



## Original article

# Association between body dissatisfaction and bullying in children of socioeconomically vulnerable areas



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## ABSTRACT

**Aim:** To analyze the association between dissatisfaction with body image and weight status and the roles assumed in school bullying in children and adolescents living in a socioeconomically vulnerable area.

**Method:** 409 children and adolescents with average age of 11 years, from Florianópolis, Brazil, participated in this study. The body image was self-assessed through the Body Silhouettes Scale, the weight state through the body mass index (BMI) and the roles of participation in bullying through the Olweus Questionnaire.

**Results:** It was verified a significant association between “dissatisfaction with thinness” and (i) weight status, (ii) sex and (iii) roles of participation in bullying. In addition, low weight, boys and bully-victims presented a greater odds of body dissatisfaction due to thinness. The variable “dissatisfaction with excess” was negatively associated with age and weight status. Participants aged 11–12 years and 13 and 16 years, as well as children and adolescents with low weight, had lower odds of having excessive dissatisfaction. **Conclusion:** The associations found in this study are important tools for developing interventions to avoid or minimize the effects of early body dissatisfaction and consequently violence at school, especially in children with increased determinants such as those living in socioeconomically vulnerable areas.

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## Introduction

Previous studies about body image indicate that body dissatisfaction has been increasingly recurrent during childhood<sup>1,2</sup> and adolescence.<sup>3,4</sup> Likewise, body dissatisfaction has been increasingly recurrent during childhood and adolescence. It is known that at this stage, girls and boys are more dependent on peer acceptance and approval. Thus, supportive relationships with friends can provide protection against feelings of dissatisfaction with the body,<sup>5</sup> while a low acceptance may predict greater dissatisfaction with body image and behaviors that are harmful to health.<sup>6,7</sup>

Evidence indicates that children and adolescents dissatisfied with their body image end up becoming more psychologically vulnerable and even though they do not have any physical

differences, they are more easily victims of school bullying.<sup>8,9</sup> Although there are innumerable reasons for which children and adolescents become victims of bullying, several studies point out that one of the most frequent reason is the deviation of the ideal appearance, in which bodies differ from socially imposed norms.<sup>9–11</sup> In addition, it is also noted that body weight is reported by students as the main cause of school bullying, being more frequent than sexual orientation and ethnicity.<sup>12,13</sup>

On the other hand, body dissatisfaction seems to have a contrary sense in relation to the role of bully. Studies have pointed out that children and adolescents who take on this role in school bullying tend to be more satisfied with body image,<sup>14</sup> besides having higher self-esteem,<sup>6</sup> and being classified by colleagues as being the physically strongest.<sup>15</sup> Thus, knowing that body image can be influenced not only by physiological but also psychological, social and environmental factors,<sup>16</sup> it is believed that the relationship between these variables deserves to be better discussed in the literature, especially with children and adolescents from different contexts such as those living in socioeconomically vulnerable areas.

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It is known that school violence can have greater impact in unfavorable social contexts. In Brazil, several metropolises present children and adolescents who live in this context. Thus, there are places characterized by higher levels of social inequality and access to services of lower quality and whose inhabitants are in a situation of social vulnerability, that definition corresponds “to the condition of not having or not being able to use material and immaterial assets which would allow the individual or social group to deal with the situation of poverty”.<sup>17</sup>

The vulnerability experienced in these areas is complex and multifaceted, going beyond health, social life, educational contexts, symbolic organizations, ethnic issues, labor camps, and public policies in general, with regard to living conditions and social supports.<sup>18</sup> When combined with the low socioeconomic conditions, it provides great tension among the young, which hampers the processes of social integration, and can foment violent attitudes, such as the involvement in bullying.<sup>19</sup>

Until now, little is known about how body image behaves and what its relation with school bullying, in children and adolescents living in socioeconomically vulnerable areas, in which there is a negative result of the relationship between availability of material resources and access to social, economic and cultural structures and opportunities. Therefore, the present study aims to analyze the associations between body image dissatisfaction with weight status and the roles assumed in school bullying among children and adolescents living in a socioeconomically vulnerable area.

## Method

### *Participants and methods of recruitment*

Two public schools located in socioeconomically vulnerable areas were intentionally selected according to the indication of the municipality's Education Department. After the selection, all students from 3rd to 7th grade were invited to participate in the study. The only exclusion criteria adopted in the recruitment of participants was the presence of some type of intellectual disability that compromised the understanding of the instruments, as indicated by the Special Education Service of the schools.

