Original paper

Archives of Psychiatry Research 2022;58:243-254
DOI:10.20471/may.2022.58.02.08
Received January 05, 2022, accepted after revision February 14, 2022

The Relationship Between Appearance Satisfaction and Self-Esteem Among High School Students in Eastern Croatia

Dubravka Holik[1], Andrea Milostić Srb[1], Boris Dumenčić[2], Zvonimir Bosnić[2], Bruno Popić[2], Ljiljana Trtica Majnarić[2]

[1]Faculty of Dental Medicine and Health, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia, [2]Faculty of Medicine, University of Osijek, Osijek, Croatia

Abstract – Due to the imposition of social media, a large number of adolescents face problems related to physical appearance and social contact. The research objectives were to examine the degree of satisfaction of high school students in Eastern Croatia, Vinkovci, regarding their physical appearance and self-esteem based on their gender, type of high school and the differences in socioeconomic status. The study was designed as a cross-sectional research and included 278 students from medical schools and high schools. Data was collected using a survey on the demographic and socio-economic status of participants. The Body Image Questionnaire was used in a modified and validated version in Croatia and contained fourteen questions to examine the level of satisfaction with the body image. Using Rosenberg's ten-question test, the level of self-esteem was examined. The Median age of students was 18 years. The female students in high school were significantly more concerned about their physical appearance than the male students in the same school ($\chi^2 = 23.6$, $p < 0.001$). The linear correlation between the degree of satisfaction regarding physical appearance and self-esteem confirmed the association between body image satisfaction and gender of students in medical schools ($r = 0,157$; $p = 0,04$) and students in high school ($r = 0,371$; $p < 0,001$). Adolescents in this region of Croatia are not overly concerned about their physical appearance despite relatively decreased self-esteem. Alcohol consumption has proven to be a big problem especially for high school students, which can be a result of stress due to maintaining excellent grades.

Keywords: adolescent; body image; body mass index; self concept; socioeconomic factors

e-mail: apr.kbcsm@gmail.com • www.http://apr.kbcsm.hr

Introduction

A great number of adolescents face problems related to physical appearance and social contact due to the omnipresence of media and the growing availability of social media [1]. Developed countries promote a slim body as an ideal image of physical appearance. In addition, recent research shows that less developed countries adopt this western culture which causes an increase in the number of eating disorder cases [2]. This ideal slim female body is an unreachable goal for many girls and women so they apply extreme starvation, regurgitation, laxatives, weight loss pills, and similar methods for losing bodyweight [3,4]. Even though the

Correspondence to:
Asst. Prof. Andrea Milostić Srb, PhD
Faculty of Dental Medicine and Health Osijek
Crkvena 21, Osijek, Croatia
Phone: +385 98 373 515
E-mail: amsrb@fdmz.hr

girls are those who struggle the most with issues related to body image and self-esteem, there are many young boys, between 14 and 16 years of age, who go through a similar crisis [5]. Promoting the importance of such a slim physical appearance leads to dissatisfaction with ones' body, low self-esteem, and pathological attempts to reach the goal of a slim and perfect body [6]. Puberty is a very sensitive period when many experience an increase in body weight. Therefore, drastic changes related to the body or body parts become one of the main preoccupations. Furthermore, adolescents begin to compare themselves to other people in their surroundings, and, in that way, they experience increased social and academic pressure. Nevertheless, numerous factors affect the development of body image dissatisfaction. Apart from biological factors such as age, gender, stages of puberty, and body mass index (BMI), there are socio-cultural factors that influence one's mindset. These factors determine which physical characteristics are desirable and which are not. To determine ideal anthropometric measures, one of the principal tools is BMI, which is used to define the levels of nutritional status. Despite its availability, it has been used mostly for adults so there was the need for different measurement tools [7,8]. Family is considered to be the first context for a child's development and family members and friends are the strongest social support for adolescents. Nevertheless, there may be some negative events, such as teasing and pressure to change physical appearance, which affects the mindset of the adolescent. According to the approach of social comparison, the risk of body image dissatisfaction is greater with those who compare themselves to others than with those who rarely compare themselves to others. Moreover, according to the sociocultural approach, factors like the press and visual media are the source of strong messages about the physical characteristics that are acceptable. The research objectives were to examine the degree of satisfaction of high school students in Eastern Croatia, Vinkovci, regarding their physical appearance and self-esteem based on their gender, type of high school and the differences in socioeconomic status.

