



BODY IMAGE AND ASSOCIATED FACTORS IN GIRLS OF MILITARY SCHOOLS

Imagem corporal e fatores associados em meninas de escolas militares

Imagen corporal y factores asociados en las niñas de escuelas militares

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ABSTRACT

Objective: To investigate the prevalence of body image (BI) dissatisfaction in female adolescents and its association with age range, nutritional status and physical activity practice. **Methods:** A cross-sectional study of 393 female adolescents (aged 14-18 years) studying in military schools of the city of Fortaleza, Ceará, Brazil, in the period from August to November 2015. The figure rating scale by Stunkard was used for BI assessment. The nutritional status was evaluated according to the Body Mass Index (BMI) ($BMI = \text{weight}/\text{height}^2$) and the practice of physical activity (yes or no) was self-reported. Descriptive analysis was initially conducted, in absolute (n) and relative (%) values, followed by the chi-square test, adopting $p \leq 0.05$. **Results:** A majority of the adolescents were 16-17 years old (52.7%, $n=207$), practiced physical activity (62.6%, $n=246$), adequate weight (63.4%, $n=249$) and were dissatisfied with their BI (65.4%, $n=257$). Age range and physical activity were associated with BI ($p=0.04$ and $p=0.02$, respectively). There was no association between nutritional status and BI in this sample. **Conclusion:** The results indicate a high prevalence of body image dissatisfaction, regardless of age group and physical activity practice.

Descriptors: Perception; Body image; Adolescents.

RESUMO

Objetivo: Investigar a prevalência de insatisfação com a imagem corporal (IC) em adolescentes do sexo feminino e sua associação com faixa etária, estado nutricional e prática de atividade física. **Métodos:** Estudo transversal, realizado com 393 adolescentes do sexo feminino (entre 14 e 18 anos) das escolas militares da cidade de Fortaleza, Ceará, no período de agosto a novembro de 2015. Utilizou-se a escala de silhuetas de Stunkard para a avaliação da IC. O estado nutricional foi avaliado segundo o Índice de Massa Corporal (IMC) ($IMC = \text{peso}/\text{estatura}^2$) e a prática de atividade física (sim ou não) foi autorrelatada. Inicialmente, recorreu-se à análise descritiva em valores absolutos (n) e relativos (%), em seguida empregou-se o teste do Qui-quadrado, adotando-se $p \leq 0,05$. **Resultados:** A maioria tinha entre 16-17 anos de idade (52,7%, $n=207$), praticava atividade física (62,6%, $n=246$), apresentava peso adequado (63,4%, $n=249$) e estava insatisfeita com a IC (65,4%, $n=257$). A faixa etária e a prática de atividade física estavam associadas à IC ($p=0,04$ e $p=0,02$ respectivamente). Não se constatou associação do estado nutricional com a IC nessa amostra. **Conclusão:** Os resultados indicam uma elevada prevalência de insatisfação com a imagem corporal, independente da faixa etária e da prática de atividade física.

Descritores: Percepção; Imagem corporal; Adolescentes.



RESUMEN

Objetivo: Investigar la prevalencia de insatisfacción de adolescentes del sexo femenino con el imagen corporal (IC) y su asociación con la franja de edad, el estado nutricional y la práctica de actividad física. **Métodos:** Estudio transversal realizado con 393 adolescentes del sexo femenino (entre los 14 y 18 años) de las escuelas militares de la ciudad de Fortaleza, Ceará, en el periodo entre agosto y noviembre de 2015. Se utilizó la escala de siluetas de Stunkard para la evaluación del IC. El estado nutricional fue evaluado a través del Índice de Masa Corporal (IMC) ($IMC = \text{peso}/\text{altura}^2$) y la práctica de actividad física (sí o no) fue auto relatada. A principio se realizó un análisis descriptivo en valores absolutos (n) y relativos (%) y en seguida se utilizó la prueba de Chi-cuadrado con el $p \leq 0,05$. **Resultados:** La mayoría tenía entre los 16-17 años de edad (52,7%, n=207), practicaba actividad física (62,6%, n=246), tenía el peso adecuado (63,4%, n=249) y estaba insatisfecha con el IC (65,4%, n=257). La franja de edad y la práctica de actividad física se asociaron al IC ($p=0,04$ e $p=0,02$ respectivamente). No se ha constatado asociación entre el estado nutricional y la IC de la muestra. **Conclusión:** Los resultados indican una elevada prevalencia de insatisfacción con la imagen corporal independiente de la franja de edad y de la práctica de actividad física.

Descriptores: Percepción; Imagen corporal; Adolescente.

INTRODUCTION

Body image (BI) can be defined as the individual's perception of their own body according to the experiences and sensations experienced during life⁽¹⁾. In the last decades, there has been a change in relation to the beauty standards imposed by society. There is a growing concern with BI, especially in search for an idealized beauty pattern⁽²⁾.

