

Research article

**PHYSICAL ACTIVITIES AND BODY IMAGES
OF THE WORKING POPULATION**

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Abstract. *The aim of the research was to determine the influence of physical activity on the body image of the working population. The population from which the sample of respondents was defined consisted of the working active population, with an average age of 44 years. The total sample consisted of 500 respondents, of which 193 men and 307 women. Physical activity was determined using the IPAQ short-form questionnaire, and the level of physical activity in three domains: high-intensity physical activity, moderate-intensity physical activity, and low-intensity physical activity. To assess Body image, a Physical Appearance Scale was used which consisted of four questions to be answered in relation to four figures, using a scale ranging from 1.8 to 5.2. Based on the obtained results, it was found that there is a statistically significant effect of physical activity on the body image, namely on body dissatisfaction at the level of significance of .01 (Sig = .009), on comparative dissatisfaction with the body at the level of significance of .01 (Sig = .000), and dissatisfaction with the sexual body at the level of significance of .05 (Sig = .011) for the total sample. The individual influence of the level of physical activity in relation to gender was determined in working men on the domain of comparative dissatisfaction with the body (Sig = .032) and on the index of dissatisfaction with the body (Sig = .026). The authors conclude that the level of physical activity significantly affects the body image, and indicate the importance of engaging in physical activity in order to improve body image, especially in working men.*

Key words: *physical activity, body image, working active population*

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INTRODUCTION

Physical activity represents every movement of the body that is realized by the musculoskeletal system, the consequence of which is reflected in the energy consumption above the threshold which the body consumes at rest (Caspersen, Powel, & Christenson, 1985; Sharkey & Gaskill, 2008). As the content of free time it represents an important driver that is reflected on the autonomy and existence of man, as the basis for individual identity associated with lifestyle (Perasović, 2009). Many countries include regular physical activity in their development strategy, as a key form of preservation of human health, as well as their own body appearance. (Perić et al., 2016). Low levels of physical activity can contribute to the development of various chronic diseases and disorders (Blair, La Monte, & Nichaman, 2004). Regular physical activity affects fitness abilities, body composition, mental characteristics, anxiety, and depression, which affect the mood of each person (Pearson & Craig, 2013). According to research done by Sharkey and Gaskill (2008), physical inactivity increases the risk of developing hypertension by 35%, and people who are in poor physical shape or condition are known to have a 52% higher risk of this disease than people who are in good physical shape (Sharkey & Gaskill, 2008).

Physical activity can also improve mood, self-esteem, body appearance, and boost energy (Forrest & Stuhldreher, 2007). Because dissatisfaction with physical appearance can cause serious health problems such as depression, obesity, and eating disorders (Stice, 2002), the study found that positive associations between physical activity and satisfaction with physical appearance can increase physical activity levels. In that way, it can contribute to a more positive perception of physical appearance, which can indirectly affect better health. In addition, it has been proven that there is a positive association between happiness and life satisfaction with physical fitness, and caring for body weight as components of the perception of physical appearance (Stokes & Frederick-Recascino, 2003).

Body Image refers to the image that an individual forms according to his own body, which is an objective knowledge and subjective assessment of the characteristics of his own body. It consists of appearance, body shape, physical strength, health, and other dimensions. The degree of self-awareness affects emotions and health behaviors, such as weight control, personal social adaptations, psychological stress, self-development, and interpersonal relationships (Wang, Xie, Chen, & Lei, 2017). The more positive the body image, the more physically active a person is found to be, and vice versa, those who are dissatisfied with their body, more precisely with their own body image, have an inhibitory effect on exercise behavior and physical activity itself (Hu, 2017). It has been determined that people who are more physically active are characterized by a more positive body image than people who are physically inactive (Campbell & Hausenblas, 2009). Martin-Albo, Núñez, Domínguez, León, and Tomás (2012) conducted a sample survey of women exercising for 45–120 minutes at least twice a week in a fitness center. People who regularly participated in physical activities had a high level of respect, despite lower levels of satisfaction with their body image due to overweight. Research done by Abbott and Barber (2011) showed that women who are involved in sports activities have a higher level of body image compared to women who are not involved in some form of sports activities. The interrelationship between the two studies confirmed positive links between physical activity and body image (Contreras, Fernández, García, Palou, & Ponseti, 2010; Telleria-Aramburu, Sánchez, Ansotegui, Rocandio, & Arroyo-Izaga, 2015). Research conducted by Burgess, Grogan, and Burwitz (2006) concluded that the participation of women and men in physical activities improved physical self-perception and the relationship with their own body. The

