

Effect of Shared Decision Making in Management of Children Suffering from Diabetes

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Abstract

Introduction: shared decision-making and is it really what we want to achieve? It may have ethical justifications. It may or may not be efficient health care when examined from health economic perspectives. **Aim:** This study aimed to study the effect of shared decision making program in management of children suffering from diabetes. **Subjects & Methods:** 1. **A pre-designed questionnaire** includes data about Socio-demographic characteristics of the diabetic children (age, gender, educational level etc..), Knowledge of the diabetic children related to the use of information technology (such as internet, mobile phone and SMS, etc..) and its effect on glycemic control. As well as, their knowledge regarding diabetes mellitus (definition, predisposing factors, signs and symptoms etc..), factors affecting decision making in diabetes management, 2- **Psychometric assessment scales** to assess level of depression, anxiety, self-esteem and aggressive behavior of the diabetic children. 3- **Perception scale of decision making** for children to assess General perception of decision making for children in relation to management of their diabetes. Unit based perception of decision making for children in relation to management of their diabetes. 4-**Decision making program based on actual need assessment of the studied sample** **Results:** The study results revealed that, there was a statistical significant difference between pre and post program intervention in most items related to diabetic children's knowledge about decision making and factors affecting decision making **Conclusion:** the decision making program was successful in management of children suffering from diabetes, which affects positively in improving psychometric assessment (anxiety, self-esteem, depression and aggressive behavior) of the studied sample) **Recommendation:** It is recommended to apply such decision making intervention program in primary health care centers and hospitals caring for diabetic children and their care givers.

Key words: Decision making – diabetes- share glycemic control education program, pediatric nursing

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Introduction

Decision making is the process of sufficiently reducing uncertainty and doubt about alternatives to allow a reasonable choice to be made from among them. This definition stresses the information-gathering function of decision making. It should be noted here

that uncertainty is reduced rather than eliminated. Very few decisions are made with absolute certainty because complete knowledge about all the alternatives is seldom possible. Thus, every decision involves a certain amount of risk. If there is no uncertainty, do not have a decision; you have an algorithm--a set of steps or a recipe that is followed to bring about a

fixed result **American Academy of Family Physicians (2010).**

Kinds of Decisions; There are several basic kinds of decisions; 1. Decisions whether. This is the yes/no, either/or decision that must be made before we proceed with the selection of an alternative. Decisions whether are made by weighing reasons pro and con. It is important to be aware of having made a decision whether, since too often assume that decision making begins with the identification of alternatives, assuming that the decision to choose one has already been made. 2. Decisions which. These decisions involve a choice of one or more alternatives from among a set of possibilities, the choice being based on how well each alternative measures up to a set of predefined criteria. 3. Contingent decisions. These are decisions that have been made but put on hold until some condition is met **Betz, and Redcay, (2010).**

Shared decision-making or ‘evidence-based children patient choice’? A key contribution to this process comes from health information, effectively presented, and the scope of decision aids to enhance decision-making. The other area of terminological debate is around the labels and terms for the provider and the person using health care services **Ancker and Kaufman (2007).**

Clearly recognize that the terms ‘doctor/nurses’ and ‘patient children’ are now somewhat outdated, and terms such as clinician or health care professional, families and children may be more inclusive or appropriate depending on the context. The range of terms remains varied, and is appropriate given the range of health care circumstances and contexts, and the purposes for which the terms are used in debate. Over the recent years, there has also been an increased decision-making since managers are relieved of

making some decisions-especially the technical ones which can be best interpreted and solved by the automated system **Betz, (1999).**

The Components of Decision Making

The Decision Environment

Every decision is made within a decision environment, which is defined as the collection of information, alternatives, values, and preferences *available at the time of the decision*. An ideal decision environment would include all possible information, all of it accurate, and every possible alternative **Homer et al., (2010).** However, both information and alternatives are constrained because the time and effort to gain information or identify alternatives are limited. The time constraint simply means that a decision must be made by a certain time. The effort constraint reflects the limits of manpower, money, and priorities. Since decisions must be made within this constrained environment, we can say that *the major challenge of decision making is uncertainty*, and a major goal of decision analysis is to reduce uncertainty **James et al., (2013).** It can almost never have all information needed to make a decision with certainty, so most decisions involve an undeniable amount of risk **Blum, et al., (2012).**

