

Original Article (short paper)

## Factors associated with body image dissatisfaction of weight training practitioners

Daniel Vicentini de Oliveira<sup>1</sup>, José Roberto Andrade do Nascimento Júnior<sup>2</sup>, Paolo Marcello da Cunha<sup>3</sup>,  
Jéssica Fernanda Siqueira<sup>4</sup>, Érica Cristina Félix da Silva<sup>4</sup>, Cláudia Regina Cavaglieri<sup>1</sup>  
<sup>1</sup>Universidade Estadual de Campinas, UNICAMP, Campinas, SP, Brazil; <sup>2</sup>Universidade Federal do Vale do São Francisco, UNIVASF, Petrolina, PE, Brazil; <sup>3</sup>Universidade Estadual de Londrina, UEL, Londrina, PR, Brazil; <sup>4</sup>Centro Universitário Metropolitano de Maringá, Maringá, PR, Brazil;

**Abstract — Aims:** This study aimed at investigating the socio-demographic and health-related variables associated with body image dissatisfaction. **Methods:** This is a cross-sectional study. 894 (34.04±13.62 years old) weight training practitioners from a medium-large city in the south of Brazil participated in this study. A socio-demographic questionnaire was used along with the Body Shape Questionnaire. The Chi-squared Test and the Binary Logistic Regression ( $p < 0.05$ ) were used to analyze the data. **Results:** Female subjects who have been practicing weight training for two to five years are more likely to be dissatisfied with their bodies (OR=4.305 [95% CI=2.984-6.213; OR=1.773 [95% CI=1.086-2.895],  $p < 0.05$ , respectively). **Conclusion:** There is one group of individuals who are less likely to experience body weight satisfaction. This group of people has three characteristics: 1, 2, and 3.

Keywords: body image; physical activity; sports psychology.

### Introduction

People are increasingly concerned about their bodies, whether for reasons related to health, well-being or aesthetics, among others<sup>1,2</sup>. Thus, the search for a means to reach the desired body is increasingly evident, with physical exercise being one of the healthiest means to achieve a better perception of body image (BI)<sup>3</sup>. The reasons for practicing physical exercise are clear<sup>4,5</sup>, however little has been shown on to what degree a set of factors may influence a person to be either dissatisfied or not with their own body<sup>6</sup>.

Whereas body satisfaction may be termed as a general component of multidimensional body perception, BI addresses a more restricted view of the body; that is, between actual physical form and desired physical form, which, in turn, is part of body satisfaction<sup>7</sup>. Both body satisfaction and dissatisfaction address several elements, such as contentment with the body parts, satisfaction with weight, and the BI perception itself, which is the view and judgment that the person has over his/her own body based on the cultural standards stipulated by society<sup>8</sup>. Brazilian researches showed that the biggest problem for BI dissatisfaction is related to weight<sup>1,9</sup>. These studies indicated that men desire to be stronger and large, and women desire to be thin. In this perspective, the relationship of BI with the standards imposed by society has increasingly been identified in different countries by the sociocultural theory<sup>10</sup>.

This theory shows the media power as a strong influence on people's way of thinking when referring to the perception of their own body, in addition to parental influence and peer comparison<sup>11,12</sup>. Therefore, BI perception is influenced on a daily basis by the constant comparisons and internalizations of these local sociocultural influences<sup>10</sup>. Thus, the practice of physical exercise may work as a facilitating agent for greater

body satisfaction<sup>7,13</sup>. However, even the BI of those who already practice some physical exercise routinely, such as weight training, which is very common because of its practicality and fast results, tends to be influenced by several other factors existing in the sociocultural context, as well as by the physical and behavioral profile of the person<sup>14</sup>.

Therefore, studies have shown that BI dissatisfaction may be related to several variables, such as sex<sup>15</sup>, according to which women report being more dissatisfied<sup>16</sup>, which leads to unhealthy eating behaviors<sup>17</sup>. The BI may also be a determinant for the practice of physical exercise. Considering young people, BI dissatisfaction may lead to insufficient levels of physical exercise<sup>18</sup>, and it is related with low socioeconomic conditions, as well as to long periods spent in front of the television<sup>19</sup>.

