Mother's Diabetes Knowledge Related to Student with Type 1 Diabetes Mellitus

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Abstract:

Background: Globally there is an increase of Type 1 diabetes among student. Poorly controlled Type1 diabetes is associated with the complication. Knowledge is a crucial factor in maintaining glycaemic control and adherence to treatment. However, poor glycaemic control, insufficient treatment adherence and severe psychological adjustment to disease could result from inaccurate or lack of knowledge about diabetes risk.

The aim of this study is to assess mother's diabetes knowledge related to student with Type 1 diabetes mellitus.

Methodology: Research design: Descriptive cross-sectional design was adopted in the present study.

Setting: the present study was conducted at primary and secondary school inSaudi Arabia between August and September 2022.

Study Sampling: convenience sample from mothers whose have student suffering from diabetes and agree to participate (100).

ResultsThe present study demonstrated that the majority of study subject was low percentage related to general knowledge of T1DM. Also, this result indicated highly significant. Moreover, the majority of study subject was low percentage related to knowledge about prevent of T1DM. Also, this result indicated highly significant. Furthermore, the majority of study subject was low percentage related to practical knowledge of T1DM. **Recommendations:** Establishing educational programs to improve knowledge and practices of mothers regarding care of their children suffering from T1DM.

Keywords: Type 1 diabetes mellitus, student, mother.

Introduction:

Diabetes mellitus is an incurable lifelong disease, and is one of the most challenging health issues of the 21st century[1]. The incidence of diabetes mellitus is increasing in all age groups, in both sexes and in developing countries[2].Type 1 diabetes mellitus (T1DM) is one of the most common chronic health conditions experienced by young people[3]. Worldwide, there are an estimated 2.58 million young people aged ≤19 years with T1DM[4], with a further 132,000 young people diagnosed with T1DM annually[5].

The Kingdom of Saudi Arabia (KSA), which is the largest country in the Middle East that houses approximately four-fifths of the Arabian Peninsula, supports a population of more than 33.3 million people, of whom 26% are aged < 14 years[6]. Studies indicate, in the recent decades, a significant increase in prevalence and incidence rates of T1DM in Saudi Arabia, mainly among the student and adolescents[7,8]. However, in comparison with that in the developed countries, the amount of researches conducted in Saudi Arabia on the incidence, prevalence, and sociodemographic properties of T1DM is highly inadequate[8].

T1DM can influence the lives of young people in a variety of ways, including by affecting their general health[3, 9-10], family, peer and community interactions[1] and both their school performance[4, 11] and attendance[12].

T1DM can be challenging to manage and without metabolic control, young people may experience acute complications, such as hypoglycemia or ketoacidosis[4], or more long-term chronic complications, such as retinopathy, neuropathy, or nephropathy[3]. There is also evidence that some young people with T1DM experience mild deficits in their cognitive, motor, or visuospatial skills[13-16]. Less ideal glycemic control leading to frequent hypoglycemic or keto-acidotic episodes could affect neuropsychological development, and thus, cognitive performance, including attention and memory skills[17, 18]. Cognitive deficits have the potential to influence academic performance among young people with T1DM[4, 11].

Family involvement is a vital component for optimal diabetes management throughout childhood and adolescence[19]. The motheris the individual most personally bound tothe points of interest ofthe sickness, any problems that has in coping with the illness may affect the whole family[20]. Also, must work with the child and family to overcome barriers or redefine goals as appropriate. It is necessary to assess the educational needs and skills of day care providers, school nurses or other school personnel who participate in the care of the young child with diabetes[21]. Information regarding the management of Children with T1DM is the more prominent weapon in the battle against diabetes. Therefore, this study conducted to assess mother's diabetes knowledge related to student with T1DM.

The aim of the studyto assess mother's diabetes knowledge related to student with Type 1 diabetes mellitus

II. Material and Method

Research design: Descriptive cross-sectional design was adopted in the present study.

Setting: the present study was conducted at primaryandsecondaryschool inSaudi Arabia between Augest and September 2022.

Study Sampling: convenience sample from mothers whose have student suffering from diabetes and agree to participate (100).

Statistical analysis: Data was analysed using SPSS version 20. The names of the participants were kept confidential

Data Collection Tool: Data was collected through the utilization of tool as follows: Mother's diabetes knowledge related to student with Type 1 diabetes mellitusquestionnaire It was included four parts as follows: Part I: Socio - demographic Data

Part II: General knowledge about diabetes questionnaire

Part III: knowledge about prevent diabetes questionnaire

Part IV: practical knowledge about diabetes questionnaire

Validity of the tool: The tools were tested for the face and content validity by a jury of five experts in the fieldand necessary modifications were done. **Reliability of the tools** was performed to confirm consistency of tool. The internal consistency measured to identify the extent to which the items of the tools measure the same concept and correlate with each other. Internal consistency of the tool was assessed with the Cronbach's alpha coefficient.

