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| 2

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PHYSICAL SELF-PERCEPTIONS AND SELF-ESTEEM IN RELATION TO BODY MASS STATUS AMONG FEMALE ADOLESCENTS

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Abstract

The purpose of the study was to examine the physical self-concept and self-esteem in adolescent girls aged between 13 and 18 years in relation to their body mass status. The Slovenian version of the Self-Description Questionnaire (PSDQ) was used to determine the multidimensional physical self-concept among participants. The results indicated that overweight girls reported greater body dissatisfaction in terms self-perceived body fat and physical appearance compared to normal-weight girls. Overweight girls also achieved significantly lower scores in the self-perceived physical abilities, as well as global physical-self and self-esteem than normal-weight peers. As expected, underweight girls reported the lowest amount of body fat. Moreover, they reported lower levels of physical activity than normal-weight peers and had less physical strength compared to the other body mass index categories. The findings has significant implications for the work with adolescent girls in terms of developing appropriate educational intervention and physical education programmes aimed towards reinforcing and increasing self-esteem and promoting active lifestyle.

Key words: adolescents, females, body mass index, physical self-concept.

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Introduction

Prevalence of overweight and obesity among children and adolescents is increasing worldwide (Ogden, Carrol & Flagal, 2008) and represent a significant health, social and economic problem (Wang & Lobstein, 2006). In a recent systematic review, del Mar Bibiloni, Pons and Tur (2013) pointed to the large proportion of overweight and obese adolescents in Western countries: approximately 30% of American adolescents and 22%–25% of European adolescents were overweight or obese. The number of overweight and obese adolescents has also been persistently growing in Slovenia (Kovač, Jurak & Leskošek, 2012).

Overweight and obesity are not related only to physical health (e.g., higher risk for a variety of chronic diseases such as diabetes mellitus, hypertension, cardiovascular disease etc.), but are also related with psychological well-being, in terms of low self-esteem, poorer social competence, and behaviour problems in adulthood (Haidar & Cosman, 2011). Latner and colleagues (2007) suggested that stigmatisation of overweight adolescents is very common in different social contexts such as family, school and peer groups. The experience of social stigma may also have a negative impact on the formation of self-concept and self-esteem in adolescents (O'Dea, 2006). Ali, Fang and Rizzo (2010) have found evidence that weight stigmatization and body dissatisfaction are predictors of depressive symptoms among adolescents. Also, some other studies have revealed that overweight youth had more psychopathological symptoms, reporting body dissatisfaction and problems in psychosocial functioning (Bener & Zewfik, 2006; Drukker et al., 2008). Furthermore, excess weight seems to be linked to a poor body image perception and a low level of confidence in physical abilities among children and adolescents (Griffiths, Parsons & Hill, 2010).

Although physical activity plays an important role in reducing body weight in overweight and obese youth, studies indicate that the latter are less engaged in sports activities and their attitudes toward exercise are more negative compared to peers with appropriate body weight (Deforche, De Bourdeaudhuij & Tanghe, 2006).

Adolescence represents a crucial period for the self-concept formation and the development of healthy lifestyle habits. When talking about developing active and healthy lifestyle of adolescents, we cannot ignore numerous psychological factors that are involved in this process, among them physical self-concept. According to Marsh and colleagues (1994) physical self-concept incorporates different components such as perceived health, physical activity, fitness, and appearance. It represents an important health indicator in adolescence, when major physical,

cognitive and social changes occur. Poor physical self-concept is considered a significant predictor of social physique anxiety and low self-esteem (Crocker, Sabiston, Kowalski, McDonough & Kowalski, 2006). Recent studies show a positive association between physical self-concept and life satisfaction and other psychological well-being dimensions among adolescents (Delfabbro, Winefield, Anderson, Hammarström & Winefield, 2011). Furthermore, physical self-concept has been identified to play a significant role in the field of physical activity and sport, acting either as a predictor of motor learning and involvement in sports, either as a result of physical exercise (Marsh, Chanal & Sarrazin, 2006).

Some previous research has shown negative correlation between physical self-concept components and body mass index among high school students (Crăciun, Grosu & Petrehus, 2010). Lazarević and colleagues (2011) have found that overweight primary school students scored significantly lower in most of the physical self-perception components than their normal-weight peers. Beside physical activity, body mass index plays an important role in body-related perceptions and self-esteem of adolescents (Altıntaş et al., 2014).

However, there is a lack of research examining physical self-perceptions in relation to BMI among Slovenian adolescent girls. Thus, the present study aimed to investigate the physical self-concept and self-esteem in primary and secondary school female students.

Methods

Participants

A sample of 213 Slovenian female adolescents between 13 and 18 years ($M = 15.32$ years, $SD = 1.70$) participated in the study. The participants were primary and secondary school students living in urban areas of the Coast and the Karst region and the Central Slovenia region. The inclusion criteria were the absence of serious health problems and chronic diseases, as well as physical disabilities and its related problems. The purpose of the study was explained to participants and a written informed consent was obtained from their parents.