In addition, the practice of physical exercise is related to a lower BI dissatisfaction for both men and women<sup>3</sup>. This shows the positive role that physical exercise has over BI perception. However, this practice does not guarantee satisfaction, as Parmer and Desai<sup>14</sup> showed that weight-training practitioners had more BI dissatisfaction than non-practitioners did. Therefore, it is either necessary to investigate how socio-demographic variables (such as sex, marital status, income, occupation, and others), and personal perceptions related to health and physical activity, may or may not influence BI dissatisfaction. This is the gap this research intends to explore.

Therefore, the present study aims to investigate the association of socio-demographic and health-related variables on the prediction of body dissatisfaction of weight training practitioners. This study also seeks to verify the association of body image with socio-demographic, health and physical activity profiles. Thus, we hypothesized that subjects with better socioeconomic levels and good health conditions would have a better perception of body image.

## Methods

### *Participants*

894 individuals ( $34.04 \pm 13.62$  years old) of both sexes, who practice weight training in the city of Maringá, Paraná, Brazil, were intentionally selected to participate in this descriptive study. Thus, 15 fitness centers accredited by the Regional Council of Physical Education of Paraná were selected after a regional distribution of the city (four zones), with approximately four fitness centers per region.

Therefore, over-18-year-old subjects of both sexes who were enrolled in the weight training modality with a minimum attendance of two times a week were included in the research. Only the subjects who signed the Free Informed Consent Form (FICF) participated in the study. Inappropriately completed questionnaires were excluded, that is, those with one or more unanswered items.

### *Instruments*

A semi-structured questionnaire was used to characterize the socio-demographic, health, and weight training profiles of the sample. This questionnaire consisted of different questions related to sex (female, male); marital status (with a partner, without a partner); monthly income in minimum wage (MW) related to the year 2016 (up to 1 MW; 1.1 to 2 MW; over 2 MW); education (incomplete elementary education, complete elementary education, complete high school, complete higher education); smoking (has never smoked, has already smoked, currently smokes); race (Caucasian, black, Asian); occupational situation (active, non-active); student status (yes, no); self-perception of health (bad, regular, good, very good, excellent), self-perception of body (slim; normal; fat); weight training time (less than 6 months, 6 months to 2 years, more than 2 years); weekly frequency of weight training (2, 3, 4, 5 or more times); reason for practicing weight training (medical recommendation, leisure, aesthetic, others); level of physical activity; practicing other exercises (yes, no); body image dissatisfaction.

The body dissatisfaction was assessed by using the Body Shape Questionnaire (BSQ) validated for the Brazilian population by Di Pietro and Silveira<sup>20</sup> and which consists of 34 questions in a 6-point Likert scale (from 1 = never to 6 = always). After summing the points of each question, the classification of body dissatisfaction levels was carried out according to: less than 80 points = absence of dissatisfaction; from 80 to 110 points = a slight dissatisfaction; from 110 to 140 points = a moderate dissatisfaction; score above 140 points = severe body dissatisfaction. The evaluation was performed by considering the physical fitness and concern expressed during the last four weeks of the data collection. Cronbach's alpha for the instrument was  $\alpha = 0.73$ , indicating strong reliability.

### *Procedures*

Initially, contact with the Regional Council of Physical Education (CREF/PR) was made in order to acquire the list of fitness centers that offered a weight training modality in the city of Maringá, Paraná. Subsequently, 15 fitness centers were drawn. The data collection was carried out in the fitness centers in a private room, either before or after the weight training practice. The individuals who agreed to participate in the study signed the Free Informed Consent Form. Data collection was performed from May to July 2016.

### *Statistical analysis*

The analyses were carried out by using a descriptive and inferential statistics approach. In the descriptive approach, the absolute and relative frequencies were distributed for the categorical variables (sociodemographic, health and physical activity). The numerical variables were expressed through the mean and standard deviation. In the inferential statistics, the Chi-squared test, and, when necessary, Fisher's exact test, were used to investigate the proportional differences in the prevalence of body dissatisfaction based on the sociodemographic, health, and physical activity variables.

The Binary Logistic Regression (gross and adjusted analysis) was used to evaluate the associations of the sociodemographic, health and physical activity variables (independent variables) with the presence of body dissatisfaction (dependent variable) of the subjects. For both Chi-squared and Logistic Regression, the BSQ was reorganized into two categories: absence of dissatisfaction - those classified as free from body dissatisfaction; and presence of dissatisfaction - those who were classified as having some level of body dissatisfaction (slight, moderate or severe). For modeling the regression analysis, only those variables that showed a level of significance equal to or less than 0.20, considering the association with the presence of body dissatisfaction in the Chi-squared test, were considered. The model fit was verified through the Hosmer-Lemeshow test. The analyses were performed by using SPSS software version 20.0 ( $p < 0.05$ ).

