Quality of life among School Children Suffering from Juvenile Diabetes

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ABSTRACT

Juvenile diabetes is one of the most common pediatric chronic condition and has potentially life-threatening sequel .it has profound effects on children physical , mental, emotional, social, and psychological health status that in turn can effect on quality of life. *Aim*: This study amid to assess the quality of life among school children suffering from juvenile diabetes and assess factors affecting the quality of life among children suffering from juvenile diabetes. *Research design*: A descriptive analytical research design. *Setting*: This study was carried in outpatient clinic for diabetes in pediatric hospital Ain shams University Hospital. *Subject*: A purposive sample of 100 children who have juvenile diabetes at age 8-12 years and confirmed diagnosis since 6 months or more. *Tools*: Three tools were used for data collection. First tool: Interviewing questionnaire to assess socio-demographic data and knowledge's about quality of life, second tool Diabetes specific quality of life scale to measure quality of life of children, and third tool physical examination sheet. *Results*: Accordance to factors affecting quality of life of children suffering from juvenile diabetes medical, economical, psychological, and social factors were the main factors affective quality of life**,** and the majority of children suffering from juvenile diabetes had average level in quality of life while more than third had poor quality of life**.** *Conclusions:* An inverse relationship between the quality of life dimensions and knowledge about diabetes in children suffering from juvenile diabetes where statistically significant for all dimensions. *Recommendations:* Continuous assessment for diabetic children's knowledge about diabetes mellitus and its control, change misconception, provide them with updated knowledge and develop their abilities for demonstration of therapeutic regimen to achieve high quality of life.

Key words: Myocardial School children, Juvenile diabetes, Quality of life. Master thesis – Faculty of Nursing – Ain Shams University

Introduction

Diabetes is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of different organs, especially the eyes, kidneys, nerves, heart, and blood vessels *(American Diabetes Association (ADA), 2010).*

Juvenile diabetes (sometimes called insulin-dependent, juvenile or childhood-onset diabetes) occurs when the pancreas does not produce enough insulin, a hormone that regulates blood sugar. The cause is not known, but it is thought to be the result of a

combination of genetic and environmental factors. Many countries are documenting higher numbers of newly diagnosed cases of type1 diabetes, particularly in younger children. Interestingly, some disease patterns among children resemble infectious disease epidemics. Currently, there is no known way to prevent type 1 diabetes*(World Health Organization (WHO), 2011).*

School children are an important population group in community health nursing because their physical and emotional health is vital to the feature of society and because the very youngest are unable to help themselves. School-age child development describes the expected physical, emotional, and mental abilities of children ages 6-12 years old. This time period is a stage of continuing growth and development for young child. She/he will go through many changes in his/her physical, mental and social development **(Feigelman et al., 2009*)***

Quality of Life (QOL) is not easy, and at present there is no conclusive theoretical description for it. In a wider sense, the self-perceived quality of life involves a broad array of social, physical, mental, health-related and even economic dimensions. A good quality of life could also be defined as an overall satisfaction with daily life and a general sense of well-being. The Health-Related Quality of Life (HRQOL) is a narrower concept often considered to comprise only those aspects of life directly affected by a particular illness or its treatment .Regardless of the definition, it is obvious that health-related quality of life is influenced by personal beliefs and perceptions and the current life situation *(Kurppa et al., 2011).*

Diabetes affecting QOL most studies report worse quality of life for people with diabetes compared to general population, especially regarding physical functioning and well –being .When the comparison group is people with other chronic diseases, the picture is less clear, with relative quality of life varying by quality of life domains and medical condition with which diabetes is being compared *(Peyrot& Rubin, 2009)*.

There is a worldwide increase in the incidence of juvenile diabetes. It affects approximately 1 in 400-600 children and adolescents in the United States of American (USA) develop juvenile diabetes*.* Juvenile diabetes accounts for 5 to10precent of all diagnosed cases of diabetes mellitus (DM) in the USA*(Centers for Disease Control and prevention (CDC), 2011).*

(Hanson et al., 2008) stated that the number of pediatric population with juvenile diabetes is unknown, although it is estimated that about 80,000 children develop the disease each year globally.

