

Perception of body image and nutritional status in adolescents of public schools

Percepção da imagem corporal e estado nutricional em adolescentes de escolas públicas
Percepción de la imagen corporal y el estado nutricional en adolescentes de escuelas públicas

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ABSTRACT

Objective: To assess body image dissatisfaction among adolescents from Northern Minas Gerais. **Method:** This is a cross-sectional study with adolescents of both sexes, enrolled in the sixth to ninth year in the municipal public education network. A questionnaire was used, composed of sociodemographic and body image variables, which was obtained through a scale of silhouette figures. The anthropometric measurements of weight and height were performed to estimate body mass index. The correlation between the classification of the body mass index and the body image of adolescents was estimated through weighted Kappa. **Results:** A total of 535 adolescents participated, and 24.5% had different classifications between the real and ideal body image. The Kappa index for the classification of body image was 0.51, 0.58 and 0.32 for the total of adolescents, girls and boys, respectively. **Conclusion:** Public school adolescents are dissatisfied with their self-body image.

Descriptors: Adolescent; Body Image; Adolescent Health; Nutritional Status; Body Mass Index.

RESUMO

Objetivo: Avaliar a insatisfação da imagem corporal entre adolescentes do norte de Minas Gerais. **Método:** Trata-se de estudo transversal realizado com adolescentes de ambos os sexos, matriculados do sexto ao nono ano na rede pública municipal de ensino. Foi utilizado um questionário, composto por variáveis sociodemográficas e de imagem corporal, obtida por meio de uma escala de figuras de silhuetas. Foram realizadas as medidas antropométricas de peso e altura, para o cálculo do índice de massa corporal. A concordância entre a classificação do índice de massa corporal e a imagem corporal dos adolescentes foi estimada por meio do Kappa ponderado. **Resultados:** Participaram 535 adolescentes, sendo que 24,5% possuíam classificação diferente entre a imagem corporal real e ideal. O índice Kappa para a classificação da imagem corporal foi de 0,51, 0,58 e 0,32 para o total de adolescentes, meninas e meninos, respectivamente. **Conclusão:** Os adolescentes de escolas públicas possuem insatisfação da autoimagem corporal.

Descritores: Adolescente; Imagem Corporal; Saúde do Adolescente; Estado Nutricional; Índice de Massa Corporal.

RESUMEN

Objetivo: Evaluar la insatisfacción con la imagen corporal de los adolescentes de la región norte de Minas Gerais. **Método:** Se trata de un estudio transversal, en el cual participaron adolescentes de ambos sexos, matriculados del 6.º al 9.º año en la red pública municipal de enseñanza. Se utilizó un cuestionario, que constó de variables sociodemográficas y de imagen corporal, obtenida por medio de una escala de figuras de siluetas. Se obtuvieron las medidas antropométricas de peso y altura para estimar el índice de masa corporal. La concordancia entre la clasificación del índice de masa corporal y la imagen corporal de los adolescentes se calculó mediante el índice Kappa ponderado. **Resultados:** De los 535 adolescentes participantes, un 24,5% tenía una clasificación diferente entre la imagen corporal real y la ideal. Para la clasificación de la imagen corporal, el índice Kappa fue de 0,51, 0,58 y 0,32 para el total de adolescentes, niñas y niños, respectivamente. **Conclusión:** Los adolescentes de escuelas públicas presentaron una autoimagen insatisfecha con su cuerpo. **Descritores:** Adolescente; Imagen Corporal; Salud del Adolescente; Estado Nutricional; Índice de Masa Corporal.

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INTRODUCTION

Adolescence is a period of fast morphological and psychosocial changes that greatly influences body perception⁽¹⁾. Among adolescents, the desire and the constant search for a physical characteristic different from reality are becoming more common⁽²⁾, which may result in body image dissatisfaction⁽³⁻⁴⁾.

The high body image dissatisfaction may be facilitated by the access to media resources, especially those related to social networks, to which adolescents are frequently exposed, becoming a risk group^(2-3,5). There is an idealization of a perfect body in current societies, which, when not achieved, might generate body image disorders, in addition to effects in health and behavior of adolescents⁽⁶⁻⁸⁾.

Surveillance of body image satisfaction is necessary, since adolescents may perceive their own body differently from its real size, shape and weight. Such behavior, according to its magnitude, may contribute to the occurrence of eating^(2,4,7) and mental⁽⁹⁾ disorders, which might compromise their social relations⁽²⁾ and quality of life. These disorders may manifest through the dissatisfaction with body image and even suicidal thoughts and attitudes⁽³⁾. In this sense, body image dissatisfaction may be a risk factor for the development of psychopathologies and as a mediator of the relation between nutritional status and emotional health^(3,9).

