Eating disorders among Jordanian adolescents with and without dysglycaemia: a comparative study

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Abstract

Background: Studies on eating disorders among Jordanian adolescents have reported variable prevalence rates of 12–40%.

Aims: This study aimed to determine the prevalence of eating disorders among Jordanian adolescents with and without dysglycaemia and determine the associated factors.

Methods: A comparative cross-sectional study was conducted during the period November 2017–February 2018. The Eating Disorder Diagnostic Scale was used to assess the presence of different types of eating disorders, including anorexia nervosa, bulimia nervosa and binge eating disorder. A typical anorexia nervosa and purging disorder were considered "other eating disorders" in this study.

Results: This study included 497 patients with dysglycaemia and 504 age-matched nondysglycaemic participants. Patients with dysglycaemia had a significantly higher prevalence of binge eating disorders compared with nondysglycaemic participants (11.9% vs 5.8%, $P < 0.001$). In dysglycaemia group, adolescents who were aged ≥ 14 years were more likely to have bulimia nervosa compared with those < 14 years old. Patients with a sedentary lifestyle were less likely to have bulimia nervosa and binge eating disorders. In the nondysglycaemic group, those aged 14–18 years were more likely to have other eating disorders. Those with dysglycaemia were more likely to have binge eating disorders than those in the nondysglycaemic group (OR = 2.1, 95% CI: 1.3–3.3; $P = 0.002$) after adjusting for possible confounders.

Conclusions: Adolescents with dysglycaemia had higher prevalence of eating disorders compared with their nondysglycaemic peers. Screening for eating disorders is recommended among adolescents to secure early detection and subsequent intervention.

Introduction

Eating disorders (EDs) are psychiatric conditions characterized by severe disturbances in eating behaviour that result in significant physiologic impairment and, in some cases, increased mortality in some types (1,2). These conditions have significant health effects on people with diabetes. Many studies have been conducted to determine the association between EDs and type 1 diabetes mellitus (T1DM) and have reported that diabetes is a risk factor (3–5). Eating disorders have been shown to be more frequent in adolescents with diabetes compared with nondiabetic adolescents (6,7). A 2013 meta-analysis showed that EDs were more common in adolescents with T1DM (7.0%) compared with their adolescents with no diabetes (2.8%) (8). Previous research has shown that EDs are more than twice as common in young females with T1DM compared with their nondiabetic peers (9).

The *Diagnostic and statistical manual of mental disorders* (DSM) specifies a number of diagnoses under "Feeding and eating disorders", including anorexia nervosa (AN), which is characterized by restriction of energy intake relative to requirements, leading to significantly low body weight, and bulimia nervosa (BN), which involves

binging followed by purging to prevent weight gain. In 2013, the DSM also officially recognized binge eating disorder (BED) as a distinct eating disorder characterized by the ingestion of too much food in a short time (10).

Adolescents with diabetes are at higher risk of eating disturbances and consequently of higher rates of disease complications; EDs among adolescents with T1DM are associated with poor diabetes control and higher rates of diabetes complications, including ketoacidosis and hospitalization (11).

Studies on EDs among adolescents in the Eastern Mediterranean Region are limited in number and also limited to healthy adolescents. In Egypt, El-Bakry et al. reported that 34.7% of adolescent patients with T1DM have disordered eating behaviours (12). In Jordan, studies on EDs were limited to healthy female adolescents; these reported variable prevalence rates between 12% and 40% (13–15). The prevalence of EDs among Jordanian adolescents with T1DM is unknown; knowing the prevalence is important to help care providers make decisions on screening activities and management. Therefore, this study aimed to determine the prevalence of EDs among Jordanian adolescents with and without

dysglycaemia and to determine their associated factors.

Methods

Design and participants

This cross-sectional comparative study included 497 (172 males and 325 females) patients aged 10–24 years with dysglycaemia (T1DM and pre-DM) who attended the National Center for Diabetes, Endocrinology and Genetics and Jordan University Hospital in Amman from November 2017 to February 2018, and 504 (175 males and 329 females) age-matched nondysglycaemic control participants randomly selected from government schools and universities.

This study was reviewed and approved by the research ethics committee at the National Center for Diabetes, Endocrinology and Genetics. The ethical aspects of the present study are covered in the Declaration of Helsinki.

