BODY-IMAGE DISSATISFACTION AND WEIGHT-CONTROL BEHAVIOUR IN SLOVAK ADOLESCENTS

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SUMMARY

Objectives: The aim of the study was to examine body-image dissatisfaction in adolescents aged 13–15 years reporting to be on a diet and to assess gender and age differences in weight-reduction behaviour in Slovak adolescents.

Methods: Data on a representative sample of 2,765 adolescents (mean age 14.37 years) from the Slovak part of Health Behaviour in School Aged Children Study carried out in 2014 were analysed. Self-reported body-image dissatisfaction and engagement in weight-reduction behaviour of 13 to 15-year-old adolescents was assessed using multiple logistic regression models.

Results: More that 20% of boys and 35% of girls perceived themselves to be too fat. Girls reported being on a diet more frequently than boys (28.8% vs. 14.9%). The most frequent weight-reduction behaviours were drinking more water (67.7%), eating more fruits and vegetables (67.1%), and consuming fewer sweets (60.5%) and soft drinks (51.7%). Girls prevailed above boys in the use of these dietary methods. Age differences were not apparent, except for smoking, believed to help in weight reduction and used upmost by 15-year-olds (8.9%) followed by 14 and 13-year-olds, 6.0% and 4.1%, respectively.

Conclusions: Body-image dissatisfaction and weight-control behaviour are issues particularly in girls, however, they did not necessarily correspond with actual obesity. The most commonly used weight-reduction behaviours are in the same way important aspects of a healthy lifestyle. There is room to improve obesity control, particularly within primary health care.

Key words: health, adolescence, body image, diet, weight-control behaviour

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INTRODUCTION

The keeping of diets among adolescents is relatively common, corresponding to their body-image dissatisfaction (1). However, unhealthy dietary practices, such as qualitative imbalance of nutrients, drastic reduction diets or deficiencies in psychohygiene, can affect psychic performance, alertness, learning abilities and emotionality, and lead to fatigue (1). Dieting is a problem particularly among girls and is usually associated with other unhealthy behaviours (2).

Substantial changes of body image occurring during adolescence are not in accordance with expectations of youngsters. Body image plays an important role in the physical and mental health of adolescents. In economically developed countries children as early as the 12th year of age start to become conscious of their body and tend to perceive its image (3). Negative image of body shape is particularly common among girls, while relatively less frequent among boys (4).

Dissatisfaction with body image is closely associated with body weight (5), particularly among girls. On the other hand, overweight and obesity are not necessarily linked with negative self-image (6). Dissatisfaction with body image is also associated with unhealthy dietary habits, such as irregular eating (particularly skipping breakfast), consumption of sweets as well as drinking sugar-sweetened soft drinks (3, 7). Body-image dissatisfaction leads to efforts to change dietary habits. However, such efforts can result in inappropriate dietary restrictions and nutritional deficiencies, which could subsequently lead to onset of depressive mood disorders as well (8, 9). Particularly in girls, the ideal body image is associated with slimness (like fashion models), leading to decreased energetic intake and also with insufficient intake of proteins (10). Serious eating disorders emerge most frequently in 13 to15-year-olds and can be triggered by reduction diets (11). Eating disorders, manifested as bulimia and/or anorexia, can lead to life threatening nutritional deficiencies. Intensive efforts for slimness, drastic restrictions in energetic intake, fear of obesity and dissatisfaction with body image are typical for these disorders (12). Daily starvation and self-torture by drastic diets without professional supervision can severely affect health status, appearing either immediately as anaemia, malnutrition, obesity, growth disorders, teeth decay, or in later age as diabetes, atherosclerosis, hypertension, osteoporosis, and some malignancies. This issue is not so prominent in boys, because their efforts regarding body image are usually focused on

muscle-building via intensive physical exercise (bodybuilding) and a diet rich in proteins (8, 13).

This article aims to analyse data and dieting methods used among adolescents aged 13–15 years in an effort to keep their body weight down, as well as their perceptions of their own body image, as determined during the Health Behaviour in School-aged Children (HBSC) survey carried out in Slovakia in 2014. It analyses data on dissatisfaction with body image in relation to gender and age.