Based on the number of children and adolescents participating in the social project that serves children and adolescents in situations of social vulnerability in the metropolitan region of Florianópolis, a sample size was calculated assuming an alpha of 0.05 and power of 50%. According to the sample calculation the minimum expected was a sample with 316 participants. As dropouts are common during the course of the studies, the final sample of 409 children and adolescents was considered.

Participated in the study a total of 409 students, 207 (50.61%) boys and 202 (49.39%) girls, aged between 8 and 16 years old, with an average age of 11.14 (SD = 1.6) years in boys and 10.9 (SD = 1.8) years in girls. Participants were Caucasian 290 (70.9%), Black 103 (25.2%) and Brown 16 (3.9%). Regarding weight status, 168 (49.4%) were underweight, 153 (45%) with normal weight and 19 (5.6%) were overweight or obese. For the purpose of this study and attending to the low number ( $n = 19$ ) of overweight or obese children and adolescents, this category was further grouped with normal weight.

### *Ethical considerations*

This research is part of a broad project approved by the Ethics Committee for Human Beings Research at the (blind) (process 5439/2011).

Prior to the data collection, parents, children and adolescents received detailed information about the research. Only those students who expressed their willingness to cooperate with the

investigation participated and presented a consent term signed by the parents. After delivery of signed consent terms, all participants were individually present at the two stages of data collection. In the first stage, the participants answered both questionnaires, self-reported their participation in bullying, and described their perceived and desired body image, while the second step consisted in the measurement of body mass and height.

### *Instruments*

Body image was self-assessed through the Body Silhouettes Scale proposed by Stunkard, Sorensen and Schulsinger<sup>20</sup> which is composed of a set of human figures numbered from 1 to 9, representing a continuum from the thinness (silhouette 1) to severe obesity (silhouette 9). The figures were presented to the students on a single sheet, and then they answered the following questions: (1) Which silhouette best represents your current physical appearance (real silhouette)? (2) Which silhouette would you like to have (Ideal Silhouette)? Satisfaction with body image was identified by the discrepancy between the value corresponding to the actual silhouette and the value indicated as the ideal silhouette (real silhouette–ideal silhouette). Students who presented values equal to zero were classified as “Satisfied” with body image, and those who presented values different from zero were considered “Dissatisfied”. When this difference was positive the individual was considered dissatisfied for being overweight, and when negative, dissatisfied for thinness. Regarding internal reliability, the Stunkard Body Silhouettes Scale presented a moderate internal consistency level, with a Cronbach alpha of 0.600.

Body mass and height were measured by persons previously trained and following the procedures described by Ross and Marffell-Jones.<sup>21</sup> At the time of the evaluation the children were in light clothing and barefoot. To measure the body mass, a digital scale with graduation of 0.1 kg was used, and for height a stadiometer with a resolution of 0.1 cm, the children were with the head in the Frankfort plane, arms along the body and united feet. Weight status was assessed by body mass index (BMI = body mass (kg)/height (m)<sup>2</sup>). The BMI classification was performed according to the cut-off points established by Conde and Monteiro<sup>22</sup> for the Brazilian population, stratifying the participants into three categories: underweight, normal weight and overweight.

To describe the possible roles of participation in bullying were used two questions in the Olweus Questionnaire.<sup>23</sup> The first question asked how many times, in the last 3 months of school, the participant had been a victim of school bullying, while the second asked how many times the participant had been a bully. With the information obtained through those who responded that they were victims and bully three or more times, a “bully-victim” variable was created, classifying them in four categories of participation in bullying: “non participant”, “victim”, “bully” and “bully-victim”. The Olweus Questionnaire presented a good level of internal consistency, with a Cronbach alpha equal to 0.750.

### *Statistical analysis*

Initially an exploratory analysis of the data was performed, in order to summarize the information obtained in the study. The nominal variables were described in terms of absolute frequency and percentage, and the quantitative variables were described by mean and standard deviation. The Mann–Whitney *U* test was used to verify the difference between the means, while the chi-square test was used to verify the possible associations between the categorical variables. The association between body image and the others independent variables was analyzed using binary logistic regression. Two models were tested, one simple and the other adjusted for all the variables that presented a  $p < 0.20$ .<sup>24</sup> In all

