Assessing the Level of Awareness among School Teachers Regarding Diabetes Emergencies in Saudi Arabia: A Cross-Sectional Study

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Study design: Cross sectional

Background:Diabetes mellitus type 1 (DM) is a serious chronic disease, with incidence rates ranging from 64/100,000 to 0.1/100,000 per year in various countries. A study of school-aged children in Istanbul, Turkey, discovered a frequency of 0.67/1 000. The prevalence of type 2 diabetes has also increased in school-aged children, accounting for 10-40% of adolescent diabetics. Diabetes is a disorder that necessitates ongoing monitoring of individuals. Early detection and appropriate management will lower the likelihood of illness consequences. Given that school-aged children spend the majority of their time at school, instructors can play an important role in the monitoring of diabetic students.

Methods:In this cross - sectional study data was collected by the purposely constructed questionnaire. Questionnaire composed of the demographic items and items related to the DM and teacher's awareness regarding DM. Questionnaire was constructed after the series of discussions between the panel of experts this panel composed of from subject specialist, researcher, language expert. Cronbach alpha of the questionnaire was calculated.

Results:39.7% considered DK is an emergency situation, 8.52% only believed that DK will effect kids only, taking multiple dose of insulin is the major risk factor, in emergency 56.82% will call the ambulance.

Conclusion:There is a need for programs to educate teachers on diabetes and its management, as well as their roles in managing diabetic children in schools. Having a trustworthy source of DM knowledge for teachers will help them enhance their KAP level and increase their confidence in sharing and using their KAP.
Keywords:Awareness, School Teachers,Diabetes Emergencies.

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INTRODUCTION

Diabetes mellitus is a metabolic illness in which there is a malfunction in the function of B-cells in the pancreas, resulting in insulin deficiency and an increase in glucose levels. Diabetes has the greatest prevalence rates in North Africa and the Middle East. Diabetes is a difficult condition that Saudi Arabia is dealing with, and diabetes prevalence is increasing in the country[1,2].

Diabetes mellitus type 1 (DM) is a serious chronic disease, with incidence rates ranging from 64/100,000 to 0.1/100,000 per year in various countries. A study of school-aged children in Istanbul, Turkey, discovered a frequency of 0.67/1 000. The prevalence of type 2 diabetes has also increased in school-aged children, accounting for 10-40% of adolescent diabetics. Diabetes is a disorder that necessitates ongoing monitoring of individuals. Early detection and appropriate management will lower the likelihood of illness consequences. Given that school-aged children spend the majority of their time at school, instructors can play an important role in the monitoring of diabetic students[3-5].

Diabetes has both psychological and physical consequences for children who are affected. Teachers are the primary caregivers for schoolchildren and the first line of defense for them. They must exercise extreme caution when dealing with children's emergencies. It was established that teachers could play a role in supporting diabetic schoolchildren with their particular needs.

Type 1 diabetic children and adolescents must check their blood glucose levels, eat a specific diet, and receive insulin treatment during the school day, so the American Diabetes Association (ADA) recommends that school teachers be knowledgeable in order to provide proper care for diabetic students and be trained to manage diabetic emergencies[6,7].

Thus, it is critical to raise the level of awareness of type 1 diabetes among school teachers through health education campaigns in order to reduce the risk of Diabetic ketoacidosis (DKA) among type 1 diabetic students. Increasing teachers' knowledge about diabetes will have a positive effect on ensuring diabetic students' safety in school.

In the Kingdom of Saudi Arabia, a nationwide survey conducted in 2004 revealed the scale of type 2 diabetes, with the findings revealing that 23.7% of Saudis are diabetic and 27.9% are ignorant that they have the condition. A more recent nationwide study, conducted in 2015, urged for an immediate primary prevention program for diabetes. According to the study, the prevalence of diabetes is 25.4%, while 25.5% have impaired fasting glucose, implying that over half of the Saudi population is either diabetic or at high risk of acquiring diabetes.

Diabetes has a huge financial impact on a country's healthcare system because it is a chronic condition that leads to numerous complications later in life. Diabetes treatment costs include not just the treatment of the disease itself, but also the treatment of its lifelong sequelae. In 2019, the MENA Region's economic impact from diabetes was around 24.9 billion US dollars (USD). Diabetes' high incidence in KSA is expected to cost the Ministry of Health $7.4 billion USD by 2020[8,9].

Due to the increasing complication of diabetes in school-aged children, instructors must be knowledgeable of diabetes and its accompanying health concerns, as well as how to cope with them. It is important that school personnel be familiar with diabetes and be able to recognize hypoglycemia and hyperglycemia. They should be able to measure blood glucose levels and deliver insulin or other medications as needed. The current study sought to analyze schoolteachers' knowledge, attitude, and practice about diabetes in the Aseer region of Saudi Arabia.

