# ADOLESCENT BODY IMAGE: RESULTS OF CZECH ELSPAC STUDY

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**SUMMARY**

*Objectives:* The study examined appearance and body satisfaction in adolescents. For these purposes, data from the European Longitudinal Study of Pregnancy and Childhood in the Czech Republic were used.

*Methods:* The data were collected in 2010 and the sample comprised 3,105 18-year-old respondents.

*Results:* The research found that the respondents who wished to reduce their weight were mostly women with BMI in the normal range. Based on the body cathexis scale, we found that women compared to men are more critical of stomach, hips, buttocks, and thighs, as well as overall weight and figure. The results showed that criticism of their weight from their immediate environment is unpleasant to both female and male adolescents to such an extent that it makes them try to reduce it. However, it is clear that girls are altogether less satisfied with their bodies than boys.

*Conclusion:* For both genders, body dissatisfaction is most likely enhanced by critical comments from peers and parents about appearance, body weight etc.

*Key words:* body cathexis scale, criticism of appearance, reduction

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## INTRODUCTION

Human behaviour is greatly influenced by self-satisfaction. What is important for individuals is not only how they perceive themselves, but also how they think others perceive them and the reactions and attitudes of others towards them. When there is no great discrepancy in these factors, individuals are happy with themselves and vice versa (1).

Girls and boys in puberty and adolescence are most susceptible to body dissatisfaction. Self-concept and self-esteem are developed and strengthened in adolescence, therefore, during these years, appraisal from their environment has a great effect. If appraisal from their environment is mostly positive, individuals gradually build stable self-esteem. On the other hand, if too great demands are placed on individuals and they are insufficiently appreciated by their environment, feelings of inadequacy and inferiority might appear (2).

It is also typical for adolescents to compare themselves to their supposed ideals in TV and other media. Nowadays, with the increasing prevalence of obese children, the discrepancy between the ideals presented by the media and reality is gaining importance.

To analyse appearance and body satisfaction in adolescents and to evaluate the impact of their environment on this satisfaction, data collected for the European Longitudinal Study of Pregnancy and Childhood in the Czech Republic were used.

## MATERIALS AND METHODS

### Data Collection

The European Longitudinal Study of Pregnancy and Childhood (ELSPAC) is a prospective longitudinal study initiated in the 1980s by the World Health Organization in six European countries. In the Czech Republic, the collected data comprise children born between March 1, 1991 and June 30, 1992. The study cohort comprises 5,738 children born in Brno and 1,851 children born in Znojmo. Exact methodology of the ELSPAC study is available in the work of Piler et al. (3).

The sample comprised 3,105 respondents who met the following criteria: age 18.0–18.99 years and relevant data available. These data map anthropometric measurements (provided by general practitioners) and the adolescents' attitudes to their bodies (self-report data collected using the Computer Assisted Web Interviewing (CAWI) method).

### Methods of Data Analysis

Standard descriptive statistics were used to process the data analytically. Categorical variables were described using absolute and relative frequencies. Continuous data were expressed by the arithmetical average supplemented by the standard deviation.

The statistical significance of differences in categorical parameters was tested using Fisher's exact test; in continuous parameters, using the non-parametric Mann-Whitney U test. Data processing, including all statistical calculations, was performed using IBM SPSS Statistics 23 software.

To evaluate BMI, categorization according to the WHO was used; BMI is a measure indicating the nutritional status of people over 18. It is defined as the weight of a person in kilograms divided by the square of their height in metres (kg/m$^2$).

The data obtained were subsequently compared to other research and studies.

## Sample Description

The data concerning 18-year-old respondents of the ELSPAC study were collected in 2010. The sample comprised 3,105 adolescents, 52.2% of girls and 47.7% of boys.

Table 1 shows the education level of the monitored group. At the age of 18, 1.5% of observed respondents had only basic education, 32.4% of respondents attended high school and 66.1% of respondents studied specialized school.

