

MENTAL HEALTH AND SELF-ESTEEM OF ACTIVE ATHLETES

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SUMMARY

Introduction: Systematic and continuous physical exercise of certain intensity and volume is irreplaceable in the stages of growth and development and in preventing impairments of the biological, functional and health state of the human organism. Many studies show that physical exercise contributes to development and reinforcement of mental health and increases self-esteem. Examine mental health and self-esteem of active athletes.

Subjects and methods: The subjects of the study are active athletes from Herzegovina and students of the Faculty of Health Studies in Mostar. Mental health and self-esteem were measured by a sociodemographic questionnaire, The Symptom Checklist-90 and the Satisfaction With Life Scale.

Results: There is a statistically significant difference in the frequency of exercise, active athletes have the highest percentage (100%) and state that they exercise often (almost every day) while university students have a significantly lower percentage (20%). Students scored significantly higher on the subscales for somatization, obsessive - compulsive symptoms, interpersonal vulnerability, depression, anxiety, aggression, phobia, and paranoia than active athletes. Active athletes have statistically higher scores for almost all the claims of the subjective assessment of life satisfaction.

Conclusion: Active athletes showed significantly less psychological symptoms and better mental health, greater life satisfaction and higher self-esteem than students of the Faculty of Health Studies in Mostar.

Key words: mental health - self-esteem - athletes

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INTRODUCTION

Health is the basis of all human activities, so the protection and advancement of health goes far beyond the scope of the classical health services, which is also contributed by the fields of physical and health culture.

Physical exercise contributes to the development and consolidation of normal conative factors and contributes to the reduction of pathological - conative factors (Bađim 1997). In physical exercise, there is a great opportunity to develop positive moral characteristics: determination, boldness, soberness, persistence, perseverance, discipline, initiative, honesty, modesty, life optimism, fairness, cultural behavior, patriotism, humanism, proper attitude towards the social environment, etc. Physical activity in children and young people is thought to contribute to proper growth and development, while in the elderly it will help prevent various diseases, preserve functional capacity and maintain their psychophysical independence (Heimer & Rakovac 2006).

Physical activity in the context of health

The concept of physical exercise lies within a broader context, to which the term sport also belongs, an that is the concept of physical activity. The term physical

activity is usually understood to mean some form of recreational or organized physical activity, which is mainly carried out within the framework of a program and under professional guidance, with the aim of improving the health, physical status and general well-being of the individual (Baric 2007). It has been known since ancient times that the body and the spirit are two interconnected entities that we can and must view solely holistically, that is, as a whole. In addition to research establishing a positive relationship between sport and physical health, research also supports the positive effect of physical exercise and involvement in sport on psychological well-being (Biddle & Wang 2003; Pastor et al. 2003). Physical exercise plays an important developmental role because it provides the opportunity to learn the regulation of emotions, interpersonal and athletic skills and build peer relationships, non-academic competencies, and the ability to compare with others (Slutzky & Simpkins 2008; Cassidy & Conroy 2006). In addition, engaging in various sports activities allows for an increase in social contacts and contributes to the development of prosocial behavior (Donlić et al. 2019). Organized sport activity reduces both anxiety and depression, and findings also indicate that sport is a significant predictor of addiction prevention (Žigman & Ružić 2008).

