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PERCEPTION OF WEIGHT STATUS IN ADOLESCENTS AGED 15 YEARS

The aim of the present study was to assess the adolescents' weight status and weight status perception and also to examine the influence of weight status misperception on weight related behaviors. The survey was conducted in 2014 in population consisting of 125 adolescents aged 15 years living in Sopot, in northern Poland. An anonymous questionnaire contained questions concerning body mass and height and questions on weight status perception and previous weight loss attempts. The study found a high prevalence of excessive body mass among adolescents. Overestimation of weight status had stronger influence on the number of weight loss attempts than underestimation and accurate perception. The study also revealed significant differences between boys and girls in accuracy of weight status perception that could be caused by gender-based stereotypes related to body shape.

Keywords: *teenagers, weight status perception, overweight, weight loss attempts.*

INTRODUCTION

Adolescence is a very important life period due to multiple changes that take place between childhood and adulthood. Puberty is the main neuro-hormonal factor determining physiological and psychological changes, although other behavior and social factors must be considered in this process. Adolescence is characterized by significant gender differences in body composition modifications. In girls, pubertal development is associated with an increase in body fat, while the characteristic body composition pattern that appears in adolescent boys is an increase in fat free mass and a decrease in fat mass [16]. Due to the type and magnitude of age- related changes, adolescence also represents a critical period in body image development [6, 19].

Overweight in childhood and adolescence is one of the most important health issues in our society because its prevalence has increased dramatically in recent years and there is a trend to continue into adulthood [17, 21]. When considering psychosocial consequences of excessive body mass in youth, being overweight has been found to be associated with higher risk of body image issues and experiencing peer victimization than having normal body mass. On the other hand, adolescents' perception of being too fat has also been linked to many different problems. It has been shown that adolescents misperceiving themselves as overweight are at

increased risk of eating disorders, emotional and behavioral problems, and suicidal thoughts [1]. Therefore, weight status perception is a factor influencing eating behaviors, physical activity, weight management and mental health in teenagers [3, 4].

The aim of the present study was to assess the adolescents' weight status and weight status perception and also to examine the influence of weight status misperception on weight related behaviors.

1. MATERIAL AND METHODS

The survey was conducted in 2014 among 125 adolescents aged 15 years living in Sopot, in northern Poland. The study population consisted of 60 girls and 65 boys. An anonymous questionnaire contained questions on weight status perception and selected weight related behaviors such as previous weight loss attempts. There were also collected data on the adolescents' body mass and height, which were used to calculate body mass index.

Adolescents' actual weight status was assessed using BMI and percentile charts for Polish children and adolescents, developed on the basis of the nationwide OLAF study. BMI was categorised according to the following criteria: underweight (BMI< 5^{th} percentile), normal body mass (5^{th} percentile ≤BMI< 85^{th} percentile), overweight (85^{th} percentile ≤BMI< 95^{th} percentile) and obesity (BMI≥ 95^{th} percentile) [12].

Weight status perception was assessed by asking the question: "How do you perceive your body mass?" Response categories included underweight, normal body mass, overweight and obesity. Weight status misperception was determined according to the agreement between actual weight status and perceived weight status. On the basis of this analysis, all adolescents were classified as underestimators, accurate perceivers or overestimators.

The statistical analyses were carried out with the use of χ^2 test and Mann-Whitney's U-test, with adopting $\alpha = 0{,}05$ as showing significance.

2. RESULTS AND DISCUSSION

Obesity in children and adolescents is a significant health problem for both the present and the future of the individuals concerned. The present problem is that important complications such as metabolic syndrome and respiratory (sleep apnea syndrome, asthma, hypoventilation), endocrine (early puberty), gastrointernal (cholelithiasis, liver steatosis), orthopedic, social and psychological problems already occur at these ages. The problem for the future include that obese children and adolescents have an 80% chance of still being obese at 35 years and that metabolic syndrome predisposes to cardiovascular disease and diabetes at a later age [7].

The present study has shown a high prevalence of overweight and obesity in adolescents. Excessive body mass was more common among boys than among girls- as many as 28% of boys and 22% of girls were overweight or obese but these differences were statistically insignificant (Figure 1). Similar trend was found in the nationwide OLAF study for children and adolescents aged 6–19 years, however, the prevalence of overweight (including obesity) in our research was higher by 7,7% in girls and by 9,3% in boys as compared to the results of the mentioned study [8]. The observed differences could be linked to the fact that adolescents' actual weight status in our research was assessed on the basis of self-reported body mass and height.