Considering the negative results in health, it is important to understand the body dissatisfaction among young people. To this end, health and education professionals need to be alert to changes in behavior related to search for the stereotypical body model, since they commonly begin in childhood and adolescence. An assessment of body dissatisfaction can be performed by the scale of silhouettes, which, in recent years, is one of the most used techniques in populational studies, due to its practicality. The instrument consists in drawings (silhouettes) of human figures and offers information regarding body image perception⁽¹⁰⁾. The initial approach is fundamental for forwarding the individual to a specialized health service, which will allow early diagnosis and, consequently, the prognosis for adolescents^(9,11).

Knowledge on body image dissatisfaction among adolescents of different contexts is necessary, since body image perception might be influenced by the socioeconomic and cultural condition^(3-8,12). Thus, regional data collection may contribute to directing public policy measures that promote the health of adolescents and that consider this issue.

OBJECTIVE

To assess the association between self body image dissatisfaction and the nutritional status among adolescents in the North of Minas Gerais.

METHOD

Ethical aspects

The study respected the ethical principles for researches involving human beings. The research project was approved by the Research Ethics Committee of the State University of Montes

Claros (Unimontes), protocol no. 3016. An informed consent form was used, which was signed by the legal guardian of the adolescent, authorizing their participation. All adolescents signed an Assent Form, in which they clarified their consent to participate in the research.

Design, location of the study and study period

This is a cross-sectional study, performed with adolescents of both sexes, enrolled in the municipal public education network of Montes Claros in the North of Minas Gerais. Data was collected in the second half of 2011.

Population or sample; inclusion and exclusion criteria

Sampling size was defined through calculation for finite populations, based on the following criteria: a) total number of students – 6269 elementary students, enrolled from the sixth to ninth year in schools in the urban area of the municipality;

- a) b) 95% confidence level; 5% sampling error; d) correction factor for sampling design ("deff") equal to 1.5;
- b) prevalence of body dissatisfaction of 26%, considering the data from studies with adolescents in the state⁽¹³⁾. An increase of 20% in the sampling size was also established to compensate possible losses (non-response rate). The participation of at least 510 adolescents was estimated.

The sample was selected by probabilistic clustering. In the first stage, school selection was performed through selection method with probabilities proportional to size. Then, the selection of school classes was performed by simple random sampling. In each of the selected classes, all adolescents were invited to answer the research questionnaire.

The inclusion criteria of the research were: age from 10 to 19 years, according to the chronological limits of adolescence defined by the World Health Organization (WHO), and to have a signed Informed Consent Form (ICF). Adolescents who delivered incomplete questionnaires, pregnant and those with physical or mental disabilities were excluded from the study.

Study variables

Data collection was performed in the school environment during the adolescents' class period, by properly trained researchers. The adolescents were assessed regarding their sociodemographic characteristics, nutritional status and body image. In a private room in the school, the student received a self-administered questionnaire composed of sociodemographic variables: sex, age, year, session, socioeconomic status and parents' schooling level. Anthropometric measurements of weight and height were performed, according to the Guideline Protocol for Collection and Analysis of Anthropometric Data in Health Services of the *Sistema de Vigilância Alimentar e Nutricional* (SISVAN – Food and Nutritional Monitoring System)⁽¹⁴⁾.

Body weight was measured with a portable digital scale (Marte®) with maximum capacity of 199.95kg, minimum capacity of 1kg

and precision of 50g, with adolescents wearing light clothes, barefoot and without coats. They stood in an orthostatic position, with arms extended beside the body, relaxed shoulders and keeping their head up and looking straight ahead. Height was measured with the aid of a vertical stadiometer (Altura exata®), with a bilateral numerical scale of 35-213cm and resolution of 0.1cm. To measure the height, the adolescents were barefoot, with touching heels, in upright position, leaning on the wall and with their head in the Frankfurt plane. Based on the anthropometric measurements of weight and height, the Body Mass Index (BMI) was calculated. Weight and height were measured in duplicate, and the average value obtained for each participant was used to calculate the BMI for age (in Z scores) in order to assess the nutritional status. Calculations were performed using the software Diet Pró®. Adolescents were classified regarding nutritional status, considering the cut-off point: underweight (Z score < -2), eutrophic (Z score from -2 and +1) and overweight (Z score > +1)⁽¹⁵⁾.