Subjects and Methods

This study is approved by the Ethics Committee, Faculty of Medicine, Josip Juraj Strossmayer University of Osijek. CLASS: 602-04/17-08/12, REG: 21589-61-07-17-73. This cross-sectional population-based study was conducted anonymously in Vinkovci, Eastern Croatia from January to June 2018. and included 278 respondents, 159 of which were high school students from medical schools and 119 from other high schools. Examination of students was conducted in schools during class time. Before conducting the survey, students who voluntarily agreed to participate in the survey signed an informed consent in which the purpose of the research itself is explained in detail. For this research, the authors prepared a questionnaire on the demographic characteristics and socio-economic status of the respondents. The questionnaire provided information on gender, age, place of residence, type of school they attend, family status, school success and life habits. The Body Image Questionnaire (BIQ) was used in a modified and validated version in Croatia and contained fourteen questions for examining the level of satisfaction regarding physical appearance. The BIQ began by screening to assess whether an individual is satisfied with their appearance and whether they want to change any part of their appearance. Respondents who were not concerned about their appearance did not continue with the answers, while respondents concerned about their appearance continued the survey. The answers received were scored from 0 to 8. Inverse scoring was used for three questions (3, 4 and 6). The total BIQ score was calculated by summing items 3 to 14. In this case, a higher result denotes higher dissatisfaction regarding one's body or particular body part [9]. In addition, a Rosenberg Self-Esteem Scale was used. The scale contains ten statements, five defined in the positive direction

and five in the negative. The result on the RSE is formed by summing the rounded numbers with each statement, with the answers in the 2nd, 3rd, 4th, 6th and 9th statements being scored in the opposite direction. So the minimal number of RSE points is 0 and the maximum is 40 points. A higher score indicates a higher level of self-esteem [10]. The participants answered questions about real and desired anthropomorphic measures. The difference between those two estimated notions represents the level of deviation of the real perception from the ideal perception of one's own body. In other words, it represents the individual level of body image dissatisfaction or dissatisfaction with a particular body feature. A high level of deviation denotes greater dissatisfaction of the person. BMI was measured during admission. In this case, we have also examined the difference between the measured and self-estimated BMI values.

Categorical data were expressed as absolute and relative frequencies. Numerical data were described using an arithmetic mean and standard deviation for normal data distribution, and median and interquartile range for those with non-normal distribution. Differences in categorical variables were tested using the $\chi 2$ - test and Fisher exact test if necessary. Kolmogorov Smirnov test was used to test normal data distribution. The Pearson correlation coefficient was used for the correlation analysis. All p values were two-tailed. The significance of differences determined by statistical testing was set at $p < 0.05$. The Statistica for Windows 2010 (version 10.0, StatSoft Inc., Tulsa, OK) statistical software package was used on data analysis [11].

Results

The study included 157 students from medical schools and 119 from high schools, the median age was 18 (interquartile range is from 18 to 20). A statistically significant difference was found concerning the place of residence. Significantly more high school students live in the city than medical school students (57.9 % vs 32.1 %, $\chi^2 = 9.9$; $p = 0.005$), 91.2 % medical students and 91.6 % high school students live with both parents. A statistically significant difference was found in the comparison of high school students and medical school students concerning their own room (90.8 % vs 77.4 %, $\chi^2 = 5.7$; $p = 0.001$) and their own learning space (95.8 % vs 83.0 %, $\chi^2 = 5.7$; $p = 0.02$).

