Self-Care Practices of Secondary School Students with Type 1 Diabetes Mellitus

Mohanad Mohammed Ali Alnasrawi, Msc*   Murtadha Kanim Adea Aljebory**

ABSTRACT

Background: Diabetes in adolescence is a global public health issue that is getting more and more attention. It is a long-term metabolic condition defined by a partial or total lack of the hormone insulin. The key to effective control of diabetes is adherence to the complicated collection of chores that go into diabetic self-care practices. The adolescents spend (5-6) hours in school and during this time they are outside of parental care, so we need to monitor self-care practices of students with T1D.

Aim: The aim of the study was to assess self-care practices among diabetic secondary school' students.

Methods: A descriptive (cross sectional) research design was used in this study. Sample size consist of (200) secondary school students. A non-probability (purposive) technique was used to collect data. Developed interview instrument was used in collect data. Data was gained in the al najaf center for diabetic and endocrine.

Results: 64% of the studied diabetic secondary school students have moderate total self-care practices score while (33.50 %) of them have (low) level of Self-Care practice; finally (2.50%) of them have (high) level of Self-Care practices.

Conclusion: The results of the present study concluded that the highest percentage of the studied diabetic secondary school students have either moderate or low self-care practices. the highest percentage of the studied diabetic secondary school students have either moderate or low self-care practices in all parts of T1D self-care practices.

Keywords: Self-care, Practice, School students

INTRODUCTION

Adolescence is a developmental period in which a series of complex and interrelated developmental tasks are mastered, so it is a critical period of a person's life which brings many changes physically, emotionally, psychologically, or socially that shape one's personality throughout his life. The school age children experience time of slow progressive physical growth, while their social and developmental growth accelerates and increases in complexity. The focus of their world expands from family to teachers, peers, and other outside influences[1]. Type 1 diabetes mellitus (T1DM) is a chronic autoimmune disease characterized by increased blood glucose levels (hyperglycemia), which are due to the insulin deficiency that occurs as the consequence of the loss of the pancreatic islet β-cell[2]. The causes of this destructive process are not fully understood but a likely explanation is that the combination of genetic susceptibility (conferred by a large number of genes) and an environmental trigger, such as a viral infection, initiate the autoimmune reaction. Toxins or some dietary factors have also been implicated[3]. According to the International Diabetes Federation , the number of children aged 0 to 14 years with T1DM was 542, 000 worldwide[4]. In Iraq, there's lack of information concerning prevalence of T1DM among adolescents; since the latest prevalence of diabetes is 12% of the population[5]. Self-care practices are crucial for controlling blood glucose level. Studies propose that the maximum amount as 95% of the self-care is typically provided by the patient or their families.

Diabetes self-care practices in children and young adults were terribly compliant with taking medication however were solely moderately compliant to diet and self-glucose observance and least compliant to exercise[6]. Patients who have sufficient self-management have healthier outcomes, live longer, appreciate a good quality of life and feel pain of fewer symptoms[7]. Inequitable diabetes self-management continues to be a major problem for people and healthcare professionals in all situations. It affects the patient's morbidity and mortality as well as the expense of medicine and laboratory testing as well as the time and effort required of the caregivers[8].

METHODOLOGY

A descriptive Cross-Sectional Design used in the current study to achieve the study objectives. The study started from September 19th, 2022 until June 15th, 2023. The study is conducted at Al-Najaf City/Al-Najaf Al-Ashraf Health Directorate - Al-Sadder Medical City (Najaf Canter for Diabetes and Endocrine). A Non-Probability (Purposive Sample) of (200) secondary school students with type I Diabetes Mellitus, those who visit Al-Sadder Medical City / Al-Najaf Canter for Diabetes and Endocrine, are included in the study sample. An assessment tool is adopted and developed by the researcher to assess self-care practices of secondary school students with type 1 diabetes mellitus. The complete instrument of the study consists of (3) parts:

---

*   Community Health Nursing
        Faculty of Nursing, University of Kufa, Iraq.
        E-mail: mohanadmohammed251@gmail.com
**   Professor
        Community Health Nursing in Nursing Department
        University of Warith Al-Anbiyaa, Karbala, Iraq.

the first part (sociodemographic data) consists of (11) items, which included age, gender, number of classes, monthly income, residency, Number of family members, his/r number between children, Father age, father education, mother age, mother education. The second part (clinical data) consists of (7) items, including duration of disease since diagnosis, attendance of training classes about diabetes, chronic disease, Family history of diabetes, attending to diabetes doctors, type of insulin used, and instructions from doctor. The third part(self-care practices scale) consist of five domains , including insulin administration, which measures through (7) items, reflects evidence that those patients follow administration of insulin that help them to maintain the management of their diabetes, blood glucose monitoring, which consist of (7) questions that clarify adherence patient's about monitor blood glucose level to continue management, diet, This assesses through (5) items, provides evidence that those individuals practice eating habits that support their ongoing diabetes control, exercise, composed of (5) questions measuring physical activity and other activities linked to physical fitness, and follow up with doctor, which measures by (2) questions .