The fact that decisions must be made within a limiting decision environment suggests two things. First, it explains why hindsight is so much more accurate and better at making decisions that foresight. As time passes, the decision environment continues to grow and expand. New information and new alternatives appear--even after the decision must be made **Bryden, et al., (2011).**

The second thing suggested by the decision-within-an-environment idea follows from the above point. Since the decision environment continues to expand as time passes, it is often advisable to put off making a decision until close to the deadline. Information and alternatives continue to grow as time passes, so to have access to the most information and to the best alternatives, do not make the decision too soon. Now, since we are dealing with real life, it is obvious that some alternatives might no longer be available if too much time passes; that is a tension we have to work with, a tension that helps to shape the cutoff date for the decision **Bowen , et al., (2008)**.

Common barriers of the diabetic child to participate in decision making of management their diabetes include, parent restriction of the child's communication, limitation of communication to social talk and lacking of health instruction. In general, physicians strive for active participation from the child, but parents often restrict the child's participation and want to lead the care management When physicians do communicate with the diabetic child during the visit **Cavanaugh, et al., (2009)**. Most of the physician-child interaction is restricted to affective behavior including social behavior, joking and asking about school, but not directed at health instruction. The diabetic child is rarely included in the discussion of the diagnosis or treatment **Bolo, et al., (2011)**.

Pediatric-centered care involves an ongoing relationship between the family and provider with regular decision making about environmental control, medication regimens, accurate assessment of symptoms by child and parent **Callahan, et al., (2011)**. The benefits of decision making in management of children suffering from diabetes improved quality of medical consultations

to have a positive effect on the quality of treatment decisions and improve the quality of children - physician communication **Cadario, et al., (2009)**.

Aims of the Study:

Study the effect of shared decision making program in management of children suffering from diabetes

Subjects and Methods:

Research Design:

This study is a quasi-experimental study design.

Research Setting:

This study was conducted at both outpatient and in-patient pediatric departments (Medicine, surgery and critical care units) at children's hospital

Sample size and characteristics:

Research Setting:

This study was conducted at inpatient and diabetes out patient departments of children's Hospital affiliated to Ain Shams University Hospitals.

Subjects:

A purposive sample was involved in the study from children suffering from diabetes mellitus who are attending the previously mentioned setting over a period of 6 months, their number was 210 children. The following inclusion criteria was considered in their selection:

- 1- Children with confirmed diagnosis of diabetes (regardless to type or the duration of their illness)
- 2- Both genders.
- 3- Children in the age group of $10 \leq 18$ years.
- 4- Urban and rural residents

Exclusion criteria: Exclude diabetic children suffering from other chronic physical or mental illness.

Tools of data collection

Tools of the study were developed by the researcher after reviewing the relevant literature and include the following:

I- A pre-designed questionnaire (by interview) (pre/post) includes data about:

- a- Socio-demographic characteristics of the diabetic children (age, gender, educational level etc..).
- b- Knowledge of the diabetic children related to the use of information technology (such as internet, mobile phone and SMS, etc..) and its effect on glycemic control. As well as, their knowledge regarding diabetes mellitus (definition, predisposing factors, signs and symptoms etc..).
- c- Factors affecting decision making in diabetes management

2- **Psychometric assessment scales** to assess level of depression, (Abd EL-Rahman, 1992), anxiety, (Abd - ELhamed, 1991), self-esteem,(Mosa. and Dosoki, 1987), and aggressive behavior (Elmelegy, 1987), of the diabetic children.

3- **Perception scale of decision making** for children adopted from Dwyer and Gangster's, (1992) to assess the following:

- A- General perception of decision making for children in relation to management of their diabetes.
- B- Unit based perception of decision making for children in relation to management of their diabetes.

4-Decision making program based on actual need assessment of the studied sample that was designed to cover the possible areas of decision making e.g: dealing with hypoglycemia, (type and amount of intake), number and frequency of testing glucose and acetone in blood and urine (in hypo – and hypoglycaemia...etc).

Scoring System

According to the children's answers, each correct answer had score 1 degree and both wrong answer and do not know had 0 degree. Also, their practices were assessed and scored 1 degree if done correctly and zero if not done or done incorrectly. Then the total scoring was calculated as level of knowledge and practice satisfactory (>70%) and unsatisfactory level of knowledge and practice (< 70%).