Information concerning body image were obtained through self-assessment, using the scale of silhouette figures for adolescents⁽¹⁶⁾ and validated in Brazil⁽¹⁷⁾ (Figure 1).

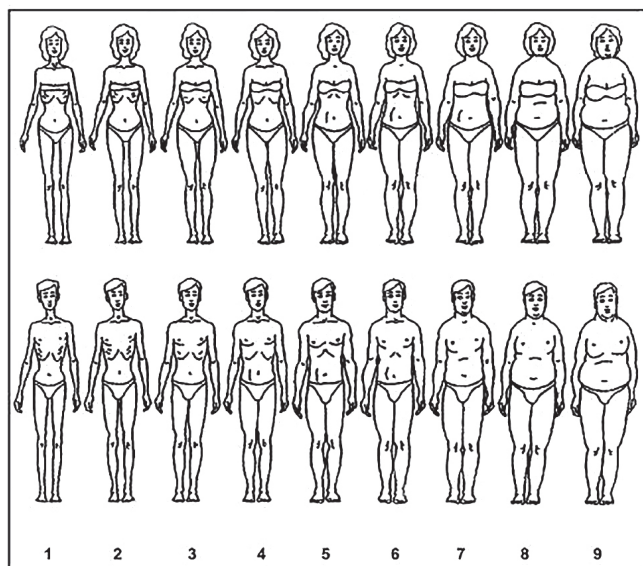


Figure 1 – Silhouette scale

For the analysis, the following criteria were established: underweight (silhouette 1); eutrophic (silhouettes 2-5); and overweight (silhouettes 6-9)⁽¹⁸⁾. Dissatisfaction with body image was established considering the difference of perception between the perceived and desired silhouette. To assess the body image, the real body appearance was subtracted from the ideal body appearance. When the variation was equal to zero, it was classified as satisfactory; and if it was different from zero, it was classified as dissatisfactory. If the difference was positive, it was a dissatisfaction due to excess weight; and, when negative, a dissatisfaction due to thinness⁽¹⁹⁾.

Analysis of results and statistics

In the data analysis, the statistical software SPSS®, version 19.0 for Windows, was used. Descriptive statistics was performed

through absolute and relative frequency. To verify the associations between the studied variables, the Chi-squared test was used (χ^2), adopting a 5% significance level.

RESULTS

A total of 535 adolescents participated of the study, being 68.0% (N = 364) female and 32.0% (n = 171) male, aged from 11 to 17 years. Approximately 90% of the adolescents attended the morning session at school and were distributed between the sixth and ninth year. Regarding the socioeconomic situation, it was observed that 36.3% (n = 194) of the families had an income higher than one minimum wage. Most parents had less than seven years of schooling. Concerning BMI, it was verified that 75.3%, 6.2% and 18.5% of the adolescents were classified as eutrophic, underweight and overweight, respectively. Regarding body image, it was verified that 60.4% of the adolescents were classified as satisfied, and 39.6% as dissatisfied (Table 1).

Table 1 – Characterization of adolescents from municipal public schools (N = 535), Montes Claros, Minas Gerais, Brazil, 2015

Variables	n	%
Sex		
Female	364	68.0
Male	171	32.0
Age (years)		
11 – 12	130	24.3
13 – 14	307	57.4
15 – 17	98	18.3
Year		
Sixth	187	35.0
Seventh	115	21.5
Eighth	138	25.8
Ninth	95	17.8
Session		
Manhã	480	89.7
Afternoon	55	10.3
Household income in MW*		
≤ 1 MW	341	63.7
> 1 MW	194	36.3
Parent/guardian's schooling (years)		
> 8	203	37.9
5 – 7	220	41.1
0 – 4	112	21.0
Nutritional status		
Underweight	33	6.2
Eutrophic	403	75.3
Overweight	99	18.5
Body image		
Satisfied	323	60.4
Dissatisfied	212	39.6

Note: *MW = Minimum wages; value at the time of the research was R\$ 788.00.

In the analysis of distribution of young people by sex and body image, a higher prevalence of dissatisfaction was observed for women (42.9%), with statistically significant differences regarding sex ($p = 0.026$) (Figure 2).

