

Assessment Self Care Practice among Diabetic Children

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Abstract

Background: Diabetes is one of the most common chronic diseases of childhood. Inadequate diabetic self practice has an impact on the diabetic children's morbidity and mortality. **Aim of the study:** Assess self care practice among diabetic children. **Research design:** A descriptive research design was used in the study. **Settings:** The present study was carried out at pediatric outpatient unit affiliated to Suez Canal University Hospitals and Health Insurance Hospital at Ismailia city. **Sample:** Purposive sample of (60) diabetic children at the previously mentioned settings. **Tools for data collection:** The data were collected using two tools namely structured interview questionnaire and observational checklists to assess diabetic children self care practices. **Results:** The total mean score of satisfactory knowledge of diabetic children was 42.7% and the total mean score of satisfactory self care practice of diabetic children was 33.1% ($\bar{X} \pm SD$ 19.18±11.96) **Conclusion:** The level of diabetic children' self care practice was unsatisfactory **Recommendations:** Periodically assessment of factors affecting self care practices for diabetic children.

Keywords: Diabetic children, Nursing, Self care practice.

Introduction

Children are exposed to several diseases either acute or chronic which can alter their quality of life. Diabetes is one of the most common chronic diseases of childhood after asthma and mental retardation and it is a major disease that is becoming more prevalent. Around 80% of the world's diabetic population lives in developing countries (Mourao et al., 2021).

Diabetes is a silent disease; where many diabetic children become aware that they have diabetes only when they develop one of its life threatening complications. Knowledge of diabetes mellitus can assist in early detection of the disease and reduce the incidence of complications. Levels of knowledge about diabetes among the at risk children and those who suffer from the disease are unknown, but more knowledge is

associated with better outcomes. The main treatment goal for children with diabetes is to prevent or minimize the acute or chronic complications and to reduce serious morbidity and mortality by following the self care practice (**Hussein et al., 2018**).

Diabetes mellitus was classified to type1 and type2 diabetes. Type1 Diabetes Mellitus (T1DM) is the most common endocrine metabolic disease encountered in the pediatric age group. According to the International Diabetes Federation (IDF), more than half a million children are estimated to have T1DM and around 86.000 developed the disease worldwide in 2015 (**IDF, 2019**).

In Eastern Mediterranean and Middle Eastern countries, the largest contribution to the total number of childhood T1DM comes from Egypt, accounting for about a quarter of the region's total. The incidence varies between 1/100 000 per year (Pakistan) and 8/100 000 per year (Egypt) in children under the age of 15 years (**Attia and Hassan, 2017**).

Diabetes is requiring a multipronged approach for its management, where in the child has an important role to play. Children with new onset T1DM and their families require intensive diabetes education to

provide them with the necessary skills and knowledge to manage this disease. The children are required to follow certain self care practices in order to achieve an optimal glycemic control and prevent complications such as neuropathy, nephropathy, and retinopathy (**Hussein et al., 2018**).

The pediatric nurse helps the diabetic children to improve their self care practices that include insulin administration, regular physical activity, appropriate dietary regimen, daily foot care, sick days management, prevention of diabetic ketoacidosis and compliance with treatment (**Chiang et al., 2018**).

Significance of the study

Prevalence of T1DM in Egypt is among the highest in the Middle East and North Africa countries with 7.8 million people known to have diabetes mellitus; based on statistics the tendencies of increasing prevalence rates of T1DM all over the world especially in developing countries and in Egypt in particular. Thus the diabetic children self care practices play an important role in decreasing diabetic complications. Therefore, the current study will be carried out to assess self care practice among

diabetic children.

The aim of the study

This study aimed to assess self care practice among diabetic children.

Research questions

- 1- Is the level of diabetic children' knowledge satisfactory?
- 2- Is the level of diabetic children' self care practice satisfactory?

Subject and Methods

Study design

A descriptive design was used in the study.

Study setting

The present study was carried out at Pediatric outpatient unit affiliated to Suez Canal University Hospitals and Health Insurance Hospital affiliated to Ministry of Health at Ismailia city.

Study subjects

Purposive sample of 60 of diabetic children were enrolled in the study according to the following inclusion criteria: children aged 6–12 years old diagnosed with diabetes mellitus coming to the outpatient clinics with their mothers. The exclusion criteria: children

were having another endocrinal disorder.