In Egypt, the prevalence of DM is 4.58% for the pediatric population above 10 years and about 65% of death among children with diabetes (***Hanson et al., 2008).***Study of incidence and prevalence in children and adolescents in four Egyptian Governorates (Fayoum, Minofeya, North Sainai and Suez) showed that its prevalence was 0.7/1000 and its incidence of 4.01/100.000 *(Salem et al., 2007).*

The role of the nurse is emphasis on promotion of problem solving strategies related to diabetes management in daily life, provides sufficient emotional and psychological support and reinforcement of counseling to achieve maximum independence for those children in order to attain normal living physically , psychological and socially. The nurse improve the quality of life in children through assessment their life style, factors effecting on it, and promoting the optimal conditions (physical, emotional and social) **(Sharon, 2007).**

Significance of the study:-

During the last decade the incidence rate of juvenile diabetes increased .That it represented by about 0.7% among Egyptian children and also the prevalence rate whereas, the number of children affected with type 1 diabetes was 95146 **(Whiting, David R., et al,2011).**

Type1 diabetes is currently the outstanding health problem in developed as well as developing countries. It creates increase family stress, requires constant adaption by school children and family member and poses challenge to nurse to better understand meet the needs of these children and their families.**(The Global Diabetes Community, 2011).** Therefore it is important to conduct this study to shed light on QOL for school children having juvenile diabetes. Throughout the world, incidences of diabetes are on rise, and consequently, type 1 diabetes in children. Most children are affected by type 1diabetes in childhood. However, the number of children is beginning to rise. Number of children's with type 1 diabetes varies from place to place.

Aim of the study

This study aimed to assess QOL among school children suffering from juvenile diabetes through.

1- Assess the quality of life of the children suffering from juvenile diabetes

2- Assess factors affecting the quality of life among children suffering from juvenile diabetes**.**

Research questions:

1-What is the quality of life level among children suffering from juvenile diabetes?

2-What are the factors affecting the quality of life of children suffering from Juvenile Diabetes?

Subjects And Methods

I- Research design:

A descriptive analytical research design used in this study.

II-Technical design

A- Research setting

Setting: The study was conducted at Diabetes outpatient clinic in Ain shams University hospitals.

Subject: A purposive sample of children who represent 10 % (100) of total children attended to the previously mentioned setting .In the last year which attendance was(1000) children according to the sample criteria.(Hospital statistical office, 2013).

Tool of Data Collection:

Three tools were used for data collection**.** The tool for data collection was designed by the researcher after reviewing the related literature it will be involves

1st tool: An interviewing questionnaire sheet, it included threeparts.

Part 1: socio demographic data about children's:-name, age, gender, Child order, home place, family number, number of rooms.

Part 2: Knowledge about QOL such as concept of QOL, factors affecting it, and how to improve quality of life of children.

Scoring system:-

It was used to assess the level of children's knowledge items, correct response was give 1 mark for each area of knowledge, and incorrect response was scored 0,then the scores of items were summed-up and the total divided by the number of items, Giving the mean score for the part. These score were converted into percent score; knowledge was considered good if the score was 75% or more, while considered average if the score was 50%and less than 75% and poor if the score was less than 50%.

2st tool: Diabetes Specific Quality of Life Scale (DSQOLS) this tool adopted by Btt, (1998) and is used to measure QOL of among school children suffering from juvenile diabetes.

Scoring system:-

Each statement has a score ranged from zero to one distributed the following; no=0, and yes=1 in treatment goals and treatment satisfaction, and distributed the following; no=2, and yes=1 in physical complaints, psychological burdens, social problems, daily functions, and diet restriction Scores of items were summed-up and the total divided by the number of items. These score were converted into percent score; was considered good if the score was 75% or more, while considered average if the score was 50%and less than 75% and poor if the score was less than 50%.

Part 2: To assess knowledge of children's about diseasessuch as definition, signs and symptoms, reasons.

3nd Tool: Physical examination sheet include: weight, height, digestive System (loss of appetite, nausea, vomiting, loss of weight, dry Mouth, diarrhea, constipation, colic, dyspepsia), urinary tract system (change of urine color, dysuria and acetone smell in urine.(**Theodor & Elena, 2009**).

