

## Body image satisfaction and subjective wellbeing among ninth-grade students attending state schools in Canoas, Brazil

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**Abstract** *During adolescence, body image is linked to subjective well-being. This study aimed to identify variables related to overall well-being (life satisfaction, health perception, happiness, and optimism) that discriminate between teenagers who are satisfied with body image and those who are dissatisfied. A cross-sectional, school-based study was conducted involving a sample of 1,460 ninth-grade students attending state schools in Canoas in the State of Rio Grande do Sul, Brazil. The following instruments were used: a sociodemographic questionnaire; the Economic Classification Criteria Brazil; the Body Shape Questionnaire; the Brief Multidimensional Students' Life Satisfaction Scale; the Happiness Measures; and health perception and perceived optimism. The data was analyzed using univariate analysis and multiple discriminant analysis. A total of 1,091 participants (74.7%) were satisfied with their body image. The variables that contributed most to the discrimination between groups were sex (0.680), self-satisfaction (0.644), health perception (0.630), and level of happiness with health (0.601). Adopting an approach where having a positive body image is seen as a key element of mental and physical health can help make health care services more accessible to adolescents and promote more effective and less regulatory care.*

**Key words** *Body image, Teenagers, Schoolchildren's health*

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## Introduction

The World Health Organization (WHO) defines adolescence as the period of life between 10 and 19 years of age<sup>1</sup>. It is a critical phase of human development and a period of physical, psychological and social instability<sup>2,3</sup>. Physical changes in adolescence can lead to body dissatisfaction and a distorted or inappropriate self-image<sup>4</sup>. Body dissatisfaction resulting from this negative subjective assessment of physical appearance can have psychological consequences<sup>5</sup>.

Studies have shown a high prevalence of body image dissatisfaction among adolescents<sup>6,7</sup>. During this phase of life, young people build their personal and social identity and a number of changes take place concomitantly with biological maturation, leading to increasing concern about the body and appearance. Those who do not have the socially prescribed body shape can become excessively concerned with physical appearance and display body image dissatisfaction<sup>8</sup>. While sex is a key factor determining body image dissatisfaction, it is important to recognize that it affects both boys and girls. This is because the body is experienced and viewed from at least two different perspectives. The first refers to the many changes that occur within the cognitive, affective and social spheres, while the second is associated with the current socially accepted aesthetic conveyed by the media. These processes have a direct effect on self-concept, which can be defined as how a person describes him/herself, defining the idea one has of oneself and an individual's aspirations in relation to what he/she wants to be<sup>9</sup>.

Concepts of health, subjective well-being or happiness, and life satisfaction tend to be linked. According to the WHO<sup>10</sup>, well-being is an essential component of health, which in turn has been defined as most important value in life, given that the proper functioning of psychic and somatic activity requires a balanced mind, body and soul<sup>11</sup>. Health should be seen as a resource for everyday life, not the objective of living<sup>12</sup>. The integration of positive constructs is consistent with Ryff's psychological well-being model<sup>13</sup>, which suggests that holding positive attitudes toward meaning of life is important for confronting adversity.

Body image can be an important stressor during adolescence<sup>14</sup> and it is therefore important to investigate its effect on the overall well-being of this population group. Body image is a mental representation that a person has of his/her own body taking into account the psychological expe-

rience of corporeality<sup>15</sup>. It is the "inside view"<sup>16</sup> or an individual's own subjective experience of his/her own body and the attitudes and feelings associated with this experience<sup>17</sup>.

Given that negative body image can severely affect teenage health, the present study brings a differentiated approach to the theme of teenage body image by exploring constructs related to subjective well-being and public health demands. We adopt a positive health approach to identify the protective factors that discriminate between teenagers who are satisfied with their body image and those who are dissatisfied, thus contributing to the adoption of a new approach to health care for this age group and, given the lack of research using this approach, providing new insights into teenage body image.

This study therefore aims to identify the set of predictors that discriminate between teenagers who are satisfied with their body image and those who are dissatisfied linked to overall well-being, comprising life satisfaction, health perception, happiness, and optimism. Thus, by adopting the concept of integral health, this study aims to provide important inputs to inform the development of strategies for teenage health promotion, especially in the school setting.

