

PREVALENCE AND FACTORS ASSOCIATED WITH OVERWEIGHT AND OBESITY AMONG ADOLESCENTS OF A PUBLIC SCHOOL

Prevalência e fatores associados ao sobrepeso e obesidade entre adolescentes de uma escola pública

Prevalencia y factores asociados con el sobrepeso y la obesidad de adolescentes de una escuela pública

Original Article

ABSTRACT

Objective: To determine the prevalence and factors associated with overweight and obesity among adolescents of a public school in Campinas, São Paulo. **Methods:** Observational, cross-sectional study conducted between July and September 2013 with 107 young individuals aged 14-19 years who attended high school in a public school in the municipality of Campinas, São Paulo. It was used a questionnaire to investigate sociodemographic data and risk factors for overweight and obesity. Additionally, clinical data (height, weight, blood pressure) were verified. **Results:** The sample had a predominance of women (n=65, 60.7%) with a mean age of 16.5 years and family income of 2-4 minimum wages (n=53, 49.5%). The prevalence of overweight and obesity was 18 (16.8%) and 9 (8.4%), respectively. It is noteworthy that 62 (58%) individuals always skipped one meal, 54 (50.5%) always ate while watching television, and 56 (52.3%) did not do physical activity outside school. Trying and failing to go on a diet was associated with overweight and obesity, and curvilinear self-image was associated with obesity. **Conclusion:** The study revealed that a significant part of the sample was overweight or obese. The failure to go on a diet and the curvilinear self-image associated with nutritional changes suggest that the adolescents were aware of these changes and were concerned with their own weight, seeking to go on a diet in an attempt to lose weight.

Descriptors: Adolescent Nutrition; Pediatric Obesity; Overweight.

RESUMO

Objetivo: Verificar a prevalência e os fatores associados ao sobrepeso e à obesidade entre adolescentes de uma escola pública em Campinas, São Paulo. **Métodos:** Estudo observacional, transversal, realizado entre julho e setembro de 2013, com 107 jovens entre 15 e 19 anos que cursavam o ensino médio em uma escola pública do município de Campinas, São Paulo. Utilizou-se um questionário para investigar dados sociodemográficos e fatores de risco para sobrepeso e obesidade. Além disso, verificaram-se dados clínicos (peso, altura, pressão arterial). **Resultados:** A amostra se caracterizou com predomínio de mulheres (n=65, 60,7%) com 16,5 anos em média e renda familiar entre 2 e 4 salários mínimos (n=53, 49,5%). A prevalência de sobrepeso e obesidade foi de 18 (16,8%) e 9 (8,4%), respectivamente. Destaca-se que 62 (58%) sempre omitiam uma refeição, 54 (50,5%) sempre se alimentavam vendo televisão e 56 (52,3%) não praticavam atividade física fora da escola. Tentar e não conseguir fazer dieta foi associado ao sobrepeso e à obesidade, e autoimagem curvilínea foi associada à obesidade. **Conclusão:** O estudo revelou que parte significativa da amostra estava com sobrepeso ou obesidade. A falha em manter uma dieta e a autoimagem curvilínea associadas às alterações nutricionais sugerem que os adolescentes tinham consciência dessas alterações e se preocupavam com o próprio peso, a ponto de buscarem a dieta para tentar emagrecer.

Descriptores: Nutrição do Adolescente; Obesidade Pediátrica; Sobre peso.

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RESUMEN

Objetivo: Verificar la prevalencia y los factores asociados con el sobrepeso y la obesidad entre adolescentes de una escuela pública de Campinas, São Paulo. **Métodos:** Estudio observacional y transversal realizado entre julio y septiembre de 2013 con 107 jóvenes entre 15 y 19 años que cursaban la educación secundaria en una escuela pública del municipio de Campinas, São Paulo. Se utilizó un cuestionario para investigar los datos sociodemográficos y los factores de riesgo para el sobrepeso y la obesidad. Además, se verificaron los datos clínicos (peso, altura, presión arterial).

