

# The lack of an association between Body Image Satisfaction and Self-Esteem in high school students in Eastern Croatia: A cross-sectional study

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## Research article

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# Abstract

**Introduction:** The research objectives are to examine the degree of satisfaction of students in two high schools in Eastern Croatia, regarding their physical appearance and self-esteem based on their gender and type of school - Grammar school or Vocational school. Furthermore, it aims to determine the correlation between degree of satisfaction regarding physical appearance and self-esteem and examines the differences in socio-economic status among the students of the two schools.

**Methods:** The study is designed as a cross-sectional research performed in the Secondary Health and Veterinary School and Grammar School in Vinkovci. The study includes 278 participants. The data were collected in three ways. First, by using a survey on socio-economic status of the participants. Second, a modified test consisting of fourteen questions was used to examine the level of body image satisfaction. Third, a test consisting of ten questions was used to examine the level of self-esteem.

**Results:** Median age of participants is 18 years. The research established a linear correlation between the body image satisfaction and gender of the students in both schools. An association between level of body image satisfaction and self-esteem was not established.

**Conclusion:** To conclude with, adolescents in this region of Croatia are not overly concerned about their physical appearance despite relatively decreased self-esteem. 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

## Plain English Summary

Adolescence is a sensitive period of life when many factors can affect their well-being and mental development. A body image is an important factor in the development of self-esteem. Previous knowledge gained so far indicated the close associations between satisfaction with body shape image and self-esteem in adolescents. Distorted self image and self esteem is a key factor in the development of eating disorders and other psychological in adolescents. In our research, we aimed to assess the association between the real BMI values and the body image in adolescents in our surrounding. The study includes 278 participants. The research established a linear correlation between the body image satisfaction and gender of the students in both schools. An association between level of body image satisfaction and self-esteem was not established. Early detection of a negative body image could provide a better control over self-esteem and promote psychological support later and contribute overall better quality of life.

## Introduction

Great number of adolescents face problems related to physical appearance and social contact due to the omnipresence of media and growing availability of social media (1). Developed countries promote slim body as an ideal image of physical appearance. In addition, recent research show that less developed

countries adopt this western culture what causes an increase in 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 body weight (3, 4). Even though the 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 similar crisis (5). Promoting the importance of such slim physical appearance leads to dissatisfaction with one's 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 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 sociocultural factors that influence one's mindset. These factors determine which physical characteristics are desirable and which are not. In order 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 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, it is possible that there are some negative events, such as teasing and pressuring to change physical appearance, which affect 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. Therefore, the objective of this research is to determine the levels of satisfaction regarding physical appearance and self-esteem among students in the final years of their high school education. In addition, it investigates the association between the level of satisfaction and self-esteem and differences in socioeconomic status of the students.

## Materials And Methods

### Design:

This study has been conducted as a cross-sectional study and has been conducted anonymously in two high schools in Eastern Croatia, in small town Vinkovci, which presents a typical traditional and conservative town in Croatia, that could promote different understanding of the perfect body measures.

### Participants:

There are 278 participants, 159 of whom are students of Secondary Health and Veterinary School (nurses, veterinarian technicians and physical therapists), and 119 are students in the fourth grade of

Grammar School (general, linguistic and mathematical grammar school). When it comes to age of the participants, it ranges from 18 to 20 years.

### **Assessment instructions:**

The questionnaire on socio-economic status of the students has been filled anonymously. It contained 21 closed-ended type questions. Apart from this questionnaire, a modified test, the Body Image Questionnaire, has been used for examining the level of satisfaction regarding physical appearance. It contains 14 questions. In this case, a higher result denotes higher dissatisfaction regarding one's body or particular body part. In addition, a self-esteem test was used. It contains 10 questions and it was anonymous. 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 individual level of body image dissatisfaction or dissatisfaction with a particular body feature. High level of deviation denotes greater dissatisfaction of the person. Both test are standardized tests. In this case, we have also examined the difference between the measured and self-estimated BMI values. BMI was measured during admission.

### **Statistics plan:**

In this study, the linear correlation between the level of body image satisfaction and level of self-esteem has been examined using Pearson's correlation coefficient. Moreover, the socio-economic differences that affect these two notions have been analyzed. The results are presented in tables and charts. Categorical data are presented by absolute and relevant frequencies. Differences between categorical data have been tested by  $\chi^2$  test and Fisher's exact test. All p values are two-folded. The level of significance is set to  $\alpha=0,05$ . Statistical analysis has been conducted by a statistical program SPSS (version 16.0, SPSS Inc., Chicago, IL, USA) and Microsoft Office Excel Calculation (9).

