Influence of Diabetes Mellitus of Absenteeism for Elementary Schools Student's

تأثير مرض السكري على التغيب عن المدرسة لدى طلاب المدارس الابتدائية

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المستخلص

الخلفية: مرض السكري هو اضطراب أيضي يتميز بارتفاع نسبة السكر في الدم بسبب خلل في إفراز الأنسولين أو عمله أو كليهما. داء السكري من النوع الأول، المعروف باسم سكري الأحداث أو مرض السكري المعتمد على الأنسولين. يعد التغيب عن المدرسة مشكلة تؤثر على النمو الاجتماعي والعاطفي والتعليمي للأطفال.

الأهداف: قياس تأثير مرض السكري على عدد الأيام الدراسية التي يغيبها طلاب المرحلة الابتدائية، وتحديد أسباب التغيب لدى طلاب المدارس الابتدائية.

المنهجية: أجريت دراسة وصفية ارتباطية على عينة من المدارس الابتدائية في مدينة الصدر. تم اختيار عينة مقصودة من الطلاب المصابين مرض السكري من النوع الأول المعتمد على الأنسولين في المرحلة التعليمية (١-٦) في عمر ٦-١٤ سنة. تم الحصول على معلومات حول متغيرات المرض من خلال استبيان تم إرساله إلى أولياء أمور الطلاب. تم استخدام مخططات النمو الخاصة بمراكز السيطرة على الأمراض والوقاية منها لقياس الوزن والطول ومؤشر كتلة الجسم.

النتائج: أظهرت الدراسة أن هناك تأثير واضح لمرض السكري على غياب طلاب المرحلة الابتدائية.

الاستنتاجات: خلصت الدراسة إلى أن معظم الطلاب المصابين بداء السكري من النوع الأول يتغيبون عن المدرسة. حيث أن ارتفاع السكر في الدم أثر على غيابهم عن المدرسة.

التوصيات: يعد الالتحاق بالمدارس هدفًا لجميع الأطفال المصابين بمرض السكري ويجب تشجيعه بقوة من قبل الآباء والمعلمين ومتخصصي الرعاية الصحية. وتقوم الأسرة بمتابعتهم وتشجيعهم على الحضور بانتظام وعدم التغيب.

الكلمات المفتاحية: مرض السكري، التغيب عن المدرسة

Abstract

Background: Diabetes is a metabolic disorder characterized by high blood sugar caused by defects in insulin secretion, action, or both. Type one diabetes mellitus, known as juvenile diabetes or insulin-dependent diabetes. Absenteeism from school is a problem that impacts the social, emotional, and educational development of the children.

Objective(s): To measure the influence of diabetes mellitus on the number of school days missed by elementary students, to determine the causes of absenteeism for elementary schools' students.

Methodology: A descriptive a correlational study was conducted in a sample of elementary schools in Al-Sadr city. Purposive sampling selected students with type I diabetes-dependent insulin in the educational stage (1-6) at age 6–14 years. Information on disease variables was obtained through a questionnaire sent to the student parents. The Centers for Disease Control and Prevention growth charts were used to measure weight, height, and body mass index.

Results: The study showed that there is a clear effect of diabetes on elementary school students' absence.

Conclusions: The study concluded that most students with type 1 diabetes are absent from school. Hyperglycemia clearly affected their absence from school.

Recommendations: Near-normal school attendance is a reasonable goal for all children with DM and should be strongly encouraged by parents, educators, and health care professionals. Family follows them up and encourages them to attend regularly and not be absent.

Key words: Diabetes Mellitus, School Absenteeism

Introduction

Diabetes is a group of metabolic disorders characterized by high blood sugar caused by defects in insulin secretion, action, or both(1).Type one diabetes mellitus, known as juvenile diabetes or insulin-dependent diabetes (2). It is one of the most common health problems in the world, with a rapid increase in prevalence(3). Different risk factors may contribute to type one diabetes, including genetics, environmental factors, and exposure to certain types of viruses, the group of enteroviruses is considered the strongest candidate (2). Absenteeism from school is a problem that impacts the social, emotional, and educational development of the children(4) .Type 1 diabetes affects nearly all aspects of a child's life, including their academic performance and cognitive abilities (5). It is associated with diminished neuronal functioning that ultimately leads to cognitive dysfunction in areas including intelligence, learning, memory, information processing, attention, executive

function, visual-motor integration, and academic achievement(6) . Educational problems in type 1 diabetes children were that they had lower academic skills ratings, a trend towards poorer classroom attention, and more missed school days compared to healthy siblings(7).

Methodology

Design

A descriptive correlation study is carried out to measure the influence of diabetes mellitus on the number of school days missed by elementary students, to determine the causes of absenteeism for elementary schools' students. The study conducted during of November 7, 2023, and April 1, 2024.