METHODS

In this cross - sectional study data was collected by the purposely constructed questionnaire. Questionnaire composed of the demographic itemsanditems related to the DM and teacher's awareness regarding DM. Questionnaire was constructed after the series of discussions between the panel of experts this panel composed of from subject specialist, researcher, language expert. Cronbach alpha of the questionnaire was calculated. The study was conducted in the Aseer region of Saudi Arabia. After collection of data, data was coded and entered in the SPSS ver.20 software for analyses descriptive statistics (mean standard deviation, frequencies and percentages were computed), to measure the significance differences t test and chi-square test were used at 5% level of significance. Data were collected from school teachers, after their consent, through electronic version of the questionnaire, and paper version as well, researches used university social media channels and also paper questionnaire were distributed after classes to get maximum responses aresearcher adopted the convenience sampling methods

RESULTS

The cronbach alpha of the questionnaire was 0.85.

Table 1: Socio demographics

		Freq.	%
Gender	Male	900	51.1%
	Female	860	48.9%
Age	<20	190	10.8%
	21-30	780	44.3%
	31-40	470	26.7%
	41 or above	320	18.2%
Region	Central	350	19.9%
	Southern	450	25.6%
	Western	325	18.5%
	Eastern	240	13.6%
	Northern	395	22.4%
Living in	City	1200	68.2%
	Village	460	26.1%
Marital Status	Single	800	45.5%
	Married	921	52.3%
	Divorced	20	1.1%
	Widow	19	1.1%
Education	Primary	75	4.3%
	Intermediate	129	7.3%
	High schools	721	41.0%
	College	651	37.0%
	Post graduate	184	10.5%
Monthly income in (SAR)	<5000	189	10.7%
	5000-9999	359	20.4%
	10000-15000	910	51.7%
	Above 15000	302	17.2%
Experience (in years)	Less than 5	600	34.1%
	5-10	800	45.5%
	10 -15	200	11.4%
	more than 15	160	9.1%
Level of teaching	Primary	800	45.5%
	High	700	39.8%
	Intermediate	260	14.8%

As per table 1, 51.1% were male while 48.9% were females, most of them were lying in the age group of 21-30 (Mean (SD) of age was

29.5(9.6),25.6% lived in southern region,68.2% lived in cities,45.55 and 52.35 were single and married respectively,41% and 375 got high school and intermediate education,51.7% had monthly income in between 10000 to 15000 sar,45.55 had experience in between 5-10 years, 45.5% were teaching in primary schools

Table 2: Awareness

	Freq.	%
Do you have First aid certificate		
Yes	555	31.53%
No	1205	68.47%
Do you have any relative who diagnosed with DM		
Yes	950	53.98%
No	810	46.02%
Do you diagnosed with diabetes mellitus		
Yes	665	37.8%
No	1095	62.22%
Do you have any student who diagnosed with DM		
Yes	325	18.47%
No	1435	81.53%
From your opinion, is there emergency condition can happen to the DM patient		
Yes	1325	75.28%
No	435	24.72%

As per table 2, 31.53% had first aid certificate, 53.98% had DM relatives, 37.8% were DM patients,75.28% agreed that emergency situation can happen to DM patients

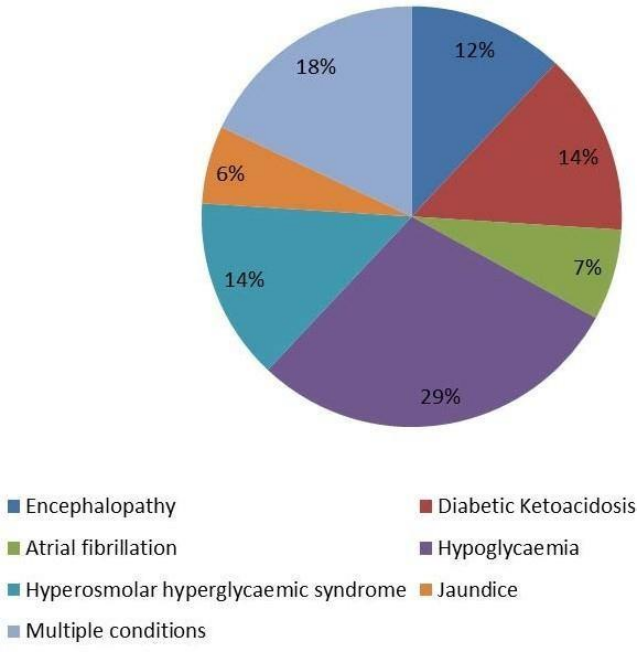

Figure 1: From you opinion , what is the diabetic emergency conditions

As per figure 1, hypoglycemia 29% was the major emergency diabetic condition.