Tools validity and reliability

Tools validity was checked through distribution of the tools to seven experts in the field of the study of diabetes mellitus, content validity was assessed to determine whether the tool covers the appropriate and necessary content, as well as its relevance to the aim of the study, clarity, and its simplicity. The suggested modifications were done (rephrasing of some statements, omission

and addition of certain items). Then the final form was stated.

II-Operational design:

The operational design of the study entails three main phases: preparatory phase, exploratory phase (pilot study) and field of the work.

1-Preparatory phase:

A review of past and current, local and international related literature using journal, magazines, scientific periodicals and books was done to develop the study tools and to get acquainted with the various aspects of the research problem.

2-Pilot Study (exploratory phase):

A pilot study was carried out including 10 children suffering from DM to test the applicability and clarity of the study tools and to determine the needed time for fulfilling the study tools. Then necessary modifications of some questions were done based on the findings of the pilot study. The diabetic children who participated in the pilot study were excluded later from the study sample.

3-Field work

Data collection was carried out in the period from the beginning of September 2013 to the end of February 2014. The researcher was available at the study setting two days weekly (Tuesday and Wednesday).

The researcher started by explaining the nature, aim and expected outcomes of the study to the diabetic children and their care givers. Children were assessed individually using the

previously mentioned tools twice pre/post intervention.

The Decision Making based intervention was prepared according to the actual need assessment of the studied children

Ethical and legal issues

Parental agreement was a prerequisite to involve the child in the study sample at the first session. All ethical issues of research were maintained. The purpose, specific objectives, anticipated benefits and methods of the study were carefully explained to each eligible subject. When the subjects agreed to participate in the study, they were assured that they could withdraw at any time and they would not be identified in the report of the study. Also, the researcher informed the studied subject that, the research would be harmless, confidentiality in gathering and treating subjects information was secured.

III-Administrative design:

An official permission was obtained from director study setting through a formal letter that was issued from the Dean of the Faculty of Nursing, Ain Shams University. It was addressed to director of Ain Shams University Hospitals. A written approval to carry out the study was taken from each child and his/her accompanying caregiver and nurse as well.

Limitation of the study:

- The related references were limited.
- Overcrowded areas at the study settings due to the children and their caregivers.

□ Some study sample (nurse, child) not cooperative.

IV- Statistical design:

The data collected were revised, coded, tabulated and statistically analyzed by using number and percentage distribution. Chi-square test, mean and standard deviation were used to estimate the statistical significant difference between variables of the study.

Results

Table (1) shows that, about two thirds (61%) of the studied diabetic children were male, also half of them were at age group 10 to 13 years old, and nearly two quarters of them were ranked as the first child.

Table (2), In relation to the important of taking decision by sharing such help in determining self manage objective, help in self care follow up, help in preparing manage plan, help in known the proper solution in the proper time help in control disease, help in known the patient's right, help in coping with disease, this table shows impotent of knowledge about the Importance of taking decision by sharing post program intervention compared with pre program, with statistically significant difference was observed between pre and post program intervention

Table (3): It was found from the current table that Decision by sharing in relation to Hypo/Hyperglycemia/DKA was improved post program intervention in such Previous hypo/ hyperglycemia/DKA, Decision by sharing in managing hypo /hyperglycemia/DKA such as Go to doctor, Take sweat in case of hypoglycemia, Modify dose of insulin and Decision by sharing in managing

hypo/hyperglycemia/DKA by Child and pa.

Table (4): It was observed from this table (19) that was statistically significant relation between pre and post program intervention related to **Total decision making**, with P-Value <0.001

The current findings table (5) showed that there was statistically significant relation between decisions making in such previous hypo/ hyperglycemia/DKA, decision by sharing in managing hypo /hyper-glycemia/DKA by doctor who also, is sharing in managing hypo/ hyperglycemia/DKA and glycemetic control pre and post program implementation.

The current findings table (6) showed that there was statistically significant relation between decision making by sharing Child sharing in decision pre and post program implementation

It was clear from the current table 8 that there was statistically significant relation between decision making by sharing (**Who help in decision making**) and psychomotor assessment, namely anxiety pre and post program implementation

It was clear from the current table 9 that there was statistically significant relation between decision making by sharing (**Child sharing in decision**) and psychomotor assessment, namely anxiety pre and post program implementation

It was clear from the current table 10 that there was statistically significant relation between decision making by sharing (**Who help in decision making**) and psychomotor assessment, namely depression pre and post program implementation

It was clear from the current table 11 that there was a statistically significant relation between decision making by sharing (**Child sharing in decision**) and psychomotor assessment, namely depression pre and post program implementation.