results indicated much more positive physical self-assessment pictures and significantly higher physical self-esteem of women who initially showed a low level of acceptance of their own body. Physical activity had a positive effect on self-perception, but its effect was not long-lasting (Burgess, Grogan, & Burwitz, 2006). According to research conducted by Sides-Moore and Tochkov (2011), a higher level of physical activity is indirectly associated with a better body image, and a lower urge to exercise. Physical activity is associated with upper quartile depression. Body image, both positive and negative, is an important factor, which plays a role in determining exercise habits (Sicilia, 2016). This often leads to many individuals using exercise as a method to achieve modern standards of beauty (Goudarzian, Beik, Zamani, Gorji, & Ranjbar, 2016). The difference between a positive and a negative body image may not seem like it, but it can significantly affect behavior and have a big impact on exercise habits and overall well-being (Litrell, 2017).

Working men and women differ significantly in body dissatisfaction, with women reporting higher levels of dissatisfaction. Generally speaking, men with insufficient body weight and normal weight want to be heavier, while those with excess weight want to be thinner; unlike them, women would like to be thinner, even when they are of normal weight (Van et al., 2007). Dissatisfaction with body image is strictly related to the physical activity of the body of both men and working women, more precisely, physical activity supports their better body image (Wardle, 2005). Constant storytelling and appealing to people about the relationship between body image and type of exercise can help create a more positive exercise environment for people of all levels of physical fitness, with different interests and different goals (Litrell, 2017).

The aim of the research is to determine the influence of physical activities on the body image of working men and women.

METHOD

Sample of participants

The population from which the sample of respondents was defined consisted of the working active population, with an average age of 44 years. The youngest respondent was 23 years old, and the oldest was 65 years old. The total sample consisted of 500 respondents (men = 193; women = 307). To be included in the study, the criterion was that participants had not physical disability, severe physical illness (e.g. diabetes, myocardial infarction, stroke, etc.) or mental illness.

The sample of measuring instruments

The level of physical activity was determined using the International Physical Activity Questionnaire (IPAQ, 2007). A short version was used, which has seven questions. Based on the data obtained by the questionnaire, three domains were calculated for, physical activity (Vigorous physical activity, Moderate physical activity and Low physical activity). For Body image assessment, the Physical Appearance Assessment Scale (BIDA) was used (Segura-Garcia, Papaiani, Rizza, Flora, & De Fasio, 2012). The scale consists of four domains (Dissatisfaction with the body, Sexual Dissatisfaction, Comparative Body Dissatisfaction, and the Body Dissatisfaction Index). The applied questionnaires have satisfactory metric characteristics for the stated sample (Ainswoth et al., 2011; Aranceta Bartrina, Pérez Rodrigo, & Alberdi Aresti, 2016).

Respondents were familiarized with the purpose of the research and given brief instructions on how to complete the questionnaire. The research was conducted anonymously, participation was voluntary, and it was conducted in accordance with ethical principles. It was approved by the Ministry of Education and Culture of the Republic of Srpska and the Republic Pedagogical Institute of the RS.

Statistical analysis

The basic parameters of descriptive statistics were calculated, (Mean) - arithmetic mean, (Std) - standard deviation, (Min) - minimum score, (Max) - maximum score. A regression analysis was calculated to determine the influence of levels of physical activity on the body image of the working population. To determine the influence of the predictor variables (level of physical parameters) on the criterion variable (Body image), a regression analysis was used. Statistical significance was determined at the level of $p < .05$. Statistical data processing was performed using the statistical package SPSS for Windows version 20 (IBM Statistics, SPSS, Chicago, IL, USA).

