

Self-Esteem and Body Image Perception in a Sample of University Students

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Abstract

Problem Statement: This cross-sectional study was conducted to determine the relationship established between self-esteem and body image dissatisfaction, as subjective variables among young, female Romanian university students.

Purpose of Study: We hypothesize that young women's body dissatisfaction is related to their self-esteem level. The second purpose of this study is to verify whether self-esteem level and body size acceptance, which are subjective variables, are significantly correlated with BMI as an objective variable. Subsequently, we intend to estimate which range self-esteem in our research group is determined by self-perception of the body and what role BMI plays in this equation.

Methods: The data were collected using measurements and questionnaires from a random sample of 160 female students (19-21 y.o.) assumed to be healthy and educated, with constant physical activity and having an urban lifestyle. Using descriptive statistics for each variable, we analyzed summaries of the sample and the collected data. For pairs of variables we calculated the Pearson correlation coefficient (r), and we tested its statistical significance using the "t" test.

Findings and Results: The BMI mean value - 20.93 kg/cm² (SD = 3.30) is equivalent to a slender figure, corresponding to an average height of 1.65 m (SD = 0.06) and an average weight of ~ 57 kg (56.99 kg; SD = 9.70). A prevalence of body dissatisfaction was reported, with 79% of girls reporting being unpleased with their physical appearance. Self-esteem and body dissatisfaction were in a significant negative correlation: $r(158) = -0.36$, $p < .0005$. We found a consistent, statistically significant correlation between BMI and body dissatisfaction ($r(158) = 0.56$, $p < .0005$). An important part (31%) of body dissatisfaction is determined by BMI and subsequently by weight and fat deposits.

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Conclusions and Recommendations: Due the statistical correlations calculated for self-esteem, body image dissatisfaction and BMI, we can conclude that self-esteem is better correlated with other subjective parameters (body image) than with objective and relatively stable measurements (BMI in our research). BMI values are useful predictors of body dissatisfaction risk among young females. Physical activity results in certain improvements in the physical and psychological parameters researched in the present paper. Therefore, we made some recommendations regarding motivation, exercise enjoyment and communication techniques aimed at promoting physical activities among young women.

Key words: Weight; body dissatisfaction; cultural patterns; physical activity; self-image distortion.

Introduction

Physical appearance is one of the first individual characteristics noticed by others and has an important impact on social interactions. Appearance in general and body image in particular have become very important constructs in contemporary Western societies (Tiggeman, 2011). Body image is not just a cognitive construct, but also a reflection of attitudes and interactions with others. The tendency to link physical attractiveness with positive personal qualities has become a cultural stereotype, not only in western culture, but also globally. The avalanche of perfect bodies in mass media, advertising and social media is burdensome to the subconscious, causing people to accept that “what is beautiful is good,” with physical attractiveness often being linked with success.

Physical appearance was far less important in earlier times. The ancient Greek ideal was “kalokagathia” – a man refined in mind and body: physical beauty (kalos) was acquired by exercising in the palestra, practicing agonistic disciplines, while the intellectual and spiritual goodness (agathos) were refined by practicing music, song, dance, rhetoric and philosophy (Corral et al., 2010, p 5). In a Hymn to Hygieia (sec. V or VI BC), it was said that “To have good health is the best for a mortal. / Second is to be born handsome in appearance.” The link between health and beauty trespasses the centuries through the medieval age. Despite the tones of pink flash painted by Rubens (1577-1640), depicting the presumptive beauty ideal of the epoch, some studies have suggested that a small waist was actually a symbol of feminine beauty, health and fertility. Singh, Ren & Singh (2007), after examining over 7000 documents containing prose, poetry and drama references to women’s physical appearance in sec XV – XVII, concluded that “the marker of health and fertility - a small waist - has always been an invariant symbol of feminine beauty,” not only in the European countries, but also in the Indian and Chinese cultural spaces.

In present times, the personal physical image is a mean of gaining a distinct place in the social environment. In order to achieve this status, investments in body appearance (cosmetics products and procedures, piercing and tattoos, plastic surgeries, sportive material and equipment, etc.) have notably increased for women and men as well.

As they grow up, children build a picture or image of themselves. This image develops through the things that they can or cannot do and by how other people see them. Poor opinions of our bodies can cause low self-esteem and self-confidence. An important contribution to the construction of a youth's body image is the media. Constantly watching 'perfect' bodies can feed youth insecurities over attractiveness and weight. Studies show that idealized body image contributes to eating disorders such as anorexia nervosa or bulimia, steroid use, protein supplements (Hogan & Strasburger, 2008) and even plastic surgery.