### *Ethical Considerations*

The permanent committee on ethics in research approved this research with human beings under the article number nº 1.694.517 / 2016.

## Results

Out of the 894 individuals evaluated, 472 were female (52.8%) and 422 were males (47.2%); most of them had completed higher education (44%); had a partner (52.9% %), had an income of more than two minimum wages (59.8%) and an active occupational situation (75.6%).

**Table 1.** Socio-demographic profile of the weight training practitioners in Maringá, Paraná, Brasil.

VARIABLES	f	%
<b>Sex</b>		
Male	422	47,2
Female	472	52,8
<b>Marital status</b>		
With a partner	473	52,9
Without a partner	421	47,1
<b>Monthly income</b>		
Up to 1 minimum wage	140	15,7
1 to 2 minimum wages	219	24,5
More than 2 minimum wages	535	59,8
<b>Education</b>		
Incomplete Elementary Education	44	4,8
Complete Elementary Education	177	19,8
Complete High School	281	31,4
Complete Higher Education	392	44,0
<b>Smoking</b>		
Has never smoked	673	75,3
Has already smoked	169	18,9
Currently smokes	52	5,8
<b>Race</b>		
Caucasian	733	82,0
Black	121	13,5
Asian	40	4,5
<b>Occupational situation</b>		
Active	676	75,6
Non-active	218	24,4
<b>Being a current student</b>		
Yes	349	39,1
No	545	60,9

Regarding the health and physical activity profiles of the weight training practitioners (Table 2), it was verified that the majority considered their health as being good/very good (52.7%); in relation to body self-perception the subjects perceived themselves as slim (68.9%); they have been practicing weight training for six months to two years (37.5%) and at a frequency of three to four times a week (54.6%). The majority of them practice weight training due to medical recommendation (45.4%); and they have a very active level of physical activity (55.3%). Absence of body image dissatisfaction was found in 71.1% of the participants, and presence of body image dissatisfaction was found in 28.9%.

When analyzing the association between body image dissatisfaction and the socio-demographic variables (Table 3), a significant association with sex ( $p = 0.001$ ), monthly income ( $p = 0.018$ ) and smoking ( $p = 0.047$ ) was verified. It should be highlighted that there is a higher proportion of individuals with absence of body dissatisfaction who are males (85.3%); they have a monthly income of more than two minimum wages (73.5%) and have never smoked (71.3% %).

**Table 2.** Profile of health and physical activity of weight training practitioners in Maringá, Paraná, Brasil.

VARIABLES	f	%
<b>Health self-perception</b>		
Bad/Regular	81	9,1
Good	342	38,3
Very good/Excellent	471	52,7
<b>Body self-perception</b>		
Slim	193	21,6
Normal	589	65,9
Fat	112	12,5
<b>Weight training time</b>		
Less than 6 months	279	31,2
6 months to 2 years	335	37,5
2.1 to 5 years	174	19,5
More than 5 years	106	11,9
<b>Weekly frequency</b>		
1 to 2 times	121	13,5
3 to 4 times	488	54,6
5 times or more	285	31,9
<b>Reason for practicing</b>		
Medical recommendation	406	45,4
Leisure	308	34,5
Aesthetics	124	13,9
Others	56	6,3
<b>Level of physical activity</b>		
Irregularly active	124	13,9
Active	276	30,9
Very Active	494	55,3
<b>Being practicing other exercises</b>		
Yes	444	49,7
No	450	50,3
<b>Body image dissatisfaction</b>		
Absence	636	71,1
Presence	258	28,9

When analyzing the association between body image dissatisfaction with health and physical activity variables (Table 4), a significant association was found among health self-perception ( $p = 0.001$ ), body self-perception ( $p = 0.001$ ), and reason for practicing ( $p = 0.001$ ). It is noteworthy that there is a higher proportion of individuals with absence of body dissatisfaction who: 1) have very good/excellent health perception (74.3%); 2) perceive themselves as having a normal body (77.9%), and; 3) practice weight training for leisure (80.8%).