Figure 1 shows the distribution of BMI in the sample group: 71.9% of adolescents (71% of boys and 73% of girls) had a standard BMI (18.5–24.9 kg/m$^2$); 13.4% of adolescents (13.4% of boys and 13.5% of girls) were underweight (BMI under 18.5 kg/m$^2$); 11.2% of adolescents (11% of boys and 11% of girls) were overweight (BMI 25–29.9 kg/m$^2$); and 3.5% of adolescents (4.6% of boys and 2.4% of girls) were obese (BMI over 30 kg/m$^2$).

***Table 1.*** *Education of 18-year-old adolescents by gender (N = 3,105)*

| Education | Total (N = 2,518) n (%) | Boys (N = 1,325) n (%) | Girls (N = 1,193) n (%) |
|---|---|---|---|
| Elementary school | 39 (1.5) | 27 (2.0) | 12 (1.0) |
| High school | 815 (32.4) | 359 (27.1) | 456 (38.2) |
| Specialized school | 1,664 (66.1) | 939 (70.9) | 725 (60.8) |

Information not available for all respondents.

## RESULTS

From the wide range of questions in the ELSPAC study, those focused on appearance and body satisfaction were selected. Body image satisfaction in adolescents was studied based on the correlation between the subjective wish to change body weight and objective BMI values; the assessment of attitudes towards various body parts was also used. The last researched indicator of body image satisfaction among adolescents was the effect of criticism of their bodies and weight from their environment.

## BMI and Desire to Change Weight

In Figure 2 the subjective attitude of respondents towards their own bodies and their desire to change weight are compared with the objective values of BMI.

In Figure 2 the relationship between BMI and the attempt to change weight is apparent. It shows that adolescent girls are more concerned about their weight than adolescent boys. In the category of adolescent girls that wish to reduce their weight are mostly girls with a BMI within the normal range. Weight satisfaction is reported mostly by girls in the normal and underweight category.

Figure 3 explores the difference in weight satisfaction between adolescent boys and girls. The results show that far more girls than boys want to lose weight. In fact, boys are frequently more satisfied with their weight or wish to increase it.

## Body Cathexis Scale

The body cathexis scale test measures body satisfaction, or rather satisfaction with various body parts (4). In the test, respondents described their attitudes to 12 body parts. Their attitudes were assessed on a 5-point scale (1 = very positive, 3 = neutral, 5 = very negative).

In Table 2, the attitudes of adolescent boys and girls towards various body parts are compared, the given numbers being the mean values of their assessments. The higher the value, the lower the satisfaction.

The results show that the attitudes towards various body parts differ significantly between boys and girls. We may therefore conclude that there is greater body dissatisfaction among girls.