RESULTS

Table 1 shows the basic descriptive parameters of the variables for assessing physical activity and body image for the whole examined sample and by sex. The values of the arithmetic mean (Mean), the values of the minimum (Min.) and maximum (Max.) achieved results, and the standard deviation (Std.Dev.) are shown. Observing the mean values when it comes to physical activity, we can state that in working men the highest values were noted for Physical activity of high intensity (3315.70), followed by Physical activity of moderate intensity (2619.08), and Physical activity of low intensity (1632). Among working women, we can state that the highest value were noted for Physical activity of moderate intensity (1927.47), then Physical activity of high intensity (1893.16), and then Physical activity of low intensity (1688.91).

Table 1 Basic parameters of descriptive statistics

Variables	Men (n = 193)				Women (n = 307)				Total (n = 500)			
	Mean	St.Dev.	Min	Max	Mean	St.Dev.	Min	Max	Mean	St.Dev.	Min	Max
High Intensity Physical Activity (MET)	3315.70	2680.46	0.00	16800.00	1893.16	1855.93	0.00	14400.00	2597.34	2405.37	0.00	16800.00
Physical activity of moderate intensity (MET)	2619.08	2609.93	120.00	10080.00	1927.47	2225.01	0.00	14400.00	2242.22	2428.72	0.00	14400.00
Low Intensity Physical Activity (MET)	1632.52	1330.58	0.00	11088.00	1688.91	1575.96	99.00	9900.00	1662.63	1464.77	0.00	11088.00
Dissatisfaction with the body	9.62	13.05	-14.71	58.82	12.57	17.38	-29.41	58.82	11.43	15.90	-29.41	58.82
Dissatisfaction with the sexual body	11.80	16.72	-29.41	58.82	10.77	20.78	-44.12	58.82	11.16	19.31	-44.12	58.82
Comparative dissatisfaction with the body	-7.97	20.37	-58.82	44.12	-4.86	18.86	-58.82	58.82	-6.07	19.50	-58.82	58.82
Body dissatisfaction index	13.12	10.43	0.00	49.02	15.40	10.87	0.00	58.82	14.52	10.75	0.00	58.82

Legend: (Mean) - arithmetic mean, (Std) - standard deviation; (Min) - minimum score, (Max) - maximum score.

When observing the mean values of domains for the assessment of Body Image when it comes to working men, it can be seen that variables of dissatisfaction with the body (9.62), and dissatisfaction with the sexual body (11.80) have higher values, as does the index of dissatisfaction with the body (13.12), and lower values compared to body dissatisfaction (-7.97). In the sample of working women, higher values were noted for the variable of dissatisfaction with the sexual body (10.77), dissatisfaction with the body (12.57), and the index of dissatisfaction with the body (15.40), and lower values compared to dissatisfaction with the body (-4.86). Observing the mean values of the whole sample, it can be noticed that higher values are noticeable in the variables of dissatisfaction with the sexual body (11.16), dissatisfaction with the body (11.43), as well as with the index of dissatisfaction with the body (14.52).

Table 2 shows the results of the influence of physical activity parameters on the body image. Based on the obtained results, it can be concluded that at the multivariate level there is a statistically significant influence of physical activity on body dissatisfaction at the level of significance ($\text{sig} = .009$). To analyze the influence of individual variables on the criterion, the regression coefficient was standardized and the Beta value was obtained (Table 2). The higher its absolute value, the more influential the variable is on the criterion. The analysis of individual regression coefficients determined that a single variable of high-intensity physical activity ($\text{Sig} = .013$) has the greatest influence on dissatisfaction with the body.

The influence of physical activity on sexual dissatisfaction is shown in Table 2. The results of the regression analysis showed that there is a statistically significant influence of physical activity on sexual dissatisfaction at the .05 level of significance ($\text{Sig} = .011$). The analysis of individual regression coefficients shows that an individual variable, high-intensity physical activity ($\text{Sig} = .042$) has the greatest influence on dissatisfaction with the sexual body.

Based on the results of the regression analysis, we noticed that there is a statistically significant effect of physical activity on comparative dissatisfaction with the body at the level of significance .01 ($\text{Sig} = .000$). The analysis of individual regression coefficients shows that individual variables of high-intensity physical activity ($\text{Sig} = .010$) and low-intensity physical activity ($\text{Sig} = .014$) have the greatest influence on comparative dissatisfaction with the body .