Pilot study:

A pilot study was carried out 10%of children, the results of data obtained from the pilot study helped in modifications of the study tools. This sample (10 cases) was included from study sample.

Content validity:

Tools developed by researcher based on related literature and examined validity by 5expertise from community health nursing department and pediatric department.

Ethical consideration:

Informed consent will be taken from the children and their mothers to participate in the study after explaining the objectives of the study, it will have any harmful effect on them, the information will be confidential and they can withdraw from the study at any time.

Results

Table (1): Distribution of School Children Suffering from Juvenile Diabetes according to socio-demographic characteristic: (no=100)

Variables	No	%
Age of child.		
6:< 8 year	33	33.0
8:<10 year	33	33.0
10:<12 year	34	34.0
Mean ± S.D	10.0 ± 2.5 years	
Gender		
Male	50	50.0
Female	50	50.0
Child Order		
First	32	32.0
Second	32	32.0
Third	22	22.0
Forth or more	14	14.0
Residence		
Rural	47	47.0
Urban	53	53.0
Crowding index		
High	30	30.0
Moderate	60	60.0
Low	10	10.0

Table (1) shows that 33% of diabetic children were in age group of 6 :<, and 34% were in age group 10:<12years,with a mean age of them were10.0 ± 2.5.The table show also 50% of them were female. Concerning child ranking 32% of studied children were the second and first child in the family, and 22% were third. As regard home place 53%were living in urban. About crowding index 60% of them were moderate crowded.

Table (2): Distribution of School Children Suffering from Juvenile Diabetes according to their parents socio-demographic characteristic: (no=100)

Variables	No	%
mother's **Educational level**		
Illiterate	16	16.0
Write and reading	10	10.0
Primary Education	6	6.0
Middle education	44	44.0
University education	24	24.0
mother's **occupation**		
Housewife	80	80.0
Worker	10	10.0
Employee	6	6.0
Specialist	4	4.0
Father's Educational level		
Illiterate	12	12.0
Write and reading	10	10.0
Primary Education	8	8.0
Middle education	38	38.0
University education	32	32.0
Father's occupation		
Unemployed	10	10.0
Worker	20	20.0
Technical	12	12.0
Employee	30	30.0
Specialist	10	10.0
Free Business	16	16.0
Pension	2	2.0
Family Income/Month		
<1000	92	92.0
1000-2000	6	6.0
> 2000	2	2.0
Mean ± S.D	447.0 ± 55.3	

Table (2) shows that concerning mother's education 44% middle education, 16% illiterate, 80% of their mothers were house wife. Regarding fathers education 38% of fathers had middle education, 10% of their fathers were unemployed. The table also show that 92% of the family had <1000 pound / month.

Figure (1): Distribution of School Children Suffering from Juvenile Diabetes according to dimension of quality of life.
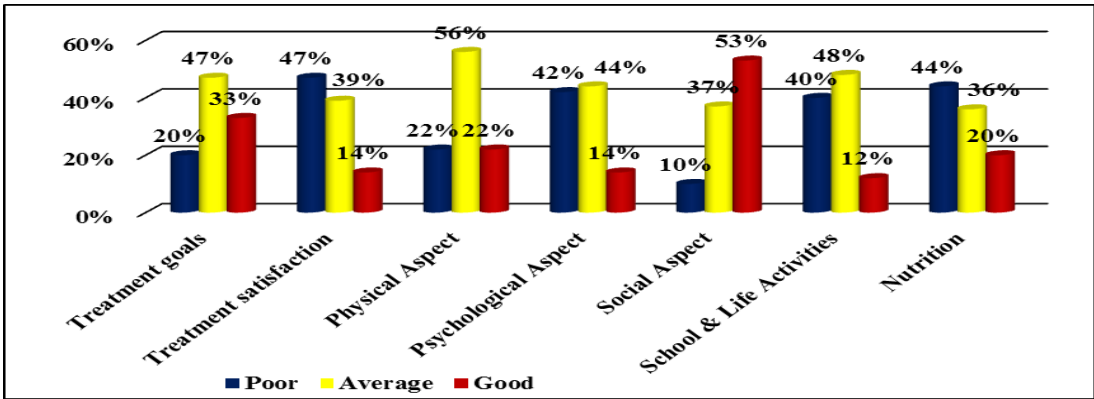

Figure (1):Shows that 56% of juvenile diabetes children were average level in effect of diabetes on the physical (body) aspect, 44% of juvenile diabetes children were average level in effect of diabetes on psychological aspect, and 42% of them poor level in effect of diabetes on psychological aspect, 10% of them poor level in effect of diabetes on social aspect, 48% of juvenile diabetes children were average level in effect of diabetes on school and life activities,and44% of juvenile diabetes children were poor level in effect of diabetes on nutrition.