MATERIALS AND METHODS

Sample and Procedure

We used data from the Health Behaviour in School-aged Children (HBSC) study carried out in 2014 in Slovakia. To obtain a representative sample, we used a two-step sampling. In the first step, 151 larger and smaller elementary schools located in rural as well as in urban areas from all regions of Slovakia were randomly selected from a list of all eligible schools in Slovakia provided by the Slovak Institute of Information and Prognosis for Education. Ultimately, 130 schools agreed to participate (86.1%). In the second step, data from 10,179 students attending the 5th to 9th grades of the selected schools were obtained (response rate 78.8%). Our final sample consisted of adolescents who responded to extended questionnaires that besides the regular HBSC questions also included special questions on dieting methods. These extended questionnaires included 50% of all questionnaires distributed among older adolescents aged 13 to 15 years. In order to ascertain the representativeness of the final sample, random selection was used to the distribution of measures. In this way, we reduced the sample to 2,765 adolescents (mean age 14.37; 50.7% of boys).

The study was approved by the Ethics Committee of the Faculty of Medicine, P. J. Šafárik University in Košice. Parents were informed about the study via the school administration and could opt out if they disagreed with their child's participation. Participation in the study was fully voluntary and anonymous, with no explicit incentives provided for participation.

Used Variables

Analysed data were collected using questionnaires from the standardized research protocols for the 2014 WHO-collaborative HBSC study, with the aim of gaining insights into adolescents' body image and dieting.

Body image was measured using the question: "Do you think your body is..." Response categories were: "much too thin", "a bit too thin", "about the right size", "a bit too fat" and "much too fat".

Weight-reduction behaviour was measured using the question "At present are you on a diet or doing something else to lose weight?", with response options: "No, my weight is fine.", "No, but I should lose some weight.", "No, because I need to put on weight." and "Yes".

Adolescents were also asked about weight-reduction method: "Which of the following methods did you use to control your weight during the last 12 months?" with response options: "exercise", "skip meals", "fasting (i.e. to go without eating for 24 hours or more)", "eat fewer sweets", "eat less fat", "drink fewer soft drinks", "eat less (i.e. smaller amounts)", "eat more fruit and/or vegetables", "drink more water", "restrict my diet to one or more food groups (for example, eat only fruit and vegetables, drink only, eat only bread and water)", "vomiting", "use diet pills or laxatives", "smoke more" and "diet under the supervision of a professional".

Weight status was assessed by computing the BMI using the formula weight/height^2 (kg/m^2). Adolescents were classified as underweight, normal weight, overweight, or obese using the sex- and age-specific percentile cut-off points based on anthropometric standards for Slovak adolescents (14).

Statistical Analyses

Statistical analyses were performed using IBM SPSS statistics 20.0 for Windows. Prevalence rates of body-image dissatisfaction, weight-reduction behaviour and weight status were analysed for the total sample and stratified by gender and age. Differences between boys, girls and between age categories were tested using Chi-square tests. The associations between body-image dissatisfaction, weight-reduction behaviour, weight status, gender, and age were assessed by multiple logistic regressions. All statistical tests were evaluated at a significance level of 0.05.

RESULTS

The distribution of body-image perception and wide range of weight-maintaining behaviour among the total sample of adolescents and stratified by gender and age are presented in Table 1. More than 20% of boys and 35% of girls perceived themselves as being too fat. Regarding weight-control behaviour, girls reported being on a diet two-times more frequently than boys. Regarding ways of weight reduction, "healthy" ways, such as drinking more water, eating more fruit and vegetables, or eating fewer sweets were reported by more than 60% of adolescents. Around a half of the sample reported drinking fewer soft drinks, eating less fat or eating less or smaller amounts. "Unhealthy" weight-reduction methods, such as smoking, fasting or vomiting, were less frequently favoured by adolescents, similarly as dieting under professional supervision.

Information on the associations between gender, age and the studied indicators of ways to lose weight is presented in Table 2. Girls were more likely than boys to report negative body image (because of feeling to be too fat), to be on a diet and to practice dieting, except for those restricting the diet to food groups, smoking and vomiting, to be on a diet under supervision, and using pills or laxatives. Age differences emerged only in one category: 15-year-old adolescents reported smoking as a means of striving to lose weight more frequently than 13-year-olds. Taking into account the weight status of adolescents (Table 3), gender differences in body-image dissatisfaction and weight-reduction behaviour emerged mainly among normal weight and overweight adolescents.