Physical activity and self-esteem

Self-esteem usually indicates values and feelings related to beliefs and opinions about themselves (Burušić 2001). A broader understanding of self-esteem encompasses feelings about personal skills, possibilities and social relations, and the role of self-esteem in the structure of the notion of self when confronting an individual with external information, that is, self-esteem is a certain "mechanism of protection" for the individual through which they evaluate themselves and the world (Coatsworth & Conroy 2006). High self-esteem is generally associated with more positive mental outcomes such as the ability to cope with problems and also a lower likelihood of depression. Johnsgard et al. investigated the effect of a 12 - week programmed sports program on self - esteem and the general well - being of specific, stress - exposed populations (Johnsgard 1989). The results of this study clearly show that the programs designed in this way significantly contribute to the self - esteem and well-being of persons susceptible to stress. The authors tried to classify the factors that influence self-esteem into general components on which a person can build their self-esteem. Today, six general components of self-esteem are widely accepted, namely appearance, ability and effect, power, social sources and corroborations, indirect sources or sources related to others and morality (Burušić 2001). We can say that there is a significant correlation between physical activity and increased levels of self-esteem, because people who do a certain type of exercise have the opportunity, through their physical activity, to increase or even build their self-esteem, while those who are not prone to physical activity have no opportunity to affect their self-esteem in these ways. It can be generally said that the level of self-esteem of an athlete/person working out depends on various factors such as involvement, experience of success, satisfaction with appearance, motivation and anxiety.

Athlete motivation and anxiety and self-esteem

Sport requires a lot of effort, renunciation and, while it can be an important factor in maintaining and improving physical and mental health, it can unfortunately also have negative consequences, for example, on self-esteem in the event of failure. If we consider that progress and success in sports contribute to an increase in self-esteem and that the effort that athletes put into their training requires motivation, we can hint at a correlation between motivation and self-esteem. Research that can provide us with an explanation shows that the quality of an individual's motivation can have important implications for their self-esteem (Standage & Gillison 2007). Given the research findings and the positive correlation between self-esteem and motivation, it is possible to expect a circular relationship that im-

plies high motivation to achieve as a predictor of engaging in sports and perseverance, and thus increasing self-esteem through progress and success, which can again lead to even greater motivation (Biddle & Wang 2003).

Anxiety, on the other hand, can have a negative effect on an athlete's score, slow down progress significantly, and thus lead to quitting. This process can lead to a decrease in athletes' self-esteem if success is absent. In their research with young female athletes, Kerr and Goss show a correlation between anxiety and self-esteem of such a nature that more anxious female athletes report lower levels of self-esteem (Kerr & Goss 1997). Motivational processes related to sports activity can affect the psychological well-being of an individual, that is, the involvement of an individual in sports activities can significantly affect an individual's mood (Hein & Hagger 2007). It is possible to assume a positive correlation between mood and exercise, and it refers to the fact that people who are more satisfied with their exercise and success in sports activity will be on average in a better mood than those who are not as much satisfied with their sports activity and exercise. This topic can be discussed from the perspective of the various processes that contribute to this correlation, as well as the modulating mechanisms of changes in psychological status and motivation of those who exercise.

Life satisfaction - the contribution of physical culture

The development course of positive psychology that focuses on human virtues and positive emotions has fueled an increasing body of research into subjective well-being and the experience of happiness. Subjective well-being has a three-component structure, namely positive affect, negative affect and life satisfaction. One of the most commonly used instruments for evaluating life satisfaction is the satisfaction with life scale (Diener et al. 1958). Self-reported life satisfaction scores obtained using this scale were found to correlate with mental health measures and were predictive of future behaviors such as attempted suicide. Headey et al. report a strong negative association between life satisfaction and depression (Headey et al. 1993). An individual cannot be pleased or happy with their life and at the same time be depressed. On the other hand, the relationship between life satisfaction and anxiety is somewhat different. Life satisfaction and anxiety are moderately negatively correlated. In other words, it is possible to be anxious and content with life at the same time. Encouragement for physical activity is an indispensable program of numerous health and educational programs and institutions, and is supported by a growing body of research that testifies to the positive effects of physical activity on feelings of subjective well-being. Downward and Rasciute's research found that sports were positively

related to subjective well-being, with sports in which social interactions with others, such as team sports, further contribute to a greater sense of subjective well-being (Downward & Rasciute 2011). Similar results were obtained by Huang and Humphreys and Ruseski et al. and physical activity is hypothesized to contribute to a sense of subjective well-being through a beneficial effect on physical health (Huang & Humphreys 2012; Ruseski et al. 2014).