For modeling the regression analysis, only the variables that showed a level of significance equal to or less than 0.20 in the association were considered. Table 5 shows the socio-demographic factors associated with the presence of body image dissatisfaction in weight training practitioners. In the gross analysis, there was a significant association ( $p < 0.05$ ) between the presence of body image dissatisfaction and age, sex, monthly income, occupational situation, health self-perception, body self-perception, reason for practicing and the level of physical activity.

**Table 3.** Association between body image dissatisfaction and the socio-demographic variables of weight training practitioners in Maringá, Paraná, Brasil.

VARIABLES	Body image dissatisfaction		X <sup>2</sup>	P
	Absence (n=636)	Presence (n=258)		
	f (%)	f (%)		
<b>Sex</b>				
Male	360 (85,3)	62 (14,7)	78,139	<b>0,001*</b>
Female	276 (58,5)	196 (41,5)		
<b>Marital status</b>				
With a partner	345 (72,9)	128 (27,1)	1,591	0,198
Without a partner	291 (69,1)	130 (30,9)		
<b>Monthly income</b>				
Up to 1 minimum wage	88 (62,9)	52 (37,1)	5,596	<b>0,018*</b>
1 to 2 minimum wages	155 (70,8)	64 (29,2)		
More than 2 minimum wages	393 (73,5)	142 (26,5)		
<b>Education</b>				
Incomplete Elementary School	31 (70,5)	13 (29,5)	0,050	0,823
Complete Elementary School	128 (72,3)	49 (27,7)		
Complete High School	200 (71,2)	81 (28,8)		
Complete Higher School	277 (70,8)	114 (29,2)		
<b>Smoking</b>				
Has never smoked	480 (71,3)	193 (28,7)	3,628	<b>0,047*</b>
Has already smoked	122 (72,2)	47 (27,8)		
Currently smokes	34 (65,4)	18 (34,6)		
<b>Race</b>				
Caucasian	522 (71,2)	211 (28,8)	0,329	0,566
Black	89 (73,6)	32 (26,4)		
Asian	25 (62,5)	15 (37,5)		
<b>Occupational situation</b>				
Active	492 (72,8)	184 (27,2)	3,632	0,057
Non-active	144 (66,1)	74 (33,9)		
<b>Being a current student</b>				
Yes	249 (71,6)	99 (28,4)	0,054	0,815
No	386 (70,8)	159 (29,2)		

\*Significant association – p &lt; 0.05: Qui-squared Test.

**Table 4.** Association between body image dissatisfaction and the variables related to health and physical activity of weight training practitioners in Maringá, Paraná, Brasil.

VARIABLES	Body image dissatisfaction		X <sup>2</sup>	P
	Absence (n=636)	Presence (n=258)		
	f (%)	f (%)		
<b>Health self-perception</b>				
Bad/Regular	42 (51,9)	39 (48,1)	16,990	<b>0,001*</b>
Good	244 (71,3)	98 (28,7)		
Very good/Excellent	350 (74,3)	121 (25,7)		
<b>Body self-perception</b>				
Slim	82 (42,4)	111 (57,5)	100,611	<b>0,001*</b>
Normal	459 (77,9)	130 (22,1)		
Fat	95 (84,8)	17 (15,2)		
<b>Weight training time</b>				
Less than 6 months	191 (68,5)	88 (31,5)	1,420	0,203
6 months to 2 years	244 (72,8)	91 (27,2)		
2.1 to 5 years	119 (68,4)	55 (31,6)		
More than 5 years	82 (77,4)	24 (22,6)		

<b>Weekly frequency</b>				
1 to 2 times	84 (69,4)	37 (30,6)		
3 to 4 times	345 (70,7)	143 (29,3)	0,518	0,472
5 times or more	207 (72,6)	78 (27,4)		
<b>Reason for practicing</b>				
Medical recommendation	256 (63,1)	150 (36,9)		
Leisure	249 (80,8)	59 (19,2)	12,430	<b>0,001*</b>
Aesthetics	84 (67,7)	40 (32,3)		
Others	47 (83,9)	9 (16,1)		
<b>Level of physical activity</b>				
Sedentary	79 (63,7)	45 (36,3)		
Active	196 (71,0)	80 (29,0)	3,691	0,055
Very Active	361 (73,1)	133 (26,9)		
<b>Being practicing other exercises</b>				
Yes	324 (73,0)	120 (27,0)	1,442	0,230
No	312 (69,3)	138 (30,7)		

\*Significant association –  $p < 0,05$ : Qui-squared Test.