Inclusion and exclusion criteria

Only adolescents aged 10–24 years were included in this study. The dysglyacemic group included patients diagnosed with T1DM or pre-DM. Participants were diagnosed as having prediabetes if they had impaired fasting blood glucose (fasting blood glucose 100–125mg/dL) and/or impaired glucose tolerance (blood glucose 140–199 mg/dL 2 hours after a 75-g oral glucose tolerance test). The exclusion criteria were: having hypothyroidism, Cushing's syndrome, Addison's disease, growth hormone deficiency, receiving growth hormone therapy and pregnancy.

Sample size

The sample size was calculated based on the most recent estimate of ED prevalence rate (14). Assuming that prevalence of ED is 12%, the minimum sample size needed to estimate the prevalence within a margin of error of 5% at a level of significance of 5% and power of 80% was estimated as 163 in each group. The sample size was increased in both groups to have a higher power.

The study tool

A questionnaire was designed to collect demographic and lifestyle data including age, sex, education level, employment, physical activity level, and duration of dysglycaemia when present. The diagnostic instrument for EDs was the Eating Disorder Diagnostic Scale, a 22-item self-report questionnaire that evaluates the presence of 3 EDs: AN, BN and BED, based on the criteria of the DSM-IV (16). The scale is composed of a combination of Likert scores, dichotomous scores and frequency scores. The questions explored the person's feelings toward his or her appearance and having incidents of eating with a loss of control and how he/she felt after overeating. The estimated time for completing the questionnaire was 30 minutes.

In addition, the questionnaire included questions about the person's experiences of fasting, skipping at least 2 meals, making themselves vomit, and using laxatives or diuretics or being engaged in more intense exercise to prevent weight gain. There were also questions about how much body image problems impact the subject's relationships and friendships with others. The final questions were about the patient's current weight, height, sex and age.

Atypical AN and purging disorder were considered "other EDs". The Eating Disorder Diagnostic Scale has been translated into Arabic and validated by a study done at the National Center for Diabetes, Endocrinology and Genetics in 2010 (17). Cronbach's alpha was 0.80, which is considered acceptable.

Anthropometric measures

Height was recorded to the nearest 0.5 cm using a stadiometer, with the subject in a standing position and without shoes. Body weight was recorded to the nearest 0.1 kg using a calibrated scale. The nondysglycaemic participants' weight and height were measured at their schools or universities. Body mass index (BMI) was calculated using the standard formula: weight (kg)/height (m)^2 and classified into severe thinness, underweight, normal weight, overweight and obese. Participants younger than 19 years of age were classified according to the WHO growth charts 2007.

Metabolic control

The choice of treatment for those with T1DM was insulin plus metformin or insulin alone, whereas pre-DM patients were treated with metformin. Metabolic control was assessed by $HbA1_c$ levels, measured using the Bio-Rad VARIANT II TURBO $HbA1_c$ Kit-2.0 (Bio-Rad, Hercules, California), which utilizes the principles of ion-exchange high-performance liquid chromatography.

Statistical analysis

Analyses were conducted using *SPSS*, version 21.0. Continuous variables were described using means and standard deviations and categorical variables were described using percentages. The chi-squared test was used to compare percentages. Multiple binary logistic regression analysis was conducted to determine factors associated with EDs and to determine the association between dysglycaemia and EDs. *P*-value < 0.05 was considered statistically significant.

Results

Participants' characteristics

The dysglyacemic group included 497 participants (65.4% females and 34.6% males) with a mean age of 16.7 years. The nondysglycaemia group included 504 participants (65.3% females and 34.7% males) with a mean age of 16.8 years (Table 1). Of those with dysglycaemia, 45.9% had T1DM and 54.1% had pre-DM. The mean BMI was higher in the dysglyacemic group compared with the nondysglycaemia group (25.0 vs 21.2 kg/m^2, $P < 0.001$). Just over a quarter of the dysglycaemia group and around 6% of the nondysglycaemia group were obese. The mean $HbA1_c$ was 8.6% in the dysglycaemia group.

Table 1 The sociodemographic, clinical, anthropometric, and relevant characteristics of adolescent participants, Jordan, 2017–2018

Characteristic	Dysglycaemia (n = 497) Mean (SD)	Nondysglycaemia (n = 504) Mean (SD)	P-value
Age (years)	16.8 (4.3)	16.8 (4.4)	0.871
Height (cm)	157.4 (12.0)	157.9 (13.1)	0.521
Weight (kg)	63.4 (21.0)	53.6 (13.9)	< 0.001
BMI (kg/m2)	25.0 (6.6)	21.2 (4.0)	< 0.001
Sex, no. (%)			0.970
Male	172 (34.6)	175 (34.7)	
Female	325 (65.4)	329 (65.3)	
BMI category, no. (%)			< 0.001
Severe thinness	1 (0.2)	14 (2.8)	
Underweight	19 (3.8)	44 (8.7)	
Normal	182 (36.6)	301 (59.7)	
Overweight	160 (32.2)	116 (23.0)	
Obese	135 (27.2)	29 (5.8)	
Physical activity [a], no. (%)			0.001
Sedentary	284 (57.1)	234 (46.4)	
Active	213 (42.9)	270 (53.6)	

SD = standard deviation; BMI = body mass index.