During adolescence, girls, more than boys, have particular concerns about weight, body shape and self-image. There is scientific evidence that body image is experienced negatively by the majority of women and girls (Furham, Badmin & Snead, 2002; Grogan, 2008). Many are dissatisfied with their body size and weight because slimness is seen as the desirable standard and as the beauty pattern, especially for young women. Even in adulthood, underweight is much more prevalent among women than men (Ali & Lindstrom, 2006).

For an overweight person, the awareness of his or her body size and volume will determine social reluctance, timidity and low self-confidence, reflected in her/his posture and attitudes. Additionally, socio-cultural patterns associate fatness with laziness, and overweight persons are easily labelled as indolent.

Physical anthropologists have described population-level differences in BMI, a measurement very important to contemporary understandings of health and risk for chronic disease (Anderson-Fye, 2012). In studies of European-descended peoples, BMI is strongly positively correlated with increased cardiovascular risks. Physical activity is of fundamental importance for the maintenance of life functions and is an essential part of having a healthy lifestyle, as it has been proven to play a protective role against the development of cardiovascular disease, metabolic disorders, skeletal disorders and even mental illness (Andersen, 2009).

In the last 20 years, psychologists have had a constant regard of self-esteem as a significant psychological predictor for health and quality of life. An important number of studies has linked the self-esteem concept with a wide range of topics from violence and aggression (Baumeister, Smart, Boden, 1996) to life satisfaction (Zhang & Leung, 2002), moderated by age, gender or ethnicity.

Regarding the relationship between self-esteem and body image perception, studies have revealed a preference for Caucasian female samples confronted with Western cultural patterns. Despite the abundance of scientific articles linking self-esteem with various physical aspects, in the Eastern European space this topic has only recently become a research object.

Aims of the Present Study

Consistent with past research examining other female samples, we hypothesize that young women's body dissatisfaction will be related to their level of self-esteem.

The second purpose of this study is to verify whether self-esteem level and body size acceptance, which are subjective variables, are significantly correlated with BMI as an objective variable.

Subsequently, we intend to estimate in which range the self-esteem of our research group is determined by body self-perception and what role BMI has in this equation. The discussions are expected to determine how physical activity may enhance self-esteem and improve body image perception and to underline the research findings' implications for the physical education domain.

Methods

Research Design

This cross-sectional study was conducted to determine the relationship established between self-esteem and body image dissatisfaction as subjective variables among young female Romanian university students. The anthropometrical measurements and questionnaire were applied in between March and May 2014 in a context related with physical activities, health, fitness and body shape improvement. The PE classes were primarily planned and delivered for women's preferences and comprised dedicated physical activities (fitness, aerobics and sports in female teams).

Research Sample

This study was undertaken on a sample of 160 young women who were studying in their first and second years in various departments of the Bucharest Economic Studies Academy (ESA). The age of the participants ranged from 19 to 21 years, with an average of 19.9 years (SD = 0.66). The low coefficient of variance (CV=3.31%) demonstrated a high sample homogeneity. The participants were randomly selected from those attending physical education classes, and therefore we assumed we were working with a healthy, educated and physically active young female research sample.

Research Instruments and Procedure

The anthropometrical measurements - height and weight - enable us to calculate the Body Mass Index (BMI) as an objective reference. We consider the participants in this study to be young adults because the female growth trails off to zero at about 15 or 16 years. The majority of participants were within the normal BMI interval: between 18.5 and 24.9 g/cm², with a mean value of 20.94 kg/m² (SD = 3.3). The subjects completed an anonymous questionnaire aimed at assessing their self-esteem level and range of body size satisfaction / dissatisfaction.

Self-esteem was assessed by applying the Rosenberg Self-Esteem Scale (Rosenberg, 1989). This 10-item questionnaire is a widely used measure with high internal reliability ($\alpha = .96$) and validity. The RSES contains an equal number of positively and negatively worded items. Responses are coded on a four-point scale ranging from 0 (strongly disagree) to 3 (strongly agree); the higher the score, the

higher the self-esteem level. Scores between 15 and 25 are within normal range; scores below 15 suggest low self-esteem, while scores above 25 correspond to high self-esteem. The scale was previously used in studies involving young adults belonging to different cultures (Runcan, Iovu, 2013; Yamawaki, Peterson Nelson, Omori, 2011; Erol, Orth 2011).

In order to assess body dissatisfaction, we used the Contour Drawing Rating Scale (CDRS; Thompson & Gray, 1991). The CDRS consists of nine drawings of a female figure, each drawing increasing in size from extremely thin (1) to very obese (9). The young women were asked to rate their ideal figure (how they would ideally like to look) and their current size (perceived figure). The discrepancy between the ideal and perceived current size score (current - ideal \neq 0) is an index of body size dissatisfaction.