Tool of data collection

Tool I: A structured interview questionnaire, this tool was designed by the researcher after reviewing the related literature to assess children's knowledge regarding diabetes mellitus and diabetes self care practices. It was divided into three parts:

Part 1: Concerned with characteristics of the studied children and their parents.

Part 2: Children's knowledge regarding diabetes mellitus.

Part 3: Children's knowledge regarding diabetes self care practices that divided into:

- 1- Insulin(...) (types, indications, preparation and injection, storage, frequency and sites of injection).
- 2- Diet(...) (healthy diet, food pyramid, amount of food, hypoglycemia).
- 3- Exercise(...) (types, precautions and hypoglycemia).
- 4- Hygiene(...) (eye care, teeth care, foot care, bathing and wound care).
- 5- Checkup(...) (importance and schedule).

Scoring System

The total number of questions that assessed the studied children's knowledge was (29) (**Tool I**). The correct answer was given one score and incorrect answer or don't know were given zero. The scores were summed up and converted into percent score. According to **Attia and Hassan, (2017)** knowledge was considered to be satisfactory if the studied children's knowledge total scores percent was $\geq 60\%$ or unsatisfactory if the studied children's total scores of knowledge percent was $< 60\%$.

Tool II: Observational checklists: These checklists were adapted from **Greenberg, (2016)** and **Hockenberry and Wilson, (2014)**. The checklists used by the researcher to assess children's self care practice regarding: self insulin preparation and injection by syringe (24 items), insulin self preparation and injection by pen (12 items), self blood glucose monitoring using glucometer (19 items), self urine monitoring for glucose (10 items) and hygienic care (17 items).

Scoring System:

The possible choice for each item

was done and not done. Each child was given one score for step done correctly and zero for that was not done or done incorrectly. According to **Attia and Hassan, (2017)** the total score of children's self care practices were classified into satisfactory if score was 60% and more, while a score below 60% was considered unsatisfactory.

Validity of the study tools

The study tools were tested for its face and content validity, comprehensiveness and applicability. Also, determine whether the included items were comprehensive, understandable, applicable, clear and suitable to achieve the aim of the study by 5 expertises from the Pediatric and Medical Surgical Departments at Faculty of Nursing Suez Canal University and Pediatric Department at Faculty of Medicine in Suez Canal University.

Reliability of the study tools

It was done using Cronbach's alpha coefficient test to assess the internal consistency of the tools and its value was (**0.72**) for knowledge items (structured interview questionnaire), (**0.89**) for self care practices items (observational checklists).

Pilot study

A pilot study was carried out after the development of the study tools before starting the data collection, including 10% of the sample size (6 children). It was carried out to check the validity, clarity and applicability of the study tools. The pilot study subjects were excluded from the study sample.

Field work

The study was carried out over five months during the period from the first of February 2019 to the end of June 2019. The study tools were filled by each study subject using the previously mentioned study tools.. The researcher was available 2 days/week from 9 am to 12 pm (modified according to the children and their mothers' readiness and time).

Ethical considerations

Oral approval, were obtained from the studied children and their mothers prior to participation in the study. Also, each child was familiar with the importance of his/her participation and they had the right to withdraw from the study at any time. Ensuring the confidentiality of the information collected and anonymity was guaranteed.

Data analysis

The collected data was coded, tabulated and analyzed using Statistical Package for the Social Sciences (SPSS version 20). The suitable statistical tests were used according to the type of data. Correlations were used to test relationships between different variables. *P* value was set at <0.05 for significant results.

The following statistical techniques were used:

- Percentage
- Mean score degree (\bar{X})
- Standard deviation (SD)
- Proportion probability of error (*P*-value)

Results

Table (1) shows that, 73.3% of the studied children's age was from $10 \leq 12$ years. Also, 50% of the studied children were males and 50% were females. More than half (55%) of the studied children had the first ranking. More than half (55%) of the studied children had duration of illness from 3 to less than 6years.

Table (2) reveals that, less than one third (31.7%) of the studied children's parents were

secondary level education. More than two thirds (70%) of parents were having free business.

Table (3) reveals that, the total mean score of satisfactory knowledge was 12.37 ± 2.62 with average percent 42.7. The children's knowledge regarding diabetes mellitus got the highest mean score 5.35 followed by children's knowledge regarding hygiene 2.65.

Figure (1) shows that, the total satisfactory knowledge was 5% while total unsatisfactory knowledge was 95%.

Table (4) reveals that, the total mean score of satisfactory self care practice was 19.18 ± 11.96 with average percent 33.1. The children's practice regarding blood glucose monitoring got the highest mean score 8.03 followed by hygienic care and 6.18.

