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Wiktoria Kujawa*
Krzysztof Zabieglński**
Dagmara Budnik-Przybylska***

Personal determinants of body image considering people practicing physical activity

Abstract: The concept of body image can be considered on many levels, but constant is the fact that it is a mental image: of the size, shape, and form of one's own body, influencing one's overall self-image. Previous multifaceted research shows that perceptions of body image can be influenced among other things by physical activity or personality. Therefore, the purpose of this study was to analyze the relationships between body image perception and personality, considering individuals who regularly practice physical activity ($N=104$). The following research tools were used: IPIP-BFM-20, Body Esteem Scale and a questionnaire consisting of questions allowing for the respondents' characterization. Analysis of the collected data revealed that almost half of the respondents are currently dissatisfied with their body image. It was also noted that those who were satisfied with their body image scored statistically significantly higher on two of the five personality traits measured: Extraversion and Emotional Stability. The results obtained showing the relationship between personality and body image perception are consistent with previous studies in which the type of physical activity and its frequency were not examined.

Keywords: *personality, body image, physical activity, self-perception, body satisfaction, body dissatisfaction*

INTRODUCTION

Body image is a multidimensional diverse concept. However, researchers agree that it is one of the components that influence self-image (Lacey & Birtchnell, 1986). The literature to date has mainly focused on disturbed body image perception (Smug, Pawełczyk, Pawełczyk, & Rabe-Jabłońska, 2010) and the perception of one's own body in ill people (Brytek-Matera, 2012; Wąs & Schier, 2008; Makara-Studzińska & Zaborska, 2009; Rosińska, Rzepa, Szramka-Pawlak, & Żaba, 2017). However, this issue can be considered more broadly concerning each individual identifying, among other things, factors that influence the perception of body image. The analysis of studies indicates that these can be both socio-demographic factors, such as gender (Ålgars, Santtila, Varjonen, Witting, Johansson, Jern, & Sandnabba, 2009), age (Tiggemann, 2004), education (Swami, Hadji-Michael & Furnham, 2008) or social and cultural norms (Fallon, 1990), but also self-esteem (Davison & McCabe, 2005), social media (Agliata & Tantleff-Dunn, 2004; Burnette, Kwitowski & Mazzeo, 2017; Hogue & Mills, 2019; Tiggemann & McGill, 2004), marketing

(D'Alessandro & Chitty, 2011; McNeill & Douglas, 2011; Parker, Haytko, & Hermans, 2008), personality (Allen & Walter, 2016) or physical activity (Hausenblas & Fallon, 2006; Robinson & Ferraro, 2004). However, among the numerous studies addressing the influence of personality on body perception, we have not found one that explicitly describes the influence of specific components of our personality on the perception of distinct aspects of corporeality among physically active individuals.

The concept of body image

Body image is the sensory image of the size, shape, and form of one's body. It is also associated with feelings about said features or specific parts of the body. It is a drawing formed in our mind through which we know the form of our own body's appearance. It can also be defined as a person's perceived degree of their aesthetics and sexual attractiveness (Schilder, 2013). According to contemporary psychology, body image consists of two factors: body percept (the internal, visual image of the body's shape, and size) and body concept, which is the attitudes, beliefs, and feelings about it related to the level of satisfaction and contentment with the body's appear-

* University of Gdańsk, Gdańsk, Poland; ORCID iD - 0000-0003-3162-7749

** University of Gdańsk, Gdańsk, Poland

*** University of Gdańsk, Gdańsk, Poland; ORCID iD - 0000-0002-5943-4773

ance (Waller & Barnes 2002). Body percept can be adequate or inadequate and body concept – positive or negative. According to Rucker and Cash (1992), body image consists of two components: emotional (attitudinal body image) and perceptual (perceptual body image). The emotional component concerns subjective feelings about the body, which include satisfaction or dissatisfaction with it. In extreme cases, it may cause cognitive errors, such as perceiving one's musculature as too small or fear of gaining body fat, even though the actual level of body fat is within normal limits. On the other hand, the perceptual component includes cognitive beliefs and schemas about the body. Thus, body image is a mental representation that is a set of conscious and unconscious: sensations, beliefs, and feelings about the body, which includes the subjective experience of it along with its functions and capabilities (Brytek-Matera, 2008).