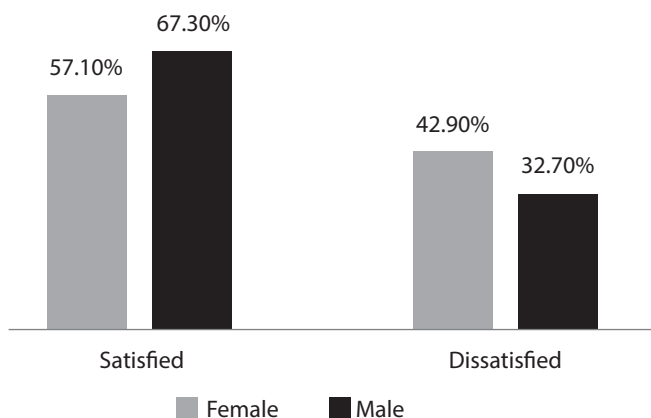


Figure 2 – Distribution of young people by sex and satisfaction with body image

In the analysis of the satisfaction degree with body image between the sexes, a significant association was verified ($p < 0.001$). Male adolescents showed a higher proportion of dissatisfaction due to weight deficit (18.1%), while female ones due to excess of weight (32.2%) (Table 2).

In this study, a statistically significant association was observed ($p < 0.001$) between nutritional status and the body image of the assessed adolescents. It was verified that low weight and overweight adolescents, 81.8% and 59.6%, respectively, were dissatisfied with their body image. Among the adolescents with adequate weight, most classified themselves as satisfied (68.7%) (Table 3).

Table 2 – Association between sex and degree of satisfaction with body image

Sex	Classification of body image satisfaction		
	Dissatisfied due to weight deficit	Satisfied	Dissatisfied due to excess weight
Female	39 (10.7)	208 (57.1)	117 (32.2)
Male	31 (18.1)	115 (67.3)	25 (14.6)

Note: $P < 0,001$

Table 3 – Association between the nutritional status and body image satisfaction

Nutritional status	Classification of body image satisfaction	
	Satisfied	Dissatisfied
Underweight	06 (18.2)	27 (81.8)
Eutrophic	277 (68.7)	126 (31.3)
Overweight	40 (40.4)	59 (59.6)

Note: $P < 0,001$.

DISCUSSION

In this study, it was possible to verify that almost half of public-school adolescents in a municipality from the North of Minas Gerais showed body image dissatisfaction. A systematic literature review on body image of adolescents focused on the use of a silhouette scale showed that the prevalence of dissatisfactions with body image varied from 32.2% to 83%, with a great heterogeneity among the studies⁽¹⁰⁾. A study performed with adolescents from Brazilian

capitals observed a low correlation between the body image and nutritional status of the adolescent⁽¹¹⁾. These results may be related to the fact that adolescence is a critical period for the development of body image, due to the several social, physical and psychological changes that occur in this stage of life⁽¹⁹⁾. In cities of different sizes and regardless of the age, adolescents have been dissatisfied with their body image⁽¹⁻⁶⁾. In adolescents, the concern with some aspect of their appearance might have important effects in their feelings and functionality, which makes them vulnerable to the occurrence of disorders linked to mental health⁽²⁰⁾.

In relation to sex, in this study, it was concluded that most girls were dissatisfied with excess weight. International⁽²¹⁻²²⁾ and national⁽²³⁻²⁴⁾ studies showed that there are more cases of overestimating body image or weight in girls. A recent study performed with 2765 adolescents in Europe⁽²¹⁾ concluded that body image dissatisfaction and weight control behavior are issues for girls in particular. This difference between real and ideal silhouette with higher incidence in girls may result in a differential diagnosis of body dysmorphic disorder, since it is more prevalent in women, beginning at the age between 15 and 30 years⁽⁹⁾. The beauty standard currently imposed by media — valuing thinness — reinforces this condition, which may lead to the adoption of restrictive diets, regardless of the real need, and contribute to the occurrence and maintenance of low weight⁽²⁴⁾, as well as for the compromise of eating habits⁽²⁵⁾ and the presence of mental disorders⁽⁷⁾.

Among boys, the higher prevalence of dissatisfaction with body image was due to weight deficit. A study performed in the North of Minas Gerais⁽²⁶⁾ observed that 39.5% of the researched male adolescents wished to increase their body size. This datum might be explained partially because boys wish to have bodies with greater muscle volume, possibly aspiring for a muscular and stronger body⁽⁵⁾. Other similar results confirm that girls usually wanted to decrease their body silhouette — dissatisfied with excess weight, commonly observed in this age group^(23,27) —, while boys crave stronger bodies — dissatisfied with thinness^(1,2,5,23).

