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ORIGINAL ARTICLE

Assessment of Diabetes-Specific Routine for Adolescents with Type 1 Diabetes Mellitus

REYAM ABASS YASIR[1], AFIFA RIDA AZIZ[2]
[1]MSc, Department of Pediatric Nursing, College of Nursing, University of Baghdad
[2]Professor Doctor at College of Nursing, University of Baghdad, Baghdad, Iraq.
Correspondence to: Reyam Abass Yasir, Email: rayam.abbas1204a@conursing.uobaghdad.edu.iq

ABSTRACT

Aims: to assess diabetes-specific routine for Adolescents with Type 1 Diabetes Mellitus and to find out the relationship between adolescents' diabetes-specific routine and their sociodemographic characteristics.

Methodology: descriptive cross-sectional study design was carried out for the Assessment of Diabetes-Specific Routine for Adolescents with Diabetes Mellitus Type 1 in Diabetes and Endocrinology Center at Al- Nasiriya City from January 9th, to March 23, 2022. The sample consist of (110) adolescents was selected and they were attending Diabetes and Endocrinology Center for treatment and follow-up. The information was gathered through the use of self-administered instruments which are the diabetes-specific routine scale.

Results: the adolescents expressed a moderate response regards specific diabetic routine of T1DM at all studied items of the scale except, the items number (1, 2, 3, 4, 16, 17, 18, 19, 20, 22, 23 and 24) the responses were poor as indicated by low mean scores, as well as, the items number (8, 9 and 14) the responses were good as indicated by higher mean scores.

Conclusion: (48.2%) of adolescents exhibited that they follow a routine on a moderate level and there is a significant difference between (diabetic-specific routines for adolescents with diabetes mellitus type 1) and some sociodemographic and clinical variables.

Keyword: adolescent, diabetes mellitus type 1, specific routine.

INTRODUCTION

diabetes mellitus Type 1 is currently considered the most frequent type of diabetes in children. It is presented that 85 percent of all cases are diagnosed in persons under the age of 20 around the world [(1)]. characterized by damage to pancreatic β-cells and complete insulin deficiency [(2)].

clinical catabolic symptoms suggestive of insulin deficiency such as polydipsia, polyuria, weight loss, and marked hyperglycemia that is nonresponsive to oral agents can be used to diagnose it [(3)]. The importance of the current study comes from the increased incidence and prevalence Type 1 diabetes affected 15 out of every 100,000 persons worldwide, 15 out of every 100,000 people in Asia, and 6.9 out of every 10,000 people in the United States [(4)].

In Iraq, the prevalence of type 1 diabetes mellitus was 159 per 100,000, similar to that in Saudi Arabia, lower than that in Kuwait, but higher than that in Turkey [(5)].

Diabetes mellitus is a complex, long-term illness that needs regular as well as many-sided risk-reduction efforts that go beyond glycemic control. Continuing patient self-management teaching and support are important to preventing acute complications and decreasing the risk of chronic complications [(6)].

As a result, managing T1D to avoid acute and chronic complications necessitates a rigorous routine that includes insulin administration blood glucose monitoring, regular exercise, and nutrition. The accomplishment of best T1D consequences (glycemic control, adherence, and quality of life) requires routine self-management of T1D. [(7)].

The increasing attention in the study of routines and their impact on juvenile long-term illness management, claims that children naturally take on routines and, as an outcome, can effectively transition to a daily, consistent treatment regimen for a chronic disease with their family's assistance and advice. Family rites mea to the expressed effect and symbolic meaning of particular acts carried out by the family unit, whilst family schedules(routine) mean the regularity of those actions. According to Keltner (1992), family routines were really connected with paternal reports of child health in general, that meaning the families who followed further routines had healthier children. Furthermore, researchers discovered that family rituals protected adolescents against anxiety symptoms in alcoholic homes [(8)].

To maintain the hardships of diabetes controlling, the patient with T1D needs the care and support of his or her family and the diabetes team, but the particular roles of the diabetic patient and their families in daily diabetes tasks vary quickly during the developmental period of a toddler, preschool, school-age, and adolescence [(9)].

METHODOLOGY

A descriptive cross-sectional study design The study was conducted in Al Nasiriya City (Diabetes and Endocrinology Center) in Thi-Qar governorate, Iraq on children from 12-18 years suffering from type 1 diabetes mellitus. The study started on **January 9th, to March 23, 2022**. Nonrandomized (purposive) study of (110) adolescents. The Study Instrument Based on the diabetes-specific routine scale, the questionnaire was adopted and developed to assess diabetes-specific routine for adolescents with diabetes mellitus type 1 from the perspectives of both adolescents and parents (Pierce et al.,2019). This consists of 24-items and is measured on 4-point (Never, Rarely, Sometimes, and Always). To identify the overall adolescent specific routine, the Mean for total score (Poor= 24-48; Moderate=48.1-72; Good=72.1-96). A Pilot study was done on 10 adolescent with diabetes mellitus recruited from Diabetes and Endocrinology Center at Al- Nasiriya City between **9th** to **12th of January,2022.** The sample of pilot study was excluded from the total sample. The reliability of study instruments was determined by using Alpha Cronbach test coefficient which revealed that r= (0.78).