Pilots study/pretesting

A pilot study was carried out on 10% of the sample size only, among patients who aren't included in the actual study. The pilot study was carried out with the application of the full methodology and analyses of results. The method, the feasibility, and duration were assessed. No changes were made to the aforementioned methodology.

Ethical considerations

• Permission was also obtained from the administrators of school.

• Individual verbal and written consent for data collection was obtained from each participant.

III. Results

Table (1) Distribution of socio-demographic data of participated mothers whose have student suffering from diabetes (100) show that the majority of study subject regarding age between 20-40 years was 83% while, the age between 40-60 years was 17%. According to educational levels, the majority of our participants were at Intermediate level were constitutes 68.0 % while primary and secondary have the same result 16%. Regarding economical level the average of participants founded 52.0 % of study while,high Economic level were 30.0% of cases. Relating to occupation in our study, unemployed participants founded 31.0% of study. While employed 69.0% of study.

Table (1) Distribution of socio-demographic data of participated mothers whose have student suffering from diabetes (N=100)

Socio-demographic data	N	%
Age		
20y < 30years	47	47.0
30y < 40years	36	36.0
40y < 50years	13	13.0
50y < 60years	4	4.0
Education		
Primary	16	16.0
Intermediate	68	68.0

Socio-demographic data	N	%
Secondary	16	16.0
Economic level		
Low	18	18.0
Average	52	52.0
High	30	30.0
Occupation		
Yes	69	69.0
No	31	31.0

Table (2) thepercentage of distribution for level ofgeneral knowledge about diabetesshow that the majority of study subjectwas low percentage answer "yes". While, high percentage said "no" and "Don't know".Also, the results of Chi square test, statistically significant high differences.

Table (2)thepercentage of distribution for level of general knowledge about diabetes

Items			Data			Chi-square	
			No	I don't know	Yes	X^2	P-value
1	The cause of diabetes in student differences from that of adults?	N	70	16	14	117.7	0.000
		%	70.0%	16.0%	14.0%		
2	Student diabetes is caused by a lack of insulin supply	N	60	22	23	44.2	0.000
		%	60.0%	22.0%	23.0%		
3	There many differences in the causes and treatment of disease Among adults and young people?	N	64	12	24	87.4	0.000
		%	64.0%	12.0%	24.0%		
4	Increase of DM type 1 in student people	N	57	17	26	52.9	0.000
		%	57.0%	17.0%	26.0%		
5	Shortness of breath and an increase in the speed of the symptoms that appear on the diabetic student	N	59	17	24	58.3	0.000
		%	59.0%	17.0%	24.0%		

Items			Data			Chi-square	
			No	I don't know	Yes	X^2	P-value
6	A diabetic student feels coma and anxiety	N	56	8	36	66.9	0.000
		%	56.0%	8.0%	36.0%		
7	Diabetes is becoming more common because of weight gain	N	55	13	32	50.6	0.000
		%	55.0%	13.0%	32.0%		
8	you know the prevalence of diabetes in Saudi Arabia	N	65	8	27	99.9	0.000
		%	65.0%	8.0%	27.0%		
9	The student needs to stay in the hospital if he has diabetes	N	63	14	23	81.6	0.000
		%	63.0%	14.0%	23.0%		
10	A diabetic feel thirsty and hungry	N	52	10	38	52.4	0.000
		%	52.0%	10.0%	38.0%		
11	You know what insulin	N	54	12	34	51.7	0.000
		%	54.0%	12.0%	34.0%		
12	Increased urination times, and increased amount of diabetes symptoms in student	N	61	10	29	76.7	0.000
		%	61.0%	10.0%	29.0%		
13	You know the most common symptoms seen on a diabetic student	N	57	14	29	56.3	0.000
		%	57.0%	14.0%	29.0%		
14	Severe thirst and drinking water in large quantities are symptoms of diabetic in student	N	56	15	29	50.5	0.000
		%	56.0%	15.0%	29.0%		
15	A diabetic student feels anorexia and weight loss.	N	59	13	28	64.2	0.000
		%	59.0%	13.0%	28.0%		
16	Can a diabetic student grow naturally like another student	N	54	8	38	62.7	0.000
		%	54.0%	8.0%	38.0%		
17	A diabetic student feels tired, sluggish and inactive	N	55	13	32	50.6	0.000
		%	55.0%	13.0%	32.0%		
18	A diabetic student feels vomiting and abdominal pain	N	56	14	30	51.4	0.000
		%	56.0%	14.0%	30.0%		
19	Obesity lead to diabetes in student	N	65	13	22	92.2	0.000
		%	65.0%	13.0%	22.0%		

Items			Data			Chi-square	
			No	I don't know	Yes	X^2	P-value
20	Is there a difference between diabetes in the urine and sugar in the blood	N	60	14	27	66.3	0.000
		%	60.0%	14.0%	27.0%		

Table (3) thepercentage of distribution for level of knowledge about prevent diabetesshow that the majority of study subjectwas low percentage answer "yes "There was a significant difference in respondents answering correctly.The other tests, which, when combined with the results of Chi square test, indicate a significant decreased in knowledge.