The rating and scoring of items are according to three points likert scales are applied for rating students' self-care practices items as always (daily), sometimes (weekly), and never (monthly or more). The three points type Likert scale are scored as (3) for always, (2) for sometimes, and (1) for never.

ETHICAL CONSIDERATIONS

This is one of the most basic principles before gathering the data, to keep the patient's values and self-respect. The researcher achieved this agreement from the Ethical committee at the faculty of medicine / University of Kufa. The researcher promised to keep the patient's information confidential and use this data for the purpose of study only then she explained the purpose of this study to each participant without affecting the routine visiting and care. In addition, the researcher told each participant that this is a voluntary work, and they can leave any time even when the interview process is not completed.

RESULTS

Table 1: The Socio-demographic characteristic of the Secondary School Students with Type 1 Diabetes Mellitus (n=200)

Socio-demographic Data		Freq.	%
Age groups (Years)	<= 13	40	20
	14 – 16	105	52.5
	17 and More	55	27.5
	Mean ± SD	15.3 ± 1.97	
Gender	Male	83	41.5
	Females	117	58.5
Residence	Urban	114	57
	Rural	86	43
Stage of class	1	32	16
	2	34	17
	3	70	35
	4	27	13.5
	5	22	11
	6	15	7.5
Number of family members	<= 5	59	29.5
	6 – 8	130	65
	9 and More	11	5.5
	Mean ± SD	6.02 ± 1.49	

Your number between children	<= 2	152	76
	3 – 4	39	19.5
	5 and More	9	4.5
	Mean ± SD	2.12 ± 1.07	
Monthly income	Sufficient	47	23.5
	Semi sufficient	73	36.5
	Insufficient	80	40
Total		200	100%

Table 1 display the statistical distribution of the study sample by their socio-demographic data, it states that the highest percentage of the students' subgroup are: students with ages between (14-16) years old (52.5 %), females students (58.5%), those living in urban areas (57%), those who are third Stage of class (35%), those living with their families members between (6-8) members (65 %), and their number between children equal or less than 2 (76%) and those with insufficient monthly income (40%).

Table 2: The Mean of scores for assessment of self-care practices among the students (n=200)

Overall Items		Freq.	%	MS	Assess.
Self-Care practice	Low	67	33.50		
	Moderate	128	64.00	1.85	Moderate
	High	5	2.50		

MS: Mean of Scores; Low: MS =<1.66; Moderate: MS = 1.67-2.33; high: MS ≥ 2.34.

Table 2 provides the descriptive statistics of student's subgroups according to their Self-Care practice assessment. They reveals that the majority of students have (moderate) level of Self-Care practice (64.32%); while (33.17 %) of them have (low) level of Self-Care practice; finally (2.51%) of them have (high) level of Self-Care practice (see figures 4.1).

Table 3: The differences between Self Care practices overall scores and students' demographic

Demographic data		Mean	SD	F Test (df)	P-value
Age groups (Years)	<= 13	1.80b	0.27	6.771 (2)	0.034
	14 – 16	1.89ab	0.27		
	17 and More	1.80a	0.24		
Gender	Male	1.81	0.28	3.199 (1)	0.074
	Females	1.88	0.25		
Residence	Urban	1.86	0.26	1.017 (1)	0.313
	Rural	1.83	0.27		
Stage of class	1	1.83 a	0.30	25.494 (5)	<0.0001
	2	1.77 b	0.28		
	3	1.96 abcd	0.21		
	4	1.73 c	0.28		
	5	1.86	0.22		
	6	1.74 d	0.22		
Number of family members	<= 5	1.82	0.26	5.820 (2)	0.054
	6 – 8	1.87	0.26		
	9 and More	1.73	0.26		
Your number between children	<= 2	1.87	0.26	3.439 (2)	0.179
	3 – 4	1.79	0.28		
	5 and More	1.78	0.26		

Monthly income	Sufficient	1.85	0.27		
	Semi sufficient	1.88	0.28	1.591 (2)	0.451
	Insufficient	1.82	0.24		

Note: only similar letters were statistically different

Table (3) there is a significant relationship between overall assessment of Self Care practices and the following demographic data: Age, and Stage of class, while other data were statistically not significant.
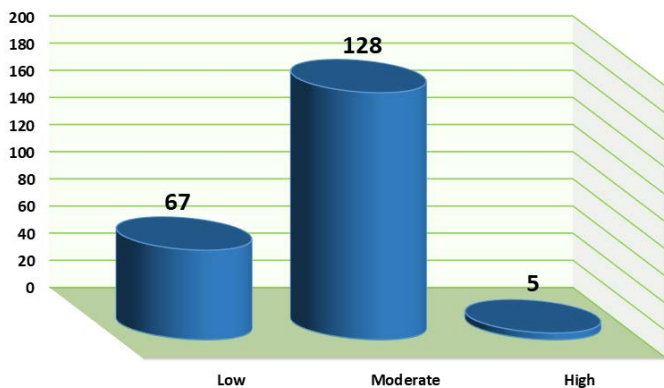