[a]Physical activity was classified according to the International Physical Activity Questionnaire (sedentary: physical activity ≤ 10 continuous minutes per week and up to 150 minutes per week. active: moderate to high activity like walking for ≥ 5 days/week and ≥ 30 minutes per session).

Prevalence of eating disorders

Those with dysglycaemia showed a higher prevalence of BED compared with those who did not have nondysglycaemia (11.9% vs 5.8%, $P < 0.001$) (Table 2). However, there were no significant differences in the prevalence of BN and other EDs between the 2 groups.

Table 3 shows the prevalence of EDs in both groups according to the participants' characteristics. For the nondysglycaemia group, BED was significantly more prevalent among females and the other EDs were less common among those who were 14–18 years old. In the dysglyacemic group, the prevalence was higher among older adolescents, females, obese patients, the physically inactive, and patients with pre-DM. Higher BMI, sedentary lifestyle, and pre-DM were statistically significantly associated with BED.

Multiple regression analysis

Table 4 shows the multiple regression analysis of factors associated with different types of EDs. In the dysglycae-

mia group, adolescents aged ≥14 years were more likely to have BN compared with those < 14 years old. Age was not significantly associated with the other 2 types of ED. Patients who reported having a sedentary lifestyle were less likely to have BN (OR = 0.2, 95% CI: 0.1–0.5; $P = 0.001$) and BED (OR = 0.4, 95% C: 0.2–0.8; $P = 0.005$).

In the nondysglycaemic group, participants who were aged 14–18 years were 2.6 times more likely to have other EDs compared with those < 14 years ($P = 0.014$). Also in this group, a physical activity was not significantly associated with the 3 different types of ED.

A separate analysis (after adjusting for possible confounders) showed that those with dysglycaemia were 2.1 times more likely to have BED than the nondysglycaemic group (OR = 2.1, 95% CI: 1.3–3.3; $P = 0.002$).

Discussion

In this study, we estimated the prevalence of EDs among dysglycaemic and nondysglycaemic adolescents in Jordan. The prevalence of EDs was higher in dysglycaemic

Table 2 Prevalence of different eating disorders among the Jordanian adolescents, 2017–2018

Disorder	Dysglycaemia (n = 497) %	Nondysglycaemia (n = 504) %	P-value
Bulimia nervosa	6.6	4.9	0.158
Binge eating disorder	11.9	5.8	< 0.001
Other eating disorder	17.1	13.9	0.094
Any eating disorder	35.7	25.0	< 0.001

Table 3 Distribution of eating disorders among Jordanian adolescents with dysglycaemia and nondysglycaemia according to demographic characteristics, 2017–2018

Characteristic	Dysglycaemia			Nondysglycaemia		
	Bulimia nervosa (n = 33) No. (%)	Binge eating disorder (n = 59) No. (%)	Other eating disorders (n = 85) No. (%)	Bulimia nervosa (n = 25) No. (%)	Binge eating disorder (n = 29) No. (%)	Other eating disorders (n = 70) No. (%)
Age (years)						
< 14	3 (1.8)	13 (7.8)	30 (18.1)	7 (4.2)	8 (4.8)	25 (15.1)
14–18	12 (8.0)	22 (14.7)	19 (12.7)	5 (3.3)	5 (3.3)	10 (6.6)
> 18	18 (9.9)	24 (13.3)	36 (19.9)	13 (7.0)	16 (8.6)	35 (18.8)
P-value	0.007	0.132	0.204	0.257	0.093	0.005
Sex						
Male	7 (4.1)	19 (11.0)	23 (13.4)	6 (3.4)	3 (1.7)	18 (10.3)
Female	26 (8.0)	40 (12.3)	62 (19.1)	19 (5.8)	26 (7.9)	52 (15.8)
P-value	0.094	0.679	0.108	0.248	0.005	0.088
BMI category						
Severe thinness	0 (0.0)	0 (0.0)	0 (0.0)	1 (7.1)	1 (7.1)	0 (0.0)
Underweight	0 (0.0)	1 (5.3)	2 (10.5)	0 (0.0)	1 (2.3)	1 (2.3)
Normal	3 (1.6)	18 (9.9)	24 (13.2)	15 (5.0)	15 (5.0)	43 (14.3)
Overweight	12 (7.5)	10 (6.3)	32 (20.0)	7 (6.0)	10 (8.6)	22 (19.0)
Obese	18 (13.3)	30 (22.2)	27 (20.0)	2 (6.9)	2 (6.9)	4 (13.8)
P-value	< 0.001	< 0.001	0.342	0.614	0.436	0.045
Physical activity[a]						
Sedentary	29 (10.2)	44 (15.5)	52 (18.3)	13 (5.6)	13 (5.6)	36 (15.4)
Active	4 (1.9)	15 (7.0)	33 (15.5)	12 (4.4)	16 (5.9)	34 (12.6)
P-value	< 0.001	0.004	0.409	0.567	0.859	0.366
Type of dysglycaemia						
T1DM	8 (3.6)	19 (8.3)	40 (17.5)	–	–	–
Pre-DM	25 (9.3)	40 (14.9)	45 (16.7)			
P-value	0.010	0.025	0.810			