It was clear from the current table 12 that there was a statistically significant relation between decision making by sharing (**Who help in decision making**) and psychomotor assessment, namely self-esteem pre and post program implementation.

It was clear from the current table 13 that there was a statistically significant relation between decision making by sharing (**Child sharing in**

decision) and psychomotor assessment, namely self-esteem pre and post program implementation.

It was clear from the current table 14 that there was a statistically significant relation between decision making by sharing (**Who help in decision making**) and psychomotor assessment, namely **Aggressive behavior** pre and post program implementation.

It was clear from the current table 15 that there was a statistically significant relation between decision making by sharing (**Child sharing in decision**) and psychomotor assessment, namely **Self-esteem** pre and post program implementation.

Table (1): Number and percentage distribution of the studied sample according to their characteristics n=210

Items	%
Gender	
Male	61.0
Female	39.0
Age/years	
10<13	50.5
13<15	41.4
15≤18	8.1
Mean±SD 3.4±2.1	
Rank	
First	48.1
Second	42.4
Third and more	9.5
Level of education	
Not yet enrolled	42.4
Primary	7.1
Preparatory	0.5
Secondary	50.0

Table (2): Number and percentage distribution of the studied sample according to decision making by sharing in relation to Hypo/Hyperglycemia/DKA pre and post program implementation n=210.

Decision by sharing in relation to Hypo/Hyperglycemia/DKA	Pre %	Post %	X²	P value
Previous hypo/hyperglycemia/DKA:				
Yes				
o With coma	52.6	9.1	56.874	<0.001*
o Without coma	47.4	90.9		
No	15.8	90.9	58.825	<0.001*
Decision by sharing in managing hypo /hyperglycemia/DKA:				
Yes	19.0	71.4	116.293	<0.001*
No	81.0	28.6		
In case of yes the decision by sharing is to:				
Go to doctor	75.0	66.7	6.816	0.033*
Take sweat in case of hypoglycemia	50.0	93.3		
Modify dose of insulin	25.0	20.0		
Decision by sharing in managing hypo/hyperglycemia/DKA by				
Child	0	13.3	18.095	<0.001*
Parent	0	20.0		
Child and parent	100	66.7		

Total number not mutually exclusive

Table (3): Number and percentage distribution of the studied sample according to Their total decision making by sharing pre and post program implementation n=210

Total decision making	Pre	Post	X ²	P value
	%	%		
Dependent	42.9	19.0	42.500	<0.001*
Partially dependent	33.3	28.6		
Independent	23.8	52.4		
*Who help in decision making?				
Parent	47.6	33.3	39.768	<0.001*
Doctor	42.9	47.6		
Nurse	33.3	47.6		
Other children	23.8	14.3		
Peers	42.9	14.3		

Total number not mutually exclusive

Table (5): Relation between decision making and glycemc control pre and post program implementation

Total decision making	Who help in decision making											
	Pre						Post					
	Parent n=(100)	Doctor n=(90)	Nurse n=(70)	Other n=(50)	Peers n=(90)	P-value	Parent n=(70)	Doctor n=(100)	Nurse n=(100)	Other n=(30)	Peers n=(30)	P-value
	%	%	%	%	%		%	%	%	%	%	
Previous hypo/hyperglycemia/DKA												
With coma	49.1	19.0	6.9	4.3	20.7	<0.001*	15.2	54.3	25.4	2.9	2.2	<0.001*
Without coma	70.7	7.5	4.5	4.5	12.8	<0.001*	14.5	49.1	31.5	3.0	1.8	<0.001*
No	32.2	29.6	7.0	1.7	29.6	<0.001*	18.4	37.6	38.3	2.1	3.5	<0.001*
decision by sharing in managing hypo /hyperglycemia/DKA												
Yes	60.1	11.2	5.6	4.9	18.2	<0.001*	16.3	39.4	40.0	1.9	2.5	<0.001*
No	35.7	24.1	14.3	0.9	25.0	<0.001*	22.8	42.3	29.3	4.1	1.6	<0.001*
In case of yes the decision by sharing is												
Go to doctor	48.3	21.2	5.1	7.6	17.8	<0.001*	22.0	33.3	36.6	3.3	4.9	<0.001*
Take sweat if hypoglycemia	46.4	14.3	10.7	5.4	23.2	<0.001*	10.6	54.4	28.8	3.8	2.5	<0.001*
Modify dose of insulin	31.9	24.4	10.1	5.0	28.6	<0.001*	11.2	58.0	23.8	4.9	2.1	<0.001*
decision by sharing in managing hypo/hyperglycemia/DKA by												
Child	46.5	23.7	3.5	6.1	20.2	<0.001*	18.4	52.5	24.1	4.3	0.7	<0.001*
Parent	47.0	23.1	11.1	3.4	15.4	<0.001*	14.6	38.2	39.0	4.9	3.3	<0.001*
Child and parent	63.4	13.8	3.3	3.3	16.3	<0.001*	9.2	57.2	27.7	2.3	3.5	<0.001*