Figure (2) shows that, the total satisfactory level of self care practice was 11.7% while total unsatisfactory level of self care practice was 88.3%

Discussion

The diabetic children must follow certain self care practices to achieve optimal glycemic control and prevent complications. Self care practices are activities that children

can conduct by themselves or with the help of their parents if their capacities do not allow them to conduct them alone. So, the diabetic child needs to re regulate nutrition, treatment and physical activity using drug and blood glucose monitoring to evaluate the outcome of self care practices. The children with diabetes must learn how to evaluate themselves, decide what actions need to be taken to achieve their needs and perform those actions (**Brorsson et al., 2015**).

The results of the present study **table (1)**, illustrated that most of the studied children were in the age group from ten to twelve years old, these study results were emphasized by **Awad et al. (2019)**, whom carried out a study about " Effect of an Intervention Program on Improving Knowledge and Self-Care Practices for Diabetic School-age Children" which illuminated that the age median of the studied children was 10.5 years.

Also, the study results were in an accordance with a study done by **Franklin et al. (2014)**, whom carried out a study about "Real Time Support of Pediatric Diabetes Self care by a Transport Team", which illuminated that diabetic children's means age was 11.1 years.

Regarding diabetic children's gender, the study results clarified that half of the studied children were males and the rest were females. These results were in an agreement with a study done by **Ali et al. (2014)**, which entitled "Evaluation Self Care Practices of Children with Type 1 Diabetes Mellitus in Northern West Bank: A Controlled Randomized Study Utilizing Orem Self Care Theory" found that nearly half of the studied were females and the rest of them were males.

Regarding diabetic children's ranking, the study results clarified that more than half of the studied children had the first ranking. The results were in disagreement with a study held by **Awad et al. (2019)**, who found that most of the studied children were second born and more.

Regarding diabetic children's duration of illness, the study results clarified that more than half of the studied children had duration of illness from three to less than six years. These results were in some degree of agreement with **Kafil and El Sayed, (2020)** a study entitled "Self care Management of Children with Type 1 Diabetes Mellitus: Effect of an Educational Training Program" who found that more than half of the studied

children had duration of illness from less than five years old. These results could be explained in the light of the study done by **El-Ziny et al. (2014)**, which entitled "Epidemiology of Childhood Type 1 Diabetes Mellitus in Nile Delta, Northern Egypt - A Retrospective Study" whom confirmed that, the studied children had short duration of illness.

Concerning parents' education **table (2)**, the present study findings illustrated that, more than one third of the studied children's parents were secondary level education. These results were consistent with a study done by **Attia and Hassan, (2017)** who carried out a study about "Effect of Instructions on Selected Self care Practices among Type 1 Diabetic Children" which revealed that more than two thirds of the studied children's parents were educated.

Furthermore, these results agreed with **Awad et al. (2019)**, who revealed that more than half of the studied children's parents were intermediate education. These results could be interpreted in the light of fact that most of the study sample parents were from urban area where they had been educated.

Concerning parents' work the study

results noted that more than two thirds of parents were having free business, these results were in correspondence with **Awad et al. (2019)**, which revealed that the majority of the studied children mothers were housewives.

As regards total mean score of the studied children's satisfactory knowledge **table (3)** the study results showed that the total mean score of satisfactory knowledge was 12.37 ± 2.62 among two thirds of diabetic children. These results were in some degree of agreement with **Ali et al. (2014)**, who stated that the mean score of the diabetic knowledge was 1.619.

Concerning total satisfactory knowledge, **figure (1)** showed that the minority of diabetic children had satisfactory knowledge. These results were in correspondence with **Kafl and El Sayed, (2020)** that revealed the total satisfactory level of knowledge was twenty percent. Furthermore, these results were in an agreement with **Awad et al. (2019)**, whom found that, ten percent of the studied children had satisfactory knowledge regarding their disease.

As regards total mean score of the studied children satisfactory self care practice

table (4), the study results showed that the total mean score of satisfactory self care practice was 19.18 ± 11.96 among one third of diabetic children. These results were in some degree of agreement with **Ali et al. (2014)**, who stated that the mean score of the diabetic self care practice was 2.73.

Concerning total satisfactory level of self care practice, **figure (2)** showed that the total satisfactory self care practice nearly eleven percent of diabetic children was satisfactory. These results were in correspondence with **Kafl and El Sayed, (2020)** that revealed the total satisfactory level of self care management was twenty four percent.