Concept of personality

Personality is defined as a set of fixed and unchanging psychophysical characteristics that are associated with all the activities, sensations, and needs of a person at the physiological, character, intellectual, and spiritual levels (Horzyk, 2012). Despite analyses by researchers indicating that personality changes over the lifetime as a result of, for example, emotionally weighty experiences or psychotherapy (Harris, 2017, Roberts, 2017) and emphasizing that personality formation is a process, most theories of personality assume that it is not variable.

One of the models that describe and break down personality is the five-factor model of personality (FFM). It includes personality components such as Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. The Neuroticism-Emotional Stability continuum represents an individual's vulnerability to stress and their tendency to experience fear, confusion, and guilt. Extraversion-Introversion describes the quality and quantity of social interactions, the ability to experience positive emotions, and the individual's level of activity and energy. Openness to Experience is understood as the tendency to positively value life experiences, tolerance for novelty, and cognitive curiosity. Another of the examined traits which is Agreeableness-Antagonism indicates the individual's attitude towards other people manifested in altruism or its lack. Conscientiousness-Nondirectiveness shows to what extent an individual is characterized by traits such as organization, perseverance, and motivation in goal-oriented activities (Beauval & Galdova, 1999). An in-depth analysis of traits that influence personality was presented in the Big Five Aspects Scale (BFAS), where each Big Five component was divided into two appropriately correlated items. This allowed for a more detailed, idiosyncratic psychological profile of the subject (DeYoung, Quilty, & Peterson, 2007).

According to the HEXACO model (Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to experience) higher Honesty-Humility, lower Emotionality and higher Agreeableness is connected to the lower body size dissatisfaction in women

(Lodewyk & Sullivan, 2017). Similarly, Torres-Marín, Moya-Garófano, & Carretero-Dios (2020) noted that Emotionality, Extraversion and to a lesser extent, Honesty-Humility are predictors of body image.

Personality and body image – a review of the literature

The relationship between personality traits and body image is not clear-cut, and studies usually show a correlation between the two factors rather than a cause-and-effect relationship. This involves an inability to determine whether negative body image is due to certain personality traits or whether these personality traits are shaped, for example, by the negative body image accompanying the individual during adolescence.

A systematic literature review conducted by Allen and Walter (2016), finds that Neuroticism correlates positively with negative body image, Extraversion and Conscientiousness correlate negatively, and Openness to Experience and Agreeableness do not correlate with body image. The authors also noted that there were no specific differences between gender and Big Five traits such as: Extraversion, Openness to Experience, and Conscientiousness. Although no correlation was observed between Openness to Experience or Agreeableness and body image perception in the general population. A negative correlation was noted in the occurrence of these traits along with actual obesity. In the case of Agreeableness, aspects of this scale related to impulsivity may be most relevant, suggesting less ability to refrain from spontaneous snacking (Sutin, Ferrucci, Zonderman, & Terracciano, 2011). MacNeill, Best, and Davis (2017), on the other hand, highlight gender-based differences when correlating personality traits with negative body image when eating disorders are a consequence. They note that for men, the best predictor of negative body image is not personality traits but actual body size. For women, it is the personality that plays a more significant role in body perception.

The relationship between body image and physical activity is a relatively common research topic. Most of them indicate that playing sports correlates positively with positive self-perceived body image (Robinson & Ferraro, 2004). However, some researchers indicate that it is not the physical activity itself but the type of activity that is key to the perception of body image, and thus some physical activity disciplines may lead to a risk of initiating negative body image. For example, long-distance runners, gymnasts (Crissey & Honea, 2006), and people in other sports in which maintaining low body fat levels are essential for optimal performance are at increased risk (Parsons & Betz, 2001). A significantly increased risk of negative body image and dissatisfaction with one's body, as well as the occurrence of eating disorders, (Mangweth et al., 2001) has been noted among both men and women who practice bodybuilding (Henslee, 2017). However, research indicates that when considering sports as a whole, the risk of developing a negative body image is significantly higher among female athletes than among male athletes.

PURPOSE OF THE STUDY

The purpose of our article was to analyze what relationships exist between body image perception and personality considering people practicing physical activity. Because of the exploratory character of our study we decided to analyze it in broader aspects. By analyzing the literature, we made the following hypotheses:

1. Individuals who engage in physical activity exhibit a positive attitude toward body image.
2. Individuals showing higher levels of satisfaction with their body image score higher on the scales: Emotional Stability, Extraversion, and Conscientiousness.
3. Correlates of body satisfaction scores depend on gender
4. The aspect of personality has a stronger influence on body image in the female group than in the male group.