Resultados: La muestra tuvo el predominio de mujeres ($n=65$, 60,7%) con media de 16,5 años y renta familiar entre 2 y 4 sueldos mínimos ($n=53$, 49,5%). La prevalencia de sobrepeso y obesidad fue de 18 (16,8%) y 9 (8,4%), respectivamente. Se destaca que 62 (58%) personas siempre omitían una comida, 54 (50,5%) de ellas siempre se alimentaba mirando la televisión y 56 (52,3%) no practicaban actividad física fuera de la escuela. El hecho de intentar y no lograr hacer la dieta estuvo asociado con el sobrepeso y la obesidad y la autoimagen estuvo asociada con la obesidad. **Conclusión:** El estudio reveló que parte significativa de la muestra tenía sobrepeso u obesidad. El fallo de mantener una dieta y la autoimagen asociadas con las alteraciones nutricionales sugiere que los adolescentes tenían conciencia de estas alteraciones y se preocupaban con su propio peso hasta buscar la dieta para intentar adelgazar.

Descriptores: Nutrición del Adolescente; Obesidad Pediátrica; Sobre peso.

INTRODUCTION

Currently, obesity has become a major public health problem in the global epidemiological scenario. Both developed and developing countries, including Brazil, have high rates of people with excess weight in their population⁽¹⁾. Given its magnitude and speed of growth, this phenomenon is already considered a pandemic⁽²⁾.

Obesity is in the group of Noncommunicable Diseases and Injuries (NCDIs); it is multifactorial and involves biological, historical, ecological, environmental, social, cultural, political and unknown causes. Several factors contribute to its prevalence, including the current lifestyle of the urban population, which translates into unhealthy eating habits and low physical activity^(2,3).

In Brazil, the VIGITEL 2014, a telephone survey conducted with about 40,000 adults in 26 capitals and the Federal District, recorded rates of 52.5% of overweight and 17.9% of obese people. These rates have been increasing annually and constitute a bleak outlook for health, as these nutritional changes are serious risk factors for hypertension, diabetes, cardiovascular disease and cancer⁽⁴⁾.

However, the increase in obesity rates affects not only the adult population; the childhood and adolescence obesity has already become a growing public health concern (5).

Adolescence is a stage of constant biopsychosocial transformations, with nutrition playing an important role of great complexity^(3,6). Scientific evidence suggests that prevalence rates of overweight and obesity in adolescents are significant. Recent IBGE statistics show that one in five young people aged 10-19 years presents excess weight⁽⁶⁾.

A study conducted with 480 adolescents from public schools in the city of Juiz de Fora, Minas Gerais, found a prevalence of 7.5% of overweight among girls and 13.1% among boys; obesity was prevalent in 10.4% of girls and 7.6% of boys⁽⁷⁾.

Risk factors for childhood and adolescence obesity include having obese parents, media influence, sedentary lifestyle, poor nutrition, genetic factors, socioeconomic status, among others^(2,8).

Adolescents with excess weight have increasingly presented serious health problems that compromise their quality of life. These complications can appear in childhood and adolescence, but they will certainly be present in adult life^(9,10). In addition, nutritional changes in adolescence can affect body image perception and satisfaction, self-image and self-esteem, causing psychosocial disorders⁽¹¹⁻¹³⁾.

Given the above, there is a need for nutritional status surveillance systems targeted at adolescents in order to assess this phenomenon. The present study aims to determine the prevalence and factors associated with overweight and obesity among adolescents of a public school in Campinas, São Paulo.

METHODS

This is an observational cross-sectional study conducted in a public school of the western region of the municipality of Campinas, São Paulo. The study population consisted of 107 high school (sophomore, junior and senior years) students, regardless of gender, attending the morning shift in 2013.

Data collection took place between June and September 2013 using an instrument designed for that purpose. The questionnaire contained 17 multiple choice questions about sociodemographic data (gender, age, household income), factors potentially associated with overweight and obesity (self-perceived health, family history of chronic diseases, eating habits, physical activity, etc.), assessment of body self-image and clinical and anthropometric data (weight, height, blood pressure). The latter were checked at the moment of data collection using duly calibrated instruments.

Nutritional status was assessed according to the World Health Organization (WHO) (14) criteria to classify BMI as follows: z score less than -2 was identified as low BMI; z-score between - 2 and + 1 indicated normal BMI; z score between +1 and +2, overweight; and z score greater than or equal to + 2, obesity. Self-image was classified on a scale at seven levels consisting of figures of people with different body shapes ranging from extremely rectilinear (level 1) to extremely curvilinear (level 7).

Data were analyzed using descriptive statistics with absolute and relative frequencies for the categorical variables and mean \pm standard deviation (SD). Inferential analysis was performed using Pearson's chi-squared test between proportions using the SPSS 13.0 software with a significance level of 5% ($p \leq 0.05$).