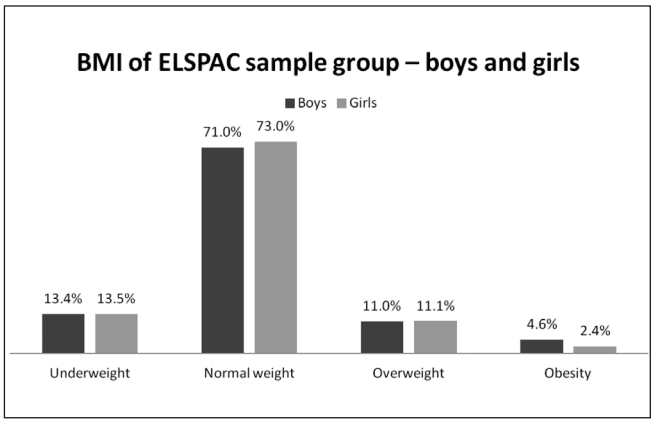


***Fig. 1.*** *BMI of ELSPAC sample group, 18 years category, divided by gender.*

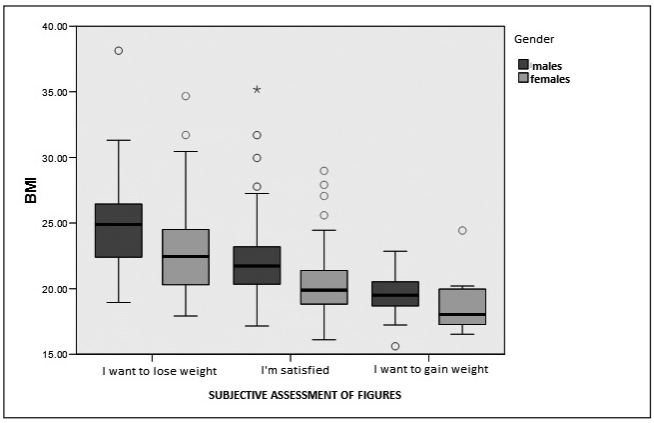


***Fig. 2.*** *Box plot BMI according to attitude towards body for ELSPAC.*

Asterisk - extreme value, it exceeds 1.5 times the interquartile range.

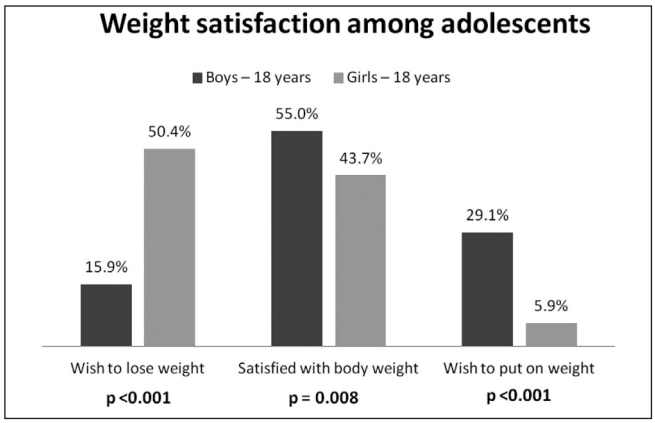


***Fig. 3.*** *Weight satisfaction among adolescents.*
P-value of the Mann-Whitney test is given.

***Table 2.*** *Evaluation of attitudes to various body parts by gender (18-year-old respondents)*

| Body part | Boys – 18 years (n = 251) mean ± SD | Girls – 18 years (n = 339) mean ± SD | p |
|---|---|---|---|
| Eyes | 2.0 ± 1.0 | 1.7 ± 0.9 | 0.001 |
| Mouth/lips | 2.3 ± 0.9 | 2.0 ± 0.9 | < 0.001 |
| Nose | 2.3 ± 1.0 | 2.4 ± 1.1 | 0.477 |
| Hair | 2.4 ± 1.1 | 2.2 ± 1.1 | 0.009 |
| Arms | 2.3 ± 0.9 | 2.5 ± 1.0 | 0.030 |
| Breasts/chest | 2.6 ± 1.1 | 2.6 ± 1.2 | 0.725 |
| Stomach | 2.7 ± 1.1 | 3.4 ± 1.2 | < 0.001 |
| Hips | 2.6 ± 1.0 | 3.1 ± 1.2 | < 0.001 |
| Buttocks | 2.5 ± 1.0 | 3.1 ± 1.2 | < 0.001 |
| Thighs | 2.4 ± 1.1 | 3.5 ± 1,2 | < 0.001 |
| Weight | 2.6 ± 1.2 | 3.2 ± 1.2 | < 0.001 |
| Figure | 2.4 ± 1.1 | 3.0 ± 1.2 | < 0.001 |

P-value of the Mann-Whitney test is given.

Girls see their stomach, hips, buttocks, thighs, weight, and figure more negatively. Girls have a more positive attitude towards their eyes and lips than boys.

## Unpleasantness of Criticism and Attempts to Change Weight

With the following results, we study the effects of criticism of appearance and weight from the immediate environment and its connection with attempts to reduce weight.