METHOD

Study group

An analysis of the power of the a priori test in the G-power (assuming a moderate effect size = 0.30) and a significance level of alpha = 0.05 for one tail test and an expected power of the test 1- beta = 0.80, showed that the necessary sample size is $N=64$.

The respondents of the study were people who engage in physical activity at least 3 times per week. A total of 104 individuals were surveyed. Both genders were represented in a balanced manner, with 54% of the respondents being female. The age of the respondents ranged between 18 and 53 years old, but due to a strongly right-skewed distribution, the average age of the respondents was 26 years old. More than half of the respondents indicated current satisfaction with their body image. Detailed characteristics of the respondents are shown in Table 1.

Additionally, Table 2 shows the difference between respondents' body satisfaction and their experience of being overweight or obesity. Although the difference was

Table 1. Characteristics of respondents

Variable	Frequency	Percent
Gender		
Female	56	53.8
Male	48	46.2
Age		
18-24	62	59.6
25-40	33	31.7
41-53	9	8.7
Body image		
Satisfied	56	53.8
Dissatisfied	48	46.2

not large, the majority of the respondent group were those who had never experienced overweight or obesity in their lives over those who had experienced overweight or obesity in their lives (current or past).

Table 2. Differences in body satisfaction among obese (overweight) and non-obese (non-overweight) individuals

Variable	Body image		Full	
	Dissatisfied	Satisfied		
Overweight or obesity	No	26	36	62
	Yes	22	20	42
Full		48	56	104

The procedure of conducting the survey

The survey was conducted using the traditional paper-and-pencil method or online (CAWI method) using the Google Form, which contained the same questions as the paper version. Participants were informed about anonymity and the procedure of the research and agreed to participate in the research by written consent. The study was conducted in accordance with the Declaration of Helsinki. In the beginning, the respondents were asked to provide information about age, gender, sports discipline, apprenticeship, and sports level and then were asked to complete the set of questionnaires.

Statistical analysis

Statistical analysis was performed using the SPSS 26 program. Due to the lack of normality of the distribution in the study group, analyses were performed using non-parametric tests: rho-Spearman correlations and comparison of two independent samples by Mann-Whitney U Test.

Research tools

For this study, we used two research tools and a questionnaire consisting of questions to characterize the study group in terms of aspects such as gender, age, body satisfaction, and factors related to overweight and weight reduction in individuals.

Questionnaire IPIP-BFM-20 – International Personality Item Pool Polish Version validated for Polish conditions in 2014 by Topolewska, Skimina, Strus, Ciecuch, and Rowinski. It is a 20-item questionnaire containing five personality-related scales based on the Big Five, which are: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect. Cronbach's alpha ranged from .65 for Intellect to .78 for Extraversion.

The second tool used was the Body Esteem Scale by Franzoi and Shields (1984), in the Polish adaptation (Lipowski & Lipowska, 2013). This scale determines respondents' attitudes towards their own body. It consists of 35 items that are divided into three, gender-dependent subscales. The common subscale for both men and women is the Physical Condition subscale. The other subscales for women are Sexual Attractiveness and Weight Concern, and for men, Physical Attractiveness and Upper Body Strength. The reliability of subscales of the original version was high both for females (Cronbach's alpha from .80 to .89) and males (Cronbach's alpha from .85 to .88).

The creation of separate subscales for men and women made it impossible to directly compare the responses of respondents belonging to these two groups. As a result, our statistical analyses focused mostly on correlation analysis rather than the Whitney U-Mann test, which allows the comparison of mean scores between groups.

RESULTS

To verify hypothesis one, we examined satisfaction with one's body with both a closed-ended question: "Are you satisfied with your body as of today?" and the Body Esteem Scale. The responses regarding the subjective evaluation of the body are presented in Table 1, whereas the descriptive characteristics for the responses given by women and men in the questionnaire are presented in Table 3. The analysis of the collected data indicates that among women the most positive feelings from the three measured factors concern the body evaluation related to Sexual Attractiveness. Whereas among men, that of Physical Condition, with which women associate strongly negative feelings. Interestingly, over 46% of respondents indicate that they are not satisfied with their body image despite the regular physical activity.

Analysis with the Whitney U-Mann test for independent samples ($p=.05$) showed that for scales: Agreeableness, Conscientiousness, and Intellect, the differences turned out to be insignificant. Significant differences were found in Extraversion and Emotional Stability scales, in which people dissatisfied with their bodies scored lower than those satisfied with their body image. We present the details in Table 4.