## **Results**

When it comes to participants, as previously presented, there are 159 students from medical vocational school and 119 students from grammar school. Median age is 18 (interquartile range is from 18 to 19) for both schools. However, there are 15 students who are 20 years old in medical vocational school, and in grammar school, there is only one student who is 20 years old. There is a statistically relevant difference when it comes to residency. In medical vocational school, there are 180 (67, 9%) students who come from villages. On the other hand, in grammar school, there are 69 (57, 9%) students who come from towns ( $\chi^2$  test,  $p = 0,005$ ) (Table 1). There are no statistically relevant differences in body image satisfaction among medical students when it comes to gender ( $\chi^2$  test,  $p = 0,22$ ), although there is a noticeable tendency among the female students to worry about their physical appearance. The female participants in grammar school are significantly more concerned about their physical appearance than male participants in the same school ( $\chi^2$  test,  $p < 0,001$ ) (Table 2). The results from both school indicate that all students in this research exhibit lower self-esteem (Table 2).

Table 1. Demographic data and residency comparison

		medical vocational school N (%)	Grammar vocational school N (%)	p*
Gender	Male	38 (23,9)	33 (27,7)	0,005
	Female	121 (76,1)	86 (72,3)	
Age	18 years	82 (51,6)	87 (73,1)	
	19 years	62 (39,0)	31 (26,1)	
	20 years	15 (9,4)	1 (0,8)	
Residency	Town	51 (32,1)	69 (57,9)	
	Village	108 (67,9)	119 (100)	
Total		159 (100)	119 (100)	

\* $\chi^2$  test

Table 2. Body image satisfaction among medical students and grammar students in relation to gender

	Medical vocational school				Grammar school			
Body image satisfaction	N (%)				N (%)			
	Male	Female	Total	P*	Male	Female	Total	P*
I am very worried about my physical appearance	3 (7,9)	17 (14,0)	20 (12,6)	0,22	0 (0)	14 (16,3)	14 (11,8)	<0,001
I am worried to some extent about my physical appearance	5 (13,2)	21 (17,4)	26 (16,4)		1 (5,3)	18 (20,9)	19 (16,0)	
I am mildly worried about my physical appearance	6 (15,8)	30 (24,8)	36 (22,6)		6 (18,2)	23 (26,7)	29 (24,4)	
I am 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)	

\* $\chi^2$  test

The linear correlation between degree of satisfaction regarding physical appearance and self-esteem confirmed the association between body image satisfaction and gender of students in medical vocational school ( $r = 0,157$ ;  $p = 0,04$ ) and students in grammar school ( $r = 0,371$ ;  $p < 0,001$ ). (Table 4). There has been no evidence of relationship between body image satisfaction and level of self-esteem. The majority of male participants in both schools falls into the category with a normal body weight. The majority of female participants in both school falls into the category with a normal body weight, while 24 participants in medical vocational school and 10 participants in grammar school fall into the category with excessive body weight. The majority of female participants in both school falls into the category with a normal body weight, while 24 participants in medical vocational school and 10 participants in grammar school fall into the category with excessive body weight (Figure 1). The participants in medical vocational school are mainly not concerned about their physical appearance. This also includes the students who have expressed a slight concern but they estimated their appearance is in accordance with the desired BMI. When it comes to participants in grammar school, the majority also states they are not worried about their physical appearance and estimate it is in accordance with the desired BMI (Figure 2). In relation to living arrangements, 145 (91,2%) participants from medical vocational school and 100 (91,6%) participants from grammar school live with their parents (Table 4). Another factor that has been

compared among the students is alcohol consumption. Among the participants in medical vocational school 95 (59, 7%) stated they consume alcohol and 64 (40, 3%) participants answered negative to that question. On the other hand, 77 (64, 7%) participants in grammar school answered they consume alcohol and 42 (35, 3%) participants do not consume alcohol (Table 5). There is a statistically relevant difference in this comparison of participants. Furthermore, in grammar school, 71 (59, 7%) participants consumes alcohol once a week. On the other hand, 85 (53, 5%) participants in medical vocational school consumes alcohol once a week. However, 9 (5, 7%) participants from medical vocational school consumes alcohol several times a week, and 5 (4, 2%) participants from grammar school consumes alcohol several times a week.