In medical school, 95 (59.7 %) students and 77 (64.7 %) students in high school answered that they consume alcohol. Furthermore, 85 (53.5 %) students of medical school and 71 (59.7 %) from high school consume alcohol

Table 1. Comparison of students with regard to place of residence, their living and learning space

		Medical school N (%)	High school N (%)	P*
Residency	Town	51 (32.1)	69 (57.9)	0.005
	Village	108 (67.9)	50 (42.1)	
Own room	Yes	123 (77.4)	108 (90.8)	0.001
	No	36 (22.6)	11 (9.2)	
Own space for learning	Yes	132 (83.0)	114 (95.8)	0.02
	No	27 (17.0)	5 (4.2)	
Total		159 (100)	119 (100)	

*χ^2 test

Table 2. Comparison of medical school and high school students concerning alcohol comsuption

Alkohol comsuption	Medical school N (%)	High school N (%)	P*
Yes	95 (59.7)	77 (64.7)	0.77
No	64 (40.3)	42 (35.3)	
Total	159 (100)	119 (100)	
How much			
Every day	1 (0.6)	0 (0)	< 0.001
Once a week	85 (53.4)	71 (59.6)	
Several times a week	9 (5.7)	5 (4.2)	
Not cosume	64 (40.3)	43 (36.2)	
Total	159 (100)	119 (100)	

*χ^2 test

once a week. However, 9 (5.7 %) students from medical vocational school and 5 (4.2 %) students from high school consume alcohol several times a week ($\chi^2 = 5.7$; $p < 0{,}001$).

A statistically significant difference was found in the comparison of medical school students and high school students concerning smoking (45.9 % vs 26.9 %, $\chi^2 = 6.0$; $p = 0.002$), and concerning the number of cigarettes smoked. Significantly more medical school students smoke 5 cigarettes a day compared to general high school students (24.5 % vs 10.9 %, $\chi^2 = 5.8$; $p = 0.03$).

There are no statistically relevant differences in body image satisfaction among medical students when it comes to gender ($\chi^2 = 43.2$; $p = 0{,}22$), although there is a noticeable tendency among the girls to worry about their physical

Table 3. Comparison of medical school and high school students concerning smoking

Smoking habits	Medical school N (%)	High school N (%)	P*
Yes	73 (45.9)	32 (26.9)	0.002
No	86 (54.1)	87 (73.1)	
Total	159 (100)	119 (100)	
Number of cigarettes smoked			
1-2 cigarettes a day	14 (8.8)	9 (7.6)	0.03
5 cigarettes a day	39 (24.5)	13 (10.9)	
A box a day	20 (12.6)	9 (7.6)	
More than a box a day	1 (0.6)	1 (0.8)	
Not smoke	85 (53.5)	87 (73.1)	
Total	159 (100)	119 (100)	

*χ^2 test

Table 4. Satisfaction with the body image of medical school students and high school students concerning gender

Body image satisfaction	Medical school N (%)				High school N (%)			
	Male	Female	Total	P*	Male	Female	Total	P*
Very worried about physical appearance	3 (7.9)	17 (14.0)	20 (12.6)	0.22	0 (0)	14 (16.3)	14 (11.8)	<0.001
Worried to some extent about physical appearance	5 (13.2)	21 (17.4)	26 (16.4)		1 (5.3)	18 (20.9)	19 (16.0)	
Mildly worried about physical appearance	6 (15.8)	30 (24.8)	36 (22.6)		6 (18.2)	23 (26.7)	29 (24.4)	
Not worried at all	25 (63.1)	53 (43.8)	77 (48.4)		26 (78.8)	31 (36.0)	57 (47.9)	
Total	38 (100)	121 (100)	159 (100)		33 (100)	86 (100)	119 (100)	

*χ^2 test

appearance. Out of a total of 119 high school students, 47.9 % are not at all concerned about their physical appearance. Among them, boys are significantly less concerned about their physical appearance than girls (78.8 % vs 36.0 %, $\chi^2 = 23.6$; $p < 0.001$).

The linear correlation between the degree of satisfaction regarding physical appearance and self-esteem confirmed the association between body image satisfaction and gender of students in medical school ($r = 0.157$; $p = 0.04$) and students in high school ($r = 0.371$; $p < 0.001$).

There was no evidence of an association between body image satisfaction and self-esteem levels. The majority of students in both schools had a normal body weight, while 24 girls from medical school and 10 girls from high school were overweight.

Girls in both schools were more often concerned about their appearance than boys. Con-

Table 5. Linear correlation between appearance satisfaction and self-esteem of medical school and high school students regard to gender

		Pearson's correlation coefficient, r	P-value
Medical school	Medical school		
Satisfaction with appearance	Self-esteem	-0.076	0.65
Satisfaction with appearance	Gerner	0.157	0.04
Self-esteem	Gerner	0.108	0.17
High school	High school		
Satisfaction with appearance	Self-esteem	-0.076	0.41
Satisfaction with appearance	Gerner	0.371	< 0.001

cerns about appearance are milder, which is explained by the results obtained in the study, which show that most students are of normal body weight without major deviations.