We have to consider that the investigation on the opinion on the body seems to be better when compared with the opinion on weight to express the perceptive dimension of body image^(22,28). This assumption was verified in a study performed with adolescents from Rio de Janeiro to assess the concordance between different body image indicators and body mass index. In this sense, the use of the body silhouette instrument is suitable for monitoring risk factors and protection for adolescents⁽²⁹⁾.

In the analysis of association of body image with nutritional status, it was observed that a greater proportion of adolescents with low weight and excess weight was dissatisfied with body image. This condition may be a reflex of the exposure of adolescents to socio-cultural and media influences, with the need to meet contemporary beauty standards, characterized by an unrealistic thinness for women and a muscular body for men⁽¹⁾. Body dissatisfaction is associated to BMI for women and men, in such a way that the increase of BMI over time is associated with increased body dissatisfaction⁽³⁰⁾.

Given the dissatisfaction with body image among adolescents, it is essential to monitor the nutritional status in this age group, mainly considering that these individuals are still growing and developing and are at risk of early introduction to diseases associated with weight deviations⁽¹⁾. Additionally, the way adolescents

perceive their own body image may lead to consequences in physical, mental and social dimensions. Satisfaction with body image is an important factor in the self-acceptance of adolescents and may result in inappropriate attitudes, which can compromise the overall health of the individual⁽²⁾. A study performed in the same city of this study observed that the negative perception of body weight was associated to violence behaviors⁽²⁶⁾.

It also adds the possibility that body dissatisfaction may originate, in some adolescents, from the body dysmorphic disorder. This normally coexists with other mental disorders. Major depressive disorder affects 90% of these individuals throughout life; approximately 70% develop anxiety disorder and 30% psychotic disorder⁽¹⁹⁾. This aspect deserves to be investigated in future studies.

Given this context, the need for interventions by health professionals in the adolescence stage is evident in order to prevent that body image dissatisfaction result in the occurrence of psychological problems that are related to self-image and eating disorders^(2,6,31-32). In this way, school and family must be alert to signs of body image distortion in adolescents, having an important role in the identification of risk situations that need specialized professional treatment.

Limitations of the study

In this study, the following limitations should be considered: the application of questionnaires in the school environment might have been influenced by the environment and peers, and the assessment of adolescents in the context of municipal public-school scenarios, so that the data cannot be generalized.

Contributions to the field of nursing, health or public policy

This study confirmed the importance of knowing the body image of adolescents⁽³²⁾. The body image assessment must be incorporated in the practice of health professionals, especially from nursing, with health promotion and protection actions for adolescents.

The nurse has an important role of educator and must promote reflections on body image and the effects of body dissatisfaction among adolescents, parents/guardians and teachers. In their practice, these professionals can stimulate the critical and reflexive consciousness of adolescents in empowerment for self-care with their body and health. Educational activities with guidance on knowledge and body perception, adoption and maintenance of

healthy lifestyles and adequate use of social networks need to be incorporated into the school environment and in the teams of Family Health Strategy⁽⁷⁾. The constant monitoring of risk factors⁽²⁹⁾, including measures of tracking and assessing the nutritional status of adolescents, must become a reality in the practice of the nurse in these scenarios, in addition to clinical consultations.

Also, healthy lifestyle must be valued and consolidated in the school context, through local public policies that favor the support to physical activities, with the adequacy of physical environments and the integration of physical exercises in after school activities and the promotion of healthy eating, with restriction of processed and ultra-processed foods offered in school canteens⁽³³⁾.

These results should be considered in the implementation of strategies and interventions for adolescents, focused on reflections and clarifications on the exposure of body stereotypes, avoiding implications that elevate the risk of disorders in adult life. The results could subsidize the professionals who deal with adolescents to work the topic "body in adolescence".

CONCLUSION

In this study, a relevant part of public-school adolescents was dissatisfied with their body image, which is associated to sex and nutritional status. Female adolescents showed higher prevalence of dissatisfaction due to excess weight, and male adolescents due to weight deficit. Body image dissatisfaction showed higher proportion among adolescents with nutritional deviations.

It is expected that the dissemination of information obtained in this study encourages the reflection of health professionals and of the school community that act directly with this age group regarding the need to consider this variable in the assistance to these groups. These results may facilitate an early assistance to a condition that may lead to other disorders, with mental suffering and impairment of the individual's functionality. Also, new studies in this field should be developed, especially in the investigation of body image dissatisfaction and the relation with mental disorders in adolescents.

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