Table 3. Linear correlation between body image satisfaction and self-esteem among students of both school in relation to gender

Medical vocational school	Grammar school	Pearson's correlation coefficient , r	P value
Body image satisfaction	Body image satisfaction	0,033	0,72
Self-esteem	Self-esteem	-0,052	0,57
Body image satisfaction	Self-esteem	-0,012	0,689
Medical vocational school	Medical vocational school		
Body image satisfaction	Self-esteem	-0,036	0,65
Body image satisfaction	Gender	0,157	0,04
Self-esteem	Gender	0,108	0,17
Grammar school	Grammar school		
Body image satisfaction	Self-esteem	-0,076	0,41
Body image satisfaction	Gender	0,371	< 0,001
Self-esteem	Gender	-0,101	0,27

\* $\chi^2$  test

Table 4. Comparison between students in relation to living arrangements

Parental status	N (%)		P*
	Medical vocational school	Grammar school	
Both parents	145 (91,2)	109 (91,6)	0,23
Divorced parents	8 (5,0)	10 (8,4)	
Single parent	6 (3,8)	0 (0)	
Total	159 (100)	119 (100)	

\* $\chi^2$  test

Table 5. Alcohol consumption comparison between the two schools

Alcohol consumption	N (%)		P*
	Medical vocational school	Grammar school	
Yes	95 (59,7)	77 (64,7)	0,77
No	64 (40,3)	42 (35,3)	
Total	159 (100)	119 (100)	

## 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 societies promote 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. Moreover, statements on what is acceptable when it comes to physical appearance permeate post-industrial cultures (10). As beauty industry grows, there are numerous possibilities and methods to form one's body to fit the promoted ideas of physical beauty.

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 (11). 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 (12). This cross-sectional study has been conducted among 278 participants, where 159 are students in medical vocational schools and 119 are students in a grammar school. When it comes to gender, the majority of the participants are females. Median age is 18 years for both schools and only a few students are 20 years old (Table 1). The majority students from medical vocational schools come from villages and the majority in grammar school are from towns (Table 1). In relation to that fact, it is noticed that medical students are less concerned about their physical appearance than the participants in the grammar school. Going through puberty can amplify body image concerns among boys and girls (13). 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 (14). Apart from gender differences, there are evidence that body image dissatisfaction grows during adolescent years what confirms our results. When it comes to gender, female participants are more concerned about their physical appearance than male participants in both schools, which is supported by general experience and statements in literature related to this topic (Table 2). The fact that there is only a small number of female participants who are worried about their physical appearance can be explained with the results on students' normal BMI. There is only a small number of overweight or underweight students (Figure 1). These results imply that most of adolescents live in a traditional environment, where young people live with their families and still consume traditional „mothers' everyday foodfood“, so that BMI value is not so severely impaired.

In addition, the majority of students live in functional families (Table 4) which can affect the way they eat and amount of stress they experience. Individuals who have a positive attitude towards their physical appearance cannot be influenced by media, peer pressure or family (15). However, this does not mean that these individuals are not exposed to negative information from those sources. Nevertheless, they have tendencies not to take seriously these comments (15). When it comes to female participants who are worried about their physical appearance, it is important not to neglect their presence. It is possible that these individuals 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 (16, 17). All participants show low self-esteem (Table 3) what can be explained by their adolescent youth, which is a time to search for personal identity and developing their own 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 (18). 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 (19, 20). Despite the exhibited low self-esteem, there is no confirmed association between body image dissatisfaction and low self-esteem (Table 3). In addition, there are some conflicted research results. Some research indicate that boys and girls will continue to experience body image dissatisfaction during adolescent years (21). On the other hand, others suggest that, during adolescent period, boys and girls become gradually satisfied with their physical appearance. Finally, there are those who suggest different developmental paths for adolescents where females become less satisfied and males more and more satisfied with their physical appearance (23). This indicates that it is necessary to investigate further 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. In relation to this, results in this research do not show difference in particular sociodemographic characteristics, gender or type of school.

When it comes to self-evaluation of their nutritional status, medical students are not worried about their physical appearance and their estimation of their body matches the desired BMI. On the other hand, even though not worried about their physical appearance, participants from grammar school have wrongly estimated their BMI to be lower than the desirable (Figure 2). Moreover, lower body weight among the participants from grammar school could be the result of higher levels of stress due to school obligations (working harder to achieve better grades and continue to higher levels of education) and latter due to alcohol consumption (Table 5).