Table 2 Influence of physical activity on Body Image parameters in the working population

		Beta	T	Sig.	Partial R	R2	Sig
High intensity physical activity	Dissatisfaction of the body	-0.20	-2.50	0.013	-0.17		
Physical activity of moderate intensity		-0.07	-0.98	0.327	-0.07	.055	.009
Low intensity physical activity		0.01	0.10	0.923	0.01		
High intensity physical activity	Dissatisfaction with the sexual body	-0.16	-2.05	0.042	-0.14		
Physical activity of moderate intensity		-0.03	-0.35	0.728	-0.02	.053	.011
Low intensity physical activity		-0.01	-1.33	0.185	-0.09		
High intensity physical activity	Comparative dissatisfaction with the body	-0.20	-2.60	0.010	-0.18		
Physical activity of moderate intensity		-0.18	-2.48	0.014	-0.17	.097	.000
Low intensity physical activity		0.03	0.39	0.696	0.03		

Legend: Beta - standard partial regression coefficient of each predictor variable with the criterion; T-test; sig. - Significance level; Part R - partial correlation; R2 - coefficient of multiple determination of the variable and predictor system

The results of the influence of physical activity parameters on body dissatisfaction by gender, as well as the global influence of variables of physical activity on sexual body dissatisfaction are not tabulated. No statistically significant effect of physical activity on body dissatisfaction was determined, whether in the overall sample or it is in relation to gender. The significance level for the whole sample was Sig = .066; Sig = .347, and in men and women Sig = .132 and Sig = .225, respectively.

Table 3 shows the influence of physical activity on comparative dissatisfaction with the body in relation to gender. At the multivariate level, it was found that there is an impact of physical activity on comparative dissatisfaction with the body in both working men and working women. The level of significance in working men is .05 (Sig = .046), and in working women is .01 (Sig = .009). In working men, individual significant influence was found in high-intensity physical activity (Sig = .013), while in working women, the individual influence of physical activity on comparative dissatisfaction with the body was found in moderate physical activity (Sig = .001).

Table 3 Influence of physical activity on comparative dissatisfaction with the body in relation to gender

Comparative dissatisfaction with the body	Men			Women				
	Beta	Sig.	R2	Sig	Beta	Sig.	R2	Sig
High intensity physical activity	-0.27	0.013			-0.01	0.907		
Physical activity of moderate intensity	-0.02	0.804	0.042	.046	-0.37	0.001	0.126	.009
Low intensity physical activity	0.07	0.475			0.08	0.495		

Legend: Beta - standard partial regression coefficient of each predictor variable with the criterion; T-test; sig. - Significance level; Part R - partial correlation; R2 - coefficient of multiple determination of the variable and predictor system

The coefficient of multiple determination in the male population is R2 = .042, which explains the influence of physical activity parameters on body image with 4.2%, while in the female population the coefficient of multiple determination is R2 = 0.126, and it explains the influence of physical activity parameters on body image with 12.6%.

Table 4 shows the results of the influence of the level of physical activity on the body dissatisfaction index in men and women. Based on the obtained results, it can be stated that at the multivariate level there is a statistically significant influence of physical activity on the body dissatisfaction index in working men, with a significance level of (Sig = .026), while in working women the level of significance is negligible (.666).

Table 4 Influence of physical activity on the body dissatisfaction index in relation to gender

Body dissatisfaction index	Men				Women			
	Beta	Sig.	R2	Sig	Beta	Sig.	R2	Sig
High intensity physical activity	0.27	0.011			0.04	0.745		
Physical activity of moderate intensity	0.03	0.797	.052	.026	-0.06	0.589	.018	.666
Low intensity physical activity	-0.20	0.050			-0.11	0.330		

Legend: Beta - standard partial regression coefficient of each predictor variable with the criterion; T-test; sig. - Significance level; Part R - partial correlation; R2 - coefficient of multiple determination of the variable and predictor system

The analysis of individual regression coefficients shows that a single variable of high-intensity physical activity (Sig = .011), and low-intensity physical activity (Sig = .050), have the greatest influence on body dissatisfaction index in working men .