**Table 1**  
Dissatisfaction with thinness and sex, age, roles in bullying and weight status.

Variables	OR (CI95%)	p-Value	OR** (CI95%)	p-Value
<i>Gender</i>		0.003		0.003
Female	1			
Male	1.98 (1.25–3.13)		2.18(1.31–3.65)	
<i>Age group</i>		0.736		
8–10	1		–	
11–12	1.192 (0.72–1.97)		–	
13–16	1.22 (0.66–2.25)		–	
<i>Roles in bullying</i>		0.094		0.062
Non-participant	1		1	
Victim	0.88 (0.47–1.66)		0.86 (0.43–1.72)	
Bully	0.66 (0.27–1.61)		0.52 (0.20–1.35)	
Bully-victim	3.27 (1.14–9.33)		3.67 (1.15–11.72)	
<i>Weight status</i>		<0.001		≤0.0001
Normal weight	1		1	
Underweight	4.85 (2.95–7.97)		5.22 (3.07–8.86)	

OR: odds ratio; CI95%: confidence interval of 95%.

\*\* OR adjusted by the variables that presented  $p < 0.20$  in the crude model.

analyzes, the significance level of 5% was adopted using the SPSS statistical program, version 20.0.

## Results

According to the results of the crude analysis, an association between dissatisfaction with thinness and sex, participation role in school bullying, and weight status, even after adjustment for confounders was observed. The underweight participants, the bully-victim and the boys presented, respectively, 5.22 (CI95% = 3.07–8.86), 3.67 (CI95% = 1.15–11.72) and 2.18 (CI95% = 1.31–3.65) odds to be dissatisfied with thinness (Table 1).

Regarding the dissatisfaction with the excess, in the crude analysis, was observed an association with sex, age, and weight status. In the adjusted analysis, there were negative associations between the outcome and the participants aged 11–12 and 13–16 years (OR = 0.30, CI95% = 0.17–0.53 and OR = 0.39; CI95% = 0.20–0.76) and the students underweight (OR = 0.17, CI95% = 0.10–0.29), indicating that these groups had a less odds to be dissatisfied with the excess (Table 2).

## Discussion

In the present study, the factors associated with dissatisfaction about thinness were sex, role of participation in bullying and weight status, while dissatisfaction about excess was negatively associated with age and weight status.

**Table 2**  
Dissatisfaction with excess and sex, age, roles in bullying and weight status.

Variables	OR (RI95%)	p-Value	OR** (CI95%)	p-Value
<i>Gender</i>		0.039		0.550
Male	1		1	
Female	1.59 (1.02–2.47)		1.61 (0.99–2.61)	
<i>Age group</i>		0.002		<0.001
8–10	1		1	
11–12	0.40 (0.25–0.67)		0.30 (0.17–0.53)	
13–16	0.67 (0.37–1.21)		0.39 (0.20–0.76)	
<i>Roles in bullying</i>		0.248		
Non-participant	1		–	
Victim	1.35 (0.74–2.46)		–	
Bully	1.51 (0.69–3.33)		–	
Bully-victim	0.40 (0.11–1.45)		–	
<i>Weight status</i>		<0.001		<0.001
Normal weight	1		1	
Underweight	0.22 (0.14–0.36)		0.168 (0.10–0.29)	

OR: odds ratio; CI95%: confidence interval of 95%.

\*\* OR adjusted by the variables that presented  $p < 0.20$  in the crude model.

The high number of participants with underweight and low overweight prevalence was a peculiar characteristic of these participants living in socioeconomically vulnerable areas. According to the last statistics in the 2008–2009 Household Budgets Survey, by the Brazilian Institute of Geography and Statistics (IBGE) and the Ministry of Health, 33.5% of children between 5 and 9 years old were overweight, 14.3% were obese, and among adolescents aged 10–19 years, 20.5% were overweight and only 3.4% were underweight. Also, according to data produced by IBGE, income is directly linked to overweight: three times more among boys with higher income than those with lower income, 34.5% against 11.5%. While for girls the difference was 24% versus 14.2%. Therefore, it is believed that the data found about underweight are related to the characteristics of the participants of this study that living in socioeconomically vulnerable areas, alerting to a possible problem of child malnutrition in these communities.

Weight status was associated to the outcome, proving to be an important variable in the attempt to better understand the levels of dissatisfaction with body image. Other studies also found an association between these variables, however the most studies indicating that overweight schoolchildren are more likely to be dissatisfied with body image when compared to normal or underweight schoolchildren.<sup>25,26</sup> On the other hand, there are many children are underweight, and who also more likely to have an impaired body perception, but in relation a greater dissatisfaction with thinness.<sup>27</sup> This may explain in part why underweight was positively associated with thinness dissatisfaction and negatively associated with overweight dissatisfaction (protective effect).