**Table 5.** Factors associated with the presence of body image dissatisfaction of weight training practitioners in Maringá, Paraná, Brasil.

Variables	OR gross	OR adjusted [C.I. 95%]
<b>Age</b>	0,987 [0,976-0,998]*	0,980 [0,966-0,994]*
<b>Sex</b>		
Male	1,00	1,00
Female	4,123 [2,977-5,712]*	4,305 [2,984-6,213]*
<b>Marital status</b>		
Active	1,00	1,00
Non-active	1,204 [0,901-1,609]	1,129 [0,807-1,580]
<b>Smoking</b>		
Has never smoked	1,00	1,00
Has already smoked	0,958 [0,658-1,395]	1,254 [0,804-1,956]
Currently smokes	1,317 [0,726-2,388]	1,281 [0,612-2,681]
<b>Monthly income</b>		
Up to 1 minimum wage	1,00	1,00
1 to 2 minimum wages	0,699 [0,446-1,096]	0,766 [0,441-1,330]
More than 2 minimum wages	0,611 [0,413-0,906]*	0,799 [0,491-1,300]
<b>Occupational situation</b>		
Active	1,00	1,00
Non-active	1,374 [1,008-1,907]*	1,180 [0,783-1,777]
<b>Health self-perception</b>		
Bad/Regular	1,00	1,00
Good	1,162 [0,850-1,588]	0,893 [0,617-1,292]
Very good/Excellent	2,686 [1,658-4,351]*	1,717 [0,945-3,119]
<b>Body self-perception</b>		
Slim	1,00	1,00
Normal	0,209 [0,148-0,296]	0,219 [0,145-0,330]*
Fat	0,132 [0,073-0,238]*	0,113 [0,059-0,217]*
<b>Weight training time</b>		
Less than 6 months	1,00	1,00
6 months to 2 years	0,809 [0,571-1,147]	1,355 [0,893-2,056]
2.1 to 5 years	1,003 [0,668-1,507]	1,773 [1,086-2,895]*
More than 5 years	0,635 [0,378-1,069]	1,091 [0,590-2,015]
<b>Reason for practicing</b>		
Medical recommendation	1,00	1,00
Leisure	0,404 [0,286-0,573]*	0,576 [0,384-0,862]*
Aesthetics	0,813 [0,530-1,246]	1,052 [0,642-1,726]
Others	0,327 [0,156-0,686]*	0,447 [0,201-0,996]*

**Level of physical activity**

Sedentary	1,00	1,00
Active	0,717 [0,457-1,123]	0,581 [0,343-0,986]*
Non-active	0,647 [0,426-0,981]*	0,559 [0,344-0,909]*

\*Significant association –  $p < 0.05$ : Binary Logistic Regression. OR adjusted by all the variables. OR = Odds Ratio; CI = confidence interval.

It should be highlighted that the female subjects and those who have been practicing weight training for 2 to 5 years showed to be, respectively, 4.305 [95% CI = 2.984-6.213] and 1.773 [95% CI = 1.086-2.895] times more likely to be dissatisfied with their body image when compared to the male subjects and those who have been practicing for less than 2 years and for more than 5 years. In addition, it should be emphasized that the individuals who have a normal body self-perception; those who perceive themselves as being fat in relation to slim subjects; the ones who have either an active or very active level of physical activity, and those who practice weight training due to leisure or other reasons (except for aesthetics and medical recommendation) are less likely to have body image dissatisfaction.

## Discussion

This study aimed to investigate the association of different factors related to the body dissatisfaction prediction of weight training practitioners. Although strongly discussed, there is lack evidence about this subject in different contexts<sup>16</sup>, especially regarding the profile of the practitioners who go to fitness centers and may be pre-disposed to this behavior. The main findings point out those who are practitioners of physical exercise for leisure, physically active or that perceived normal or fat body self-perception had lower chances of being dissatisfied with their body image. These results were opposite to those of female practitioners and of participants who have been practicing exercises for two or five years: these participants were more likely to be dissatisfied with their body image. In this sense, the findings of this investigation contribute to the indication of peculiarities considering the subjects who go to fitness centers and are dissatisfied with their own bodies, which may both interfere in the practice of exercise in the long term and should therefore differentiate the work to be carried out with certain profiles of people. In general, female and male subjects with at least two years of practice are more likely to be dissatisfied with their BI. On the other hand, those who perceive themselves as having normal or fat bodies, those who are active, and those who practice physical exercise for leisure are less likely to be dissatisfied with their BI.