DISCUSSION

Our results indicate a rather high rate, especially among girls, of self-perception of obesity. This is associated with a relative

Table 1. *Description of the sample regarding body image, diet behaviour and weight status; total sample and stratified by gender and age (n = 2,765)*

	Total n (%)	Missing values n (%)	Gender			Age			
			Boys n (%)	Girls n (%)	p value	13-year olds n (%)	14-year olds n (%)	15-year olds n (%)	p value
Body image – feeling fat	768 (28.1)	32 (1.2)	295 (21.3)	473 (35.1)	<0.001	306 (29.4)	269 (27.7)	193 (26.8)	0.478
On a diet	597 (21.8)	21 (0.8)	208 (14.9)	389 (28.8)	<0.001	217 (20.8)	210 (21.5)	170 (23.5)	0.368
Weight-reduction method									
Drink more water	1,808 (67.7)	93 (3.4)	851 (62.8)	957 (72.7)	<0.001	666 (66.0)	645 (67.9)	497 (69.7)	0.266
Eat more fruit/vegetables	1,812 (67.1)	63 (2.3)	829 (60.6)	983 (73.7)	<0.001	686 (67.3)	635 (66.2)	491 (67.9)	0.754
Eat fewer sweets	1,626 (60.5)	76 (2.7)	689 (50.7)	937 (70.5)	<0.001	614 (60.5)	576 (60.4)	436 (60.6)	0.997
Drink fewer soft drinks	1,392 (51.7)	71 (2.6)	567 (41.6)	825 (62.0)	<0.001	518 (51.0)	482 (50.4)	392 (54.3)	0.249
Eat less fat	1,181 (44.0)	78 (2.8)	464 (34.1)	717 (54.0)	<0.001	463 (45.8)	410 (42.9)	308 (42.7)	0.308
Eat less/smaller amounts	1,142 (42.4)	74 (2.7)	415 (30.4)	727 (54.8)	<0.001	440 (43.5)	408 (42.5)	294 (40.8)	0.546
Skip meals	714 (26.4)	62 (2.2)	256 (18.7)	458 (34.3)	<0.001	263 (25.8)	264 (27.4)	187 (25.9)	0.666
Restrict diet to food groups	303 (11.3)	82 (3.0)	141 (10.4)	162 (12.2)	0.139	123 (12.2)	104 (10.9)	76 (10.6)	0.527
Smoke more	163 (6.1)	81 (2.9)	78 (5.7)	85 (6.4)	0.464	42 (4.1)	57 (6.0)	64 (8.9)	<0.001
Fasting	125 (4.6)	67 (2.4)	52 (3.8)	73 (5.5)	0.037	46 (4.5)	39 (4.1)	40 (5.5)	0.354
Vomiting	109 (4.1)	82 (3.0)	62 (4.6)	47 (3.5)	0.174	39 (3.8)	29 (3.0)	41 (5.7)	0.022
Diet under professional supervision	64 (2.4)	77 (2.8)	33 (2.4)	31 (2.3)	0.871	27 (2.7)	18 (1.9)	19 (2.6)	0.466
Diet pills/laxatives	32 (1.2)	76 (2.7)	19 (1.4)	13 (1.0)	0.319	8 (0.8)	12 (1.3)	12 (1.7)	0.239
Weight status									
Underweight	45 (1.8)	251 (9.1)	21 (1.7)	24 (1.9)	<0.001	29 (3.0)	10 (1.1)	6 (0.9)	<0.001
Normal weight	2,104 (83.7)		1,016 (80.1)	1,088 (87.3)		803 (84.3)	755 (85.2)	546 (80.9)	
Overweight	278 (11.1)		180 (14.2)	98 (7.9)		92 (9.7)	90 (10.2)	546 (14.2)	
Obesity	87 (3.5)		51 (4.0)	36 (2.9)		29 (3.0)	31 (3.5)	27 (4.0)	

Table 2. *Association between body image, diet behaviour and gender and age; odds ratios (OR), and 95% confidence intervals (CI) between parentheses (n = 2,765)*