Table (6): Relation between decision making by sharing and Child sharing in decision pre and post program implementation

Total decisio n making	Child sharing in decision							
	Pre				Post			
	Depen dent n= (90)	Partially dependent n=(70)	Indep enden t n=(50)	P- value	Depend ent n=(40)	Partially dependent n=(60)	Indepe ndent n=(110)	P- value
	%	%	%		%	%	%	
Previous hypo/hyperglycemia/DKA								
With coma	55.6	57.1	20.0	<0.001*	0.0	0.0	9.1	<0.001*
Without coma	33.3	32.9	74.0	<0.001*	42.5	51.7	47.3	<0.001*
No	11.1	10.0	6.0	<0.001*	57.5	48.3	43.6	<0.001*
decision by sharing								
Yes	3.3	31.4	30.0	<0.001*	27.5	61.7	92.7	<0.001*
No	96.7	68.6	70.0	<0.001*	72.5	38.3	7.3	<0.001*
In case of yes the decision by sharing is								
Go to doctor	16.7	11.4	14.0	<0.001*	57.5	13.3	8.2	<0.001*
Take sweat if hypoglycemia	13.3	5.7	8.0	<0.001*	35.0	70.0	76.4	<0.001*
Modify dose of insulin	3.3	10.0	0.0	<0.001*	7.5	16.7	15.5	<0.001*
decision by sharing in managing hypo/hyperglycemia/DKA by								
Child	0.0	0.0	0.0	<0.001*	12.5	21.7	58.2	<0.001*
Parent	0.0	0.0	0.0	<0.001*	22.5	25.0	30.9	<0.001*
Child and parent	41.1	4.3	0.0	<0.001*	25.0	10.0	33.6	<0.001*

Table (7): Relation between decision making by sharing and psychomotor assessment pre and post program implementation.

Anxiety levels	Who help in decision making											
	Pre						Post					
	Parent n=(100)	Doctor n=(90)	Nurse n=(70)	Other n=(50)	Peers n=(90)	P-value	Parent n=(70)	Doctor n=(100)	Nurse n=(100)	Other n=(30)	Peers n=(30)	P-value
	%	%	%	%	%		%	%	%	%	%	
No anxiety (0 < 20)	62.0	35.6	11.4	10.0	25.6	<0.001*	30.0	71.0	45.0	16.7	13.3	<0.001*
Mild anxiety (20 < 40)	54.0	15.6	8.6	12.0	18.9	<0.001*	40.0	73.0	54.0	26.7	20.0	<0.001*
Moderate anxiety (40 < 60)	89.0	11.1	10.0	14.0	14.4	<0.001*	37.1	81.0	43.0	13.3	6.7	<0.001*
Severe anxiety (60≤100)	78.0	25.6	11.4	4.0	26.7	<0.001*	38.6	67.0	58.0	20.0	23.3	<0.001*

Table (8)

Anxiety levels	Child sharing in decision							
	Pre				Post			
	Dependent n=(90)	Partially dependent n=(70)	Independent n=(50)	P-value	Dependent n=(40)	Partially dependent n=(60)	Independent n=(110)	P-value
	%	%	%		%	%	%	
No anxiety (0 < 20)	17.8	4.3	6.0	<0.001*	12.5	33.3	68.2	<0.001*
Mild anxiety (20 < 40)	44.4	5.7	10.0	<0.001*	27.5	33.3	13.6	<0.001*
Moderate anxiety (40 < 60)	11.1	5.7	4.0	<0.001*	12.5	10.0	3.6	<0.001*
Severe anxiety (60≤100)	26.7	84.3	80.0	<0.001*	47.5	23.3	14.5	<0.001*

Table (9)