DISCUSSION

Since today's society places great emphasis on physical appearance (Tiggeman, 2004), it is not surprising that in recent years researchers have developed great interest in the topic of thinking and occupation with one's own body as well as its disorders (Furnham, Badmin, & Sneade, 2002). The conducted research aimed to determine the level of physical activity on the body image as well as the potential impact of the level of physical activity on the body image in relation to gender in the working population.

In the conducted research, it was determined that working women are less satisfied with their body compared to working men. The results obtained in this way are in line with the findings of some previous research on gender differences and body satisfaction. In a study by Lamb, Jackson, Cassidy, & Priest (1993) the results showed that in a sample of the general population women expressed greater body dissatisfaction compared to men. In doing so, dissatisfaction with the body was measured as a discrepancy between the current and ideal assessment of the body. Tiggemann (2004) attributes such results to women's greater concern for their body and appearance since they are of great importance in a woman's social success and valuation.

The results showed that there is a statistically significant effect of physical activity on the three domains (components) of the body image. However, some previous research has suggested that there may be a link between physical activity and body image (Williams & Cash, 2001) and that participation in physical activity may have an impact on an individual's body (Davis, Dionne, & Lazarus, 1994; Cranes, Waldron, Michalenok, & Stiles-ShIPLEY, 2001; Furnham, Badmin, & Sneade, 2002). In contrast, Tiggemann and Williamson (2000) did not find a significant correlation between the level of physical activity and the appearance of the body, and used a general measure of physical activity that takes into account the different intensities of different activities. The more positive the body image, the more physically active a person is found to be, and vice versa, those who are dissatisfied with their body, more precisely with their own body image, have an inhibitory effect on exercise behavior and physical activity itself (Hu, 2017). According to research conducted by Sides-Moore and Tochkov (2011), a higher level of physical activity is indirectly associated with a better body image, and a lower urge to exercise, while physical activity is associated with upper quartile depression. Body image, both positive and negative, is an important factor, which plays a role in determining exercise habits (Sicilia, 2016). Silva, Sousa, Duca, and Peres, (2011) found a negative relationship between the amount of exercise and dissatisfaction with the body in younger women and assessed the amount of exercise using several physical activities (e.g. walking, running). We cannot rule out the possibility that respondents had difficulty solving the questionnaire, assessing the level of physical activity (IPAQ) in the sense that it was difficult for them to guess the exact time (in minutes) and number of days per week when they engaged in activities of different categories (intensity).

The influence of physical activity on comparative dissatisfaction with the body was found in both working men and working women. In men, the individual effect is noticeable

in physical activity of high intensity, while in women the individual effect is determined in physical activity of moderate intensity. The results of the study show that the global impact of physical activity on the overall body dissatisfaction index exists only in working men. Individual effects were found in high-intensity physical activity and low-intensity physical activity.

The association between body image deficiency and physical activity has not yet been properly investigated in cognitive research, and there is little evidence of an association between body image and physical activity among men. Gender appears to play an important role in the relationship between body image and physical activity (Gillison et al., 2006), which was found in our study.

In some studies, it was found that the mechanisms that trigger the effects of physical activity on body image in men (Ginis et al., 2012) can be classified into three categories: objective changes in physical ability, observed changes in physical fitness, and changes in self-efficacy.

Physical activity is a possible way to improve health, and the amount of physical activity depends not only on gender, but also on body image. Men with a negative body image are less physically active than other men (Zach & Netz, 2014). The challenge in health promotion is to preserve their relatively good perception of body image while promoting physical activity. Prevention programs should focus on the perception of body image while promoting physical activity. Prevention programs should be aimed at adults by highlighting and promoting healthy lifestyles for both adult men and women (Jurakić, 2009).