Next, we analyzed the relationship between the respondents' answers to the question regarding current satisfaction with their own body and the answers given when analyzing their own body with the Body Esteem Scale. For both men and women, each subscale of the questionnaire significantly correlated with the respondents' answers to the closed-ended question. Among men, two of the three subscales had nearly the same effect on the final body image, which may mean that this group is more diverse in terms of individual tendencies to perceive body image by its single component. Among women, on the other hand, weight control-related scores appeared to be the most significant. Thus, perceptions of body parts whose appearance can be changed through exercise or dieting are most related to overall body satisfaction for women. We show particular data in Table 5.

Table 3. Body Esteem Scale – analysis of respondents' answers

Statistics	Female			Male		
	Sexual Attractiveness	Weight Concern	Physical Condition	Physical Attractiveness	Upper Body Strength	Physical Condition
Mean	47.16	33.91	31.54	42.92	35.73	49.25
M	46.50	34.50	32.00	42.00	36.00	49.50
SD	7.990	8.497	6.226	7.269	5.793	8.289
Minimum	31	18	18	23	17	34
Maximum	62	49	45	55	45	65
Interval	13-65	10-50	9-45	11-55	9-45	13-65

Table 4. Personality traits among people satisfied and dissatisfied with their body images

Statistics	Extraversion	Agreeableness	Conscientiousness	Emotional stability	Intellect
Mean	3.7500	3.7500	3.5000	3.0000	4.2500
SD	.92250	.76468	.83095	1.01835	.58034
Mann-Whitney U Test	1004.500	1329.500	1232.500	833.000	1171.500
Z	-2.227*	-.095	-.732	-3.340**	-1.134

* $p < 0,05$; ** $p < 0,01$.

Table 5. Body satisfaction vs body image components (Spearman's rank correlation)

Variable	Female			Male		
	Sexual Attractiveness	Weight Concern	Physical Condition	Physical Attractiveness	Upper Body Strength	Physical Condition
Satisfaction from body image	.433**	.718**	.362**	.557**	.563**	.457**

* $p < 0,05$; ** $p < 0,01$.

The lack of association in the Mann Whitney U-test analysis between body image perception and three of the five personality scales measuring: Agreeableness, Conscientiousness, and Intellect, prompted us to examine whether these traits were related to aspects of corporeality as measured by subscales of the Body Esteem Scale. Thus, the next analyses looked at the relationship between personality and corporeality, divided into male and female groups. We present detailed results in Table 6.

Both analyses of the entire study group and the men and women separately indicate that Extraversion and Emotional stability are the personality traits most related to body image assessment. In both sexes, Extraversion factor is significantly related to the evaluation of one's body. Only in the women group there is no correlation between this trait and the scale of Weight Concern. Among women, Emotional Stability was found to be a personality trait that influences body evaluation in each of the three subscales. In men, on the other hand, a correlation was noted between two of the three subscales of the questionnaire. In this group, perceptions of body image as measured by scores from the Physical Condition subscale did not correlate at a statistically significant level with Emotional Stability. An in-depth analysis by gender also revealed a correlation between Conscientiousness as well as Intellect and the perception of body parts related to sexual attractiveness and physical condition in the female group.

common reasons for starting training are the desire to improve fitness or figure and the desire to boost self-confidence (Bazun, 2013, Suchanecka & Graja, 2018). Research conducted by Lipowski & Ussorowska (2018) indicated different (females – health, males – physical fitness) as well as the same (shapely body) motives for undertaking physical activity of women and men. Others research confirms that in the male group, it is important to improve the appearance and increase body weight (Zalewska – Puchala, Rusin, & Majda, 2015, Adamczyk, Kowalski, Boguszewski, Ochal, & Siewierski, 2012). Therefore, referring to the analyzed studies, it can be concluded that people participating in our study belong to the group of people who have not achieved subjectively satisfactory results due to previous training or it is due to personal predispositions.

It was also observed that in people who exercise regularly, body image perception is related to the same personality traits as in people who are not physically active or do not exercise regularly. As indicated by previous studies, people who are satisfied with their bodies have higher scores on the scales: Extraversion and Emotional Stability, which was confirmed by our study. However, in the study group, there was no relationship between the positive evaluation of body image and Conscientiousness, as indicated by Skorek, Song, and Dunham (2014), among others.