BMI = body mass index; T1DM = type 1 diabetes mellitus; Pre-DM = pre-diabetes mellitus.
[a]Physical activity was classified according to the International Physical Activity Questionnaire (sedentary: physical activity ≤ 10 continuous minutes per week and up to 150 minutes per week. active: moderate to high activity like walking for ≥ 5 days/week and ≥ 30 minutes per session).

patients compared with nondysglycaemic participants (35.7% vs 25.0%). The EDs identified in this study included BN, BED, and other EDs; no cases of AN were identified in either group. The finding of higher prevalence of EDs among patients with dysglycaemia is consistent with the findings of other studies (4,7,18). Young et al. reported that the prevalence of EDs in adolescents with T1DM was greater compared with their nondiabetic counterparts (7% vs 2.8%) (8). Jones et al. found that EDs were more prevalent in females with diabetes (10%) than in nondiabetic females (4%) (9). Some research has indicated that diabetes is associated with psychosocial difficulties and worries (19). This might explain the higher prevalence of EDs among those without diabetes, especially adolescents and young adults.

In the current study, the most common eating disorder seen in the dysglycaemic patients was BED, which is the most common ED worldwide when compared with AN and BN (20,21). The prevalence of BED in community samples ranges from 2% to 5% (22). We found that patients with dysglycaemia were 2 times more likely to have BED than the nondysglycaemic group. This finding is consistent with previous research (23). Mannucci et al. reported that the prevalence of BED was 4.9% in IDDM, patients and 2.7% in controls (24). d'Emden et al. reported that 17.7% of Australian adolescents with T1DM had BED (25). It was also more common in preteens and early teenage girls with T1DM than in nondiabetic girls (3.0% vs 0.3%) (26). Although EDs can affect individuals of all ages, adolescence represents a peak lifetime period of increased vulnerability for the onset of EDs; BED has 2 peaks of onset, the first at a mean age of 14 years and the second between 19 and 24 years old (27). The age range for the current study was 10–24 years, and the mean age was 16 years, which might explain the reason that BED was the most common ED in this group.

Obesity is known as a risk factor for inappropriate weight control practices, and is therefore a risk factor for

Table 4 Multiple logistic regression analysis for factors related to bulimia nervosa, binge eating disorder and other eating disorders in Jordanian adolescents with and without dysglycaemia, 2017–2018

Characteristic	Bulimia nervosa		Binge eating disorder		Other eating disorders	
	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value
Dysglycaemic group						
Age (year)						
< 14	1.0		1.0		1.0	
14–18	4.7 (1.3–17.3)	0.018	2.0 (0.9–4.2)	0.060	1.5 (0.8–2.8)	0.183
> 18	5.9 (1.7 –20.5)	0.005	1.8 (0.8–3.6)	0.122	0.9 (0.6–1.5)	0.673
Physical activity						
Active	1.0		1.0		1.0	
Sedentary	0.2 (0.1–0.4)	0.001	0.4 (0.2–0.8)	0.005	1.2 (0.8–2.0)	0.413
Non-dysglycaemic group						
Age (years)						
< 14	1.0		1.0		1.0	
14–18	0.7 (0.2–2.4)	0.625	0.9 (0.2–2.2)	0.522	2.6 (1.2–5.8)	0.014
> 18	1.6 (0.6–4.3)	0.310	1.9 (0.9–4.6)	0.155	0.8 (0.4–1.4)	0.458
Physical activity						
Active	1.0		1.0		1.0	
Sedentary	0.8 (0.4–1.9)	0.640	1.1 (0.5–2.4)	0.751	1.3 (0.8–2.2)	0.321

ED. The EDs that have been most frequently studied in obese individuals are BED and BN (28). In our study, obese people with dysglycaemia showed a higher prevalence of BED and BN than overweight, normal weight and underweight participants; about 30% of the dysglycaemic participants who had BED were either overweight or obese.