When it comes to gender and excess body weight, female outnumber male participants. 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. It is highly possible that females develop problems related to their bodies when entering adolescent period (24). Furthermore, females are exposed to high amounts of sociocultural pressures to look a certain way (25). For screening or for 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 larger number of participants to verify the possible reasons for that result. It is possible that such results are a reflection of local or traditional understanding of physical beauty, which entail curves. These mistakes in estimation were more frequent in medical vocational school whose students come from villages. Morris Rosenberg 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 (26). On the other hand, male participants from grammar school made more mistakes in their estimations. This can be related to the latest trend that promotes lean and muscular male body (27) and to the fact that grammar school students are more under the influence of the media (or more informed on trends). It is evident that BMI measurements and BMI self-evaluation are not an adequate method for analyzing the participants because the participants, even those worried about their physical appearance, estimated their

appearance in accordance with the desirable BMI. Body image dissatisfaction can be caused by other body characteristics apart from the body weight. Previous studies indicated many scales that quantitatively assess the body image concerns, where every scale has their own validity, reliability, and cultural norms. Since there are few reliable tool to analyze nutritional status, Tayaba Moeen et al. have pointed out the need for further assessment of body image concerns and to define how individuals perceives or thinks about their physical appearance. Body Image Scale, containing 35 items, highlighted the 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 (28).

When it comes to residency, majority of participants in medical vocational school come from villages and participants in grammar school come from both villages and town (Table 2). Traditional way of life can have impact on the idea how a perfect body should look. In that sense, it is noticed that children raised in such surrounding have a different understanding of the perfect boy measures than the one in the westernized cultures (29).

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 concern. 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 (30). 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 (31). Nevertheless, it is very important to educate children on 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. In order 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.

Despite the fact that the results of this research indicate that majority of 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 implify that traditonal parenting may be a protective factor in process of development. In those with low body image, it can be associated more with existential fear (study sucess) or with a preoccupation with one's own appearance.

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.

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. Programs that educate adolescents on possible risks a negative body image have 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 how to provide better control of self-esteem, which affects many of the developmental challenges.

## Conclusions

Female participants attending both schools show a lower level of body image dissatisfaction compared to male respondents. Male respondents attending both schools have a decreased level of self-esteem. The research established a linear correlation between the body image satisfaction and gender of the students in both schools. An association between 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. 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 a better control over self-esteem and promote psychological support later. Our results indicate importance of large studies with more participants in order to find more precise information of better control of self-esteem.

## List Of Abbreviations

BMI: body mass index

## Declarations

**Ethical approval.** 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.

**Consent form for Publication.** The authors declare that questionnaire on socio-economic status of the students has been filled anonymously, and anonymity can be guaranteed.

**Availability of supporting data.** Due to nature of this study, all participants agree for their data to be shared publicly, so supporting data is available.

**Competing interests.** The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

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**Authors' contribution.** Zvonimir Bosnic and Ljiljana Trtica Majnarić were responsible for conceptualization and design of the study. Maja Miletić, Mile Volaric, Nikola Volaric performed the investigation and collected data. In addition, they were responsible for data validation. Zvonimir Bosnic and Dubravka Holik provided participants with data. Ljiljana Trtica Majnarić supervised the study. Zvonimir Bosnic wrote the manuscript. Dubravka Holik and Ljiljana Trtica Majnarić reviewed and edited manuscript. All authors have read and agreed on the published version of the manuscript