SUBJECTS AND METHODS

Subjects

The survey was conducted at various sports clubs in Herzegovina and at the Faculty of Health Studies in Mostar. Subjects are active athletes and students. Inclusion criteria are: female and male, age 18-24, active athlete, student, and exclusion criteria are: presence of a mental illness, mental disorder or mental retardation in anamnesis, age less than 18 or greater than 24 years, inadequately completed survey questionnaire. The subjects were divided into two groups: experimental and control. The experimental group consists of active athletes from Herzegovina (n=60), while the control group consists of undergraduate and graduate students

of the Faculty of Health Studies in Mostar (n=60). All respondents voluntarily agreed to participate in the study.

Methods

The following were used for the purposes of the survey: a questionnaire of sociodemographic data, which was personally designed for the purposes of this research. The questionnaire contains questions for data about gender, age, place of residence, economic status, consumption of alcohol and cigarettes, physical activity throughout the week.

The SCL-90-R (Symptom Checklist-90-Revised) Self-Assessment Questionnaire (Craighead & Nemeroff 2004) is a multidimensional symptom self-rating scale used to examine psychosocial adjustment. It consists of 90 described symptoms that the respondent assesses by intensity of occurrence (ranks them in the range from not very much to very much).

The Life Satisfaction Scale (Xu & Leung 2016) is a questionnaire containing specific statements related to the assessment of the respondents' lives. It consists of 20 particles, 17 of which relate to the general assessment of global life satisfaction and the other 3 to the assessment of situational life satisfaction.

Table 1. Sociodemographic data of respondents

	Subjects				χ^2	p
	Active athletes		Students			
	N	%	N	%		
Sex					2.297	0.130
M	26	43.0	18	30.0		
F	34	57.0	42	70.0		
Age					37.195	>0.001
18	10	17.0	0	0.0		
19	4	7.0	5	8.0		
20	18	30.0	9	15.0		
21	6	10.0	0	0.0		
22	5	8.0	6	10.0		
23	5	8.0	5	8.0		
24	12	20.0	35	58.0		
Place of residence					10.117	0.006
Village	6	10.0	20	33.0		
Town	45	75.0	31	52.0		
Suburb	9	15.0	9	15.0		
Exercise					80.000	>0.001
Never	0	0.0	16	27.0		
Very rare (1-2 a month)	0	0.0	20	33.0		
Rarely (1-2 a week)	0	0.0	12	20.0		
Often (almost every day)	60	100.0	12	20.0		
Economic status					2.331	0.312
Good	30	50.0	22	37.0		
Mediocre	29	48.0	36	60.0		
Low	1	2.0	2	3.0		
Smoking	4	7.0	25	42.0	20.053	>0.001
Alcohol	16	27.0	30	50.0	6.910	0.009
Drugs	2	3.0	3	5.0	0.209	0.648

Legend: M – male; F - female

Statistical analysis

The collected data will be processed by the method of descriptive statistics. The arithmetic mean and standard deviation will be used to show the mean and scatter measures. A chi-square test will be used to calculate the significance of the distribution between nominal and ordinal variables. Differences between continuous variables were tested by Student t-test and one-way analysis of variance (ANOVA). For statistical analysis of the data obtained, the software system SPSS for Windows (version 13.0, SPSS Inc, Chicago, Illinois, USA) and Microsoft Excell (version 11. Microsoft Corporation, Redmond, WA, USA) will be used.

RESULTS

There is a statistically significant difference between the two groups, where a large percentage (30%) in the active athletes group is at the age of 20, while the age in the student group is at the highest percentage (58%) at 24 years. Regarding the place of residence, there is also a statistically significant difference between the groups where in the group of active athletes the majority (75%) live in the city, while this percentage is smaller in the group of students (52%).

There was a large statistically significant difference in the frequency of exercise, where in the group of active athletes the highest percentage (100%) stated that they exercise often (almost every day), while in the group of students this percentage is significantly lower (20%). There is also a statistically significant difference in smoking between groups, where a small percentage of respondents in the active athletes group (7%) responded positively, while in the student group this percentage is significantly higher (42%) (Table 1).