Discussion

The body is the most prominent feature of a person. That is why one's perception of their own body has a significant role in forming general self-esteem. Furthermore, today's society promotes the importance of attractive physical appearance. Given the overwhelming prevalence of thin and lean female and strong and lean male images in social media common to all westernized societies, body image concerns have become widespread among adolescents. High prevalence of physical inactivity and obesity in children and adolescents has become a global problem [12]. Moreover, statements on what is acceptable when it comes to physical appearance permeate post-industrial cultures [13]. As the beauty industry grows, there are numerous possibilities and methods to form one's body to fit the promoted ideas of physical beauty. Although prevalence of overweight and obesity is increasing, prevailing sociocultural influences lead females to desire a thin body and males a muscular body, often resulting in body dissatisfaction (BD) because many cannot achieve the cultural ideal [14]. Furthermore, in many parts of the world, fitting into these ideal measures is rewarded (i.e. these people are treated better, they are given more opportunities and are considered healthier, smarter, happier, more successful, and socially more competent), while those who do not fit those measures are stigmatized [15]. Young people also need to be aware of the power of the media and learn how to view media with a critical eye. It is so because, once young people learn about overt media tactics, they will be empowered and experience media in a different way later in life [16]. This cross-sectional study has been conducted among 278 participants, where 159 are students in medical schools and 119 are students in a high school. When it comes to gender, the majority of the participants are females. The median age is 18 years for both schools and only a few students are 20 years old. The majority of students from medical schools come from villages and the majority in high schools are from towns. It was noticed that medical scool students are less concerned about their physical appearance than the participants in high school. Going through puberty can amplify body image concerns among boys and girls [17]. Puberty for boys brings characteristics typically admired by society: strength, height, broadness. Puberty for girls, on the other hand, brings with it characteristics often perceived as less laudable, as girls generally get rounder and have increased body fat [18]. The young children living with obesity demonstrated the highest misperception [19]. Apart from gender differences, there is evidence that body image dissatisfaction grows during adolescent years which confirms our results. When it comes to gender, girls are more concerned about their physical appearance than boys in both schools, which is supported by general experience and statements in the literature related to this topic. The fact that there is only a small number of girls who are worried about their physical appearance can be explained by the results of the students' normal BMI. There is only a small number of overweight or underweight students. These results imply that most of the adolescents live in a traditional environment, where young people live with their families and still consume traditional „mothers' everyday food "so that BMI value is not so severely impaired. In addition, the majority of students live in functional families which can affect the way they eat and the amount of stress they experience. Individuals who have a positive attitude towards their physical appearance cannot be influenced by media, peer pressure, or family [20]. However, this does not