Several studies have identified factors that increase the risk of developing psychiatric problems that lead to EDs (29,30). These include age, female sex, increased body weight, body image dissatisfaction, history of dieting and history of depression. In the current study, age and physical activity were associated with BN and BED in the dysglycaemic group. Takii et al. reported that individuals with T1DM with an onset between age 7 and 18 years were at significantly higher risk of subsequently developing EDs such as AN or BN than those who were diagnosed before 7 or after 18 years of age (31). The association of age with EDs in this study is in agreement with previous research (9,32); patients older than 18 years were 5 times more likely to have BN than young patients who were less than 14 years old. In the nondysglycaemic group, age was the only factor associated with other EDs such as atypical AN and purging disorders. Participants between 14–18 years old were 2.6 times more likely to have other EDs. Adolescence is a critical period of human development during which several physical and psychological changes occur, and peer influences and the continuous use of social media may increase the risk of developing EDs in this age group.

In the nondysglycaemic group, females were 4 times more likely to have BED compared with males. Studies conducted on BED have shown that girls had a higher risk than boys (33,34). Research in Jordan has also shown that the prevalence of EDs was higher among females compared with males (13,14). Generally, females are very concerned about their weight, and it is somewhat common for adolescent girls to engage in inappropriate weight management such as using laxatives, fasting and vomiting (35). Moreover, females are more likely to report eating-related distress or loss of control because expressing emotions is sometimes more socially accepted and expected from females (36). However, it is also possible that males may not feel distressed or out of control when they overeat.

Physical activity is another risk factor for EDs. Individuals with BED are commonly described as sedentary (37,38). In the current study, dysglycaemic patients who had a sedentary lifestyle had a higher prevalence of BED and BN than patients with an active lifestyle, which might be due to a number of factors, such as psychological and emotional factors, negative body attitude, social support, and the financial cost of the exercise facility. Moreover, participants with a sedentary lifestyle are less likely to develop BED and BN than people with an active lifestyle, which might be due to the fact that people with BED consider exercise a factor that allows them to eat greater quantities of food without getting fat, while people with BN use exercise as a way to overcome excessive food consumption. Individuals with BED have been described as sedentary, whereas the opposite has been the case for those with BN (38).

As a final point, the prevalence of EDs among diabetic patients showed incongruities. Many screening tools have been used to assess the existence of EDs; however, they were used for different age groups and not designed for people who have medical conditions such as diabetes. Thus, these tools might not display the actual

estimate of EDs and might lead to a misclassification of eating disorder risks in those with chronic illness. Another limitation of this study is inherent in the cross-sectional design: causality cannot be established using this design. Further studies with the appropriate design are needed to establish the causal link between dysglycaemia and EDs.

Conclusion

Adolescents with dysglycaemia showed a higher prevalence of EDs compared with their nondysglycaemic peers even though the diagnosis of EDs in individuals with diabetes is difficult due to the frequent disguise and denial of disordered eating behaviour. Therefore, care providers must pay attention to warning signs such as poor glycaemic control and a refusal to be weighed. Screening is recommended to secure early detection and subsequent intervention.

Étude comparative sur les troubles alimentaires chez les adolescents jordaniens avec et sans dysglycémie

Résumé

Contexte : Des études sur les troubles alimentaires chez les adolescents jordaniens ont fait état de taux de prévalence variables compris entre 12 et 40 %.

Objectifs : La présente étude visait à déterminer la prévalence des troubles alimentaires chez les adolescents jordaniens avec et sans dysglycémie et à déterminer les facteurs qui y sont associés.

Méthodes : Une étude transversale comparative a été menée au cours de la période allant de novembre 2017 à février 2018. L'échelle de diagnostic des troubles alimentaires a été utilisée pour évaluer la présence de différents types de troubles alimentaires, notamment l'anorexie mentale, la boulimie et l'hyperphagie boulimique. L'anorexie nerveuse atypique et le trouble de purge ont été considérés en tant « qu'autres troubles alimentaires » dans cette étude.