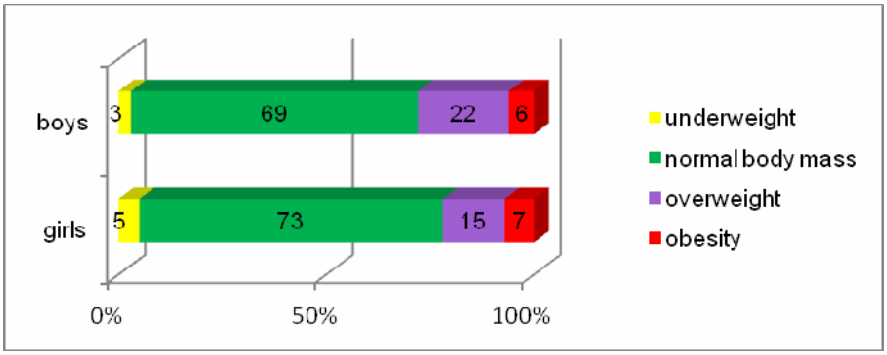

Fig. 1. Adolescents' actual weight status [%]

It has been highlighted that adolescents' perceived weight status may not match their actual weight status. Teenagers regard self-perception and body image satisfaction as important self-acceptance factors. Some adolescents, even with normal body mass and underweight, see themselves as overweight or even obese and are highly concerned about body mass and appearance. Weight status misperception is a risk factor of eating disorders. Unhealthy weight control practices and eating disorders are especially common, among individuals overestimating their weight status. Conversely, overweight and obese individuals perceiving themselves as having normal body mass or even underweight are less likely to engage in weight control practices and are also at risk of obesity-related disorders [15].

The results on weight status perception according to actual weight status, which have been demonstrated in Table 1, indicated that within each weight status category, a relatively high percentage of teenagers misperceived their weight status. Among adolescents classified as those with normal body mass, 21% perceived themselves as overweight, while among overweight teenagers, almost a half assessed themselves as having normal body mass and 9% as being underweight. The highest percentage of weight status misperception was observed in obese individuals, with 12% seeing themselves as those with normal body mass and 88% perceiving themselves as overweight. Similar findings were shown in the study by Datar et al., where among overweight adolescents, close to half assessed themselves as about the right weight and among those measured as obese, 60,3%

perceived themselves as only slightly overweight [2]. In contrast, Krajewska-Siuda et al. presented more favorable results on weight status perception in obese teenagers, with 58,7% of accurate perceivers [11].

Table 1. Weight status perception according to actual weight status in examined adolescents [%]

Actual weight status	Weight status perception			
	I am underweight	I have normal body mass	I am overweight	I am obese
Underweight	60	40	0	0
Normal body mass	15	63	21	1
Overweight	9	43	26	22
Obesity	0	12	88	0

Statistical analysis has shown significant gender differences in accuracy of weight status perception (χ^2 = 12,847). As has been presented in Figure 2, 45% of the girls and 54% of the boys were accurate perceivers. Overestimation of weight status was more frequent in girls, while boys were more likely to underestimate their weight status. Misperception of weight status in girls could be caused by increase in percentage of body fat during adolescence [5, 9, 10]. Woźniak et al. also demonstrated that misperception of body mass was a very common phenomenon among youngsters and that girls were more likely to declare willingness to slim down as compared to boys [20]. Differences in weight status misperception observed between boys and girls reflect gender-based stereotypes of what constitutes a socially desirable shape. Girls want to look like slim fashion models, while the desirable image for adolescent boys is the *muscular mesomorph* [13].

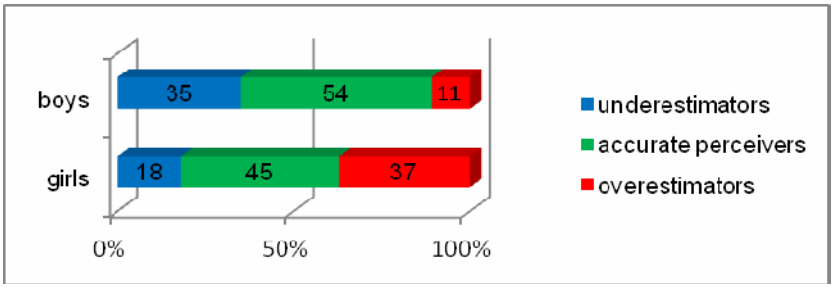

Fig. 2. Accuracy of weight status perception [%]