## Method

A cross-sectional, school-based study was conducted in Canoas in the State of Rio Grande do Sul, Brazil. Based on data produced by the State Department for Education<sup>18</sup>, the target audience comprised 1,612 school children aged between 12 and 19 years enrolled in the ninth grade in 34 state schools between 2013 and 2014 and studying in the morning or afternoon. The final study sample comprised 1,460 teenagers from 67 classes, 45 of which studied during the morning period and 22 in the afternoon period.

The participants signed an informed assent form and their parents/guardians signed an informed consent form authorizing their participation in the study. Both forms clearly explained the study objectives. The research project was approved by the Research Ethics Committee of the Lutheran University of Brazil.

The participants responded the questionnaire upon the presentation of the signed informed assent form and/or informed consent form, depending on the student's age (under or over 18 years). A total of three returns were made to each school to ensure the adherence of students who

were absent or those who had not brought the signed informed consent form.

For the purposes of this study, students who did not wish to participate, those who were absent at the time of data collection, and minors who did not bring the signed informed consent form were considered losses. There were a total of 321 losses, comprising 99 students who could not be found and 222 who did bring the signed informed consent form.

The inclusion criteria were as follows: student enrolled in and regularly attending ninth grade in a state school in Canoas in 2013 and 2014; studying in the morning or afternoon period; and aged between 12 and 19 years. The exclusion criterion was being pregnant at the time of data collection.

The first phase of the study consisted of a pilot study conducted in a school run by Canoas City Council. Authorization for the pilot study was obtained from the Department for Education and the school selected for the study. A total of 83 ninth-grade students attending the school in 2012 participated. All participants agreed to take part in the study and brought the signed informed consent form.

The second phase of the study was authorized by the Department for Education of the State of Rio Grande do Sul and each individual school. Data collection was conducted by the researchers in the class rooms using questionnaires, each of which took an average of 45 minutes to administer.

Seven data collection instruments were used:

A demographic questionnaire comprising the variables sex, age, and race/color designed specifically for the present study by the researchers.

The Economic Classification Criteria Brazil (*Critério de Classificação Econômica Brasil - CCEB*), which measures economic status. The CCEB consists of 10 questions with the following cut-off categories<sup>19</sup> (ABEP/2012): A1 (42-46), A2 (35-41), B1 (29-34), B2 (23-28), C1 (18-22), C2 (14-17), D (8-13), and E (0-7).

The Body Shape Questionnaire (BSQ) – the BSQ, which assesses satisfaction and concerns with body shape<sup>20</sup>, was used to assess body image satisfaction. This instrument was validated for use with Brazilian teenagers, demonstrating good validity and reliability ( $\alpha = 0.96$ )<sup>21</sup>. The BSQ is a self-report instrument composed of 34 items that refer to the subject's state over the past four weeks scored on six-point Likert-like scale (“never” to “always”). According to the authors, subjects can be classified into four categories:

1) no concern with body image ( $\leq 80$ ), 2) mild concern (81 to 110), 3) moderate concern (111 to 140), and 4) marked concern ( $> 141$ ). For the purposes of the present study, the outcome was recategorized into satisfied ( $< 81$ ) and dissatisfied ( $> 81$ ).

The Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS) – developed by Benjamin et al.<sup>22</sup>, the BMSLSS comprises six items that measure student satisfaction in the following domains: satisfaction with family, satisfaction with friends, satisfaction with school experience, satisfaction with oneself, satisfaction with the living environment, and satisfaction with life overall. The items are responded on an 11-point Likert scale with responses ranging from “terrible” to “excellent”. The BMSLSS demonstrated satisfactory internal consistency ( $\alpha = 0.75$ ) when tested by the authors<sup>22</sup>.