The present study found that even the female subjects who go to fitness centers are more likely to be dissatisfied with their BI than male practitioners (Table 5), which is in accordance with the great majority of studies, as reported in the meta-analysis by Weinberger, Kersting, Riedel-Heller, Luck-Sikorsk<sup>16</sup>, who verified that BI dissatisfaction is more evident in women and in other studies<sup>1,13</sup>. This shows that female individuals tend to be dissatisfied with their own body even if assiduously attending a fitness center. This may be evidence of the need for a more

specific type work to be done with women, since these results showed that female subjects are more likely to be dissatisfied with their BI, and it is the role of the health professionals to instruct them to seek a healthy body, but not an ‘ideal’ one.

In addition, it should be highlighted that people who have been practicing exercise for two to five years are also more likely to be dissatisfied with their BI (Table 5). Parmer and Desai<sup>14</sup> found that the subjects who go to fitness centers are more dissatisfied with their BI when compared to those who do not practice exercise, which partially meets the result of the present research and indicates that physical exercise may be a factor that leads to the constant search for body perfection. However, this may be new evidence for to improve instruction and/or attendance of these individual, since this is the period when the body stabilizes and does not have as many aesthetic effects at first, but improvement and physiological evolution. Thus, it is extremely relevant that such practitioners are aware of this body evolution process, and intensely face this period, taking into account other types of gains, such as psychological ones, with the decrease of stress, the sensation of well-being, and the pleasure that the practice of physical exercise provides to the organism<sup>21</sup>. Therefore, usually the practitioners of weight training always aim to get an even better body, so they are rarely satisfied with their bodies. This explains the results found in this study.

In this perspective, the factors that were significant for the practitioner to have lower chances of being dissatisfied with their bodies are also important. The way people perceive themselves, the reasons for practicing, and even the level of physical activity may be elements that favor the contentment of their BI (Table 5). Therefore, people who have a perception of a normal body, who perform physical exercise for leisure, and who are active or very active are more likely to have a lower chance of being dissatisfied. These results corroborate a large number of studies that evaluated people of different levels of physical activity<sup>13,15</sup>, indicating a greater dissatisfaction in people with low levels of physical activity and a sedentary lifestyle.

It is worth mentioning that the present research showed that more than half of the people, regardless their level of physical activity, were satisfied with their BI (Table 4), and leisure is the reason for exercising that may lead to less chances of BI dissatisfaction. The practice of physical exercises for leisure, pleasure, and well-being are typical reasons that are intrinsic to the person, who perceives a greater importance for himself/herself, and that this practice is a benefit and it is integrated into the person's life<sup>22</sup>. Therefore, some research has shown the benefits of practicing physical exercise due to intrinsic reasons are that it may ensure better results<sup>23</sup>; contribute to the fact that the subjects continue practicing for longer regardless the results<sup>24</sup>; and result in higher personal satisfaction<sup>25</sup>.

A relatively new result found in the present study was that people who perceive themselves as being fat seem to be more satisfied with their BI than those who recognize themselves as slim people (Table 4). Similarly, those who perceive themselves as being fat have a lower chance of having BI dissatisfaction when compared to subjects who think they are slim (Table 5). This should be further discussed, since the vast majority of studies point to overweight people as dissatisfied with their bodies<sup>13,14,16</sup>, but few studies evaluate people who already perceive themselves as being slim. The present study verified that people belonging to this type of profile are more dissatisfied and more likely to show dissatisfaction with their BI. This type of behavior is more evident in subjects who desire greater gains in muscle mass<sup>26</sup>, which was not investigated in the present study. It is worth emphasizing that regardless of people's perceptions of being either fat or slim, they believe themselves to be out of the 'standard' and are dissatisfied. Thus, the professionals should work the same way with them.

The research also showed that people who have never smoked had a higher absence of dissatisfaction with their BI (Table 3). This indicates the relevance of having healthy habits in daily practice. In addition to the health benefits the practice of physical exercise provides people, attitudes outside this environment also strongly influence the BI perception. Not smoking is of extreme importance to the person's own acceptance of his/her body<sup>27</sup>, and this is one of the predictive factors of BI dissatisfaction. Therefore, the person who has never smoked or has quit smoking becomes more attractive and more satisfied with their BI.