Active athletes achieved significantly lower scores on all SCL-90-R questionnaire subscales compared to students (Table 2).

There were no statistically significant differences between sexes in any of the SCL-90-R questionnaire subscales (Table 3).

Subjects with low and moderate economic status achieved statistically significantly higher scores on the Depression and Phobias subscales compared to respondents with good economic status. There were no statistically significant differences in the other subscales of the SCL-90-R questionnaire with respect to the economic status of the subjects (Table 4).

Active athletes showed a statistically significantly higher level of self-esteem in all answers except in answer

Table 2. Mental symptoms in active athletes and students

SCL-90-R	Subjects				t	p
	Active athletes		Students			
	\bar{X}	SD	\bar{X}	SD		
Somatization	0.67	0.54	1.29	0.70	-5.435	<0.001
Obsessive - compulsive symptoms	0.75	0.67	1.55	0.80	-5.980	<0.001
Interpersonal vulnerability	0.72	0.63	1.45	0.86	-5.235	<0.001
Depression	0.63	0.64	1.46	0.89	-5.821	<0.001
Anxiety	0.57	0.67	1.20	0.80	-4.636	<0.001
Aggressivness	0.63	0.65	1.09	0.85	-3.339	<0.001
Phobias	0.29	0.39	0.81	0.81	-4.438	<0.001
Paranoia	0.79	0.64	1.43	0.76	-4.952	<0.001
Psychotic characteristics	0.49	0.61	0.86	0.79	-2.856	0.005
Non-specific symptoms	0.77	0.64	1.30	0.64	-4.507	<0.001

Table 3. Mental symptoms in relation to sex

SCL-90-R	Sex				t	p
	M		F			
	\bar{X}	SD	\bar{X}	SD		
Somatization	1.00	0.68	0.97	0.71	0.246	0.807
Obsessive - compulsive symptoms	1.12	0.77	1.17	0.87	-0.307	0.760
Interpersonal vulnerability	1.08	0.87	1.09	0.82	-0.302	0.975
Depression	0.95	0.84	1.09	0.90	-0.844	0.401
Anxiety	0.86	0.81	0.90	0.80	-0.288	0.774
Aggressivness	0.97	0.73	0.79	0.82	1.227	0.223
Phobias	0.53	0.65	0.56	0.71	-0.235	0.815
Paranoia	1.19	0.70	1.07	0.81	0.838	0.404
Psychotic characteristics	0.78	0.75	0.61	0.71	1.185	0.239
Non-specific symptoms	1.16	0.69	0.97	0.69	1.423	0.158

Legend: M – male; F - female

Table 4. Mental symptoms in relation to economic status

SCL-90-R	Economic status						F	p
	Good		Mediocre		Low			
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD		
Somatization	0.95	0.65	1.03	0.74	0.38	0.19	1.035	0.275
Obsessive - compulsive symptoms	1.09	0.77	1.22	0.90	0.83	0.11	0.574	0.565
Interpersonal vulnerability	1.01	0.71	1.18	0.93	0.37	0.12	1.695	0.188
Depression	0.94	0.69	1.17	0.99	0.05	0.88	2.984	0.054
Anxiety	0.75	0.73	1.03	0.85	0.23	0.11	2.931	0.057
Aggressiveness	0.82	0.66	0.91	0.90	0.61	0.38	0.334	0.717
Phobias	0.38	0.53	0.71	0.76	0.00	0.00	4.272	0.011
Paranoia	1.08	0.68	1.16	0.85	0.72	0.48	0.575	0.564
Psychotic characteristics	0.66	0.66	0.71	0.79	0.23	0.11	0.640	0.529
Non - specific symptoms	1.17	0.67	0.95	0.70	0.66	0.57	1.857	0.161