Depression levels	Who help in decision making											
	Pre						Post					
	Parent n=(100)	Doctor n=(90)	Nurse n=(70)	Other n=(50)	Peers n=(90)	P-value	Parent n=(70)	Doctor n=(100)	Nurse n=(100)	Other n=(30)	Peers n=(30)	P-value
	%	%	%	%	%		%	%	%	%	%	
Low (0<27)	52.0	37.8	10.0	12.0	25.6	<0.001*	42.9	75.0	46.0	36.7	16.7	<0.001*
Moderate (27<54)	45.0	22.2	8.6	14.0	15.6	<0.001*	52.9	61.0	42.0	40.0	20.0	<0.001*
Severe (54<81)	76.0	34.4	5.7	16.0	37.8	<0.001*	60.0	82.0	38.0	50.0	23.3	<0.001*

Table (10)

Depression levels	Child sharing in decision							
	Pre				Post			
	Dependent n=(90)	Partially dependent n=(70)	Independent n=(50)	P-value	Dependent n=(40)	Partially dependent n=(60)	Independent n=(110)	P-value
	%	%	%		%	%	%	
Low (0<27)	22.2	2.9	2.0	<0.001*	35.0	40.0	92.7	<0.001*
Moderate (27<54)	26.7	60.0	10.0	<0.001*	60.0	16.7	5.5	<0.001*
Severe (54<81)	51.1	37.1	88.0	<0.001*	5.0	43.3	1.8	<0.001*

Table (11): Relation between decision making by sharing (Who help in decision making) and psychomotor assessment.

Self-esteem	Who help in decision making											
	Pre						Post					
	Parent n=(100)	Doctor n=(90)	Nurse n=(70)	Other n=(50)	Peers n=(90)	P-value	Parent n=(70)	Doctor n=(100)	Nurse n=(100)	Other n=(30)	Peers n=(30)	P-value
	%	%	%	%	%		%	%	%	%	%	
Low (0 < 8)	82.0	28.9	12.9	12.0	46.7	<0.001*	40.0	67.0	51.0	23.3	30.0	<0.001*
Moderate (8 < 16)	67.0	41.1	2.9	28.0	28.9	<0.001*	54.3	84.0	50.0	20.0	13.3	<0.001*
High (16 < 24)	52.0	40.0	10.0	30.0	41.1	<0.001*	60.0	61.0	48.0	26.7	10.0	<0.001*

Table (12): relation between decision making by sharing (**Child sharing in decision**) and psychomotor assessment

Self-esteem	Child sharing in decision							
	Pre				Post			
	Dependent n=(90)	Partially dependent n=(70)	Independent n=(50)	P-value	Dependent n=(40)	Partially dependent n=(60)	Independent n=(110)	P-value
	%	%	%		%	%	%	
Low (0 <8)	60.0	48.6	14.0	<0.001*	0.0	3.3	20.9	<0.001*
Moderate (8 <16)	13.3	30.0	28.0	<0.001*	75.0	73.3	10.9	<0.001*
High (16 <24)	26.7	21.4	58.0	<0.001*	25.0	23.3	68.2	<0.001*

Table (13): Relation between decision making by sharing (Who help in decision making) and Aggressive behavior

Aggressive behavior	Who help in decision making											
	Pre						Post					
	Parent n=(100)	Doctor n=(90)	Nurse n=(70)	Other n=(50)	Peers n=(30)	P-value	Parent n=(70)	Doctor n=(100)	Nurse n=(100)	Other n=(30)	Peers n=(30)	P-value
	%	%	%	%	%		%	%	%	%	%	
Negativa (0<33)	68.0	26.7	4.3	8.0	14.4	<0.001*	48.6	67.0	62.0	49.3	26.7	<0.001*
Positiva (33<66)	35.0	25.6	11.4	18.0	26.7	<0.001*	50.0	78.0	58.0	59.3	19.3	<0.001*

Table (14): relation between decision making by sharing (**Child sharing in decision**) and Self-esteem

Self-esteem	Child sharing in decision							
	Pre				Post			
	Dependent n=(90)	Partially dependent n=(70)	Independent n=(50)	P-value	Dependent n=(40)	Partially dependent n=(60)	Independent n=(110)	P-value
	%	%	%		%	%	%	
Negative (0 < 33)	53.3	50.0	32.0	<0.001*	42.5	41.7	89.1	<0.001*
Positive (33 < 66)	46.7	50.0	68.0	<0.001*	57.5	58.3	10.9	<0.001*

Discussion

This study aimed to study the effect of shared decision making program in management of children suffering from diabetes through assess the possible areas (for example dealing with hypoglycemia) in decision making by diabetic children and their care givers.