Figure 1: Descriptive statistics of student's subgroups according to their Self Care practice assessment

DISCUSSION

Self-care is essential for reducing the physical and psychological effects of diabetes, especially in developing children. They should be encouraged to develop their ability for self-care and autonomy. In order to improve glycemic control and avoid or even slow the development of diabetes complications, need-based self-care education is crucial[4]

Our study indicated that most of the studied diabetic secondary school students had moderate (64%) and low (33.50%) total self-care practices whereas (2.50 %) of them had good self- care practices. This can be ought to the young age of the sample studied 52.5%, who were between the ages of 14 and 16 years , were early adolescence period stage, making them vulnerable to peer pressure and external influences on their health habits during this formative time of adolescence.

There are more than three studies represents for the same findings and give the power for this results. The first study conducted by[9] that indicated most of the diabetic students studies (53.3%) had poor self-care practices while (29.7%) of them had poor self-care practices, and (17%) had good self-care practices . The second study conducted by[10] they represents that the most of Chinese children with diabetes had poor self-care practices. The third study conducted by[11] they found inadequate diabetes self-care practices among the Australian diabetic adolescence they studied.

CONCLUSION

The results of the present study concluded that the highest percentage of the studied diabetic secondary school students have either moderate or low self-care practices in all aspects of T1D self-care practices; insulin administration, blood glucose monitoring, diet, exercise, and follow up. There is a significant relationship between overall assessment of Self Care practices and the following demographic data: Age, and Stage of class, while other data were statistically not significant.

Authorship Contribution: All authors share equal effort contribution towards (1) substantial contributions to conception and design, acquisition, analysis and interpretation of data; (2) drafting the article and revising it critically for important intellectual content; and (3) final approval of the manuscript version to be published. Yes.

RECOMMENDATIONS

- A precise surveillance system and documentation of diabetic students' names, ages, academic years, and addresses in their affiliated health insurance records should be put up to be easily accessible for any researcher to produce a body of knowledge to help them improve their self-care techniques.
- In order to assess the scope of the issue, regular national estimations of the prevalence of diabetes among youngsters are essential. It is important to offer correct information regarding juvenile diabetes in the media, including its typical symptoms, risk factors, short- and long-term problems, and therapeutic care.
- An educational program must be designed and applied on the students in the school or in Al-Najaf center of diabetes and endocrine to enhance self-care practices type 1 diabetes mellitus of this students.

Potential Conflicts of Interest: None

Competing Interest: None

Acceptance Date: 09-08-2023

REFERENCES

1. Hockenberry MJDW. Wong's Essentials of Pediatric Nursing. 2017;tenth. Available from: https://www.ptonline.com/articles/how-to-get-better-mfi-results
2. Ahmed K, Saleem S, Tofeeq R. Physical Problems among Children and Adolescents Complain of Diabetes Type I in Erbil City. Kufa J Nurs Sci 2017 ;6(3):36-46.
3. Webber S. International Diabetes Federation. Diabetes Res Clin Pract 2021. 147-8 .
4. Atlas IDFD. International Diabetes Federation. Vol. 266, The Lancet 2019. 134-7.
5. Hussain AA, Naser KM, Ali DKA. Quality of Life among Adolescents with Type I Diabetes Mellitus at AL-Najaf Center for Diabetes and Endocrine. Kufa J Nurs Sc 2018;8(1):1-9.
6. Karimi F, Abedini S, Mohseni S. Self-care behavior of type 2 diabetes mellitus patients in Bandar Abbas in 2015. Electron Physician 2017;9(11):5863-7.
7. Jacobsen LM, Haller MJ, Schatz DA. Understanding Pre-Type 1 Diabetes: The Key to Prevention. Front Endocrinol 2018;9.
8. Wang Y, Desai M, Ryan PB, et al. Incidence of diabetic ketoacidosis among patients with type 2 diabetes mellitus treated with SGLT2 inhibitors and other antihyperglycemic agents. Diabetes Res Clin Pract 2017;128:83-90.
9. Kamel Abduallah Hussein N, Hamdi Sayed Ramadan S, Yuosef Abd ElWahed A. Self-Care Practices of Preparatory School Students with Type 1 Diabetes Mellitus in ELBehira Governorate. Am J Nurs Res 2018;6(7):407-17.
10. Lin K, Yang X, Yin G, et al. Diabetes Self-Care Activities and Health-Related Quality-of-Life of individuals with Type 1 Diabetes Mellitus in Shantou, China. J Int Med Res 2016;44(1):147-56.
11. Hackworth NJ, Hamilton VE, Moore SM, et al. Predictors of Diabetes Self-care, Metabolic Control, and Mental Health in Youth with Type 1 Diabetes. Aust Psychol 2013;48(5):360-9.