Figure (2): Distribution of School Children Suffering from Juvenile Diabetes according total of quality of life: (no=100)
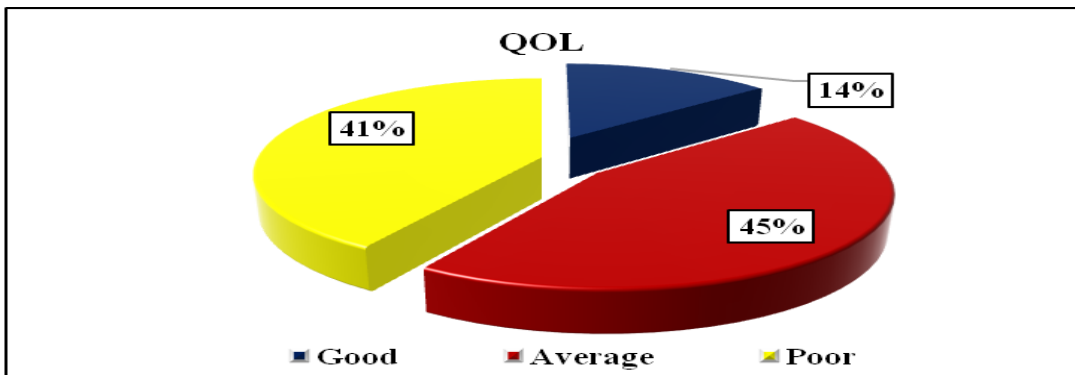

Figure (2): Shows that 14% of children suffering from juvenile diabetes had good in all dimension of QOL and 45% of them had average in QOL.

Figure (3): Distribution of School Children Suffering from Juvenile Diabetes according factors affecting the QOL: (no=100)

16%

24%

22%

13%

25%

Physical
Psychological
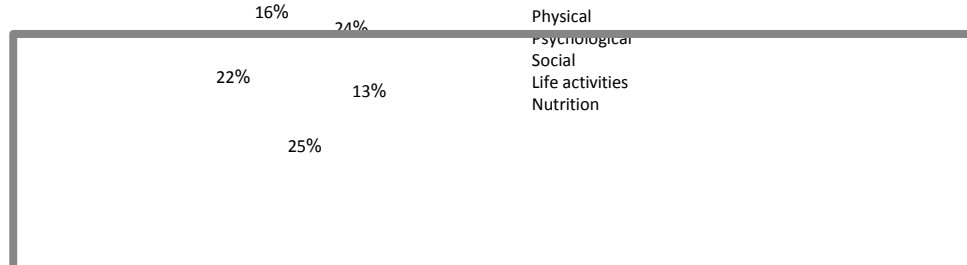Social
Life activities
Nutrition

Figure (3): Shows that 25% of children suffering from juvenile diabetes Affected by social factors of QOL and 24% of them Affected by physical factors of QOL.

Table (3):Relation between socio-demographic characteristics and total quality of life of school children suffering from juvenile diabetes.