According to Number and percentage distribution of the studied sample according to their family history of diabetes, this study clarified that more than half of the studied sample have family history and the majority of them related their mothers. This study was in an agreement with **Cramer, (2009)**, who, studied the prevalence of diabetes mellitus among the children, and found a positive family history of diabetes among the studied subject.

In relation to the important of taking decision by sharing such help in determining self manage objective, help in self care follow up, help in preparing manage plan, help in known the proper solution in the proper time help in control

disease, help in known the patient's right, help in coping with disease, this study shows impotent of knowledge about the Importance of taking decision by sharing post program intervention compared with pre program, with statistically significant difference was observed between pre and post program intervention. This study was in an agreement with the study of **Schreiner, De Beaufort, et al., (2010)**, who studies management strategies for the adolescent lifestyle, diabetes spectrum, mentioned that the strategies of and coping strategies decision making in management of diabetes help the diabetic to control, management, follow up.

Also, the current study finding table (14) shows decision by sharing in relation to Hypo/Hyperglycemia/DKA was improved post program intervention in such Previous hypo/hyperglycemia / DKA, Decision by sharing in managing hypo /hyperglycemia/DKA such as Go to doctor, Take sweat in case of hypoglycemia, Modify dose of insulin and Decision by sharing in managing **Meltzer, et al. (2013)**, hypo/hyperglycemia/ DKA by Child and parent It was observed that there was statistically significant between pre and

post program intervention related to decision by sharing in insulin administration namely, Insulin preparation & injection, route of insulin injection, Modifying dose of insulin and Managing problems related to insulin therapy, with P-Value <0.001, It was clear from this table (7) that was statistically significant between pre and post program intervention related to decision by sharing in diet as regards Type of food (quality and quantity) and Number meals/day, with P-Value <0.001.

It was observed from this result that was statistically significant relation between pre and post program intervention related to Total decision making, also., total knowledge was good with P-Value <0.001, this study was in agreement with the study of (6) who study Evaluation of a multi component, behaviorally oriented, problem-based “summer school” program for adolescents with diabetes, mentioned that the total decision making in management of diabetes were improved post program intervention.

The current findings table (43) showed that there was statistically significant relation between decisions making in such previous hypo/hyperglycemia/DKA, decision by sharing in managing hypo/hyperglycemia/DKA by doctor who also, is sharing in managing hypo/hyperglycemia/DKA and glycemic control pre and post program implementation.

It was clear from the current table (45) that there was statistically significant relation between decision making by sharing (child sharing in decision and who help in decision making) and psychomotor assessment, namely anxiety, depression, self esteem aggressive behavior pre and post program

implementation, these findings were highly supported by the study of **Rustad, et al., (2013)**. who study Clinical and psychological course of diabetes from adolescence to young adulthood, mentioned that child who share in decision and when he use who will share him in taking decision were improve the level of anxiety and depression which improved after psychological courses implementation

Also, it was clear from the current study that there was statistically significance relation between decision making and glycemic control which improved post program intervention, this study was supported by the study of **De Beaufort, et al., (2010)**. who study, a review of the evidence for the medical home for children with special health care needs, mentioned that decision making had its highly effect on management of diabetes and glycemic control

Conclusion:

It can be concluded that, factors affecting decision making included age, gender, educated, residence, beliefs and values, type of personality, psychological factors and personal tendencies and ambitious, lack of diabetic children experience, Neglect of the family, lack of information about disease, lack of specialized diabetes care, Lack of financial support, Lack of consultation / supervision and Lack of practice self care, the decision making program was successful in management of children suffering from diabetes, which affects positively in improving psychometric assessment (anxiety, self-esteem, depression and aggressive behavior) of the studied sample,

Recommendations

According to the result of the current study, the following recommendations are suggested:

1. It is recommended to apply such decision making intervention program in primary health care centers and hospitals caring for diabetic children and their care givers.
2. Educate the diabetic children self care activities Decision Making.
3. Improve area of decision making to enable the children to share in their management of diabetes.
4. More studies are needed to investigate the long-term effect of such decision making intervention program on glycemic control of diabetic children with type 1 diabetes.

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