The Happiness Measures (HM) – this 16-item instrument developed by Fordyce<sup>23</sup> assesses feelings of happiness related to various life domains (the house or apartment where you live, the people you live with, the people in your family, your friends, the people living in your neighborhood and city, relations with people in general, the neighbourhood or city where you live, school, classmates, academic performance, freedom, health, what you do in your spare time, the way you are heard, life overall, and things you own). The items are responded on a five-point Likert scale (from 1- Not happy to 5-Very happy). The reliability of the instrument was measured by the author using the test-retest method, where the instrument is administered in different points in time. The tests obtained the following Pearson's correlation coefficients:  $r = 0.98$  ( $n = 111$ ) for a period of two days;  $r = 0.86$  ( $n = 105$ ) for two weeks;  $r = 0.81$  ( $n = 57$ ) for one month; and between  $r = 0.62$  ( $n = 71$ ) and  $r = 0.67$  ( $n = 27$ ) for two months (considering  $p < 0.001$  in all cases).

Subjective health perception was assessed using a single-item scale (*How healthy do you think you are?*) with responses ranging from not healthy (1) to very healthy (4). This question was adapted from the Health Behavior in School-aged Children (1985/86): A WHO cross-national survey, which explores the lifestyles of teenagers from different countries allowing the comparison of results across different cultures<sup>24</sup>.

Perceived optimism was assessed using a single question developed for the study by the researchers (*How optimistic do you feel about the future?*). Response options are marked on a scale

ranging from zero (not at all optimistic) to 10 (totally optimistic). Single-item scales have been used to assess subjective well-being and happiness<sup>25,26</sup>. This type of scale considers the individual's capacity to rate their overall satisfaction with life. Stutzer and Frey<sup>27</sup> suggest that the use of a single-item scale in the German Socio-Economic Panel to assess subjective well-being in large population groups provides evidence of the validity of this type of instrument. However, Diener<sup>25</sup> stresses that it is impossible to measure the internal consistency of this type of instrument.

The coefficients of internal consistency obtained for the instruments in the pilot study and final study, respectively, were as follows: BSQ ( $\alpha = 0.96$ ) and ( $\alpha = 0.96$ ); BMLSS ( $\alpha = 0.84$ ) and ( $\alpha = 0.82$ ); and HM ( $\alpha = 0.93$ ) and ( $\alpha = 0.89$ ). The data was entered into the statistical software SPSS version 17. Quality of data entry was controlled by performing exploratory data analysis to assess item distribution, explore missing values, and identify extremes and possible data entry errors.

Univariate analysis was performed to describe the sample. Subsequently, multiple discriminant analysis was performed to identify which variables related to overall well-being (life satisfaction, health perception, happiness, and optimism) can be used to discriminate between the groups satisfied and dissatisfied with body image. For the discriminant analysis we used a grouping variable (body image satisfaction) and derived the linear combination of the independent variables (predictors) that maximize the distance (difference) between the groups. The independent variables used in the analysis were: sex, age, race/color, economic status, optimism, health perception, five items from the BMSLSS (excluding overall life satisfaction to avoid multicollinearity), and the 16 items from the HM. A 5% significance level was adopted.

## Results

Over half of the 1,460 teenagers that participated in the study (53.6%) were female. Age varied between 12 and 19 years, with 42.7% of the sample aged 14 years. Seventy-two percent of the sample were white, 66.2% were class B, 26.4% class C, 6.4% class A, and 1.0 classes D+E (Table 1).

The results shown in Table 2 demonstrate that over half of the teenagers (74.7%) were satisfied with their body image. The average scores for each item of the HM indicate that happiness levels were higher for the items the people who

you live with ( $= 4.19$ ;  $SD = 0.95$ ), friends ( $= 4.18$ ;  $SD = 0.92$ ), and the things you own ( $= 4.17$ ;  $SD = 0.92$ ), and lower for the people who live in your neighbourhood or city ( $= 3.31$ ;  $SD = 1.13$ ) and your neighbourhood or city in general ( $= 3.38$ ;  $SD = 1.13$ ). Satisfaction was greater in relation to friends ( $= 8.21$ ;  $SD = 1.88$ ), life overall ( $= 8.00$ ;  $SD = 2.13$ ), and parents ( $= 7.83$ ;  $SD = 2.15$ ) and lower in relation to experience as a student ( $= 7.04$ ;  $SD = 2.17$ ). However, it is important to note that the average happiness scores are below the midpoint (5), indicating overall unhappiness.