Instruments

Physical self-concept was assessed using the Slovenian version of the PSDQ (Physical Self-Description Questionnaire; Marsh et al., 1994). The PSDQ is designed for 12 to 18 years old adolescents and consists of 70 items that measure nine specific components of the physical self-concept (health, body fat, physical appearance, physical activity, sports

competence, coordination, strength, flexibility, and endurance) and two general components (global physical self-concept, and self-esteem). The participants respond to the items using a 6-point true/false Likert scale, with higher scores indicating higher perceived competence and more positive self-concept.

The original PSDQ has demonstrated good reliability (median coefficient alpha of 0.92) across the 11 scales, a well-defined, replicable factor structure, as well as convergent and discriminant validity (Marsh, Richards, Johnson, Roche & Tremayne, 1994). The questionnaire has been translated and validated in different cultures (Asçi, Alfermann, Çağlar & Stiller, 2008; Tsorbatzoudis, 2005). Appropriate psychometric properties of the Slovenian PSDQ version were previously determined (Dolenc, 2014).

Body mass index (BMI). Height and body mass were measured with the participant barefoot and wearing light clothing. Anthropometric measures were recorded with standard tools (a mobile stadiometer and a digital scale). BMI was calculated as the body mass in kilograms divided by the square of height in meters (kg/m^2). According to the BMI, the gender and age, the cut-off points for being underweight, overweight and obese were determined following the internationally established cut-off points (Cole, Bellizzi, Flegal & Dietz, 2000; Cole, Flegal, Nicholls & Jackson, 2007). These points have been particularly established for children and adolescents aged from 2 to 18 years, separately for males and females and for 0.5 year age groups.

Procedure

Anthropometric measurements and PSDQ data were collected in smaller groups during physical education classes by the author of the study with the assistance of physical education teachers in the schools. Participants received detailed instructions for completing the PSDQ questionnaire and were told to ask, if confused concerning either instructions or the clarity of items. All collected data were kept anonymous to assure confidentiality.

Statistical analysis

The data was analysed with the IBM SPSS Statistics 22.0 for Windows (IBM Software Group, Chicago, Illinois, US). To determine the differences in physical self-concept between underweight, normal-weight and overweight participants controlling for their age, the analysis of covariance (ANCOVA) was used. Post hoc pairwise comparison was performed using Bonferroni correction.

Results

The average BMI value for the whole sample was 20.44 (SD = 2.55). Among all participants, 16 (7.5%) were underweight, 172 (80.7%) were normal weight, 21 were overweight (9.9%) and 4 were obese (1.9%). Because of the small number of participants with obesity, this category was included in the overweight group in further analysis. Means and standard deviations of physical characteristics in the three BMI categories are presented in table 1.

Table 1: Physical characteristics of underweight, normal weight and overweight adolescent girls: means and (standard deviations)

	Underweight group	Normal-weight group	Overweight group
Age (years)	15.67 (1.43)	15.32 (1.74)	15.13 (1.68)
Height (cm)	167.87 (6.33)	166.50 (6.48)	165.21 (6.15)
Body mass (kg)	48.67 (4.79)	55.29 (6.14)	70.83 (7.43)
BMI (kg/m ²)	17.23 (0.64)	19.92 (1.34)	26.16 (1.91)

According to the ANCOVA the differences in physical self-concept between underweight, normal-weight and overweight group were found in all the PSDQ subscales with the exception of the health subscale (table 2). The largest difference was found in the body fat subscale (F = 33.44; p = 0.000).

Post hoc pairwise comparison analysis showed that overweight participants had significantly lower scores on the subscales physical activity (p < 0.001), sports competence (p < 0.01), coordination (p < 0.001), flexibility (p < 0.05), endurance (p < 0.05), appearance (p < 0.001), body fat (p < 0.001), global physical self-concept (p < 0.001) and overall self-esteem (p < 0.05) compared to their normal-weight peers (table 3). Underweight girls reported significant lower amount of body fat than the overweight group (p < 0.001) Moreover, they reported lower levels of physical activity and perceived coordination (p < 0.05) than their normal-weight peers and had less physical strength compared to the other BMI categories (p < 0.01).