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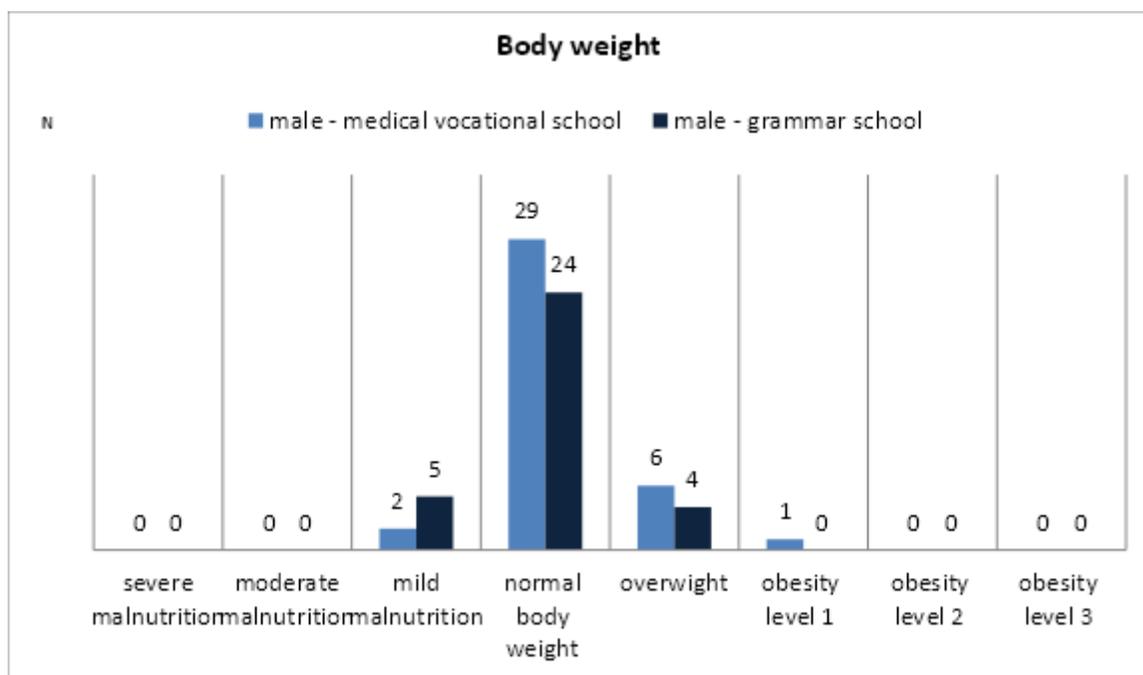
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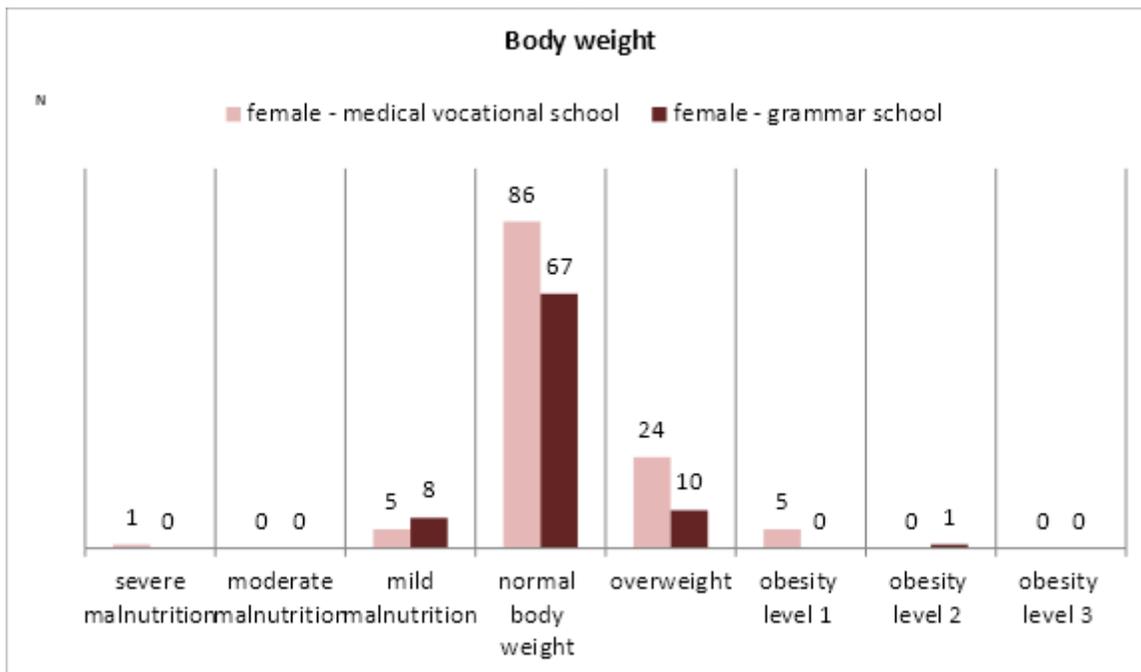
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## Figures