Table 6. Personality traits of female and male vs body image components (Spearman's rank correlation)

Big Five Traits	Female			Male		
	Sexual Attractiveness	Weight Concern	Physical Condition	Physical Attractiveness	Upper Body Strength	Physical Condition
Extraversion	.412**	.210	.363**	.437**	.473**	.565**
Agreeableness	.253	.030	.169	.042	.103	.101
Conscientiousness	.291*	.177	.357**	.056	.035	.042
Emotional stability	.416**	.424**	.681**	.436**	.302*	.251
Intellect	.340*	.214	.310*	-.216	-.170	-.144

* $p < 0,05$; ** $p < 0,01$.

DISCUSSION

So far, the prevailing belief in the literature is that regular physical activity positively affects both physical health, contributing to the prevention of chronic diseases (Warburton, Nicol, & Bredin, 2006), and mental health by indirectly influencing mood or self-confidence (Łakomski, Pietsch, Chłystek, Abramczyk, Golus, & Zukow, 2017). However, our research indicates that regular workouts do not always bring the expected positive effects, and they may also be associated with a lack of satisfaction with body image, which was noted in almost half of the respondents in the study group. The results obtained only partially support our first hypothesis. Previous studies on the motives for taking up sports activities indicate that for both men and women the most

Among women, overall satisfaction with body image correlates most strongly with weight control, often associated with satisfaction with body parts whose appearance can be changed through exercise or dieting. This may be related to the current tendency to the continuous domination of the canon of beauty and youthfulness noticeable and promoted especially in mass media, making a significant proportion of mainly younger women want to strive to achieve the ideal body shape promoted by popular and admired people (Jasiński, Dubelt, Cybula-Misiurek, & Jasińska, 2017). Positive correlations also occurred between the overall assessment of satisfaction with body image and aspects such as sexual attractiveness and physical fitness, which as in the case of weight control can be explained by evolutionary psychology (Buss, 2003). According to this theory, women who maintain a healthy appearance (even through makeup or

cosmetic procedures) and who expose certain body parts, focusing on symmetrical shapes, will be considered attractive and in the long run able to give birth to healthy offspring.

On the other hand, in the group of men, the general evaluation of body image was equally influenced by elements allowing for the evaluation of attractiveness and efficiency of particular body parts, which similarly can be explained by the stereotypical perception of men as people providing security to women (Wojciszke & Buss, 2003). The correlations obtained indicate the same level of influence for two out of three scales on body image, but the third scale correlates on a lower level. Thus, none of the factors was found to be significantly the highest, in contrast to women.

In both the female and male groups, the lowest correlations occurred between overall body image satisfaction scores and Physical Condition. This may be related to the reason why the respondents took up physical activity and started training to improve their appearance without focusing on improving their fitness or physical endurance. The differences between men and women occur not only in the perception of their body image, but are also noticeable in the aspect of personality. The results of the study indicate, as we hypothesized, that the personality aspect has a stronger effect on women's perception of body image than on men's. This is evidenced by the fact that among women, not only Extraversion and Emotional Stability were found to be correlated as factors related to the perception of overall body image, but also the contribution of Conscientiousness and Agreeableness in some of its aspects. In women, there was a positive correlation between Sexual Attractiveness and Agreeableness and Intellect, which may indicate that women who resolve conflicts peacefully have altruistic tendencies, have more ideas, and are clever are also more aware of their sexual attractiveness.

In addition, Physical Condition co-vary with Conscientiousness, which did not occur in other scales in women or in men, which seems to be a rather surprising result. Our study confirms that personality may be one of the important factors modifying aspects affecting body image assessment regardless of gender. Although it does not answer the question of what is the cause and what is the effect in the personality-body image relationship, from a practical point of view it would be useful to develop the aspect of openness towards others and dealing with emotions in social skills training.

Limitations of the study

An undeniable limitation of the study was the low homogeneity of the group and the group's size. Moreover, in the future, it would be useful to supplement the information about the respondents by focusing also on the length of their training experience, as this information was not collected. Nevertheless, in the study group, we obtained comparable proportions of women and men as well as individuals satisfied and dissatisfied with their body image, which allowed us to perform statistical

analyses. Additionally, all subjects met the inclusion criterion for the study, namely participation in physical activity at least three times a week.

CONCLUSIONS

Our study has expanded the knowledge of body image and personality aspects in the context of physical activity participation, highlighting individual satisfaction or dissatisfaction with their bodies. A worrying factor, however, is the high variability in subjective self-image despite the declaration of frequent and systematic physical activity in gyms. It is also important to note that, as previous studies have indicated, personality significantly influences the perception of body image also in physically active individuals. However, it is worthwhile to use the theoretical knowledge gained from the study for practical education and to strengthen the awareness of those who undertake physical activity.

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