SPSS version (20) and Microsoft Excel (2010) programs to statistically analyze the data collected from the study sample, find the relationships between the variables and obtain the research's final results based on a set of statistical tests.

RESULTS

Descriptive Statistic of Sample Characteristics:

Out of (110) adolescents who participated in this study their age <15 years old and constituted 59 (53.6%) as compared with those who are more than 15 years 51 (46.4%). In regards with adolescents gender, more than half of participants were male adolescents 61 (55.5%) as compared with those who are female 49 (44.5%). Adolescents education associated findings, most of students expressed intermediate school 37 (33.6%), followed by those who are primary school 26 (26.4%), followed by those who are not enrolled in the school 29 (26.4%) and those who are secondary school 18 (16.4%). Without family history and make 3 dose of insulin daily.

Table 1: Distribution of Adolescents by SDVs

SDVs	Classification	Freq.	%
Age/years	<15	59	53.6
	>15	51	46.4
	Total	110	100.0
Gender	Male	61	55.5
	Female	49	44.5
	Total	110	100.0
Adolescent education	Not enrolled in school	29	26.4
	Primary school	26	23.6
	Intermediate school	37	33.6
	Secondary school	18	16.4
	Total	110	100.0
Family history	Yes	78	70.9
	No	32	29.1
	Total	110	100.0
Insulin dose/daily	1 dose daily	0	0.0
	2 dose/daily	23	20.9
	3 dose/daily	87	79.1
	Total	110	100.0

Table 2: Overall Adolescents Report for Diabetes-Specific Routine

Routine for T1DM	Freq.	%	M ± SD
Poor Routine	38	34.5	55.58±13.62
Moderate Routine	53	48.2	
Good Routine	19	17.3	
Total	110	100.0	

M: Mean for total score, SD=Standard Deviation for total score

(Poor= 24-48; Moderate=48.1-72; Good=72.1-96)

According to the adolescents report of diabetic routine of type I DM, findings illustrated that the (48.2%) of adolescents exhibited that they follow a routine on a moderate level as described by moderate mean score (±SD) = 55.58 (±13.62).

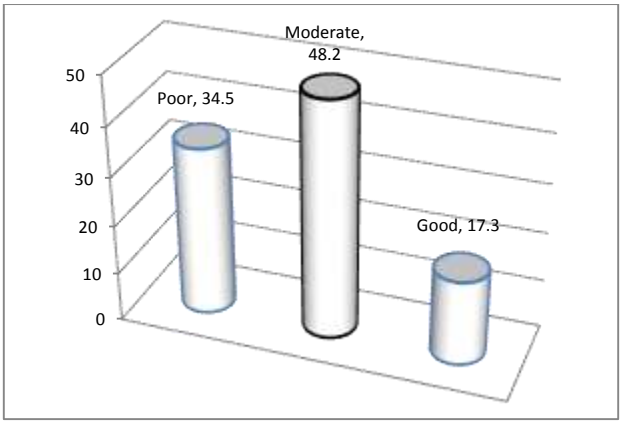

Figure 1: Overall Adolescents Report of Diabetes-Specific Routine

Table 3: Association between Adolescents Report of Specific Diabetic Routine of T1DM and their Characteristics (n=110)

Factors	Diabetic-specific Routine		
Adolescents Age	Pearson's r	.073	No-sig.
	Sig. (2-tailed)	.447	
Adolescents Gender	Spearman's rho	.108	No-sig.
	Sig. (2-tailed)	.263	
Adolescents Education	Spearman's rho	.233*	Positive-sig.
	Sig. (2-tailed)	.014	
Family history	Spearman's rho	.067	No-sig.
	Sig. (2-tailed)	.486	
Insulin dose/daily	Pearson's r	-.351**	Negative-sig.
	Sig. (2-tailed)	.000	

Findings exhibit there were no significant correlation between diabetic-specific routine for adolescents with type 1 diabetes mellitus with regards to age (p=0.378), gender (p=0.263), and family history (p=0.486); and there was a significant correlation (positive) between diabetic-specific routine for adolescents with type 1 diabetes mellitus and their education level (r=0.233; p=0.014). There was a negative correlation between diabetic-specific routine for adolescents with type 1 diabetes mellitus and their insulin doses daily (r=-0.351; p=0.000).