Quite evident during adolescence, body dissatisfaction affects mainly female individuals⁽³⁾. How the adolescent perceives their BI brings consequences for their physical and mental health, with potential repercussions on their personal relations⁽⁴⁾.

Body dissatisfaction is associated with depressive symptoms, stress, low self-esteem, greater food restriction, and also undergoes a cultural valuation that is modified according to gender, nutritional status and physical activity practice⁽⁵⁾.

The study of body dissatisfaction and factors potentially associated among adolescents is of paramount importance as it enables the identification of factors that can be modified⁽⁶⁾, so the subject of body dissatisfaction in adolescents has been given increasing space in the literature, with concentration of studies in the South and Southeast regions of Brazil^(7,8). Knowledge of the dynamics of adolescence in relation to the body, external influences and associated characteristics are fundamental for the early recognition of BI disorders and adoption of preventive measures. Additionally, it enhances the effectiveness of programs intended to prevent and combat problems related to body dissatisfaction in this population⁽⁹⁾.

In this context, the school presents itself as the ideal environment for intervention programs, since it periodically brings together a large number of adolescents during their study shifts. In this sense, the objective of this study was to investigate the prevalence of body image (BI) dissatisfaction among female adolescents and its association with age range, nutritional status and physical activity practice.

METHODS

The study presented a cross-sectional design and was conducted between August and November 2015. The research involved female adolescents, regularly enrolled in the senior year of high school in the city of Fortaleza, Ceará, Brazil. As an inclusion criterion, one had to be enrolled in the senior year; as exclusion criterion, those who did not return an Informed Consent Form (ICF) signed by their parents and/or guardians.

Firstly, the consent form for authorization of the study was delivered to the schools' principals. As these were not opposed to the study being conducted within the institutions, a date was scheduled for presentation of the research to the adolescents (explanation of the objectives and relevance of the study, and clarification of eventual doubts). In a third visit to the institutions, data collection was initiated with the adolescents who were present on the days of collection.

Data collection was carried out by students of the Physical Education undergraduate program, belonging to the Research Group on Health and Physical Activity at School (Federal University of Ceará - UFC), after theoretical-practical training and having conducted supervised collection in the pilot study.

The BI perception was analyzed with use of the figure rating scale with nine silhouettes, proposed by Stunkard et al.⁽¹⁰⁾, which represents a continuum from thinness (silhouette 1) to severe obesity (silhouette 9). On this scale, the individual chooses the number of the silhouette he or she considers to be similar to their actual physical appearance (Actual BI Perception) and also the number of the silhouette that he/she believes is more appropriate to their ideal physical appearance (Ideal BI Perception). For assessment of body satisfaction, the ideal physical appearance was subtracted from the actual physical appearance, which could vary from -8 to +8. In case this variation was zero, the adolescent was classified as satisfied with her appearance and, if

different from zero, she was classified as dissatisfied. If the difference was positive, it was considered a dissatisfaction due to excess weight and, when negative, a dissatisfaction due to thinness.

The weight and height measurements were directly assessed with use of (i) Plenna® brand digital scale, with a capacity of 150 kg and a precision of 100 g, and (ii) an inextensible metal measuring tape of 150 cm in length and precision of 1.0 mm, fitted one meter up off the floor, on a smooth wall. The adolescents were measured without shoes, wearing as little clothing as possible, in a reserved room. The nutritional status was evaluated according to the Body Mass Index (BMI) ($BMI = \text{weight} / \text{height}^2$). The classification of adolescents into the BMI categories was based on the cut-off points proposed for adolescents⁽¹¹⁾ up to 17 years old and by the World Health Organization (WHO) for adolescents over 18 years of age⁽¹²⁾.

The variable (age group) was self-reported and the practice of physical activity was obtained by means of the following question: Do you practice extracurricular physical activity? (Yes or no).

For analysis of the results, descriptive statistics was used in absolute (n) and relative (%) values. The Chi-square test was used to analyze the variables (nutritional status, age group and physical activity practice) with the BI classification. The level of significance was set at $p \leq 0.05$ for the final analyses. All data were analyzed using IBM SPSS® Statistics 21.0 software.

The study protocol was approved by the Research Ethics Committee of the Health Secretariat of the State of Ceará - SES/CE (Approval No. 1232078/2015), in compliance with Resolution 466/12 of the National Health Council.

RESULTS

All the adolescents (n=494) enrolled in the senior year of high school were invited to take part in the study, but some did not participate (n=81) because they did not deliver the ICF signed by their parentes and/or guardians and/or because they did not attend school on the day of collection (n=21). Thus, the final sample of the study was composed of 393 adolescents distributed as follows: Military School of the Firefighters Corps (n=98); Military Police School (n=134) and the Army School (n=161).