	Total Quality of life								χ^2	P-value
	Poor		Average		Good		Total			
	No.	%	No.	%	No.	%	No.	%		
Age									4.871	0.05
6:8 years	14	14.0%	15	15.0%	4	4.0%	33	33.0%		
8:10 years	16	16.0%	15	15.0%	8	8.0%	33	33.0%		
10:12 years	11	11.0%	15	15.0%	2	2.0%	34	34.0%		
Gender									8.947	0.02
Male	12	12.0%	22	22.0%	16	16.00%	50	50.0%		
Female	10	10.0%	34	34.0%	6	6.00%	50	50.0%		
Residence									7.146	0.03
Rural	22	22.00%	28	28.00%	3	3.00%	53	53.00%		
Urban	19	19.00%	17	17.00%	11	11.00%	47	47.00%		
Mothers education									8.997	0.03
Illiterate	7	7.0%	8	8.0%	1	1.0%	16	16.0%		
Educable	6	6.0%	4	4.0%	0	.0%	10	10.0%		
Primary education	3	3.0%	3	3.0%	0	.0%	6	6.0%		
Middle education	6	6.0%	20	20.0%	18	18.0%	44	44.0%		
University education	0	0.0%	21	20.0%	3	3.0%	24	24.0%		
Mothers occupation									1.563	0.955
Housewife	35	35.0%	38	38.0%	13	13.0%	86	86.0%		
Worker	2	2.0%	2	2.0%	0	0.0%	4	4.0%		
Employee	2	2.0%	3	3.0%	1	1.0%	6	6.0%		
Specialist	2	2.0%	2	2.0%	0	0.0%	4	4.0%		

P>0.05 not significant

Table (3) represents statistically significant relation between children socio-demographic characteristics and total QOL while there is non-significant relation between mother's occupation and total QOL.

Table (4): relation between total quality of life and knowledge of school children suffering from juvenile diabetes.

Children knowledge	Quality of life								χ^2	P-value
	Poor		Average		Good		Total			
	No.	%	No.	%	No.	%	No.	%		
Poor	0	0.0%	10	10.0%	0	0.0%	10	10.0%	16.667	0.002
Good	41	41.0%	33	33.0%	14	14.0%	88	88.0%		
Average	0	0.0%	2	2.0%	0	0.0%	2	2.0%		
Total	41	41.0%	45	45.0%	14	14.0%	100	100.0%		

P>0.05 not significant

Table-(4): This table shows that is an inverse relationship between the quality of life and knowledge about diabetes in children suffering from juvenile diabetes where statistically significant relationship between total quality of life in children and knowledge about diabetes in children suffering from juvenile diabetes.

Discussion

On assessment of quality of life of school children suffering from juvenile diabetes the present study indicated that there were six domains had influence the quality of life physical, treatment goals, psychological, social, school and life activates, and diet restriction.

Concerning the physical aspect of QOL, this domain revealed to effecting of juvenile diabetes on physical activity of the child. Children having juvenile diabetes were asked (10) questions related to physical aspect. Finding of this study revealed that less than quarter felt that their health was good while more than the half felt their health was average in physical aspect of QOL.

The present study illustrated that there was statistically significant difference between age group regarding to physical aspect, also shows statistically significant difference between male and female regarding to physical aspect. The finding is in agreement with finding of *Elaziz et al. (2014)* this study conducted in outpatient clinics in Kafr Elzayat General Hospital on 150 children's suffering from juvenile diabetes. Who found the most affected domains of HRQL among children suffering from juvenile diabetes were physical fitness,

diabetic female had poorer quality of life compared to males and the difference is highly significant statistically. Patients residing in urban areas showed poorer functional status in the physical domain. This may due to this study was conducted in an urban area.

In relation to the psychological aspect, this domain revealed to effecting of juvenile diabetes on psychological QOL. Children having juvenile diabetes were asked (8) questions related to psychological complaints. Finding of this study revealed that less than half of them felt that their psychological compliance was average and less than half felt that psychological aspect was poor. This could be due to age and level of knowledge about diabetes and personal differentiation. The finding in agreement with finding of *Mounir & Abolfotouh (2005)* who mentioned that there was worse psychological adjustment. It was also, in agreement with the study done by *Moussa et al. (2005)* who reported higher prevalence of psychiatric disorders in younger with type1 diabetes. This may be because diabetes requires the patient to take responsibility of managing their health with daily injections, careful monitoring of diet and exercise and blood glucose levels for the rest of their lives.

The present study also illustrated that there was a highly statistically significant

difference between age, gender, and residence regarding to psychological aspect of quality of life the finding is in agreement with finding of **(Hokenberry et al., 2010)** who mentioned that there was appositive relation between age and psychological aspect and **(LiddleOrchard, 2009)** who stated that better quality of life associated with children male than female.

