significant at p . value 0.001. which refer to there are a significant different between study and control group. (table 4. 5)

These results reflect that the educational health program was applicable and able to change the experimental group parents practices, while the control group parents practices remained at the same level when assessing practices about diabetic children care before & after implementing the educational program because the control group did not take educational health program.

Finding of my research is agree to findings of the study carried by in identify an impact of the program health educational on patients practices regarding diabetic children care, as the results of the educational program indicated that it was effective because it improve parents practices when compared and there was a positive promoting to study group practices of parents, while control group parents practice did not change, there is a positive association at P. appear in table ≤ 0.05. finding are consistent with the results of our study, where the educational program was effective in improving parents practices at $P \leq 0.05$. where parents practices of study group are elevated while the parents practices of control group is non change which refer to effectiveness of educational health program in improve diabetic children parents practices. (Abdulla Al-Banna, 2015)

Discussion of Parents practices after applied Educational Program (post-test two)

It showed that the distribution practices of parents on diabetic children care for post-test two of the applied educational program in study group has the normally of distribution and a p-value is (.166) and also the control group has the normally of distribution and a p-value is (.172). (table 4. 6)

The finding of post-test two showed that (1.7 %) of parents have poor practices, (66.7 %) of parents have fair practices and (31.6 %) of parents have good practices regarding to diabetic children care in study group , while in control group (63.3 %) of parents have poor practices, (36.7 %) of parents have fair practices and (0 %) of parents have good practices regarding to diabetic children care and p. value 0.01 this results are consider highly significant at p . value 0.001. which refer to there are a significant different between study and control groups. (table 4. 7)

These results reflect that the educational health program was applicable and able to change the parents practices of the experimental group, while practices of parents in the control group remained at the same level when assessing practices of diabetic children parents care before, after implementing educational program (post-test one) and in (post- test two) because the control group did not take educational health program.

These results have been proven by (Corradini & siniscalchi, 2021) where it is applied to evaluate the a education program effectiveness on children and adolescence practices about caring for diabetic patients, where it was estimated that the largest percentage of participants had a fair level of practices after implementing the program with a P. value was < 0.05 It is refer to a highly significant, while the practices level changed slightly at the post-test two, and the results are still significant after applying the educational program, and the effect of the educational program is still clear and influential in enhancing participants practices. (Corradini & Siniscalchi, 2021)

In related to practices finding of estimated refer to there are a significant differences among pre, post one and post - test two in parents care on diabetic children care within study group because the study group who received educational health program. (table 4.8)

In related to practices finding of estimated that there are non- significant differences between pre, post one, and post two in parents care on diabetic children care within control group because the control group who doesn't receive educational health program. (table 4.9)

5. CONCLUSIONS

1. Majority of children parents in the study sample were have elementary school employed and with a fair economic level

2. The level of parent's practices in study group altered significantly, where it's in pre-test before performing educational program sessions the mean was (1.407) then become in post-test one after applied educational program sessions (2.087) and in post-test two (2.0974).

3. The level of parent's practices in control group stayed in pre-test and post-test one and post-test two in same level

4. Regarding the difference in practice level in study group among pre-test and post-test one and two, where the level elevated this mean that the educational program is effective.

6. RECOMMENDATIONS

Scientific research recommendations are the final part of the study, which are written based on the results and conclusions of the study, and include a number of solutions to the problems that appeared in the study from the researcher's point of view, which are based on the implications that the researcher presents in an elaborate scientific manner. Therefore, the most important recommendations of this study are :

1. Parents can be encouraged and motivated to attend conferences and educational health programs on diabetic children care.

2. Educating parents about need to adhere to these recommendations and instructions issued by health organizations regarding care of children with type I diabetes.

3. There is a need to conduct more intensive studies on large samples from different societies to obtain results of high scientific value.

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