The present study was approved by the Ethics Committee of the *Universidade Paulista - UNIP* (Paulista University) in Campinas (Protocol No. 17430513.8.0000.5512). The study also received approval from the students' school and

parents, following the guidelines of Resolution 466/12 of the National Health Council for research involving human subjects.

RESULTS

The mean age of the 107 students was 16.5 years ($SD=1.19$) and 65 students (60.7%) were girls; furthermore, 53 (49.5%) participants had a family income between two and four minimum wages (Table I).

Significant gender difference was observed only in relation to self-perceived health (Table II); in all, 33 (50.8%) girls rated their health as fair and 20 (47.6%) boys rated their health as poor ($\chi^2=13.568$; $p<0.01$).

The prevalence of overweight and obesity together was approximately 25% (28.6% of men and 23.1% of women, not statistically significant difference – $p=0.523$). Most of the participants had normal blood pressure ($n=55$, 51.4%); however, a significant portion of the sample had borderline

Table I - Sociodemographic profile of the sample of adolescents and young people. Campinas, SP, 2013.

Sociodemographic variables	Frequencies n=107
	n (%)
Gender	
Female	65 (60.7)
Male	42 (39.3)
Age (years)	
Mean ($\pm SD$)	16.4 (± 1.19)
Minimum	15
Maximum	19
Household income – minimum wages	n (%)
Up to 1	7 (6.5)
1-2	47 (43.9)
2-3	27 (25.2)
3-4	26 (24.3)
More than 4	0 (0.0)

high blood pressure ($n=22$, 20.6%) or hypertension ($n=20$, 18.7%).

Regarding health risk factors, 70 (65.4%) participants are unaware of a family history of obesity; 76 (71%) are unaware of a history of hypertension; and 80 (74.8%) are unaware of a history of diabetes. Being aware of obesity, hypertension and diabetes in father, mother or both was reported by 18 (16.8%), 19 (17.8%) and 16 (14.9%) participants, respectively.

With regard to the weight loss diet plan, 75 (70.1%) participants reported not following one; however, 62 (57.9%) individuals reported always skipping one meal, especially breakfast ($n=32$, 43%). In addition, 99 (92.6%) respondents reported eating while watching television at frequencies ranging from sometimes to always.

Regarding the level of physical activity, there was a significant difference between genders as to the place where it was done (Table III). Physical activity at school

Table II - Self-perception of health and health risk factors of the sample of adolescents and young people according to gender. Campinas, SP, 2013.