With regard to health perception, the average score was 2.84 ( $SD = 0.77$ ), which is close to the response option three, fairly healthy. With regard to perceived optimism in relation to the future, the average score was 7.58 ( $SD = 2.25$ ), which is above the midpoint (5) demonstrating a relatively high level of optimism (Table 2).

The discriminant function was calculated resulting in an eigen value of 0.306. Because it was unique, this function explained 100% of the total variance between the groups, with a canonical correlation coefficient for the relationship between the set of predictors and the function of 0.484. The Wilk's lambda test informed that it is possible to explain 76.6% (1-Wilks) of existing variance. The function was significant based on the significance level adopted for this study ( $p < 0.001$ ).

Predictability was excellent, with an overall result that classifies 88.4% of the cases in the groups correctly. Both of the groups showed goodness of fit, with teenagers who were dissatisfied with their body image demonstrating better fit, indicating that 73.9% of the cases were accurately classified, compared to 72.9% in the group of satisfied teenagers.

The centroid distance function was 0.323 and -0.947 for the satisfied and dissatisfied teenagers, respectively. The centroid is the center point of the degree of dispersion of cases in the groups. The analysis of the structural matrix of discriminating variables in the function with a cut-off value of 0.10 showed that the variables that contributed most to the discrimination between groups were sex (0.680), self satisfaction (0.644), health perception (0.630), and level of happiness with health (0.601) (Table 3).

## Discussion

The sample was predominantly female, aged 14, white and class B. The findings show that

**Table 1.** Sociodemographic characteristics of the participants (Canoas/RS, 2014).

Sociodemographic characteristic (n = 1,460)	Ninth-grade students	
	n	%
Sex*		
Female	779	51.5
Male	675	44.5
Age in years**		
12	2	0.1
13	157	10
14	619	39.3
15	395	25.1
16	195	12.4
17	72	4.6
18	7	0.4
19	2	0.1
Race/color***		
White	1037	71.1
Black	177	12.1
Brown	182	12.5
Yellow	18	1.2
Indigenous	27	1.8
Economic status****		
A	84	5.7
B	868	59.5
C	347	23.8
D+E	13	0.9

\* Data lacking for 6 participants (0.4%); \*\* Data lacking for 11 participants (0.8%); \*\*\* Data lacking for 19 participants (1.3%); \*\*\*\* Data lacking for 148 participants (10.1%).

the majority of participants were satisfied with their body image. These findings are similar to the results of studies conducted in Santa Maria<sup>28</sup> and Gravataí<sup>29</sup> in the State of Rio Grande do Sul, which showed that 74.7% and 76.4% of participants, respectively, were satisfied with their body image. However, they contrast with another study with Brazilian teenagers, which showed that the prevalence of body image dissatisfaction was 64.2% in rural areas and 62.8% in urban areas<sup>30</sup>.

Studies in other cities in the State of Rio Grande do Sul reported a higher prevalence of body image dissatisfaction, with 63.9% in Dois Irmãos and Morro Reuter<sup>31</sup> and 71.5% in Caxias do Sul<sup>32</sup>. Data from the 2009 National School-Based Student Health Survey<sup>33</sup> conducted with 61,000 teenagers living in state capitals showed that around 60.2% of respondents considered themselves to be well-nourished, while 22.1%

thought they were skinny, and 17.7% considered themselves obese.

In contrast to the present study, research conducted in Belo Horizonte in the State of Minas Gerais<sup>34</sup> and São Paulo<sup>6</sup> found that the majority of participants (62.6% and 50.7%, respectively) were dissatisfied with their body image. Some of these discrepancies may be explained by the variety of instruments used by the different studies to assess body image satisfaction. The abovementioned studies, for example, used the children's version of the Figure Rating Scale<sup>35</sup>, which displays nine silhouettes ranging from very thin to very obese.