Table (3)distribution for level ofknowledge about prevent diabetes

			Data			Chi-square	
			No	I don't know	Yes	X^2	P-value
1	Do you know the role of finger glucose testing in the diagnosis of type 1 diabetes	N	60	9	31	76.8	0.000
		%	60.0%	9.0%	31.0%		
		%	65.0%	13.0%	22.0%		
2	There ways to prevent diabetes in Student	N	61	16	23	70.4	0.000
		%	61.0%	16.0%	23.0%		
3	Heredity play a role in student's diabetes	N	60	13	27	70.8	0.000
		%	60.0%	13.0%	27.0%		
4	What is the medical cost of type 1 diabetes in the Kingdom?	N	60	13	27	69.9	0.000
		%	60.0%	13.0%	27.0%		
5	What is the relationship between the age of the mother and the vulnerability of the student to the first type of diabetes	N	62	16	22	75.4	0.000
		%	62.0%	16.0%	22.0%		

Table (4) percentage distribution for level about practical knowledge of diabetes showthe most of question addressed the practical of diabetes there was low percentage answer "yes". While high percentage answer "no" and "Don't know". Also, the results of Chi square test, statistically significant high differences.

Table (4)distribution for level about practical knowledge of diabetes

Items			Data			Chi-square	
			No	I don't know	Yes	X^2	P-value
1	When a coma happens to a student you can treat	N	61	14	26	70.4	0.000
		%	61.0%	14.0%	26.0%		
2	Do you know when a diabetic feels thirsty and hungry? What do you do	N	57	15	28	56.3	0.000
		%	57.0%	15.0%	28.0%		
3	What is the relationship between upper respiratory infection and type 1 diabetes	N	55	17	29	45.0	0.000
		%	55.0%	17.0%	29.0%		
4	How often do you eat vegetables or fruits	N	59	15	26	62.9	0.000
		%	59.0%	15.0%	26.0%		
5	Do exercise regularly to reduce the complications of diabetes	N	88	3	9	270.4	0.000
		%	88.0%	3.0%	9.0%		
6	Do you know how to protect yourself from complications	N	60	18	22	62.2	0.000
		%	60.0%	18.0%	22.0%		

IV. Discussion

Concerning the socio-demographic data of participated mothers whose have student suffering from T1DM revealed that the majority of study subject regarding age between 20-40 years was 83% while, the age between 40-60 years was 17%. While, educational levels exposed that the majority of participants were at Intermediate level were constitutes 68.0 % while primary and secondary have the same result 16%. Regarding economical level the average of participants founded 52.0 % of study while, high Economic level were 30.0% of cases.

Relating to occupation in our study, unemployed participants founded 31.0% of study. While employed 69.0% of study.

This study result was disagreement with the study conducted by Hussien et al., (2019)[22]noticed that, more than one third of them had a secondary school degree and nearly two thirds of them were housewives. Similarly, another study difference with the present study conducted by Al-Odayani et al., (2013)[23], who found that, most of the studied mothers were housewives and had secondary school education.

The present study demonstrated that the majority of study subject was low percentage related to general knowledge of T1DM. Also, this result indicated highly significant. Moreover, the majority of study subject was low percentage related to knowledge about prevent of T1DM.Also, this result indicated highly significant. Furthermore, the majority of study subject was low percentage related to practical knowledge of T1DM.

This study supported by study conducted by Hussien et al., (2019)[22]noticed that, most of the studied mothers had unsatisfactory knowledge. Furthermore, another study conducted by Feleke et al., (2013)[24], who matched with the present study found that, knowledge and practice among the diabetes patients were at a low level.

Conclusion

The present study demonstrated that the majority of study subject was low percentage related to general knowledge of T1DM. Also, this result indicated highly significant. Moreover, the majority of study subject was low percentage related to knowledge about prevent of T1DM. Also, this result indicated highly significant. Furthermore, the majority of study subject was low percentage related to practical knowledge of T1DM.

Recommendations

1.   Establishing educational programs to improve knowledge and practices of mothers regarding care of their children suffering from T1DM.

2.   Encourage using the updated methods for education about T1DM as available means of information technology and one to one education for children and their mothers.

3.   Further studies should be conducted to assess quality of life and health problems among children suffering fromT1DM.

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