Table 5. The Life Satisfaction Scale

SCL-90-R	Subjects				t	p
	Active athletes		Students			
	\bar{X}	SD	\bar{X}	SD		
1. In many aspects, my life is close to ideal	4.03	0.69	3.15	0.79	6.490	<0.001
2. The conditions of my life are excellent	3.95	0.70	3.25	0.81	5.047	<0.001
3. I am happy with my life	4.17	0.76	3.48	1.06	4.039	<0.001
4. So far, I have all the important things I wanted in life	4.12	0.90	3.60	1.07	2.837	0.005
5. If I lived my life again I would change almost nothing	3.70	1.18	3.20	1.25	2.241	0.027
6. Overall I am a very happy person	4.28	0.61	3.65	1.11	3.849	<0.001
7. Life gives me a lot of pleasure	4.18	0.67	3.57	1.05	3.831	<0.001
8. I generally feel good	4.17	0.76	3.55	1.04	3.684	<0.001
9. I think I'm a happy person	4.29	0.76	3.45	1.19	4.544	<0.001
10. On the whole, I'm less fortunate than other people	1.73	0.63	3.30	0.53	-14.677	<0.001
11. I am often overwhelmed and sad	1.75	0.73	3.18	0.72	-10.810	<0.001
12. I think I'm happy at least as much as other people	3.80	1.02	3.50	0.98	1.639	0.104
13. My future looks good	4.23	0.72	3.45	0.90	5.224	<0.001
14. I am satisfied with the way my plans come to fruition	4.07	0.84	3.23	0.85	5.395	<0.001
15. Whatever happens to me, I can see the bright side too	4.20	0.799	3.12	0.97	6.656	<0.001
16. I enjoy living	4.59	0.67	3.83	0.98	4.901	<0.001
17. My life seems meaningful	4.37	0.78	3.73	1.00	3.853	<0.001

Table 6. Subjective assessment of situational satisfaction with life between active athletes and students

Statements	Subjects				t	p
	Active athletes		Students			
	\bar{X}	SD	\bar{X}	SD		
1. I am satisfied that I have achieved something	4.18	0.57	2.87	0.70	11.317	<0.001
2. I am satisfied because other people love me	4.10	0.54	3.12	0.67	8.862	<0.001
3. I feel totally happy	4.20	0.68	2.92	0.67	10.373	<0.001

to question no. 12 (I think I'm happy at least as much as other people) in which there was no statistically significant difference (Table 5).

Subjects from the group of active athletes scored statistically significantly higher in all three of the above statements in the table on subjective assessment of situational satisfaction with life than the subjects in the group of students (Table 6).

DISCUSSION

The study included 120 subjects, 60 active athletes from Herzegovina and 60 students from the Faculty of Health Studies in Mostar. The experimental group consists of active athletes and the control group consists of students. In the group of active athletes, a large percentage (30%) is aged 20, while the most common

age in the group of students is 24 (58%). Given the place of residence in the group of active athletes, the majority (75%) live in towns, while this percentage is lower in the group of students (52%). In the group of active athletes, the highest percentage (100%) stated that they exercise often (almost every day), while in the group of students this percentage is significantly lower (20%). With regard to smoking, a small percentage of respondents in the group of active athletes (7%) answered positively, while in the group of students this percentage was significantly higher (42%).

The study confirmed the hypothesis that exercise has a positive effect on mental health and self-esteem in active athletes relative to their peers. Subjects in the group of active athletes achieved statistically significantly lower scores on the somatization, obsessive – compulsive symptoms, interpersonal vulnerability, depression, anxiety, aggression, phobias and paranoia subscales compared to the group of students. There were no statistically significant differences in the other SCL-90-R subscales. The results of the gender survey showed that there were no statistically significant differences between sexes in any of the SCL-90-R subscales.

Subjects with low and moderate economic status achieved statistically significantly higher scores on the depression and phobias subscales compared to respondents with good economic status. There were no statistically significant differences in the other subscales of the SCL-90-R questionnaire with respect to the economic status of the subjects. Subjects from the group of active athletes scored significantly higher in almost all claims of subjective assessment of life satisfaction. Respondents from the group of active athletes achieved statistically significantly higher results in all three of the above statements in the table on subjective assessment of situational life satisfaction in comparison to the subjects in the group of students.