Table 3: Awareness regarding diabetic ketoacidosis

	Freq.	%
Diabetic Ketoacidosis is considered to be		
An emergency complication of DM that requires urgent treatment	700	39.77%
One of the chronic complications of diabetes and can be treated at home	600	34.09%
I don't know	460	26.14%
Diabetic Ketoacidosis is affecting the child only		
Yes	150	8.52%
No	1000	56.82%
I do not know	610	34.66%
Which of the following can cause Diabetic Ketoacidosis		
Taking multiple dose of insulin	50	2.84%
Lack of insulin due to miss does	890	50.57%
I do not know	820	46.59%
If one of your diabetic students suffers from Diabetic Ketoacidosis the first action is		
Call the ambulance and take him to the hospital	1000	56.82%
Give oral sugar and juice and he will improve	300	17.05%
Give the double dose of insulin	51	2.90%
I do not know	409	23.24%

As per table 3, 39.7% considered DK is an emergency situation, 8.52% only believed that DK will affect kids only, taking multiple dose of insulin is the major risk factor, in emergency 56.82% will call the ambulance

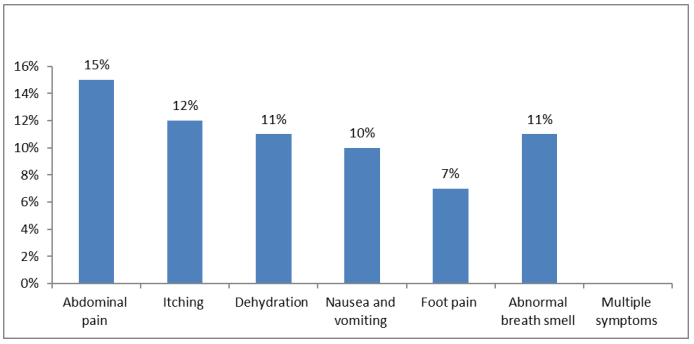

Figure 2: symptoms can be appear in Diabetic Ketoacidosis

As per figure 2, abdominal pain was the major symptoms.

Table 4: Comparison between gender and enough knowledge regarding DM emergency

	Enough Knowledge				
	Yes		**No**		
	Freq.	**%**	**Freq.**	**%**	
Male	**500**	**55.56%**	**400**	**44.44%**	**900**
Female	**360**	**41.86%**	**500**	**58.14%**	**860**
Total	**860**		**900**		**1760**
p=n.s					

We did not observe any significant differences while comparing gender with, adequate knowledge regarding the DM.

DISCUSSION

Male teachers outnumbered female teachers in the current survey, and the vast majority of participants ranged in age from 30 to 40. It is generally recognized that well-managed metabolic management helps prevent micro- and macrovascular consequences of diabetes. A complete training program is required to obtain good metabolic regulation. Schools are the primary application areas for training in childhood diabetes, and school professionals can play an important role in disease management[7-10].The 'Managing Diabetes at School Program' attempts to raise diabetes awareness among teachers. To raise awareness of pediatric diabetes, it is necessary to extend management measures to all areas where children go, other than healthcare institutions.

In our survey, the majority of them reported to have adequate knowledge about DM emergencies.Diabetes education and management should focus on behavioral changes in patients, parents, and other caregivers. A solid relationship should be developed between the patient, his or her parents, and teachers. According to one study, teachers were unable of forming connections between a specific problem and the reasons underlying the problem unless they were aware of the student's medical condition. According to Westbom, a greater number of children with chronic diseases were exposed to unpleasant behaviors at school and had less communication with their peers[11,12].

Good attitudes and practices can ultimately make a difference in the life of a diabetic child; thus, instructors must be educated and capable of providing effective DM treatment. The majority of teachers who took part demonstrated a good attitude and level of practice. The majority of participants agreed on the importance of parents meeting and staying in touch with their children. More than half of the participating teachers were aware of how to treat diabetic pupils during hypoglycemia and were eager to attend a diabetes education program[13,14].

The age of participants was shown to be substantially connected to the mean score of knowledge level, with experienced teachers scoring higher than the youngers. A similar observation was also made.

CONCLUSION

There is a need for programs to educate teachers on diabetes and its management, as well as their roles in managing diabetic children in schools. Having a trustworthy source of DM knowledge for teachers will help them enhance their KAP level and increase their confidence in sharing and using their KAP. Finally, health care personnel should be firmly encouraged to participate in and play a role in increasing teachers' knowledge of diabetes.

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Potential Conflicts of Interest: None

Competing Interest: None

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