mean that these individuals are not exposed to negative information from those sources. Nevertheless, they have tendencies not to take these comments seriously [21]. When it comes to female participants who are worried about their physical appearance, it is important not to neglect their presence. These individuals may apply some methods for losing weight. In addition to increasing risk for negative consequences such as eating disorders, other cross-sectional and longitudinal research suggested that weight maintenance and dieting attempts are associated with other health-compromising behaviors, including poor nutrition, smoking, and drinking [20,22]. All participants show low self-esteem which can be explained by their adolescent youth, which is a time to search for personal identity and develop their image about themselves. This is related to the fact that one's body image is related to their self-esteem and psychological and physical wellbeing. Therefore, a negative body image is related to low self-esteem, anxiety, and depression [23]. Low self-esteem thus seems to be a unique factor that makes adolescents susceptible to depression. The association between self-esteem and depressive symptoms is interesting to examine during adolescence, as self-esteem affects many of the developmental challenges adolescents have to deal with, such as identity formation and reshaping social relations [24,25]. Despite the exhibited low self-esteem, there is no confirmed association between body image dissatisfaction and low self-esteem. In addition, there are some conflicting research results. Some research indicates that boys and girls will continue to experience body image dissatisfaction during their adolescent years [26]. On the other hand, others suggest that, during the adolescent period, boys and girls become gradually satisfied with their physical appearance. Finally, some suggest different developmental paths for adolescents where females become less satisfied and males more and more satisfied with their physical appearance [27,28]. This indicates that it is necessary to investigate further into the association between low self-esteem and body image satisfaction. This association could exist only in particular groups of young people and not necessarily in every adolescent group. Results in this research do not show a difference in particular sociodemographic characteristics, gender, or type of school. When it comes to self-evaluation of their nutritional status, medical school students are not worried about their physical appearance and their estimation of their body matches the desired BMI. On the other hand, even though they are not worried about their physical appearance, participants from high school have wrongly estimated their BMI to be lower than desirable. Moreover, lower body weight among the participants from high school could be the result of higher levels of stress due to school obligations (working harder to achieve better grades and to continue higher levels of education) and latter due to alcohol consumption. When it comes to gender and excess body weight, female participants outnumber the male ones. This can be explained by the fact that females mature faster when it comes to physical characteristics and by increased feeding as a method of stress release. Females may develop problems related to their bodies when entering the adolescent period [29]. Furthermore, females are exposed to high amounts of sociocultural pressures to look a certain way [30]. For screening or epidemiologic research, the BMI is used to assess weight status in adolescents as well as adults. Whereas in adults the BMI cut points that define obesity and overweight are not linked to age and do not differ for males and females, in growing children BMI varies with age and gender. Since the quarter of participants made a mistake estimating their BMI, it is important to conduct more research among a larger number of participants to verify the possible reasons for that result. Such results may be a reflection of the

local or traditional understanding of physical beauty, which entails curves. These mistakes in estimation were more frequent in medical schools where students come from villages. Morris et al. analyzed how social context forms one's opinion of themselves. He claims that social comparison is related to a minority status and can have negative consequences on one's self-evaluation [31]. On the other hand, male participants from high school made more mistakes in their estimations. This can be related to the latest trend that promotes the lean and muscular male body and to the fact that grammar school students are more under the influence of the media, or more informed on trends [32]. Underestimation and dissatisfaction of body size are more prevalent in children living with overweight/obesity. Moreover, there is an association between BSP and dissatisfaction, yet this association is dependent on age and weight status [19]. BMI measurements and BMI self-evaluation are not adequate methods for analyzing the participants because the participants, even those worried about their physical appearance, estimated their appearance following the desirable BMI. Body image dissatisfaction can be caused by other body characteristics apart from body weight. Previous studies indicated many scales that quantitatively assess the body image concerns, where every scale has its validity, reliability, and cultural norms. Since there are few reliable tools to analyze nutritional status, Moeen et al. have pointed out the need for further assessment of body image concerns and to define how individuals perceive or think about their physical appearance. Body Image Scale, containing 35 items, highlighted three of the additional components of body image, namely; physical component, psychological component, and strategies to use to maintain one's body image which had not been discussed in previous scales [33]. When it comes to residency, the majority of participants in medical school come from villages, and participants in high school come from towns. The traditional way of life can have an impact on the idea of how a perfect body should look. In that sense, it was noticed that children raised in such surroundings have a different understanding of the perfect body measures than the ones in westernized cultures [34]. Furthermore, when it comes to family and its influence, living with both parents with a stable marriage can affect children in a positive sense when it comes to their body image concerns. There are also some indications that body image could be affected by the parents' education or socio-economic status although it is currently not thoroughly investigated [35]. In addition, previous studies confirmed that living in a less populated area, or having parents with primary education, was uniquely related to a more negative body image, which comports with other studies of older children and adolescents [36]. Nevertheless, it is very important to educate children about physical appearance and its changes during puberty. This means that at a very young age, children need to understand that each body is different in size and shape. It is a message that all need to understand and accept from the beginning of their lives. Young people need to understand both physical and emotional changes they experience in puberty and they need to be aware that those changes are a normal part of their development. To cultivate a healthy body image, adolescents need to obtain a set of skills that will help them go through the numerous ideas on how to look and how to eat. Even though the results of this research indicate that the majority of the participants are not severely concerned about their body image, it is very important not to ignore those who do worry about their body image. Also, our results imply that traditional parenting may be a protective factor in the process of development. In those with low body image, it can be associated more with existential fear (study success) or with a preoccupation with one's appearance. Accord-

ing to the approach of social comparison, the risk of body image dissatisfaction is greater with those who compare themselves to others than with those who rarely compare themselves to others. It is so because the negative body image they have could have repercussions for their psychological well-being, eating habits, nutritional status, and overall quality of life.