	Gender		Age		
	Boys (ref)	Girls	13-year olds (ref)	14-year olds	15-year olds
Body image – feeling fat	1	1.9 (1.68–2.36)***	1	0.9 (0.75–1.11)	0.8 (0.71–1.09)
On a diet	1	2.3 (1.90–2.78)***	1	1.0 (0.84–1.29)	1.1 (0.93–1.47)
Drink more water	1	1.5 (1.33–1.85)***	1	1.0 (0.90–1.31)	1.1 (0.96–1.45)
Eat more fruit/vegetables	1	1.8 (1.54–2.14)***	1	0.9 (0.79–1.15)	1.0 (0.84–1.26)
Eat fewer sweets	1	2.3 (1.97–2.71)***	1	0.9 (0.83–1.19)	1.0 (0.82–1.21)
Drink fewer soft drinks	1	2.2 (1.96–2.68)***	1	0.9 (0.81–1.16)	1.1 (0.94–1.38)
Eat less fat	1	2.2 (1.94–2.65)***	1	0.8 (0.74–1.06)	0.8 (0.72–1.06)
Eat less/smaller amounts	1	2.7 (2.36–3.24)***	1	0.6 (0.80–1.15)	0.8 (0.73–1.08)
Skip meals	1	2.2 (1.89–2.70)***	1	1.0 (0.89–1.32)	1.0 (0.80–1.24)
Restrict diet to food groups	1	1.1 (0.94–1.52)	1	0.8 (0.67–1.16)	0.8 (0.63–1.15)
Smoke more	1	1.1 (0.82–1.54)	1	1.4 (0.98–2.23)	2.2 (1.50–3.36)***
Fasting	1	1.4 (1.02–2.11)*	1	0.8 (0.57–1.38)	1.2 (0.80–1.91)
Vomiting	1	0.7 (0.52–1.12)	1	0.7 (0.48–1.28)	1.5 (0.96–2.37)
Diet under professional supervision	1	0.9 (0.58–1.57)	1	0.7 (0.38–1.28)	0.9 (0.54–1.79)
Diet pills/laxatives	1	0.6 (0.34–1.42)	1	1.6 (0.65–3.94)	2.1 (0.87–5.27)

*p < 0.05, **p < 0.01, ***p < 0.001

Table 3. *The association between body image, diet behaviour and gender stratified by weight status; odds ratios (OR), and 95% confidence intervals (CI) between parentheses (n = 2,765)*

	Underweight		Normal weight		Overweight		Obesity	
	Boys (ref)	Girls	Boys (ref)	Girls	Boys (ref)	Girls	Boys (ref)	Girls
Body image – feeling fat	1	0.1 (0.01–12.14)	1	2.6 (2.09–3.2)***	1	4.2 (2.39–7.53)***	1	3.3 (0.88–13.02)
On a diet	1	1.8 (0.15–21.67)	1	2.9 (2.33–3.77)***	1	2.0 (1.24–3.46)**	1	1.3 (0.56–3.21)
Drink more water	1	1.9 (0.57–6.90)	1	1.7 (1.48–2.15)***	1	0.8 (0.45–1.40)	1	0.9 (0.33–2.86)
Eat more fruit/vegetables	1	1.2 (0.36–4.31)	1	1.8 (1.57–2.27)***	1	1.8 (1.02–3.43)*	1	1.1 (0.42–3.16)
Eat fewer sweets	1	0.6 (0.18–2.07)	1	2.7 (2.27–3.26)***	1	3.0 (1.41–6.59)**	1	2.6 (0.77–8.92)
Drink fewer soft drinks	1	1.4 (0.33–5.94)	1	2.5 (2.14–3.06)***	1	2.4 (1.39–4.29)**	1	1.4 (0.55–3.75)
Eat less fat	1	2.1 (0.53–8.57)	1	2.5 (2.08–3.00)***	1	2.7 (1.61–4.79)	1	2.0 (0.85–5.16)
Eat less/smaller amounts	1	1.4 (0.33–5.94)	1	3.0 (2.52–3.66)***	1	3.4 (1.99–5.95)***	1	3.5 (1.31–9.60)*
Skip meals	1	1.0 (0.24–4.59)	1	2.7 (2.22–3.46)	1	1.6 (1.01–2.77)*	1	3.7 (1.50–9.44)**
Restrict diet to food groups	1	0.2 (0.25–2.70)	1	1.3 (1.03–1.83)*	1	0.6 (0.29–1.39)	1	2.3 (0.67–8.08)
Smoke more	1	0.8 (0.51–14.76)	1	1.0 (0.72–1.52)	1	1.6 (0.62–4.52)	1	1.9 (0.47–7.71)
Fasting	1	2.1 (0.29–6.14)	1	1.8 (1.17–2.89)**	1	0.9 (0.33–2.51)	1	1.4 (0.19–10.85)
Vomiting	1	0.2 (0.01–6.34)	1	0.8 (0.50–1.28)	1	0.8(0.26–3.06)	1	1.4 (0.09–24.85)
Diet under professional supervision	1	0.6 (0.05–14.76)	1	0.7 (0.36–1.35)	1	0.9 (0.08–10.23)	1	1.5 (0.28–8.00)
Diet pills/laxatives	1	1.9 (0.54–6.37)	1	0.4 (0.18–1.14)	1	3.6 (0.69–4.58)	1	1.4 (0.08–23.36)