Setting

(207) Schools in Al-Sadr City have cases of diabetes. 20 percent of the schools were studied, or approximately 40 schools. The study divided Al-Sadr city into ten clusters. such as Hay Alamanih, Hay Jamilah, Aldaakhil, Alfalah, Aljawadir, Kayara, Kasarah, Eatash, Alsharika, Awilah, and Habibia are selected as four schools from each cluster through a simple random sample.

Sample

The sample design, purposive sampling (non-probability), and total number of students with type I diabetes mellitus-dependent insulin in Al-Sadr city (493) are in 207 schools. The study selected 20 percent of the total number of students, which were taken from

the records of the Statistics Division in the Third Rusafa Education Directorate, and the number of students participating in the research was 100 from the first to the sixth stage at ages 6–14.

Ethical Consideration

Ethical approval has been obtained from the research ethics committee in the College of Nursing at the University of Baghdad, and approval has also been obtained through the researcher's distribution of an informed consent sheet to all students in order to obtain their permission from parent students to participate in the current study. In addition, they were informed that they could refuse to participate in research.

Study Instrument

The study tool was designed through an extensive review of relevant literature. The overall number of parts in the evaluation tool was three, it includes

Part I: Demographical characteristics of the students. This part includes the demographic characteristics of students: age, sex, grade, weight, length, and body mass index.

Part II: Number of absenteeism in elementary school students.

Part III: Causes of absenteeism in elementary school students.

Validity of the Study

Content validity for early-developing instruments is determined by a panel of 15 experts with more than 5 years' experience in specialties reviewing the questionnaire's clarity,

relevance, and adequacy. The results indicated that the majority of experts agreed that the questionnaire was appropriately designed and developed to measure the study.

Reliability of the Study

In order to determine the reliability of the study instruments, a pilot study was carried out on 10 students who were randomly selected from the five schools. The results showed the questionnaire to be clear for participants. And the time required (10–15 minutes) to complete the questionnaire. The internal consistency between items was determined by using Cronbach`s alpha coefficient; is 0.83.

Data Collection

The researcher used a self-report questionnaire and telephone interview methods to complete the sample collection. For this reason, the data was obtained by sending a questionnaire to the student parents and conducting interviews over the telephone with them to compile the data. After that, the researcher used anthropometrics' measures; the weight in the Seca device, height (metric tape), and the Centers for Disease Control and Prevention's (CDC) growth chart were used in order to measure body mass index. All devices are used in the Iraqi Ministry of Health (Primary Health Care Center) and have reliability and validity.

Data Analysis

The Statistical Package for Social Sciences (SPSS), version 26.0 program, was used for all the analyses. Number and percentage (NO and %) were used to describe the demographic characteristics and number and causes of school absenteeism, while the spearman's rank correlation coefficient was used to determine the influence of diabetes mellitus on school absenteeism.

Results

Table (1): Distribution of Students according to their Demographic Characteristics

List	Characteristics		F	%
1	**Age (Year) (M±SD =9.7 ± 2.3)**	6 – less than 9	30	30
		9 – less than 12	42	42
		12 – less than 15	28	28
		Total	***100***	***100***
2	**Sex**	Male	49	49
		Female	51	51
		Total	***100***	***100***
3	**School grade**	First	16	16
		Second	15	15
		Third	13	13
		Fourth	17	17
		Fifth	18	18

		Sixth	21	21
		Total	***100***	***100***

f: Frequency, %: Percentage

Table 1 shows that students have an average age of 9.7±2.3 years, of which 42% are within the age group of 9–less than 12 years. 51% of students are female, and 49% are male. The highest percentage of students is from sixth grade, as reported among 21%, followed by fifth grade (18%) and fourth grade (17%).

Table (2): Distribution of Students according to Number of School absenteeism

Variable		**F**	**%**
Number of School absenteeism days/semester	None	45	45
	One	32	32
	Two	9	9
	Three or more	14	14
	Total	***100***	***100***

f: Frequency, %: Percentage

Table 2 demonstrates the number of students with school absenteeism, which refers to 45% of students who are not absenteeism and 32% who have one absenteeism day or school semester.

Table (3): Distribution of Students according to Causes of Absenteeism

Variable		F	%
Causes of Absenteeism	Hyperglycemia	45	45
	Illness	42	42
	Medical visits	13	13
	Total	***100***	***100***

f: Frequency, %: Percentage

Table 3 refers to 45% of absenteeism of students caused by hyperglycemia, while 42% of absenteeism is due to diabetes mellitus.

Table (4): Influence of Diabetes Mellitus on School Absenteeism among Students (N=100)

DM / Absenteeism	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
School absenteeism	.143	.056	.247	2.544	**.012**

t: t-test, Sig: Significance

Table 4 manifests that diabetes mellitus has a significant effect on days of school absenteeism among students, as evidenced by the significant difference at p-value =.012.