Self-perception of Health and Health Risk Factors	Male n= 42	Female n= 65	Total n=107	p-value
Self-perception of Health*	n (%)	n (%)	n (%)	
Very good	0 (0)	5 (7.7)	5 (4.7)	
Good	7 (16.7)	16 (24.7)	23 (21.5)	
Fair	15 (35.7)	33 (50.8)	48 (44.9)	0.004*
Poor	20 (47.6)	11 (16.9)	31 (29.0)	
Very poor	0 (0)	0 (0)	0 (0)	
BMI	n (%)	n (%)	n (%)	
Undernourished	2 (4.8)	1 (1.5)	3 (2.8)	
Normal	28 (67.7)	49 (75.4)	77 (72.0)	
Overweight	7 (16.7)	11 (16.9)	18 (16.8)	0.295
Obesity	5 (11.9)	4 (6.2)	9 (8.4)	
Blood Pressure Classification	n (%)	n (%)	n (%)	
Very good	3 (7.1)	7 (10.8)	10 (9.3)	
Normal	16 (38.1)	39 (60.0)	55 (51.4)	
Borderline	12 (28.6)	10 (15.4)	22 (20.6)	
Stage I hypertension	10 (23.8)	9 (13.8)	19 (17.8)	
Stage II hypertension	1 (2.4)	0 (0)	1 (0.9)	
Use of medication	n (%)	n (%)	n (%)	
Yes	5 (11.9)	15 (23.1)	20 (18.7)	
No	37 (88.1)	50 (76.9)	87 (81.3)	0.148
Family history of obesity	n (%)	n (%)	n (%)	
Father	2 (4.8)	5 (7.7)	7 (6.5)	
Mother	1 (2.4)	5 (7.7)	6 (5.6)	
Both	3 (7.1)	2 (3.1)	5 (4.7)	0.396
Unaware	26 (61.9)	44 (67.7)	70 (65.4)	
No	10 (23.8)	9 (13.8)	19 (17.8)	
Family history of hypertension	n (%)	n (%)	n (%)	
Father	6 (14.3)	2 (3.1)	8 (7.5)	
Mother	5 (11.9)	3 (4.6)	8 (7.5)	
Both	1 (2.4)	2 (3.1)	3 (2.8)	
Unaware	25 (59.5)	51 (78.5)	76 (71.0)	
No	5 (11.9)	7 (10.8)	12 (11.2)	
Family history of diabetes	n (%)	n (%)	n (%)	
Father	3 (7.1)	4 (6.2)	7 (6.5)	
Mother	4 (9.5)	4 (6.2)	8 (7.5)	
Both	1 (2.4)	0 (0.0)	1 (0.9)	0.653
Unaware	29 (69.0)	51 (78.5)	80 (74.8)	
No	5 (11.9)	6 (9.2)	11 (10.3)	
Weight loss diet	n (%)	n (%)	n (%)	
Yes, always	4 (9.5)	9 (13.8)	13 (12.1)	
No	31 (73.8)	44 (67.7)	75 (70.1)	0.750
Tried and failed	7 (16.7)	12 (18.5)	19 (17.8)	
Skipping meals	n (%)	n (%)	n (%)	
No, never	14 (33.3)	18 (27.7)	32 (29.9)	
Yes, sometimes	4 (9.5)	9 (13.8)	13 (12.1)	
Yes, always	24 (57.1)	38 (58.5)	62 (57.9)	0.715
Which meal is skipped (n=75)	n (%)	n (%)	n (%)	
Breakfast	15 (54.0)	17 (36.0)	32 (43.0)	
Lunch	9 (32.0)	11 (23.0)	20 (27.0)	
Dinner	4 (14.0)	19 (40.0)	23 (31.0)	0.115
Watching TV while eating	n (%)	n (%)	n (%)	
Never	4 (9.5)	4 (6.2)	8 (7.5)	
Always	21 (50.0)	33 (50.8)	54 (50.5)	
Sometimes	17 (40.5)	29 (43.1)	45 (42.1)	0.806

* p<0,05; $\chi^2 = 13.568$

Table III - Physical activity level reported by adolescents according to gender. Campinas, SP, 2013.

Physical Activity Level	Male	Female	Total
	n= 42	n= 65	n=107
Physical activity at school*	n (%)	n (%)	n (%)
Once a week	8 (19.0)	13 (20.0)	21 (19.6)
Twice a week	18 (42.9)	13 (20.0)	31 (29.0)
Sometimes	16 (38.1)	39 (60.0)	55 (51.4)
Physical activity outside school**	n (%)	n (%)	n (%)
1-2 times a week	9 (21.4)	10 (15.4)	19 (17.8)
2-3 times a week	3 (7.1)	3 (4.6)	6 (5.6)
More than 3 times a week	16 (38.1)	10 (15.4)	26 (24.3)
None	14 (33.3)	42 (64.6)	56 (52.3)

* $\chi^2=6.994$; p=0.03** $\chi^2=11.002$; p=0.01

Table IV - Factors associated with changes in nutritional status. Campinas, SP, 2013.