The limitation of this study was the number of students surveyed, the number of high schools represented in the research, researching a small town, where there are no significant differences in socioeconomic status and where traditional education prevails. This research can serve as a pilot study for new extended research in Croatia.

In conclusion, girls attending both schools show a lower level of body image dissatisfaction compared to boys. Boys attending both schools have a decreased level of self-esteem. The research established a linear correlation between body image satisfaction and gender of the students in both schools. An association between the level of body image satisfaction and self-esteem was not established, while adolescents in Eastern Croatia are not overly concerned about their physical appearance despite relatively decreased self-esteem. Alcohol consumption has proven to be a big problem especially for high school students, which can be a result of stress due to maintaining excellent performance. A lack of association between reduced self-esteem and self-assessment of appearance may also be a consequence of later sexual maturation and traditional development which promote the traditional values of family, youth life, and marriage. Early detection of a negative body image could provide better control over self-esteem and promote psychological support later. Programs that educate adolescents on possible risks a negative body image has could contribute to adolescent health and well-being by promoting realistic and age-appropriate body images and promoting tolerance and diversity. There is currently no official service in Croatia where adolescents could find more information on how to provide better control of self-esteem, which affects many developmental challenges. Our results indicate the importance of large studies with more participants to find more precise information of better control of self-esteem.

Acknowledgements

None.

Conflict of interest

None to declare.

Funding Sources

None.

References

1. Gallagher SM. The influence of social media on teens' self-esteem [dissertation]. New Jersey (USA): Rowan University; 2017.
2. Pokrajac-Bulian A, Živčić-Bećirević I, Vukmanović S, Forbes G. Nezadovoljstvo tjelesnim izgledom i navike hranjenja kod studentica i njihovih majki. Psihologijske teme. 2005;14:57-70.
3. Dunkley TL, Wertheim EH, Paxton SJ. Examination of a model of multiple sociocultural influences on adolescent girls' body dissatisfaction and dietary restraint. Adolescence. 2001;36:265-79.
4. Durkin, SJ, Paxton SJ, Sorbello M. An integrative model of the impact of exposure to idealized female images on adolescent girls' body satisfaction. J Appl Soc Psychol. 2007;37:1092-117.