Table 2: Differences in the PSDQ subscales between normal-weight and overweight participants

PSDQ	Underweight (1)		Normal-weight (2)		Overweight (3)		<i>F</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Health	4.42	1.17	4.82	0.82	4.74	0.85	1.14	0.320
Coordination	3.96	0.80	4.52	0.88	3.74	1.01	10.54	0.000
Physical Activity	3.33	1.37	4.60	1.39	3.26	1.64	13.42	0.000
Body Fat	5.08	1.30	4.45	1.14	2.59	0.98	33.44	0.000
Sports Competence	3.60	1.22	4.11	1.15	3.30	1.31	5.92	0.003
Global Physical Self-Concept	3.86	1.25	4.30	1.14	3.15	1.23	10.79	0.000
Appearance	3.69	0.83	4.04	0.95	3.24	0.94	8.26	0.000
Strength	2.87	1.31	3.96	0.94	3.90	1.02	7.76	0.001
Flexibility	3.98	1.22	4.59	1.00	3.75	1.09	8.78	0.000
Endurance	3.19	1.33	3.68	1.29	2.85	1.35	5.03	0.007
Self-Esteem	4.45	0.98	4.85	0.74	4.39	0.78	5.35	0.005

Table 3: Results of the post hoc pairwise comparison between BMI categories (1 – underweight, 2 – normal-weight, 3 – overweight)

PSDQ	Post hoc comparison
Health	
Coordination	2>3
Physical Activity	2>3; 2>1
Body Fat	1>2; 2>3
Sports Competence	2>3
Global Physical	
Self-Concept	2>3
Appearance	2>3
Strength	2>1; 3>1
Flexibility	2>3
Endurance	2>3
Self-Esteem	2>3

Discussion and conclusions

The main purpose of the study was to examine different aspects of physical self-concept of Slovenian adolescent girls in relation to their body mass index. Among all participants in the study, 12% adolescent girls were overweight or obese, which was less than some of the previous comparable studies conducted on adolescent population. Early prevention and adequate treatment of overweight are crucial, especially considering that there is a significant risk that childhood and adolescent overweight and obesity would be transferred into adulthood (Starc & Strel, 2010).

The results indicate that girls in the study differ in some specific physical self-concept components as well as in the global physical self-concept and overall self-esteem in relation to their body mass status. As expected, the greatest differences between the three BMI groups were found in the body fat dimension. Overweight girls described themselves as having too much body fat and expressed significantly more dissatisfaction with their weight compared to normal-weight and underweight peers. This indicates certain overlapping between the subjective perception of weight status (the individual's evaluation of body fat) and the objectively measured BMI. Thus, it can be assumed that adolescent girls generally perceived their weight status quite realistically.

Most differences in multidimensional physical self-concept were found between the overweight and normal-weight group, although some

specificities have also been observed in the group of underweight girls. Namely, they perceived less physical strength and lower physical activity levels than their peers with a favorable body mass index.

Results have shown that overweight adolescents differ from their normal-weight peers in self-perceived physical fitness: they evaluate themselves as less coordinated, flexible and show more difficulties in overcoming physical efforts. Overweight students have also reported lower levels of physical activity (in terms of both frequency and intensity) and poorer sports competence as compared to their normal-weight peers. These results are consistent with previous studies (Crăciun et al., 2010; Lazarević et al., 2011). The results suggest that overweight in adolescent girls could represent an important barrier to achieving the recommended levels of physical activity, which in turn might influence the acquisition of appropriate motor skills (Bailey, Hillman, Arent & Petitpas, 2013).

Moreover, overweight girls were less satisfied with their bodies and perceived themselves as less physically attractive compared to healthy-weight girls. Research has shown that in Western culture, where a slim female figure is seen as ideal, standards of beauty and attractiveness are often demanding and unrealistic, especially for females (Clay, Vignoles & Dittmar, 2005). Thus, for overweight or obese girls it seems even harder to attain the beauty ideal imposed by the media and society. The results also revealed that overweight adolescent girls had lower levels of self-esteem than their normal-weight peers. This is consistent with previous studies indicating that body mass index is a significant predictor of perceived body attractiveness, body image satisfaction and self-esteem in adolescent girls (Altıntaş et al., 2014).

The findings of this work support the assumption that overweight and obese adolescent girls are at risk to develop lower physical self-concept and self-esteem. This has significant implication for physical education teachers, educators and coaches working with adolescents in terms of developing appropriate educational intervention and physical activity programmes aimed towards reinforcing and increasing self-esteem and promoting active lifestyle. Focusing primarily to increase physical activity behaviours, rather than weight reduction might be a much more constructive approach for overweight adolescents. An improvement in physical skills can significantly contribute to a greater engagement in physical activity, which in turn results in increased energy consumption and thus in a reduction of body weight.

Our study has also some limitations. It should be noted that a cross-sectional design was used which does not allow determination of the causal link between body mass status and physical self-perceptions. Thus, longitudinal studies are required to better clarify this relationship. Future examinations should also use a more representative sample of adolescent girls in order to achieve a greater generalizability of the results. In addition, further research is needed to examine multidimensional physical self-concept among obese Slovenian female adolescents, since they were not included in our study as a separate body mass index category.

Resources

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