In addition, despite the contributions of these findings, some limitations should be discussed. First, the sample refers to a single city in the southern region of Brazil, which does not allow for generalization of the results to the Brazilian population. However, it is worth emphasizing the large number of participants in this research, whose results may lead to a further discussion on so important a topic. Second, the research only evaluated the perception that the participant had on his/her own body, but not the physical dimensions, such as height, weight, BMI and waist circumference. Therefore, the real physical status of the people is lost, and many of them have a distorted view of reality. Regarding the factors associated to BI, the results are based on cross-sectional data, not allowing causal inferences. Thus, it is suggested that these measures be included for a real comparison between the perception and the physical status of the people. This could be achieved by having more resources and a more robust research design and data analysis, such as the use of longitudinal approaches and structural equation modeling to detect the impact of different factors for BI dissatisfaction. However, this study brings important contributions related to the association among the body perception, physical activity level and reason for practice with the less chance to experience BI dissatisfaction.

### Conclusion

It is concluded that, for this sample, a risk profile could be noticed for those who may experience BI dissatisfaction.

Individuals who practice physical exercise for leisure, are active, or perceived themselves as normal or fat have lower chances of being dissatisfied with their body image. This is directly contrary to the profile of female practitioners and of those who have been practicing exercise for two or five years: these groups are more likely to be dissatisfied body image. It is highlighted that healthy life habits favor a greater acceptance of the body itself. As a practical implication of these results, it is possible to consider the differentiated care provided by health professionals and psychologists to people who have an at-risk profile. The professionals can use these results to better understand how exercise practitioners perceive their bodies and thus can give psychological support and thus may prevent those practitioners from doing something that could be harmful to their health. Such studies should be carried out in order to further understanding of the reasons for body dissatisfaction, which may be related to different factors in people's lives.

### References

1. Almeida LLB, Baptista TJR. Análise da imagem corporal de praticantes de atividades físicas em um centro de práticas corporais. *Pensar a Prática*, 2016;19(3):601-611.
2. Kenny U, Sullivan L, Callaghan M, Molcho M, Kelly C. The relationship between cyberbullying and friendship dynamics on adolescent body dissatisfaction: A cross-sectional study. *J Health Psycho*, 2017;1:1-11.
3. Melching K, Green M, O'Neal E, Renfroe L. Body Image Dissatisfaction: Responses between Male and Female Exercisers and Non-Exercisers. *Int J Exer Sci*. 2016;9(3):248-257.
4. Aaltonen S, Rottensteiner M, Kaprio J, Kujala UM. Motives for physical activity among active and inactive persons in their mid-30s. *Scand J Med Sci Sports*. 2014;24(4):727-735.
5. Ingledew DK, Markland D, Strömmer ST. Elucidating the roles of motives and gains in exercise participation. *Sport Exer Perform Psychol*. 2014;3(2):116-131.
6. Castro EMRT, Fonseca SCF, Pinto GSM, Mourão-Carvalho MIM. Factors associated with body image dissatisfaction in Portuguese adolescents: obesity, sports activity and TV watching. *Motricidade*. 2016;12(2):18-26.
7. Cardoso FL, Zequinão MA, Felizola FLV, Ceola EA., Matos PH. Percepção e satisfação corporal em relação ao exercício físico. *Rev. bras. ativ. fís. Saúde*. 2011;16(2):95-99.
8. Casquinho J, Cheira J, Roseiro J, Neves L, Martins J, Marques A. Relação entre a percepção de imagem corporal e a prática de atividade física formal e informal. *Revista da Sociedade Científica de Pedagogia do Desporto*. 2013;1(2):304-311.
9. Fortes LDS, Meireles JFF, Neves CM, Almeida SS, Ferreira MEC. Autoestima, insatisfação corporal e internalização do ideal de magreza influenciam os comportamentos de risco para transtornos alimentares? *Rev. Nutri*. 2015;28(3):253-264.
10. Groesz LM, Levine MP, Murnen SK. The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *Int J Eat Disord*. 2002;31(1):1-16.