Data Analysis

Using descriptive statistics for each variable we analyzed summaries of the samples and of the collected data. For the paired variables we calculated the Pearson correlation coefficient (r) and we tested its statistical significance using the "t" test. Further, we compared the "t" score figured for the actual correlation in the study, using the standard t table cutoffs ($df = N-2$). Using the correlation coefficient values, we calculated the coefficient of determination: r^2 - in order to determine the proportion of variance explained by one of the variables.

Findings

BMI is a measure of body fat based on height and weight, and the normal range is usually considered to be 18.5 to 24.99 kg/cm², with anything over 25 considered overweight, and over 30 obese. Values less than 18.5 kg/cm² are associated with thin bodies or being underweight. In our research sample, the distribution of BMI showed a prevalence of normal and low values (88.75%).

Table 1.

BMI Distribution

BMI	Underweight	Normal weight	Overweight	Obese
Units	37	105	17	1
%	23.125%	65.625%	10.625%	0.625%

The BMI mean value - 20.93 kg/cm² (SD = 3.30) equates to a slender figure, corresponding to an average height of 1.65 m (SD = 0.06) and an average weight of ~ 57 kg (56.99 kg; SD = 9.70).

However, 79% of the girls questioned have problems accepting their body image, and the first reason they give is weight - 13% want to gain weight, but the majority (66%) want to lose weight. Just 21% of subjects positively evaluate the shape and size of their body. The next table illustrates the distribution of body dissatisfaction answers:

Table 2.*Body Dissatisfaction Distribution*

Body size index	Current - ideal < 0	Current = ideal	Current - ideal > 0
Units	21	34	105
%	13%	21%	66%
Underweight	8	12	17
Normal weight	13	21	71
Overweight & obese	-	1	16 +1

Even more interesting is that 46% of the subjects in the underweight group are not satisfied with their body size and are willing to lose more weight. In the normal weight group, just 13% young women are pleased with their physical appearance.

The scores of the Rosenberg Self-esteem Scale (RSES) are ranked between 11 and 30. The average self-esteem score among our sample is 23.1 (SD=3.1), demonstrating a normal and high self-esteem level for a group of young, healthy and educated females. Just 1.87% of them reported low self-esteem (below 15).

Table 3.*RSES Score Distribution*

RSES scores	11 - 15	16 - 20	21 - 25	26 - 30
Units	3	25	96	36
%	1.87%	15.63%	60%	22.5%

Testing the first hypothesis, we find a significant negative correlation between body image dissatisfaction and self-esteem; the higher the dissatisfaction, the lower the self-esteem. The correlation coefficient of these two variables is: $r(158) = .36$, $p < 0.0005$. Because $r \neq 0$, results that the null hypothesis is rejected and the alternative hypothesis may be accepted.

Following the research objectives, we estimated the influence of body image perception on the young women's self-esteem level by calculating the coefficient of determination: $r^2 = 0.13$. This means that 13% of the variance in self-esteem level is determined by physical perception and acceptance of the self. This modest value means that self-esteem is determined in considerable proportion by 87% other factors.

Comparing the two subjective variables with the BMI results, we obtain different results. Body dissatisfaction is strongly correlated with BMI: $r(158) = .56$, $p < .0005$. Computing the statistical significance of this result, we obtained a "t" value higher than "t critic": $t(158) = 8.49 > 3.35$; $p < 0.0005$. The coefficient of determination $r^2 = 0.313$ implies that 31% of variance in body dissatisfaction is explained by body mass index.

The other subjective variable, self-esteem, is negatively correlated with BMI: $r(158) = -0.21$, and the result also has no statistical significance.

Discussion and Conclusions

In comparing our BMI results - $M=20.93 \text{ kg/cm}^2$ ($SD = 3.30$) - with other studies on female samples in Europe, we have noticed similarities and differences. An extensive study on females between the ages of 18 and 34 years (Ali & Linstrom, 2006) in Sweden ($n = 1967$) returns a different distribution:

Table 4.

Comparing BMI Percentage

BMI	Underweight	Normal weight	Overweight	Obese
Sweden	5.7%	68.8%	18.4%	7%
Romania	23.1%	65.6%	10.6%	0.625%

The prevalence of underweight decreases naturally with age, as the percentage increases in the overweight and obese categories. There are similarities between the two samples in the normal weight percentage.