The findings show that greater self-satisfaction, greater health perception, and being happier with your health were the variables that made up the set of predictors of body image satisfaction among boys. Sex was the best predictor of body image satisfaction, corroborating the results of other studies that show that the prevalence of body image dissatisfaction is higher among girls. Studies<sup>36-39</sup> show that prevalence of body image dissatisfaction among teenagers ranges between 25 and 80% and is considerably higher among girls. In agreement with the literature<sup>6,40-42</sup>, the present study shows that girls were more prone to body dissatisfaction than boys. One of the main reasons for body dissatisfaction among teenagers is the social pressure to be thin<sup>43,44</sup>. Girls often have a negative perception of body weight, which in turn can pose a serious health risk<sup>45</sup>. A study conducted in Australia pointed to a large increase in body image dissatisfaction among teenage girls, showing that the majority would like to be thinner<sup>46</sup>.

There are major differences between the sexes. Girls are encouraged to adopt less active behaviors, while boys are encouraged to be competitive and practice physical exercise and group sports<sup>47</sup>. Body image dissatisfaction in teenagers, particularly in girls, makes them more vulnerable, since it lowers self-esteem and is associated with feelings of sadness, which in turn increases the likelihood of depression and suicidal ideation<sup>48</sup>.

Self-satisfaction can also be a variable that discriminates between teenagers who are satisfied or dissatisfied with their body image. This variable can be related to body image satisfaction, but incorporates other aspects like self-concept.

During adolescence, young people build their personal and social identity and a number of changes take place concomitantly with biological maturation, leading to increasing concern about

**Table 2.** Concern with body image and happiness, life satisfaction, health perception, and optimism about the future among ninth-grade students (Canoas, Brazil, 2014) (n = 1460).

	Variation scale	Average	SD	n	%
Body Image Satisfaction	-				
Satisfied		-	-	1091	74.7
Dissatisfied		-	-	369	25.3
How happy are you with...	(1-5)				
The house or apartment where you live		3.85	1.05	-	-
The people you live with		4.19	0.95	-	-
The people in your family		4.03	0.98	-	-
Friends		4.18	0.92	-	-
The people living in your neighborhood and city		3.31	1.13	-	-
Relations with people in general		3.68	1.01	-	-
The neighbourhood or city where you live in general		3.38	1.13	-	-
School		3.42	1.18	-	-
Classmates		3.70	1.08	-	-
Academic performance		3.54	1.16	-	-
Freedom		3.55	1.25	-	-
Your health		3.87	1.06	-	-
What you do in your spare time		3.78	1.13	-	-
The way you are heard		3.43	1.20	-	-
Life overall		3.89	1.05	-	-
Things you own		4.17	0.92	-	-
Satisfaction with...	(0-10)				
Family		7.83	2.14	-	-
Friends		8.21	1.87	-	-
School experience		7.04	2.16	-	-
Oneself		7.64	2.34	-	-
Living environment		7.71	2.31	-	-
Life overall		8.00	2.13	-	-
Health perception	(1-4)	2.84	0.77	-	-
Optimism about the future	(0-10)	7.58	2.25	-	-

**Table 3.** Results of discriminant analysis showing the contribution of variables to the discrimination between the groups (satisfied and dissatisfied with body image) (Canoas, Brazil, 2014) (n = 1460).

Variable	Function 1
Sex	0.680
Self-satisfaction	0.644
Health perception	0.630
Level of happiness with health	0.601

body image and appearance. Research<sup>49,50</sup> highlights that body image satisfaction is linked to positive self-concept, psychological well-being, and positive social relations, which are factors

that reflect good quality of life. Some authors<sup>51,52</sup> have found that self-concept varies according to age, suggesting that it is stable during childhood, declines during adolescence and increases in early adulthood due to greater self-acceptance.

A study<sup>53</sup> with 686 school children in the State of Paraíba that explored the association between self-concept and sex, age, and type of school attended (state or private) showed that participants had positive self-concept. The findings also showed that self-concept varied according to sex (greater in girls), age (in boys, the lower the age, the greater negative self-perception, while among girls the prevalence of negative self-perception was greatest in the 16 to 18 years age group), and type of school (self-concept was more positive among teenagers attending state schools).