*p < 0.05, **p < 0.01, ***p < 0.001

dominance of girls being on a diet compared with boys. However, although only about one in five respondents (21.8%) was on a diet, the percentage of those reporting adoption of various methods which are also components of healthy diets (e.g. increased consumption of fruits and vegetables, decreased consumption of sweets, sweetened soft drinks as well as fatty meals) is obviously higher. This indicates that respondents do not consider these aspects of the diet only as ways to maintain their weight, but their reports rather express knowledge on rational dietary habits and reflect their views regarding a healthy lifestyle. We consider as positive the fact that the most frequently reported methods are in agreement with rational dietary recommendations (15), e.g.

increased consumption of fruits and vegetables, drinking more water, decreased consumption of sweetened soft drinks and sweets etc. The dangerous methods (7, 12) associated with eating disorders, such as using laxatives, vomiting and fasting, are relatively uncommon.

The higher prevalence of efforts to maintain body weight in girls than in boys corresponds with findings in other studies carried out on different target groups. These have consistently pointed out the dominance of females (2, 8) in this regard, with aesthetic reasons possibly being the most frequent motivation to reduce body weight (10, 11).

Considering our findings in the light of obesity that the prevalence of obesity was found in 10.6% of boys and 6.8% of girls aged 13 years and in 14.9% of boys and 9.7% of girls aged 15 years, we arrived at two notable conclusions. First, the percentage of respondents reporting to be on a diet is higher than actually required considering their health status, similarly as the percentage of respondents not satisfied with their body image. Numerous studies have shown that a high proportion of young females, including those with normal body mass index, start to practice some form of reduction diet regimen at some point in their lifetime (16). Thus, dissatisfaction with body image, regardless of actual body mass index, can lead to a decrease of energetic intake and inappropriate methods of maintaining weight (9), and in some cases is even the cause of eating disorders (16). Secondly, only a portion of overweight adolescents look for professional supervision to deal with this problem. This indicates that problems related to the nutritional status of adolescents are not under sufficient control of health professionals, namely those providing primary care.

Although rational methods of body-weight reduction prevail, we should consider as negative the relatively high proportion of reports on skipping some meals. Namely, this concerns breakfast (17), which can lead to initiation of other inappropriate dietary habits and paradoxically to weight gain. Through such a vicious circle, inappropriate unhealthy habits can get more profound (7).

Smoking, mentioned in the literature as a common method to maintain body weight, namely in females (3), is neither very frequent nor predominate in girls in our findings. Some studies described a deeper level of sadness, loneliness and anxiety just among obese children with increased probability of risk behaviour, such as alcohol drinking and smoking. The positive association between smoking as a method to reduce body weight and age is caused by the fact that tobacco use is often initiated at this age (13–15 years), i.e. experimentation turns into regular use (18).

CONCLUSIONS

Our findings should be considered in the development and promotion of healthy nutrition promotion programmes, given the following conclusions we arrived at:

- Negative body image and efforts to maintain body weight are important issues for girls in particular, and increased attention should be paid to them to prevent the onset of eating disorders.
- Several methods of body-weight reduction are, however, in the same way important aspects of a healthy lifestyle (drinking regime, consumption of fruits and vegetables, consuming fewer sweets and sweetened soft drinks). In this regard, boys deserve particular attention.
- Considering the high proportion of respondents dissatisfied with their body image, slimness ideals should be avoided, and we should emphasise that in most cases efforts to reduce body weight are worthless and even harmful. On the other hand, rational dietary habits should be promoted as a component of a healthy lifestyle.
- Although our results indicate relatively lower risk of engaging in inappropriate reduction diets in boys, healthy dietary practices are less common in this population group, as well, accompanied by higher prevalence of obesity.
- The importance of psychohygiene, namely the importance of regular eating (particularly breakfast), should be emphasised.
- Although obesity is not as frequent as in some other European countries (HBSC), there is room to improve its control among primary care paediatricians, particularly short interventions or effective referrals to dietary experts providing professional assistance on this issue. Moreover, results indicate the need for a different approach in boys and in girls.

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