Table I presents a description of the adolescents of the military schools of Fortaleza, Ceará, and shows that a majority of participants were between 16 and 17 years old, practiced physical activity, were classified with adequate weight and were dissatisfied with their BI.

Regarding the BI classification, the results indicated that adolescents older than 18 years (42.9%, $p=0.04$) and who practiced physical activity (43.5%, $p=0.02$) presented greater dissatisfaction due to excess weight. There was no association between the nutritional status and the BI (Table II).

Table I - General characteristics of the sample in relation to age range, practice of physical activity, nutritional status and body perception of adolescents in absolute (n) and relative (%) values. Fortaleza, Ceará, Brazil, 2015. (n=393).

Variables	n	%
Age range		
14 – 15	158	40.2
16 – 17	207	52.7
> 18 years	28	7.1
Practice of physical activity		
Yes	246	62.6
No	147	37.4
Nutritional classification		
Adequate	249	63.4
Excess weight	109	27.7
Obesity	31	7.9
Low weight	4	1
Body perception (difference on the figure rating scale)		
Satisfied	136	34.6
Dissatisfied	257	65.4
Dissatisfied due to thinness	93	23.7
Dissatisfied due to excess weight	164	41.7

Table II - Absolute (n) and relative (%) values for body image classification and association with nutritional status, age range and physical activity practice, Fortaleza, Ceará, 2015 (n = 393).

Variables		Classification of BI						p*
		DT**		Satisfied		DEW***		
Nutritional status		n	%	n	%	n	%	
Age range	Malnutrition	1	25.0	2	50.0	1	25.0	0,06
	Adequate	85	34.1	105	42.2	59	23.7	
	Excess weight	7	6.4	28	25.7	74	67.9	
	Obesity	0	0.0	1	2.3	30	96.8	
Age range	14-15	35	22.2	57	36.1	66	41.8	0,04
	16-17	56	27.1	65	31.4	86	41.5	
	>18 years	2	7.1	14	50.0	12	42.9	
Practice of physical activity	Yes	53	21.5	86	35.0	107	43.5	0,02
	No	40	27.2	50	34.0	57	38.8	

*Chi-square test; **DT: dissatisfied due to thinness; ***DEW: dissatisfied due to excess weight.

DISCUSSION

The study on body dissatisfaction in adolescents enables the identification of modifiable aspects. The responses produced may guide health and education professionals in planning programs to prevent and combat problems associated with body dissatisfaction in this population. The present study registered a prevalence of BI dissatisfaction. The majority of adolescents were dissatisfied due to excess weight (DEW), a result that is well described in the literature^(9,13,14). While they want to reduce the size of their body silhouette, male teens want to have theirs increased. Corroborating this assertion, a study conducted in public schools in the city of Santa Maria, Rio Grande do Sul State, Brazil, with 1,126 adolescents, and another study conducted in the city of Irati, Paraná State, Brazil, with 340 adolescents, have reported results similar to those of the present study^(4,15).

Among the factors that explain the prevalence of BI dissatisfaction among female adolescents, stand the high social demand and the strong influence of the media in the search for the perfect body, which can endure into adulthood^(3,16).

There is an ease of access to media vehicles, especially to those related to social networks, with the internet as a powerful sociocultural medium that contributes to the distortion of the BI, to which adolescents are exposed on a daily basis, becoming a risk group⁽¹⁷⁾.

Linked to this context, the beauty standard established by society has undergone substantial changes along the recent years, with the spread of attractiveness represented as thinness for women and a muscular body shape for men⁽¹⁸⁾. Excess weight became a target of discrimination in several places, being labeled as a sign of laziness, lack of discipline and motivation⁽¹⁹⁾. Beauty standards are ubiquitous and extend to the entire population, and are also unattainable by most people. Thus, knowledge of the adolescent's perception of their own body, the external influences and associated factors are fundamental for the early recognition and the adoption of preventive measures of BI disorders⁽²⁰⁾.

The results of the present study did not demonstrate association between nutritional status and BI; however, 67.9% of overweight adolescents were found with DEW. The desire for a smaller silhouette than the current one has been frequently described in studies in the literature. This is usually a female-related trait⁽²¹⁾. Similar results were found in national and international studies conducted with adolescents^(4,22,23).

A survey conducted in the city of Ipê, RS, with women between 18 and 56 years of age, reported that 49% of the women classified as overweight were DEW. A similar result was found in a study conducted in Germany with women classified as overweight. At that occasion, the results showed a prevalence of body dissatisfaction⁽²⁴⁾. Another study carried out in the city of Uberlândia, Minas Gerais, Brazil, which evaluated women between 20 and 30 years of age, corroborates the present findings, in which the BI dissatisfaction occurred in 90% of the women classified as overweight⁽²⁵⁾.