A study that explored the relationship between body image satisfaction and self-concept among teenagers<sup>54</sup> showed that both constructs are important for analyzing psychological well-being during adolescence. The study in question used the Child/Adolescent Self-Concept Scale (*Escala de Autoconceito Infanto-Juvenil - EAC-IJ*) and Body Image Satisfaction Scale. The findings showed that there was a statistically significant positive association between body image satisfaction and self-concept. However, although no association was found between levels of body image satisfaction and self-concept and age, the results showed that there was a positive association between these outcomes and sex and type of school attended.

The other discriminating variables are related to health perception and happiness with health, suggesting that feeling happy discriminates between teenagers who are satisfied or dissatisfied with their body image. Body image satisfaction acts as a predictor of health and well-being and is a central element of adolescence. The concept of teenage health reaches far beyond the absence of illness<sup>55</sup>, encompassing well-being, love, affection, joy, lifestyle, and physical activity.

During puberty, teenagers become concerned with and can have a distorted image of their weight and body, which can often grow disproportionately and lead to psychological changes related to perception and motor coordination<sup>56</sup>. During this phase, body satisfaction is influenced by the media and social interaction, directly affecting identity formation and the acceptance of self-image<sup>57</sup>. In today's society, people are stimulated to adopt unhealthy habits to control weight and stay thin to attain the beauty ideal promoted by the media<sup>58</sup>.

Being thin is viewed as being healthy. However, it is important to bear in mind that the main component of health is having a meaningful life: there are many different ways of being healthy<sup>59</sup>. Although being thin may be seen as a synonym for health, since excess fat can cause serious damage to the body, there are types of obese people who visit the doctor on a regular basis, diet and practice exercise, and are therefore often more healthy than thin and sedentary people<sup>60</sup>.

Good health has become a goal for people from all classes, ages, sexes and professions and it is fundamental to acquire, have, conserve and

promote health, or "keep it in check"<sup>61</sup>. Being obese is an aesthetic loaded with representations that do not fit with the current dominant beauty ideal. Gaining fat is seen as a passport to illness, reinforcing self-blame. The synonym for health and beauty for women is a slim silhouette, while for men it is a muscular body<sup>62</sup>.

We therefore need to consider a new way of thinking about health detached from weight and body shape stereotypes. This needs to happen not only at the macro level of society and culture, particularly in the media, but also in the family, school and health services. This is particularly crucial among adolescents, given the abrupt changes in the body during this phase and the process of identity consolidation. When thinking about teenage health we need to look beyond the physical aspects, precisely to protect against negative body image. With respect to health services, adopting a less regulatory approach to health and focusing on the positive aspects of teenage life can help make health care services more accessible to adolescents.

One of the limitations of this study is that cross-sectional studies are limited in their ability to determine cause-effect relationship between variables. Although self-report instruments are quicker to administer and allow respondents to select a response by themselves without researcher interference, they are subject to subjective interpretation. Furthermore, the interviewer must pay particular attention to ensure that all questions are answered. Despite being validated for use for both sexes in Brazil<sup>63</sup>, the use of the BSQ to assess body image satisfaction can also be regarded as a limitation, given that it is generally used to assess weight and body shape and, first and foremost, dissatisfaction in relation to being overweight rather than underweight, which are aspects that tend to be more important among girls.

Another limitation is the setting used for data collection. At school, respondents are influenced by the environment and their peers, which can affect the answers. Furthermore, the study only included school children, therefore excluding teenagers who do not attend school. However, the study provides important insights into body image satisfaction and subjective wellbeing among teenagers, given that it encompassed 34 schools from the local state school system and invited all ninth-grade students to participate.

### **Collaborations**

DCM Lemes and SG Câmara were responsible for all aspects of this work; Geysa Guimarães Alves was responsible for drafting the article and final approval of the version to be published; D Aerts was responsible for final approval of the version to be published.



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