Another finding of this study concerns the association between dissatisfaction with body image and participation in school bullying. Some studies found that body dissatisfaction, independently of their weight status, is associated with behaviors of involvement in bullying, and therefore belonging to a group of risk.<sup>8,9</sup> In the current research, as in the studies of Reulbach et al.,<sup>8</sup> the greatest association between the roles of participation in bullying was related to the perception of thinness. Although the literature highlights this body dissatisfaction as mainly associated with victimization in school,<sup>8</sup> our data showed that the participants who declared themselves bully-victims had almost four times as much odds of being dissatisfied with the thinness when compared to those who did not participate in this phenomenon.<sup>8,9</sup> It should be noted that in these cases, the same child or adolescent assumes both roles in different situations.<sup>28</sup> Approximately 10% of students have double involvement, sometimes as bully, sometimes as victims,<sup>29</sup> and this is the group with the highest risk factors, with higher levels of involvement in violent behaviors outside of school, reports of depression and physical and psychological symptoms.<sup>14</sup> Even if these data are not able to state whether the involvement in bullying caused a greater dissatisfaction with the body, or if this feeling preceded and facilitated participation in the phenomenon, what is known is that these children and adolescents need special attention, because the double involvement has a multiplicative negative effect. Adding the lack of social support, the risk factors increased by the area in which they live and a high dissatisfaction with the body, these can have disastrous effects on the development of these young people.

Although other studies have not found associations between body image satisfaction and age,<sup>26,30,31</sup> in the present study, it was verified that the age group was associated with excess dissatisfaction. It is believed that body image dissatisfaction tends to increase in adolescents due to puberty, mainly due to the increase in BMI.<sup>32</sup> In the current study, older schoolchildren (11–12 and 13–16 years old) were less likely to be dissatisfied about the excess. There is a tendency for dissatisfaction with body image to be reaching children more precociously. These results may be one more specific characteristic of this group of participants of high-risk social vulnerability and demonstrate that this negative feeling about the



body has social characteristics, going beyond the changes related to sexual maturation and that deserve greater attention on by the school and professionals related to the health of children and adolescents.

This study presents several strengths. First, the analysis of a differentiated group of participants, who lives in socioeconomically vulnerable conditions, showing another perspective for the dissatisfaction of these children and adolescents. Second, the high number of underweight children and adolescents was also a peculiar characteristic of this group of participants, enriching the theme about body dissatisfaction that is frequently investigated only in groups of overweight and obese participants. Finally, the associations of thinness dissatisfaction with the role of bully-victims is a new and relevant topic for researchers in school bullying, which may contribute to a better understanding of this role associated to many risk factors.

The limitations of this study include the following items: (i) the questionnaires used in the study, particularly the measurement of body image and the roles of participation in bullying, although used in large scale in Brazil and in the world, are still needing validity for the Brazilian population; (ii) the social vulnerability condition of the participants was not directly evaluated, relying only on the criteria adopted by the social program in which they participated. Nevertheless, we do not have data supporting that the program has participants belonging to other social classes; (iii) we used a cross-sectional approach, which do not enable us to establish causal relations; (iv) we did not a representative sample, and generalization of the results have to be precautionous. However, the results obtained in this study already offer relevant information, mainly because it indicates peculiar characteristics of this group that presents major associated risk factors, which can help in the implementation of intervention programs with the purpose of preventing or intervening in the occurrence of cases of malnutrition, early body dissatisfaction and involvement in school bullying; (v) data were not collected with a control group of students that did not living in socioeconomically vulnerable areas, which limited the interpretation of the results. We recommend that further studies address these limitations so that they contribute to further insight to clarify the associations between body satisfaction, weight status and bullying. Thus, it will be possible to obtain more precise data that can support efforts to prevent and address these problems in schools.

This study allowed relevant findings regarding both weight status and bullying in relation to body satisfaction. There was a high number of underweight participants in this socioeconomically vulnerable group. In addition, it can be stated that body dissatisfaction in children and adolescents of high social vulnerability presented associations with weight status and bullying in some aspects, such as sex, role of participation in bullying and weight status for thinness dissatisfaction, while age and weight status were negatively associated with dissatisfaction with excess. The main contribution of this study is attributed to the capacity to use a positive body image as a tool to prevent and combat bullying. Probably, improving the body satisfaction of underweight children, they may feel able to deal with violent behavior in schools.

### Conflicts of interest

The authors declare that there are no conflicts of interest.

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