The link between exercise and health, including mental health, has always been an intrigue and numerous studies have been published on this topic. An international study of over 17,000 subjects aged 17 to 30 found a strong positive association between life satisfaction and physical activity, with those participants who exercised more frequently reporting greater life satisfaction than less regular practitioners (Grant et al. 2009). Schnohr et al. found that the more physically active subjects were, and the range was from less than 2 hours of exercise per week to intense physical activity more than 4 hours per week, they had lower levels of stress and reported greater satisfaction with life (Schnohr et al. 2005). Similar findings have been found in numerous other studies (Hassmen et al. 2000, Melin et al. 2003). In a study by Valois et al. in a sample of high school students, a statistically significant negative association was found between physical inactivity and life satisfaction (Valois et al. 2004).

Those individuals who exercised less than 20 minutes per week, who did not participate in physical

activity classes or school sports nor engaged in extracurricular sports activities, had the least satisfaction with life. Life satisfaction is assumed to be related to physical activity through feelings of self-efficacy and physical confidence (Biddle & Mutrie 2001; White et al. 2009). In the study of Maher et al. participants were found to rate their life satisfaction more favorably on days when they were more physically active (Maher et al. 2003). However, more research is needed to obtain clearer results. For example, Huang and Humpreys found that the positive effect of physical activity on subjective well-being was greater for men than for women, while Forrest and McHale concluded that participation in physical activity contributed to subjective well-being in women, but did not obtain this on a sample of men (Forrest & McHale 2009).

So far in text only studies conducted around the world have been referenced, but its important to also mention a couple of studies conducted at the University of Mostar that show a positive relationship between exercise and health. Katic et al. in their research conducted in Split, state that subjects who engaged in dance recreational activity longer had better results in motor and physiological functions, had fewer health problems, their general health was better, and self-esteem and self image was greater by a large percentage, even their social activities were better by a higher percentage with respect to respondents who had just started dancing recreational activity (Katić et al. 2018).

Babic et al. in their research, state the following: exercise reduces mental tension and anxiety and allows the overcoming of negative thoughts. People who are physically active are happier, more motivated and more curious. They persist longer in carrying out certain activities, without aggressive approach, nervousness and frustration. Exercise increases individual quality of life as they mature and can handle problems in a functional way. Exercise develops and reinforces positive moral traits such as persistence, perseverance, discipline, sincerity, honesty, cultural behavior and many others (Babic et al. 2018). Also in their research on the impact of physical exercise in pregnant women, they state that pregnancy is a physiological condition and a major event in the life of every woman and her family. It is a great joy of life but also a great obligation and burden for its organic, mental and social component of health. In addition to numerous workloads, pregnancy often triggers many positive health changes and drives many pregnant women to rid themselves of bad habits. Women who were physically active during pregnancy and who were preparing for childbirth were less prone to postpartum depression than those who neglected physical activity during this period. If one wishes good health upon herself and her baby during pregnancy, despite all the obligations, one must discipline himself and start exercising regularly as soon as possible according to the instructions of an expert (Babić et al. 2019).

CONCLUSION

Active athletes from Herzegovina showed statistically significantly less mental symptoms, i.e. better mental health, greater life satisfaction and greater self-esteem than students of the Faculty of Health Studies in Mostar.

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Contribution of individual authors:

Boris Lukanović is the project coordinator, participated in the study concept data interpretation, literature appraisal, and also critically drafted and revised the final appearance of the paper.

All authors provided their approval for the final version of the manuscript.

Mario Babić & Smiljana Katić outlined the methodological approach and were responsible for the study concept, paper composition, theoretical explanations, data interpretation, literature appraisal.

Ivana Čerkez Zovko, Marko Martinac, Marko Pavlović comments on the concept of article, literature searches, writing some parts of manuscript, approval of the final version.

Dragan Babić participated in the study concept, paper composition, theoretical explanations, data interpretation, literature appraisal and English language proofreading.

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