These findings could be explained due to the majority of the children expressed their needs for training courses regarding diabetes self care practices to improve their information and practical skills because they not have enough information about diabetes self care practice before.

Conclusion

The level of diabetic children' self care practice was unsatisfactory.

Recommendations

- 1- Periodically assessment of factors affecting self care practices for diabetic children.
- 2- Empower self care practices of diabetic children according to their actual needs.

- 3- Replicate the current study involving larger sample size for better generalization of the study findings.

Table (1): Percentage distribution of the studied children according to their characteristics (n = 60)

Children's characteristics	No.	%
Age in years		
6: < 8	5	8.3
8: < 10	11	18.3
10: ≤ 12	44	73.3
Gender		
Male	30	50.0
Female	30	50.0
Ranking		
First	33	55.0
Second and more	27	45.0
Duration of the illness / (years)		
< 1	13	21.7
1:<3	3	5.0
3:<6	33	55.0
≥6	11	18.3

Table (2): Percentage distribution of the studied children’s parents according to their characteristics (n = 60)

Parents' characteristics	Father (%)	Mother (%)
Educational level		
Illiterate	11	25.0
Primary	4	3.3
Preparatory	6	21.7
Secondary	22	31.7
University	17	18.3
Working as		
Employee	35	30

Free business	65	70
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Table (3): Total mean scores of the studied children satisfactory knowledge regarding diabetes self care practice (n= 60)

Items	$\bar{X} \pm SD$	Average percent (%)
Total children's knowledge regarding diabetes mellitus	5.35±1.75	53.5%
Total children's knowledge regarding diabetes self care practices		
Insulin	2.37±1.02	39.5%
Diet	.62±.61	20.6%
Hygiene	2.65±1.05	53%
Exercise	.72±.80	24%
Checkup	.67±.57	33.5%
Total knowledge	12.37±2.62	42.7%

Figure (1): Percentage distribution of the studied children's total satisfactory knowledge regarding diabetes self care practice (n= 60)

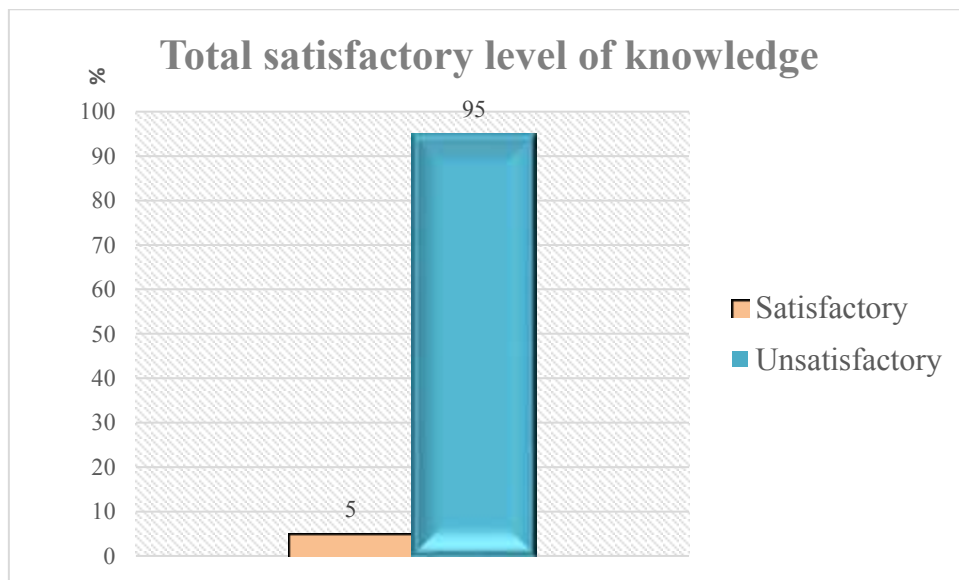


Table (4): Total mean scores of the studied children satisfactory self care practice regarding diabetes self care practice (n= 60)

Items	Total sample (60) $\bar{X} \pm SD$	Average percent (%)
Insulin self preparation and injection	2.07±1.64	17.3%
Blood glucose monitoring	8.03±3.04	42.3%
Self urine monitoring for glucose	2.90±1.96	29%
Hygienic care	6.18±9.44	36.4%
Total Practices	19.18±11.96	33.1%

Figure (2): Percentage distribution of the studied children's total satisfactory self care practices (n= 60)



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