***Table 3.*** *From whom criticism is most unpleasant for 18-year-old adolescents*

| Criticising person | n | Unpleasantness of criticism (1 – highest, 5 – lowest) mean ± SD |
|---|---|---|
| Mother | 101 | 2.8 ± 1.4 |
| Father | 66 | 2.8 ± 1.5 |
| Boyfriend/girlfriend | 35 | 2.9 ± 1.4 |
| Other adults | 15 | 2.9 ± 1.0 |
| Other relations | 38 | 3.1 ± 1.5 |
| Siblings | 71 | 3.2 ± 1.5 |
| Friends | 23 | 3.2 ± 1.4 |
| Teachers | 2 | 4.5 ± 0.7 |

Table 3 shows from whom criticism is most unpleasant for the respondents. The higher the mean value, the less unpleasant the criticism (1 – most unpleasant, 5 – least unpleasant).

The results show that an adolescent's body and weight are criticised most by close family members, mostly the mother and siblings. It was found that the most unpleasant criticism is from the mother and father, followed by that from a girlfriend/boyfriend and other adults. This unpleasantness might be caused by the frequency of criticism from the family.

Table 4 relates the effect of unpleasant criticism to attempts to change weight. Here, the mean of the unpleasantness of criticism is calculated as average of reported values for the unpleasantness of criticism from various people. The higher the value, the lower the unpleasantness of criticism.

The results show that in the sample group, a higher value of unpleasantness of criticism (2.8) is related to more frequent attempts to reduce weight. Therefore, it is clear that for the respondents the criticism is so unpleasant that they try to reduce their body weight.

## DISCUSSION

The data obtained were compared to the data from several studies carried out in the Czech Republic which focused on the weight and height ratio of children and adolescents.

According to the Eurostat study from 2008, which focused on the development of weight in EU countries (except for the United Kingdom and Italy) in people from 18 to 85 years, 4.9% of adolescents aged between 18 and 24 in the Czech Republic are obese. This puts the Czech Republic in third place regarding the number of obese adolescents, after Malta and Hungary (5).

***Table 4.*** *Effect of unpleasant criticism (1 – highest, 5 – lowest) on attempts to change weight in 18-year-old adolescents*

| | | Total | | | Boys | | | Girls | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | n | mean ± SD | p | n | mean ± SD | p | n | mean ± SD | p |
| Attempts to lose weight | Yes | 112 | 2.8 ± 1.2 | 0.001 | 18 | 3.3 ± 1.2 | 0.148 | 94 | 2.7 ± 1.2 | 0.317 |
| | No | 86 | 3.4 ± 1.3 | | 47 | 3.8 ± 1.2 | | 37 | 2.9 ± 1.3 | |
| Attempts to gain weight | Yes | 36 | 3.2 ± 1.4 | 0.403 | 25 | 3.4 ± 1.3 | 0.403 | 11 | 2.7 ± 1.5 | 0.403 |
| | No | 143 | 3.0 ± 1.3 | | 34 | 3.8 ± 1.2 | | 108 | 2.7 ± 1.2 | |

P-value of the Mann-Whitney test is given.

The percentage of obese adolescents in the ELSPAC study corresponds with the study by Czech paediatricians carried out in 2006. This study found obesity in 3% of male and female adolescents at the age of 18 years (2,624 respondents) (6).

In the underweight category, the results are also consistent with the normal distribution in the Czech Republic, as shown by the 6th national anthropometric research survey of 2001. It states that 13.3% of children between 15 and 17 are underweight (7).

Research shows that body image dissatisfaction is one of the greatest risk factors in the development of eating disorders, low self-esteem, depression, and obesity. Our research has confirmed that girls show a higher rate of body dissatisfaction than boys.

Other studies focused on weight satisfaction in adolescents also show greater body weight dissatisfaction in girls than in boys. Greater body weight dissatisfaction in girls is likely to be caused by greater sensitivity of girls to changes in body weight.