5. Hendel A. Restoring self-esteem in adolescent males. Reclaiming Children Youth. 2006;15:175-8.
6. Dittmar H, Halliwell E, Stirling E. Understanding the impact of thin media models on women's body-focused affect: The roles of thin-ideal internalization and weight-related self-discrepancy activation in experimental exposure effects. J Soc Clin Psychol. 2009;28:43-72.
7. Reilly JJ. Diagnostic ability of the BMI for age in pediatrics. Int J Obes (Lond). 2006;30:595-7.
8. Must A, Anderson SE. Body mass index in children and adolescents: considerations for population-based applications. Int J Obes (Lond). 2006;30:590-4.
9. Schneider SC, Baillie AJ, Mond J, Turner CM, Hudson JL. Measurement invariance of a body dysmorphic disorder symptom questionnaire across sex: The body image questionnaire-child and adolescent version. Assessment. 2018;25:1026-35.
10. Rosenberg M. Society and the adolescent self-image. Princeton (USA): Princeton University Press; 2015.
11. Detels R, Gulliford M, Karim QA, Tan CC. Epidemiological and biostatistical approaches. In: Detels R, Gulliford M, Karim QA, Tan CC, editors. Oxford Textbook of Global Public Health (6th ed). Oxford (UK): Oxford University Press; 2015. p. 613-33.
12. Hu D, Zhou S, Crowley-McHattan ZJ, Liu Z. Factors That influence participation in physical activity in school-aged children and adolescents: a systematic review from the social ecological model perspective. Int J Environ Res Public Health. 2021;18:3147.
13. Stang J, Story M, eds. Guidelines for adolescent nutrition services. Minneapolis (USA): Center for Leadership: Education and Training in Maternal and Child Nutrition; 2005.
14. Neighbors LA, Sobal J. Prevalence and magnitude of body weight and shape dissatisfaction among university students. Eat Behav. 2007;8:429-39.
15. Tiggemann M. Sociocultural perspectives on human appearance and body image. In: Cash TF, Smolak L, eds. Body image: A handbook of science, practice, and prevention (2nd ed). New York (USA): Guilford Press; 2011. p. 12-19.
16. Tiggemann M, Pickering AS. Role of television in adolescent women's body dissatisfaction and drive for thinness. Int J Eat Disord. 1996;20:199-203.
17. Levine MP, Smolak L. Cultural influences on body image and the eating disorders. In: Agras WS, editor. The Oxford handbook of eating disorders (1st ed). Oxford (UK): Oxford University Press; 2010. p. 223-46.
18. O'Dea JA, Abraham S. Onset of disordered eating attitudes and behaviors in early adolescence: interplay of pubertal status, gender, weight, and age. Adolescence. 1999;34:671-79.
19. Bordeleau M, Leduc G, Blanchet C, Drapeau V, Alméras N. Body size misperception and dissatisfaction in elementary school children. Child Obes. 2021;17:467-75.
20. Larson NI, Neumark-Sztainer D, Story M. Weight control behaviors and dietary intake among adolescents and young adults: Longitudinal findings from Project EAT. J Am Diet Assoc. 2009;109:1869-77.
21. Frisén A, Holmqvist K. What characterizes early adolescents with a positive body image? A qualitative investigation of Swedish girls and boys. Body Image. 2010;7:205-12.
22. Pirkle EC, Richter L. Personality, attitudinal and behavioral risk profiles of young female binge drinkers and smokers. J Adolesc Health. 2006;38:44-54.
23. Kostanski M, Gullone E. Adolescent body image dissatisfaction: Relationships with self-esteem, anxiety and depression controlling for body mass. J Child Psychol Psychiatry. 1998;39:255-62.
24. Steinberg L, Morris AS. Adolescent development. Annu Rev Psychol. 2010;52:83-110.
25. Masselink M, Van Roekel E, Oldehinkel AJ. Self-esteem in early adolescence as predictor of depressive symptoms in late Adolescence and early adulthood: the mediating role of motivational and social factors. J Youth Adolesc. 2018;47:932-46.
26. Eisenberg ME, Neumark-Sztainer D, Paxton SJ. Five-year change in body satisfaction among adolescents. J Psychosom Res. 2006;61:521-7.
27. Friestad C, Rise J. A longitudinal study of the relationship between body image, self-esteem and dieting among 15-21 year olds in Norway. Eur Eat Disord Rev. 2004;12:247-55.
28. Bearman SK, Presnell K, Martinez E, Stice E. The skinny on body dissatisfaction: A longitudinal study of adolescent girls and boys. J Youth Adolesc. 2006;35:217-29.
29. Tiggemann M. Body image across the adult life span: Stability and change. Body Image. 2004;1:29-41.
30. Matias T, Rolim MKSB, Kretzer FL, Schmoelz CP, Andrade A. Corporal satisfaction associated with physical activity practice during adolescence. Motriz. 2010;16:370-8.
31. Rosenberg M. Contextual dissonance effects: nature and causes. Psychiatry. 1977;40:205-17.
32. Presnell K, Bearman SK, Stice E. Risk factors for body dissatisfaction in adolescent boys and girls: a prospective study. Int J Eat Disord. 2004;36:389-401.
33. Moeen, T, Muazzam A, Zubair B. Development and validation of body image scale (bis) for young adult females. Pakistan J Soc Clinical Psychol. 2013;11:52-8.
34. Becker AE. Body, self, and society: The view from Fiji. Philadelphia (USA): University of Pennsylvania; 1995.

35. Austin SB, Haines J, Veugelers PJ. Body satisfaction and body weight: gender differences and sociodemographic determinants. BMC Public Health. 2009;9:313.
36. Al Sabbah H, Vereecken CA, Elgar FJ, Nansel T, Aasvee K, Abdeen Z, et al. Body weight dissatisfaction and communication with parents among adolescents in 24 countries: International cross-sectional survey. BMC Public Health. 2009;9:52.