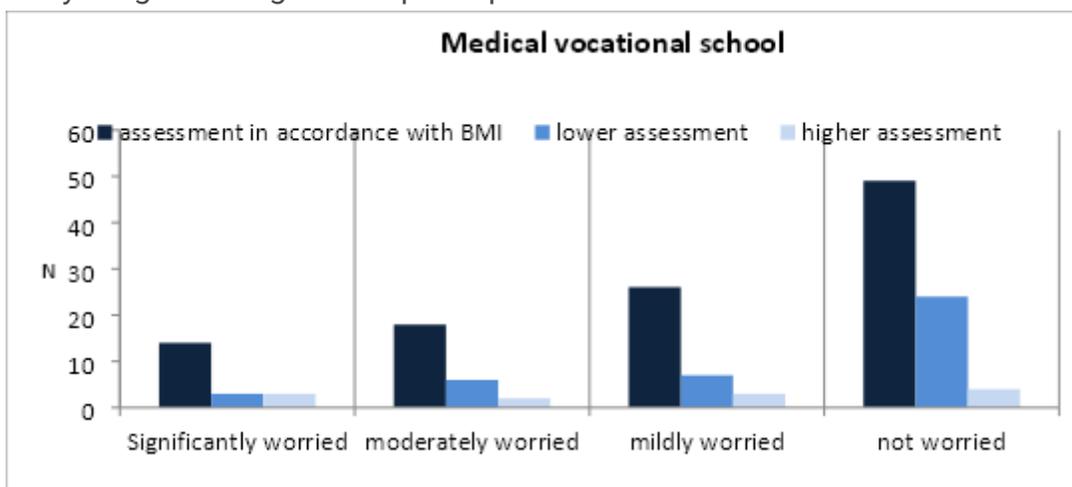
**Figure 1**

Body weight among male participants



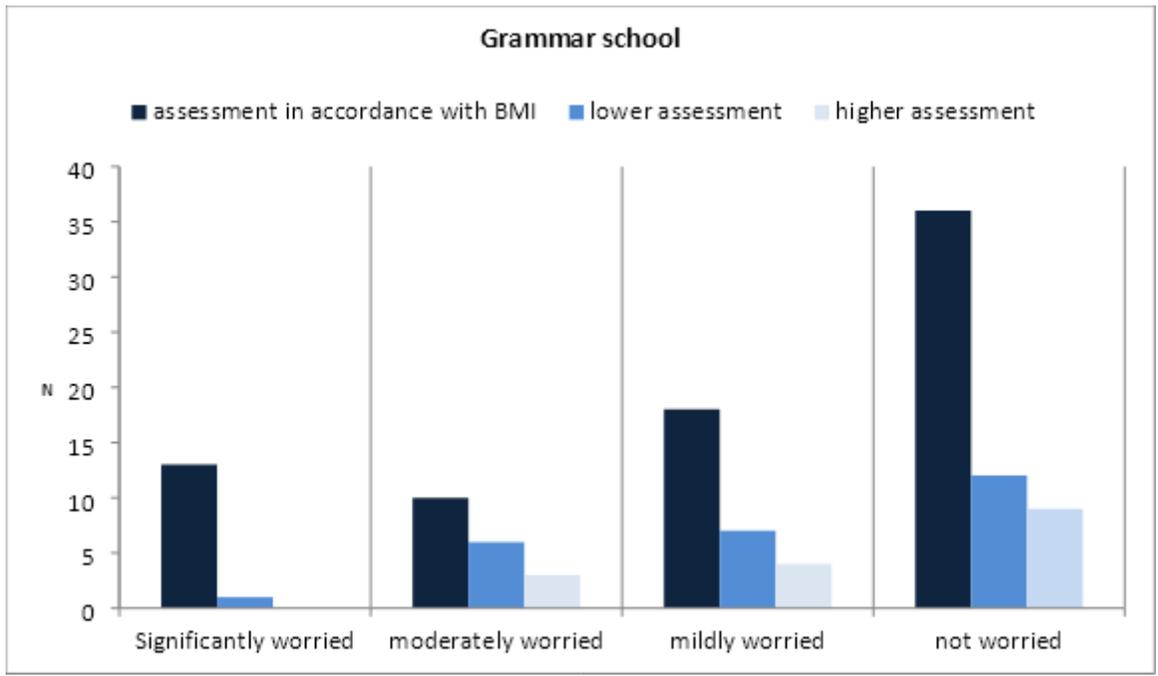
**Figure 2**

Body weight among female participants



**Figure 3**

Body Image Questionnaire



**Figure 4**

Body Image Questionnaire