These findings can be considered positive when interpreting that, among overweight participants, the DEW results from a desire to improve personal issues related to aesthetics and health, and can, with that intent, modify and even take on new behaviors⁽⁷⁾.

It is important to emphasize, however, that adolescents with adequate nutritional status presented DT and DEW in the present research. In a study conducted in the city of Pelotas, Rio Grande do Sul, Brazil, with 4,235 adolescents aged 14 and 15 years old, as in the present study, it stands out that adolescents with normal weight presented an increased percentage of body dissatisfaction⁽²⁶⁾.

This result may be related to lower body awareness. Environments where adolescents spend a good part of their day can serve as an incentive to a healthier and more active lifestyle. In this sense, the school is a fundamental environment for adopting such behaviors. For that, a greater enlightenment on the importance of self-esteem is needed in the school environment, stimulating greater body awareness. The results of the present study demonstrated that, regardless of the age range, the majority of adolescents were DEW. In a cross-sectional study of 573 adolescents aged 8 to 10 years old in the city of Dois Irmãos and Morro Reuter, Rio Grande do Sul, Brazil, the findings were similar to those of the study in question⁽²⁷⁾. Another study, conducted in the city of Gravataí, Rio Grande do Sul, Brazil, with 1,442 adolescents aged between 10 and 15 years, also reported association between the BI and the age range. In that study, adolescents between 13 and 15 years old were the ones that presented the greatest BI dissatisfaction⁽⁹⁾. The authors observed a tendency for body dissatisfaction to change, stating that the desire to lose weight increases with age, while the desire to gain weight decreases⁽²⁷⁾.

Thus, the high prevalence of DEW identified in this study, regardless of age, may be directly related to the social context, in which the media exerts a strong influence. Even though this is not the only factor to be considered, it is observed that mainly the television and the internet have contributed to the propagation of the perfect body, with a great weight on the valorization of the cult of muscles and on the desire to conquer increasingly leaner and rejuvenated bodies^(28,29).

As to the practice of physical activity, there was a prevalence of 43.5% of female adolescents who practiced physical activity and were DEW. Corroborating the present study, the results of a study conducted in the countryside of Rio Grande do Sul State, Brazil, with 510 adolescents, showed a higher prevalence of body dissatisfaction among the adolescents who practiced physical activity⁽³⁰⁾.

The benefits of regular physical activity are well described in the literature. It is known that the practice of physical activity may be directly related to obtaining the ideal body, a fact that may justify the prevalence of DEW girls found in the study. Many people seek the practice of physical activity primarily in the search for stereotypes incited by society, being, therefore, pressurized to maintain the so-called perfect physical appearance, which often does not happen and leads to body dissatisfaction^(3,4).

Thus, it is important to highlight that the results found in this study are worrisome, given that BI dissatisfaction is associated with depressive symptoms, stress, low self-esteem, metabolic disorders, anorexia, bulimia, among others, bringing consequences for the health of the individual^(2,3,4,9). Therefore, these results point to the fact that the adolescents participating in the research are more concerned with reaching an ideal body only for their personal satisfaction, leaving aside the other benefits derived from the practice of physical activity⁽¹⁵⁾.

Some limitations should also be considered. The use of the figure rating scale, since the silhouettes are two-dimensional and do not allow for the representation of the individual as a whole, which may result in faults in the representation of the body and in the distribution of body fat mass. Moreover, the validity of the silhouette scale that was adopted has not been tested with Brazilian adolescents; even though it has validity for the adult population, and the use of this instrument has received good acceptance in the literature.

Another limiting factor was the use of the BMI, which, despite being a widely used measure, should not be the sole parameter for the evaluation of obesity or body fat mass, since it does not properly distinguish fat mass from lean mass.

Studies like this are important because they identify groups that are more susceptible to body dissatisfaction in the school environment, and for enabling a better understanding of potential factors associated with body dissatisfaction, providing guidance to be followed by educational institutions. It is hoped that the results presented and the criticisms produced in this study serve to stimulate the systematization and publication of information about unhealthy behavioral factors, possibly producing interventions aimed at developing healthy habits among adolescents.

It is also added that environments where the adolescent spends most of their day are ideal for the systematization of intervention programs that aim for changes in lifestyle, and the school is the ideal place for this type of intervention, as it periodically gathers a large number of adolescents in their study shifts. Further clarification in the school environment about the importance of self-esteem is expected, stimulating greater BI satisfaction.

CONCLUSION

The results indicated a prevalence of adolescents dissatisfied with their body image (BI), in which the majority was dissatisfied due to excess weight (DEW). Association of body image with age and physical activity was verified, but there was no association with the nutritional status.

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