In a recent study on a sample of 884 teenagers ($M = 14.29$ years old, $SD = 1.29$), from Spain, the average BMI for girls was 21.98, with average values of 1.59 m height and 56.09 kg weight (Grao-Cruces et al., 2014). Considering the age difference (from 14.29 to 19.9), and the lower BMI value reported, we consider the prevalence of normal weight and underweight in our sample confirmed. The BMI comparison is rooted in the European geographical and ethnic space, because a study on young women ($M=19.99$, $SD=4.79$) in the USA returns significantly higher values - $M=24.52 \text{ kg/m}^2$, ($SD=5.69$), with approximately 30% of the sample maintaining a BMI of 25 or greater, indicating that they were overweight or obese (Markey, Markey, 2009).

Regarding RSES mean scores, our findings are in accordance with the results of similar studies. In a study on a sample of Turkish students practicing physical activities, the mean RSES score reported was 23.04 ($SD = 2.03$) (Ygiter, 2014). In the same study, a control group of students ($n= 129$) with no physical activity reported a mean score of 18.87 ($SD = 1.52$). One of the cited study's conclusions was that sport participation has positive effects on self-esteem. Also, Sinclair et al. (2010) found that among a sample of 503 adults ($M = 44.7$ years, $SD = 16.3$) the average self-esteem score was 22.62 ($SD = 5.8$), comparable to our sample results 23.01 ($SD=3.1$). We assess the high self-esteem scores as encouraging for our research group's physical and psychological health. Low self-esteem is often associated with vulnerability in female samples with eating disorders, depression or anxiety (APA, 2007).

Due the statistical correlations calculated for self-esteem, body image dissatisfaction and BMI, we can conclude that self-esteem is better correlated with other subjective parameters (body image) than with objective and relatively stable measurements (BMI in our research). There is scientific evidence showing that when speaking about the quality of life, objective and subjective indicators are weakly correlated (Cummings, 2000). Self-image and self-esteem are two subjective components of well-being, while the anthropometrical measurements constitute objective data.

Body image dissatisfaction is a reality for a large share in our research sample. Of the young women questioned, 79% wanted to change something about their body shape and size, and eventually their weight. Even though 87.7% of the subjects fall into the normal and underweight categories, most of them, 66%, wanted to lose weight in order to achieve an ideal, slimmer silhouette. This data confirms the thesis that benchmarks that society promotes are very severe for most girls and young women and put them in a position of inferiority, with repercussions on self-esteem and self-confidence. As a biological entity, the body has a functional role, but as a social entity it conveys important messages about social status, personality or subculture membership.

The significant correlation between body image dissatisfaction and self-esteem reported in this study is sustained by other similar studies on European female adolescents (Oktan & Şahin, 2010; Calado et al., 2011) and young adults (Sepulveda et al., 2007). There are also scientific studies that link women's body dissatisfaction and low self-esteem with physical appearance (Daniali, Azadbakht & Mostafavi, 2013). By prizing women's physical attractiveness, western society encourages them to evaluate their social value in terms of image and also perpetuates this societal objectification through continuous cultural scrutiny, the creation of negative stereotypes and prejudices against overweight people. Among women, social and cultural context shape a self-critical orientation toward their physical appearance that is manifested in certain comparison tendencies associated with negative body esteem (Neagu, 2015), anxiety, eating disorders, social reluctance and depression.

Even body image acceptance is a subjective issue, depending on cultural and social factors, yet we find a consistent, statistically significant correlation with BMI ($r(158) = 0.56, p < .0005$). An important part (32%) of body dissatisfaction is determined by body mass index, and subsequently by weight and fat deposits. Therefore, it is acceptable to consider BMI values to be useful predictors of body dissatisfaction risk among young female. At the same time, body dissatisfaction mediates the BMI's indirect influence on self-esteem for the 19-21 year-old female population segment. In a similar, recent study, Szabo (2015) investigated the relationship between body image and self-esteem in a young adults sample and concluded that major differences between the perceived and ideal body images predict lower levels of self-esteem.