DISCUSSION

Regarding the demographic characteristics of Out of (110) adolescents who participated in this study their ages <15 years old and constituted 59 (53.6%) as compared with those who are more than 15 years 51 (46.4%) these results disagree with a study done in Iraq [10] in which study sample (44%_ of the patients at the age of (1-5) years. Also disagree with a study done in Turkey [11] in which the Median age was 14.0 years (9.0-18.0) for 200 patients. also, there is disagreement with a study done in the USA [12] mean age of 12.5 years.

In regards to adolescents' gender, more than half of the participants were male adolescents 61 (55.5%) as compared with those who are female 49 (44.5%). These results disagree with the study done in Iraq [13] 348 (55.50) were females also disagree with the study done at Saudi Arabia [14] which is revealed that More than half were females (53.4%), disagreement with the study done in Poland [15] that mention the female gender account for 60 (53.6%) of all study sample.

Regarding to adolescents education associated findings, most of students expressed intermediate school 37 (33.6%), followed by those who are primary school 26 (26.4%), followed by those who are not enrolled in the school 29 (26.4%), this finding come to an disagreement with study done in Iraq (16)which showing that 176 of study sample at preschool age , also disagree with study done at Saudi Arabia [17] More than 60% of the children were in the elementary school. There is no international study supported these finding.

In relation to family history 78 (70.9%) with positive family history this results supported by study done [18] total, 27.4% of native Swedes (201/733) and 45.7% of Iraqis (616/1348) had FH in siblings parents, or single parent and sibling, FH+. Approximately 8% of Iraqis and 0.7% of Swedes had ≥ 3 parent(s) and sibling(s) with diabetes,

Regarding to Insulin dose/daily which revealed that make 3 dose of insulin daily the majority of study sample with 3 dose/daily account fo 87 (79.1) this results disagree with [19] which mention that Most T1D patients should follow a routine of multiple daily basal insulin injections but those who don't meet their particular glycemic goals or those with common or severe hypoglycemia should consider constant subcutaneous infusion insulin .

Table 3 Findings exhibit there were no significant correlation between diabetic-specific routine for adolescents with type 1 diabetes mellitus with regards age (p=0.378), gender (p=0.263) and family history (p=0.486); and there were significant correlation (positive) between diabetic-specific routine for adolescents with type 1 diabetes mellitus and their education level (r=0.233; p=0.014). There was negative correlation between diabetic-specific routine for adolescents with type 1 diabetes mellitus and their insulin doses daily (r=-0.351; p=0.000). this results are agreeing with study [20] which revealed that 288 proxy and self-reports were collected from 144 children with T1D in three age groups: (49%) from 8 to 12 years, (7%) from 5 to 7 years, and (44%) from 13 to 18 and their parents. In the whole comprehensive and domain scores, there was a major difference in QOLbetween proxy reports and self. (P-values range from .02 to <.001). The effect on QoL was considerably greater in female patients (P = .043). Insulin pump customers had a better HbA1c level (P =.007), while those who planned to fast throughout Ramadan had a worse HbA1c level (P =.005).

In table 2 According to the adolescent's report of diabetic routine of type I DM, findings illustrated that the (48.2%) of adolescents exhibited that they follow a routine on a moderate level as described by moderate mean score (±SD) = 55.58 (±13.62). These results are agreeing with study [21] that revealed

according to American Diabetes Association Only 21 % of adolescents with type 1 diabetes (T1D) achieve glycemic aims. Adherence to treatment is a specific concern in this population, and the link among worsening glycemic control and poor adherence shows that there is improving adherence to treatment in adolescents with T1D is crucial.

CONCLUSION

Adolescents who participated in this study more than half were male and their age <15 years more than those who are >15 years constituted 53.6%. most of the students expressed intermediate school. According to an adolescent report of the diabetic routine of TIDM, about (48.2%) of adolescents follow a routine on a moderate level.

Recommendations: Educating children with the disease to accept it and deal with it as a daily routine. The Specialized Center for Diabetes and Endocrinology should be done lectures for diabetic patient about how to test ketones when high blood sugar, take insulin at school, the appraopriate diet when it is inside and outside the home, a lot of snacks between main meals and managing blood sugar to prevent low blood sugar. Using the media and TV to educate the general public about diabetic-specific routines for adolescents with type 1 diabetes in order to prevent complications from the disease. Distributing booklets and pamphlets about diabetes information for those who visit Diabetes and Endocrinology Center in Al- Nasiriya City or any health center giving care to those patients. More studies can be done for large sample.

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