Résultats : Cette étude portait sur 497 patients atteints de dysglycémie et 504 participants sans dysglycémie appariés selon l'âge. Les patients atteints de dysglycémie présentaient une prévalence significativement plus élevée de troubles de la boulimie par rapport aux participants sans dysglycémie (11,9 % contre 5,8 %, p < 0,001). Les adolescents atteints de dysglycémie âgés de 14 ans ou plus étaient plus susceptibles de souffrir de boulimie nerveuse que ceux de moins de 14 ans. Les patients ayant un mode de vie sédentaire étaient moins susceptibles de souffrir de boulimie et d'hyperphagie boulimique. Dans le groupe des sujets non dysglycémiques, la probabilité d'avoir d'autres troubles alimentaires était plus élevée ceux âgés de 14 à 18 ans. Les participants atteints de dysglycémie étaient plus susceptibles d'avoir une hyperphagie boulimique que ceux du groupe non dysglycémique (OR = 2,1, IC à 95 % : 1,3-3,3 ; p = 0,002) après ajustement en fonction des facteurs de confusion possibles.

Conclusions : Les adolescents atteints de dysglycémie présentaient une prévalence plus élevée de troubles alimentaires par rapport à leurs pairs non atteints de dysglycémie. Le dépistage des troubles alimentaires est recommandé chez les adolescents afin d'assurer une détection précoce et une intervention ultérieure.

اضطرابات الأكل بين المراهقين الأردنيين المصابين بخلل سكر الدم وغير المصابين به: دراسة مقارنة

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الخلاصة

الخلفية: أفادت الدراسات التي أُجريت على اضطرابات الأكل بين المراهقين الأردنيين أن معدلات الانتشار المتغيرة تتراوح بين 12 –40٪.

الأهداف: هدفت هذه الدراسة إلى تحديد معدل انتشار اضطرابات الأكل بين المراهقين الأردنيين المصابين بخلل سكر الدم وغير المصابين به، وتحديد العوامل المرتبطة بذلك.

طرق البحث: أُجريت دراسة مقطعية مقارنة خلال الفترة من نوفمبر/ تشرين الثاني 2017 إلى فبراير/ شباط 2018. واستُخدم مقياس تشخيص اضطرابات الأكل لتقييم وجود أنواع مختلفة من اضطرابات الأكل، بما فيها فقدان الشهية العصبي، والنهام العصبي، واضطراب نهم الطعام. وأخذت الدراسة بعين الاعتبار فقدان الشهية العصبي غير النمطي والاضطراب المُسهِل "اضطرابات الأكل الأخرى".

النتائج: شملت هذه الدراسة 497 مريضاً يعانون من خلل سكر الدم و504 مشاركين من العمر نفسه لا يعانون من خلل سكر الدم. وكان معدل انتشار اضطراب نهم الطعام لدى المرضى المصابين بخلل سكر الدم أعلى بكثير مقارنةً بالمشاركين غير المصابين بخلل سكر الدم (P<0.001، 11.9٪ .vs 5.8٪). وفي مجموعة المصابين بخلل سكر الدم، كان المراهقون الذين بلغت أعمارهم ≤ 14 سنة أكثر عُرضة للإصابة بالنهام العصبي مقارنةً بالذين تقل أعمارهم عن 14 سنة. وكان المرضى الذين يتَّبعون نمط حياة يتسم بقلة الحركة أقل عرضة للإصابة بالنهام العصبي

واضطراب نهم الطعام. وفي مجموعة غير المصابين بخلل سكر الدم، كان أولئك الذين تتراوح أعمارهم بين 14–18 سنة أكثر عُرضة للإصابة باضطرابات الأكل الأخرى. وكان أولئك الذين يعانون من خلل سكر الدم أكثر عُرضة للإصابة باضطراب نهم الطعام من أولئك الذين ينتمون إلى مجموعة غير المصابين بخلل سكر الدم (OR=2.1; 95% CI=1.3-3.3; p=0.002) بعد التصحيح من أجل السيطرة على عوامل الإرباك المحتملة.

الاستنتاجات: كان معدل انتشار اضطرابات الأكل لدى المراهقين المصابين بخلل سكر الدم أعلى مقارنةً بأقرانهم الذين لا يعانون من خلل سكر الدم. ويوصَى بفحص المراهقين للتحرِّي عن اضطرابات الأكل لضمان الكشف المبكر والتدخل اللاحق.

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