11. Dohnt H, Tiggemann M. The contribution of peer and media influences to the development of body satisfaction and self-esteem in young girls: A prospective study. *Dev Psychol.* 2006;42(5):929-936.
12. Rodgers R, Chabrol H, Paxton SJ. An exploration of the tripartite influence model of body dissatisfaction and disordered eating among Australian and French college women. *Body Image.* 2011;8(3):208-215.
13. Bibiloni MM, Coll JL, Pich J, Pons A, Tur JA. Body image satisfaction and weight concerns among a Mediterranean adult population. *BMC Public Health.* 2017;17(1):39-50.
14. Parmar SD, Desai MD. Body Weight Effect on Body Image among Gym Users and Non-Gym Users. *IJIP.* 2015;3(1):88-94.
15. Zaccagni L, Masotti S, Donati R, Mazzoni G, Gualdi-Russo E. Body image and weight perceptions in relation to actual measurements by means of a new index and level of physical activity in Italian university students. *J Transl Med.* 2014;12(1):1-8.
16. Weinberger NA, Kersting A, Riedel-Heller SG, Luck-Sikorsk C. Body Dissatisfaction in Individuals with Obesity Compared to Normal-Weight Individuals: A Systematic Review and Meta-Analysis. *Obesity Facts.* 2016;9(6):424-441.
17. Batista A, Neves CM, Filgueiras JF, Ferreira MEC. Dimensão atitudinal da imagem corporal e comportamento alimentar em graduandos de educação física, nutrição e estética da cidade de Juiz De Fora–MG. *Revista da Educação Física.* 2015;26(1):69-77.
18. Kopcakov J, Veselska ZD, Geckova AM, van Dijk JP, Reijneveld SA. Is being a boy and feeling fat a barrier for physical activity? The association between body image, gender and physical activity among adolescents. *Int J Environ Res Public Health.* 2014;11(11):11167-11176.
19. Schneider S, Weiß M, Thiel A, Werner A, Mayer J, Hoffmann H, Diehl K. Body dissatisfaction in female adolescents: extent and correlates. *Eur J Pediatr.* 2013;172(3):373-384.
20. Di Pietro M, Silveira DXD. Internal validity, dimensionality and performance of the Body Shape Questionnaire in a group of Brazilian college students. *Rev. Bras. Psiquiatr.* 2009;31(1):21-24.
21. Barroso CS, Peters RJ, Johnson RJ, Kelder SH, Jefferson T. Beliefs and perceived norms concerning body image among African-American and Latino teenagers. *J Health Psychol.* 2010;15(6):858-870.
22. Deci EL, Ryan RM. Self-Determination Theory. In: Lange PAMVan, Kruglanski AW, Higgins ET editores. *Handbook of theories of social psychology.* Thousand Oaks: Sage. p.416-437.
23. Thøgersen-Ntoumani C, Shepherd SO, Ntoumanis N, Wagenmakers AJ, Shaw CS. Intrinsic motivation in two exercise interventions: Associations with fitness and body composition. *Health Psychol.* 2016;35(2):195-198.
24. Jøesaar, H, Hein V, Hagger MS. Peer influence on young athletes' need satisfaction, intrinsic motivation and persistence in sport: A 12-month prospective study. *Psychol Sport Exerc.* 2011;12(5):500-508.
25. Jaakkola T, Ntoumanis N, Liukkonen J. Motivational climate, goal orientation, perceived sport ability, and enjoyment within Finnish junior ice hockey players. *Scand J Med Sci Sports.* 2016;26(1):109-115.
26. Mendonça RMSC, Fernandes HM. Influence of different programs of physical exercise in body composition and psychological dimensions in women. *Motricidade.* 2012;8(2):1023-1031.
27. Blow J, Cooper TV. Predictors of body dissatisfaction in a Hispanic college student sample. *Eating behaviors.* 2014;15(1):1-4.

### Corresponding author

Daniel Vicentini de Oliveira  
Universidade Estadual de Campinas, Campinas, São Paulo, Brasil  
Endereço: Rua Tessália Vieira de Camargo, 126.  
Cidade Universitária Zeferino Vaz.  
CEP: 13083-887. Campinas, SP.  
Email: d.vicentini@hotmail.com

*Manuscript received on March 27, 2018*

*Manuscript accepted on May 28, 2018*



Motriz. The Journal of Physical Education. UNESP. Rio Claro, SP, Brazil  
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