Concerning the social domain of quality of life, this domain revealed to effecting of juvenile diabetes on social activity of the child. Children having juvenile diabetes were asked (9) questions related to social aspect. Finding of this study revealed that more than half of them felt that their social compliance was good and more than third felt that average on effect of diabetes on social aspect. The finding in agreement with finding of *Mounir Abolfotouh (2005)* who reported as regards social relationships, the majority of the sample had very Good relationship to their parents and siblings, diabetes had little effect on most people's social life. This could be due to this study conducted on children.(Figure 2).

The finding of the present study revealed that, there is statistically significant relation between children's socio-demographic characteristics and social quality of life this finding in accordance to finding of *(Delamater et al., (2009)*the better quality of life is associated with higher level of social support.

The finding of the present study revealed that less than half of children suffering from juvenile diabetes were average in impact of diabetes on school and lives activities and more than third of them were poor in impact of diabetes on school and live activates. Also present study revealed that statistically significant relation between age, and residence and school &daily activities. This finding in accordance to finding of the study conducted by *Mounir and Abolfotouh(2005)*who was done in Sporting

Student's Hospital is affiliated to the health insurance organization, where the students of Alexandria and west Delta can be hospitalized, in addition to the specialized clinics for outpatient care, total sample was 150 diabetic students revealed that about one-third of all diabetic children were maladjusted to school. It has been suggested that academic problems in children with diabetes are result of psychosocial problems such as increased school absences. Also may due to wasting time in medical consultation.

As regards impact of diabetes on nutrition were asked (6) questions related to nutrition. it was found that slightly less than half of children suffering from juvenile diabetes were poor impact of diabetes on nutrition and did not follow a diet regime, also the study revealed that slightly more than third were average impact of diabetes on nutrition. Also study revealed that significant relation between age &mother's education and nutrition. This finding is in accordance with *Nansel et al., (2012)*who reported diet is a cornerstone of type 1 Diabetes treatment, and poor diet quality may affect glycemic control and other health outcomes. Yet diet quality in children and adolescents with type 1 diabetes remains understudied. This may due to culture and bad diet habits.

It was reported from this study that the majority of children suffering from juvenile diabetes had average level in total quality of life while less than half had poor quality of life The finding was to some extent agree with finding of *Sabri et al. (2014)* who found that children with diabetes have lower quality of life than healthy children in the physical, emotional, and social domains. In accordance, *Elaziz et al. (2014)* this study conducted in outpatient clinics in Kafr Elzayat General Hospital on 150 children's suffering from juvenile diabetes. Who found Poor QOL of diabetic patients attending Kafr Elzayat General Hospital and this reflects poor health care services. In addition to *Mohamed,A (2012)*who found that children

with type 1 diabetes mellitus leads to poor quality of life among patients due to disease itself, its complications and its lifelong treatment.

The present study revealed that there were a significant statistical difference between total quality of life of diabetic children and their gender, residence, and mother education this finding is in agreement with the result of *(Liddle &Orchard, 2009)* who mentioned that better QOL associated with male gender in children.

there was statistically significant relationship between total quality of life in children's and their knowledge about disease this finding is in agreement with *(Mahmoud et al,2013)* The study revealed that there was a statistical significant relation between total quality of life domains and the total knowledge about disease .Also these finding in agreement with*(Abd-El-Aziz.,2007)*those reported that ,there were significant relation between total knowledge and total quality of life of children suffering from juvenile diabetes.

Conclusion

As regard the research question of the present study, it was concluded that

The Factors affecting QOL of children suffering from juvenile diabetes is medical, economical, psychological, and social factors were the main factors affective quality of life, Regarding level of quality of life of children suffering from juvenile diabetes It was reported from this study that the majority of children suffering from juvenile diabetes had average level in quality of life while less than quarter had poor quality of life

Recommendations:

The following recommendations were inferred from the study:

-Continuous assessment for diabetic children's knowledge about diabetes mellitus and its control, change misconception, provide them with updated knowledge and

develop their abilities for demonstration of therapeutic regimen to achieve high quality of life.

- Motivate diabetic children and their families to participate actively in diabetes management and integrate the components of diabetic management into their lifestyle.

-Integrate the concept of quality of life in management plan of children suffering from juvenile diabetes.

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