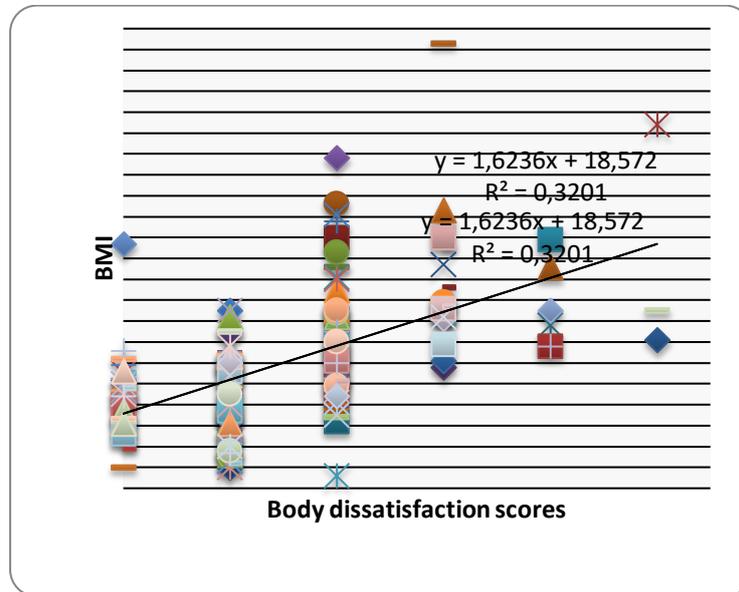


Figure 1. BMI / Body dissatisfaction correlation

These results support physical activity, which itself results in improving the body shape and its functional efficiency. A systematic review concluded that weight control and behavioral interventions could be successful ways to boost self-esteem and increase satisfaction with body areas too (Poobalan, Aucott, Precious, Crombie, Smith, 2010). Among behavioral interventions', besides a healthy lifestyle or cutting out unhealthy foods, we can include an increased number of adequate physical activities and spending more time outdoors in the natural environment (Pop, 2015 b).

An important number of scientific studies demonstrate without any doubt the potential positive effect of exercise on improving both physical and psychological well-being. In the psychological well-being category, we can frame the perceptions, opinions and feelings related to body image, health condition, self-esteem, etc., and all of them are improvable through physical exercise. Three different meta-analyses (Martin Ginis & Baset, 2011), (Sonstroem, 1997), (Martin Ginis et al., 2005) draw the same consistent conclusion: exercise has significant positive effects on body image. More interesting seems to be the mechanism that can moderate the effects of exercise on body image.

Changes in objective indices of physical fitness play a minor role in body image change, whereas improvements in perceived fitness and self-efficacy appear to be an important mechanism by which exercise improves body image. There is no direct correlation between objective progress in fitness level and subjective perception of being fit or more functionally efficient (Williams & Cash, 2001). Shifting the focus away from appearance and emphasizing the physical and mental benefits of exercise,

we could inspire our students with physical self-acceptance and self confidence in their own strengths.

The exercise intervention on changing body image depends on frequency and intensity of training (Campbell & Hausenblas, 2009). The changes in body image and self-esteem during young adulthood are positive when the exercises are performed on more days per week and at least at moderate intensity. In a study of high school and university students, those who reported exercising for 15-60 minutes at least 3 days per week also reported higher levels of self-esteem than those who did not (Frost, McKelvie, 2005).

Physical education might make a more significant contribution to young people's self-image acceptance if lessons are planned and delivered with this specific qualitative goal in mind. Cognitive construction about what constitutes a normal, real and healthy body would be a motivation for youngsters to practice physical activities and an educational counteraction to negative thoughts and feelings about their physical attractiveness (Pop, 2015 a). Aerobic exercise, strength-training, and combined aerobic/strength-training interventions are equally effective. The effectiveness of the type of exercise depends more on preferences and personal goals. A sensitive task for PE teachers dealing with students with low self-image acceptance is to help them to set realistic and achievable goals through appropriate exercise.

Some evidence suggests that exercise enjoyment is positively associated with body image change (Martin Ginis, Bassett, 2012). A pleasant and supportive work climate will help students to take part in physical education classes enthusiastically. Working in a friendly group, watching other people exercising, and receiving constructive feed-back and assistance could motivate people to join and practice physical activities (Pop, 2014). The satisfaction gained from exercising can eventually become an intrinsic motivation, especially when the practitioner internalizes the idea that effort has positive effects on enhancing perceptions about body shape and self-image.

Due the effort and sometimes the pain suffered while exercising, motivation for physical effort is an important issue in attracting and maintaining young people's involvement involved in physical activities. On the interpersonal level, the teacher should maintain a dialogue with performers; this ensures awareness, cognitive achievement and commitment. The means of pedagogical communication applied in physical education classes, like giving feedback related to tasks, recognition of accomplishments, and encouragement and support in difficult moments, could have good results with young adults. This also has a beneficial effect on a youngster's self confidence and self-esteem related to physical appearance.

Additional research is needed with different samples from various cultural, educational and behavioral backgrounds in order to understand whether the body image distortion reported in this study is a systematic cultural consequence or whether it depends more on an evanescent age and gender trend.

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