In a study carried out between 2003–2008 in the USA examining 16,720 adolescents, 64% of respondents (73% of girls, 55% boys) wished to lose weight. Body weight dissatisfaction was positively connected to obesity. Interestingly, in this study, 23% of girls and 48% of boys reported being of normal weight according to their subjective evaluation, while in fact they were obese (8).

The Growing Up Today Study, a national prospective cohort of US youth in 2012 showed that girls with over 50 percentile BMI show greater body weight dissatisfaction than girls with under 50 percentile BMI. On the other hand, boys show greater body weight dissatisfaction when over 75 percentile BMI (nearly overweight) or under 10 percentile BMI (nearly underweight). For both sexes, body dissatisfaction increases with age. However, the gender specifics of BMI satisfaction are constant (9).

In their study, Frost and McKelvie researched the connection between self-esteem and satisfaction with education and age. They found that women in general have lower self-esteem. Further, both girls and boys at college are less satisfied than girls and boys at basic school or university. It was also found that self-esteem increases with body satisfaction, but body satisfaction itself is not the main criterion of self-esteem. When adolescents are happy with themselves for other reasons, they also show greater body satisfaction and have higher self-esteem (10).

Studies focused on different attitudes to various body parts in women and men report findings similar to those revealed by our data.

Guzman and Nishina in their study focused on the body cathexis scale found that the overall average satisfaction of girls is 2.98 and of boys 2.63, this difference being very significant in the given study (11).

In her study from the Czech Republic, Fialová found that girls complain most about their waist, stomach, hips, and thighs (12).

The different attitudes of boys and girls toward various body parts are probably due to cultural influence. Media that focus on women and girls present the stomach, hips, buttocks, and thighs as problematic body parts which need suitable exercise and possibly dieting (13).

Societal pressure is felt most strongly at the time of adolescence, when young people go through great changes in their development and growth. These changes are reflected in both the physical and mental perception of an individual. During this period, it is typical that boys and girls want to adapt fully to their environment and be attractive for it.

The level of body satisfaction is affected by the reactions of peers and parents to the changing appearance of an adolescent. Lack of recognition and appreciation is associated with a number of psychological problems in adolescents, including low self-esteem and body dissatisfaction. Adolescents who feel accepted by their environment are less prone to attempt to change their body shape to achieve the purported ideal (14).

There is a general consensus that women and men derive their ideal figure from the media. This is closely related to higher body satisfaction in men. The male figure presented in the media as attractive ranges from normal to muscular, while an attractive female figure is rather slender, even skinny. The changes in body shape in adolescent girls, for example the shape of their hips, their increasing weight, etc., move the girls away from their ideal. In adolescence, boys grow and increase their muscle mass, thus approaching the look of adult men. For these reasons societal pressure is probably not so strong for men, and therefore they are far happier with themselves.

Tiggemann and Slater found that watching slim and skinny women on television causes increased body dissatisfaction in women (15).

Body dissatisfaction is an important factor that affects the health of adolescents. Studies show that lesser body satisfaction is associated with worse eating habits and unhealthy ways of changing body weight. Dissatisfied people often show inappropriate dieting behaviour and skip some daily meals. It is rather interesting that these people often do not exercise much and tend to eat less fruit and vegetables (16, 17).

## CONCLUSION

The results show that girls are generally less satisfied with their appearance than boys. However, for both genders, body dissatisfaction is most likely enhanced by critical comments from peers and parents concerning their appearance, body weight etc.

Our results show clearly that the attempts of adolescents to change their weight increase with higher BMI, but also with the degree of unpleasantness of criticism.

To support the healthy attitude of adolescents towards themselves, positive appraisal from their environment is necessary.

Low self-esteem and confidence may have a negative effect on the health of adolescents and therefore also on their growth and development. Improper eating habits caused by concerns about their appearance and figure may persist into adulthood and cause them to be overweight and suffer from obesity.

Results and data from other studies highlight the need to educate adolescents not only about the importance of nutrition and physical activity, but also about the world of the media and its negative effects on self-respect.

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