Associated factors	Overweight	p value	Obesity	p value	Total
	n=18		n=9		n=27
Self-perception of Health	n (%)		n (%)		n (%)
Very good	2 (11.1)	0.254	0 (0)	0.460	2 (7.4)
Good	4 (22.2)		2 (22.2)		6 (22.2)
Fair	5 (27.8)		6 (66.7)		11 (40.7)
Poor	7 (38.9)		1 (11.1)		8 (29.6)
Very poor	0 (0)		0 (0)		0 (0)
Weight loss diet	n (%)		n (%)		n (%)
Yes, always	3 (16.7)	0.002*	1 (11.1)	0.044**	4 (14.8)
No	7 (38.9)		5 (55.6)		2 (44.4)
Tried and failed	8 (44.4)		3 (33.3)		11 (40.7)
Skipping meals	n (%)		n (%)		n (%)
No, never	2 (11.1)	0.159	2 (22.2)	0.358	4 (14.8)
Yes, sometimes	3 (16.7)		0 (0)		3 (11.1)
Yes, always	13 (72.2)		7 (77.8)		20 (74.1)
Physical activity at school	n (%)		n (%)		n (%)
Once a week	2 (11.1)	0.462	1 (11.1)	0.531	3 (11.1)
Twice a week	7 (38.9)		4 (44.4)		11 (40.7)
Sometimes	9 (50.0)		4 (44.4)		13 (48.1)
Physical activity outside school	n (%)		n (%)		n (%)
1-2 times a week	3 (16.7)	0.711	1 (11.1)	0.766	4 (14.8)
2-3 times a week	0 (0.0)		0 (0)		0 (0.0)
More than 3 times a week	5 (27.8)		3 (33.3)		8 (29.6)
None	10 (55.6)		5 (55.6)		15 (55.6)
Watching TV while eating	n (%)		n (%)		n (%)
Never	1 (5.6)	0.611	0 (0)	0.256	1 (3.7)
Always	11 (61.1)		3 (33.3)		14 (51.9)
Sometimes	6 (33.3)		6 (66.7)		12 (44.4)
Self-image	n (%)	0.002***	n (%)		n (%)
1	0 (0)		0 (0)	0.0001#	0 (0)
2	0 (0)		0 (0)		0 (0)
3	5 (27.8)		0 (0)		5 (18.5)
4	5 (27.8)		2 (22.2)		7 (25.9)
5	5 (27.8)		0 (0)		5 (18.5)
6	2 (11.1)		6 (66.7)		8 (29.6)
7	1 (5.6)		1 (11.1)		2 (7.4)

was done by 39 (60%) women “sometimes” and by 18 (42.9%) men “twice a week” ($\chi^2=6.994$; $p=0.03$). Physical activity outside school was not done by 42 (64.6%) women, and 28 (66.6%) men did it more than three times a week ($\chi^2=11.002$, $p=0.01$).

When assessing only the overweight and obese adolescents ($n=27$), 11 (40.7%) respondents rated their health as fair and 8 (29.6%) rated it as poor. In addition, 11 (40.7%) respondents reported they have tried a diet but failed, and 20 (74.1%) participants reported always skipping one meal (Table IV).

Thirteen (48.1%) overweight or obese respondents reported doing physical activity “sometimes”, and 15 (55.6%) did not do it outside school. This level of inactivity is consistent with the finding that 14 (51.9%) respondents always watched television while eating and the identification of 15 (55.5%) adolescents with a more curvilinear self-image (levels 5, 6 and 7 on the self-image scale).

Only two factors were statistically associated with overweight and obesity: weight loss diet and self-image. This suggests that most overweight and obese adolescents have tried and failed dieting ($\chi^2=12.049$, $p=0.002$). Additionally, obese participants were particularly aware of these nutritional changes, as they indicated the most curvilinear figures on the self-image scale ($\chi^2=47.814$; $p\leq 0.0001$).

DISCUSSION

The health of adolescents and young adults is increasingly worrying for public health professionals and organizations. Despite being a little prone to health problems, this population often presents changes in nutritional status.

The study found that the prevalence of overweight and obesity in the study sample was approximately 25% (16.8% for overweight and 8.4% for obesity). Moreover, it was also observed a prevalence of hypertension in almost 20% of the young people.

Regional studies show a considerable variation in these rates. A study conducted with more than 4,000 students aged 14-19 years from public schools of Pernambuco estimated a prevalence of 11.5% of overweight and 2.4% of obesity⁽¹⁵⁾. An epidemiological population-based study conducted with 1,253 students aged 7-17 years enrolled in public and private schools in the city of Maceió, Alagoas, found a prevalence of 9.3% of overweight and 4.5% of obesity⁽¹⁶⁾.

A prevalence of about 50% of overweight and obesity was found in a study conducted with 217 children aged 7-11 years from private schools in the city of Fortaleza, Ceará. The authors point out that these figures indicate the

criticalness of the health status of school children in the city of Fortaleza⁽¹⁷⁾.

This variation, combined with the inherent limitations of cross-sectional studies, suggest that the comparison between rates should be cautious. However, it is reasonable to assume that 25% is a significant part of the sample and constitutes a major health problem, especially if we consider that these clinical changes are occurring in a stage of growth and development such as adolescence.

Almost 45% of participants rated their health status as fair. However, the boys differed from girls for rating their health as poor. Most adolescents reported eating while watching television and skipping one meal, i.e., they had life habits that favored overweight.