Further analysis of the results showed that perception of weight status was strongly connected with the number of previous weight loss attempts. Adolescents overestimating their weight status had tried to lose weight more times than underestimators and accurate perceivers. These differences were statistically significant (U = 793,5). Among a group consisted of underestimators and accurate perceivers, as many as 66% had never tried to lose weight and 17% were those

with at least 3 weight loss attempts, while among overestimators, 24% had never made any attempts to slim down and 41% had made such attempts many times (Figure 3). Study on dietary errors of junior high school students, conducted by Mędrela-Kuder, demonstrated that 39% of subjects were dissatisfied with their appearance and that 44% of girls had dieted in the past. Dieting to lose weight, which could be related to poor body image, put those girls at risk for development of eating disorders [14].

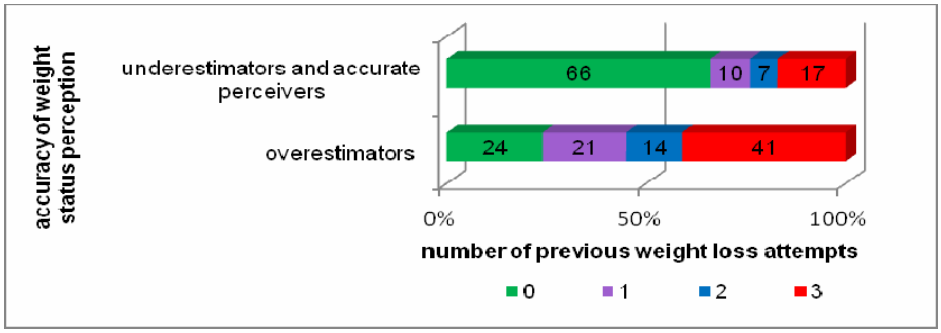

Fig. 3. Relationship between the number of previous weight loss attempts and accuracy of weight status perception [%]

As van Vilet et al. found in their research on Swedish children and adolescents aged 7–17, the strongest risk factor for dieting, regardless of gender, was perception of being too fat [18]. While overweight overestimators (overweight adolescents perceiving themselves as obese) can benefit from weight loss attempts, dieting in overestimators who are underweight or have normal body mass may pose health risks. The present study showed that there were no underweight overestimators who had previously made slimming attempts, so we have examined the number of previous weight loss attempts in overestimators with normal body mass. As the results indicated, differences between the percentage of subjects who had never tried to lose weight and percentage of those with at least 3 attempts to lose weight, were statistically insignificant ($\chi^2 = 2$). Nevertheless, it seems worrisome that one third of overestimators with normal body mass declared that they had dieted at least 3 times (Figure 4).

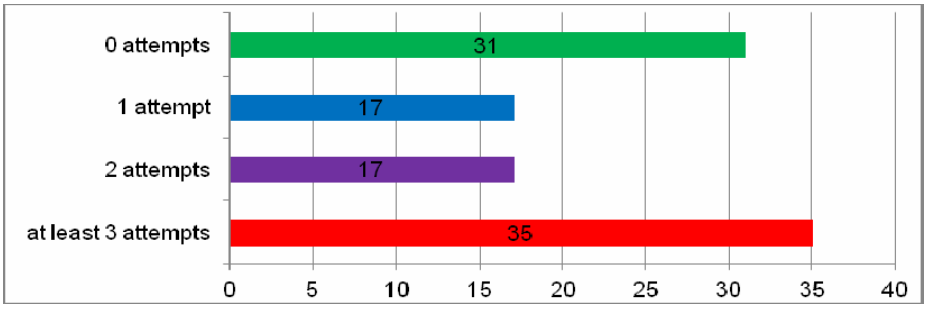

Fig. 4. Overestimators with normal body mass according to the number of previous weight loss attempts [%]

CONCLUSIONS

1. The study has shown a high prevalence of excessive body mass in adolescents.
2. Girls were more likely to overestimate their weight status as compared to boys. Overestimation of weight status in girls could be caused by changes in body composition occurring in females during adolescence and by gender-based stereotypes related to body shape. Such misperception could contribute to the development of eating disorders.
3. Overestimation of weight status had stronger influence on the number of weight loss attempts than underestimation and accurate perception of weight status.
4. Correct perception of weight status is crucial for weight management and success of strategies directed at reducing adolescent overweight and obesity, so it seems there is a need to help teenagers to establish accurate weight status perception.

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