Although most research on physical dissatisfaction of adult respondents (over the age of 18) focuses on women, there are also studies that have examined this issue among adult men (Pingitore, Spring, & Garfield, 1997). Studies seem to suggest that body dissatisfaction among adult men is not as simple as in adult women. In contrast, some adult men appear to strive for a lean body, while others want a larger, more muscular body (Meyer, Blissett, & Oldfield, 2001). In general, the literature suggests that women attach more importance to the appearance of their body than men. This finding regarding the importance of body image was supported by the findings of Rozin and Fallon (1988), who found that although adult men and women expressed a desire to lose weight, women showed greater concern about weight and diet. In a meta-analysis of gender differences in attractiveness, Feingold and Mazzella (1998) found that men are more satisfied with their bodies than women, and consider themselves more attractive. These results may indicate that gender does not shape the body image of adult men, but that men are more likely to accept a male sexual role and also aspire to a stereotypical ideal male body. In their study, Pope et al. (2000) found that men from France, Austria, and America stated on average: that their ideal body was 13 kg more muscular than their current one. In fact, it seems that it is precisely those men who show the greatest desire for increased build and show the greatest level of dissatisfaction with the body. These findings would be expected to apply to men who are more involved in physical activity. However, McDonald and Thompson (1992) found that men who were physically active were less likely to show a high level of physical dissatisfaction than physically active women. The findings of these various studies suggest that the nature of exercise adopted by men may reflect different levels of body dissatisfaction, and that high levels of exercise do not necessarily mean that men also experience high levels of body dissatisfaction (Demarest, & Allen, 2000).

CONCLUSION

Physical inactivity is a global problem despite the known benefits of physical exercise. Sufficient physical activity, along with numerous health, psychological, social, and economic positive effects, affects satisfaction with physical appearance. In this paper, the influence of physical activity on the body image of working men and women was investigated.

Based on the obtained results, it can be generally concluded that physical activity affects the body image of the working population in different ways. Observed in relation to gender, it was found that physical activity has a significant impact on the body image in the domains of comparative dissatisfaction body and the Body dissatisfaction index in the working male population.

Because physical dissatisfaction can cause serious health problems such as anxiety, depression, and eating disorders, we can conclude that the positive association between physical activity and physical satisfaction increases physical activity levels, especially in the male population. Individual variables of high-intensity physical activity can contribute to a more positive perception of physical appearance, which indirectly affects better health.

In order to determine the possible effects of physical activity on body image in more detail for men and women separately, there is a need for further research regarding the moderators and mechanisms of the relationship between physical activity and body image.

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FIZIČKE AKTIVNOSTI I SLIKA O TELU MEĐU RADNO AKTIVNIM STANOVNIŠTVOM

Cilj istraživanja bio je da se utvrdi uticaj fizičke aktivnosti na sliku o telu radno sposobnog stanovništva. Populaciju iz koje je definisan uzorak ispitanika činilo je radno aktivno stanovništvo, prosečne starosti 44 godine. Ukupan uzorak činilo je 500 ispitanika, od čega 193 muškarca i 307 žena. Fizička aktivnost određena je korišćenjem kratke forme IPAK upitnika, a nivo fizičke aktivnosti u tri domena: fizička aktivnost visokog intenziteta, fizička aktivnost umerenog intenziteta i fizička aktivnost niskog intenziteta. Za procenu slike o telu korišćena je skala fizičkog izgleda koja se sastoji od četiri pitanja na koja je trebalo odgovoriti koristeći skalu u rasponu od 1,8 do 5,2. Na osnovu dobijenih rezultata utvrđeno je da postoji statistički značajan uticaj fizičke aktivnosti na sliku o telu i to na nezadovoljstvo telom na nivou značajnosti .01 (Sig = .009), na uporedno nezadovoljstvo telom na nivou značajnosti .01 (Sig = .000) i nezadovoljstvo seksualnim telom na nivou značajnosti .05 (Sig = .011) na ukupnom uzorku. Individualni uticaj nivoa fizičke aktivnosti u odnosu na pol utvrđen je kod zaposlenog stanovništva u domenu komparativnog nezadovoljstva telom (Sig = ,032) i na indeksu nezadovoljstva telom (Sig = ,026). Autori zaključuju da nivo fizičke aktivnosti značajno utiče na sliku o telu i ukazuju na značaj bavljenja fizičkom aktivnošću u cilju poboljšanja slike o telu, posebno kod zaposlenih muškaraca.

Ključne reči: fizička aktivnost, slika o telu, radno aktivno stanovništvo