Such behaviors are associated with the modern lifestyle, in which the economic development and the urbanization process caused significant changes in dietary patterns and a prevalence of physical inactivity. In addition, the amenities offered by the modern world, such as television sets, wireless phones, video games, computers, remote control, among others, have favored the reduction in energy expenditure⁽¹⁸⁾.

Skipping meals, particularly breakfast, is another relevant datum. Considered one of the main meals, skipping breakfast and the low frequency of milk consumption among children in southern Brazil were significantly associated with obesity⁽¹⁹⁾. There is consensus among health professionals that eating breakfast regularly favors the consumption of grains, fruits and dairy products; additionally, it also provides a greater fractioning of meals throughout the day, a fact that is inversely linked to eating habits like “nibbling” food with high energy density during the day⁽²⁰⁾.

Promoting healthy eating is one of the guidelines of the *Política Nacional de Alimentação e Nutrição* (National Food and Nutrition Policy) and integrates the strategies of the *Política Nacional de Promoção da Saúde* (National Health Promotion Policy) aimed at “promoting healthy habits with emphasis on healthy eating, physical activity, safe behaviors and fight against smoking”. Moreover, it is pointed out as a key component in the development of Food and Nutrition Security, herein understood as “the realization of the human right to regular and permanent access to healthy, affordable and quality food in sufficient quantity, without compromising access to other essential needs, based on health-promoting food practices that respect cultural diversity and that are environmentally, culturally, economically and socially sustainable”^(3,9).

Physical inactivity outside school was reported by more than 50% of the participants, with girls being more inactive

than boys. Currently, the WHO recommends that adults do physical activity of moderate intensity with a frequency of at least five days a week for 30 minutes a day for the prevention of cardiovascular disease, diabetes and some types of cancers. These activities can be done continuously or divided into two or three times throughout the day^(5,13). For adolescents, the recommendation is at least 45 minutes three to four days a week^(21,22).

Insufficient levels of physical activity among adolescents are well documented in the literature. A study conducted with 4,216 high school students aged 14-19 found that 65.1% of the respondents were insufficiently active, i.e., individuals who did not do at least 60 minutes a day of moderate or vigorous physical activity for five or more days a week⁽¹⁹⁾.

Data from the *Pesquisa Nacional de Saúde Escolar* (National Survey of School Health) points out that of the nearly 61,000 young Brazilians interviewed, about 40% of boys and 60% of girls were insufficiently active. The study draws attention to the need to promote strategies to increase physical activity among adolescents⁽²³⁾.

In the group of adolescents with overweight and obesity, behaviors like eating while watching TV, skipping meals and being inactive outside school were repeated. The attempt to follow a diet and the curvilinear self-image associated with nutritional changes suggest they are concerned about their weight and aware that their appearance is outside normality patterns.

The relationship between obesity and negative self-image is widely documented in the scientific literature. A study conducted with obese adolescents attending the outpatient center of the *Hospital das Clínicas da Universidade Federal de Pernambuco* (Clinics Hospital of the Federal University of Pernambuco) concluded that adolescents perceive obesity as a disease, which results in low self-esteem and a sense of isolation⁽²⁴⁾. Two literature reviews on obesity and psychosocial aspects in adolescence show that obesity undermines self-esteem and interferes in personal life, causing anguish and frustration^(25,26).

Although there is little encouragement to control obesity in adolescence, it is clear that more intense campaigns are needed. The school is the ideal place to carry out intervention policies on overweight and obesity, as most adolescents spend much of their time in school. In addition, the school environment influences health because schools provide students with the necessary tools to understand the health guidelines published on several media. It also has a key role in the psychological and emotional development of adolescents and may include the updated information on health in the traditional curriculum or in specific subjects focused on health promotion^(21,22,27).

Therefore, it is of utmost importance to develop innovative educational programs and more effective campaigns aimed at enhancing the knowledge of adolescents about nutrition and health in order to positively influence their eating habits and daily practice of physical activity. This can guarantee a better quality of life now and in the future, and also ensure that health care begins at school.

CONCLUSION

The study revealed that a significant portion of the sample was overweight or obese. Failure to maintain a diet and the curvilinear self-image associated with nutritional changes suggest that adolescents were aware of these changes and were concerned about their own weight to the extent of seeking the diet in order to lose weight.

In addition, inadequate eating behaviors such as watching television and skipping meals were observed.

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