Finger (1): Distribution of Elementary School Students according to Body Mass Index (N=100)

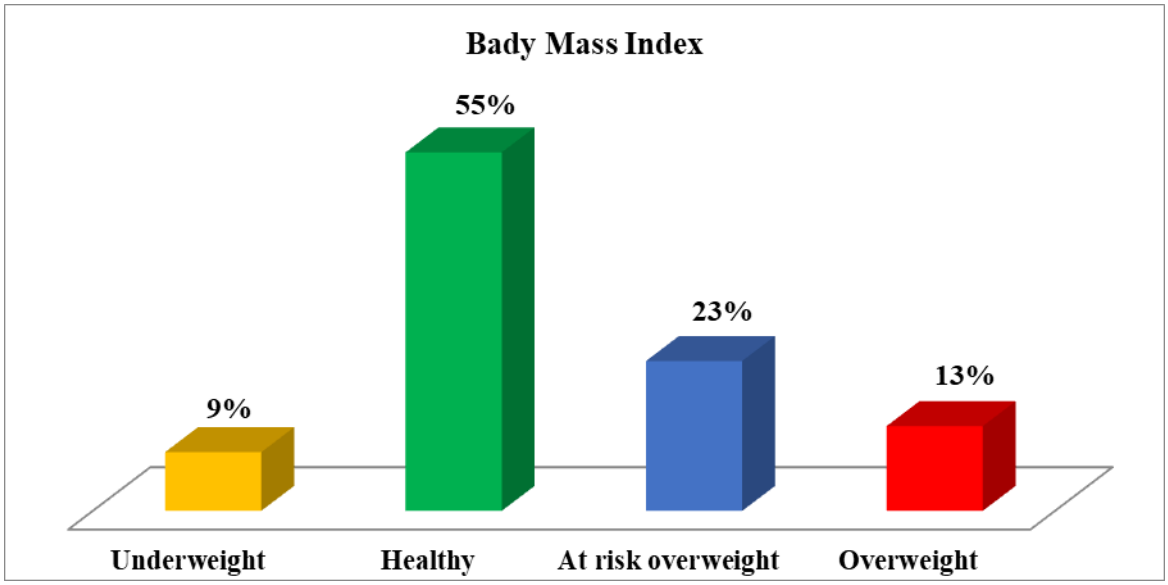

Figure 1 reveals that 55 percent of students have a healthy weight, but 23 percent of them are at risk of being overweight, and 13% of them are overweight.

Discussion

The result showed the student's age in the highest percentage with an age group of 9–less than 12 years (42%). This result agreed with a study by Zalzala (2020), Epidemiological profile of type 1 diabetes among primary school children in Baghdad that reported

that the age group 9–11 makes up the majority of students, with a percentage (56%) of them(8). In relation to the sex, it was shown that 51% of students are female. These findings are consistent with the Iraqi Ministry of Health's report, which explains that females represent 63% of the population compared to males, who represent 60%. Furthermore, these findings are consistent with two studies, one done in Saudi Arabia. By Alotaibi (2017), Incidence and prevalence rates of diabetes mellitus in Saudi Arabia, indicated that the incidence and prevalence of diabetes are rising, particularly among females (9). Whereas another study done by Yassen, (2017) Evaluation of Clients' Satisfaction towards Primary Health Care Centers Services at Baghdad City showed the majority of samples were female(10). It has been revealed that 55% of students have a healthy weight. This result is in agreement with a study done in Baghdad City by Zalzala, (2020). Epidemiological profile of type 1 diabetes among primary school children in Baghdad, which showed that more students are healthy in terms of percentage (74.5)(8).Related number of school absenteeism the study showed that the students who had no absences had 45%. This result agreed with the study Glaab (2005), School attendance in children with type 1 diabetes showed the children with DM missed only slightly, albeit significantly more school than their non-DM peers. A multiple regression analysis indicated that school absenteeism in children with DM was associated with poorer metabolic control (P =

0.006)(11).Related to causes of absenteeism, the result showed hyperglycemia at 45%. This result is consistent with a study from Scotland that showed schoolchildren with diabetes had an increased risk of absenteeism and that the risk was higher among children with higher levels of HbA1c (12). And with another study that indicated the most common issues affecting student absences were chronic health issues(13)In addition, the results showed a significant effect of type 1 diabetes on absenteeism. These results agree with studies that show type 1 diabetes has influenced the academic performance of schoolchildren (5). Children who developed diabetes had a statistically significant increase in absenteeism (difference = 0.24 days, $P < 0.05$) (14).Other studies have shown diabetes to be associated with increased school absenteeism after onset(15)

Conclusions:

The study concluded that most students with type 1 diabetes are absent from school. Hyperglycemia clearly affected their absence from school.

Recommendations:

The study recommends that parents take care to regularly monitor and measure their blood sugar levels. Near-normal school attendance is a reasonable goal for all children with DM and should be strongly encouraged by parents, educators, and health care

professionals. Family follows them up and encourages them to attend regularly and not be absent.

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