

## The Dimensions of Adolescent Personality in Relation to Belonging to Collective or Individual Sports

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### Abstract

In the total sample of 128 adolescent boys and adolescent girls, of the average age of 18.75 years, a survey was conducted by using a standardized questionnaire for assessing the dimensions of personality – the questionnaire Big Five Plus Two (Smederevac, Mitrović, Čolović, 2009). The main objective of this study was to investigate the psychological characteristics of adolescents, the candidates for admission to the Faculty of Sport and Physical Education and the specific objective was to determine the differences in psychological characteristics of the candidates according to the type of sport - individual or collective (the Faculty of Sport and Physical Education, the University of Novi Sad). The results of t-test for independent samples, showed that there are significant differences between the respondents in scores on the dimensions. There was a statistically significant difference in the scores on the dimensions of Openness, Conscientiousness and Neuroticism ( $p \leq 0,05$ ). The respondents engaged in individual sports had a higher score on Conscientiousness and Openness, while the respondents engaged in collective sports, had a higher score on the dimension of Neuroticism.

**Keywords:** adolescents, personality dimensions, sport

## **Introduction**

Adolescence is a chronological period between 10 and 24 years of age, prior to reaching the physiological, psychological, social and economic maturity (Kapor-Stanulović, 1988; Tubić, Đorđić, Poček, 2012). The developmental tasks of adolescents are often turbulent since they mean simultaneous adaptation to different emerging physiological and anatomical changes and the integration of a mature sexuality into the personal model of behaviour, then, the establishment of personal identity and the formation of appropriate social roles. In addition to these tasks, the period of adolescence is characterized by the development of skills for the professional activities and gradual selecting of free activities that are of benefit to the individual and the community. Some previous studies have examined the role of practicing sports on the principle of maturation in young persons. Through participation in sport, children and adolescents were subjected to the concepts applicable to adults, such as organization, discipline, fair play, sportsmanship and teamwork, which had a very positive effect on the maturation process. Personality traits, which are more common in adults who were active in sport during their maturation, are as follows: a lower level of neuroticism, high level of compliance and conscientiousness (Allen, Geenless, John 2013). Also, previous studies confirmed that the population of active athletes is significantly different from the population of non-athletes, in particular in traits such as emotional stability, confidence, perseverance, responsibility et al. (Tubić, 2010 according to Tubić, Đorđić, Poček, 2012). According to Ostojić (2006), sport represents a „highly structured” physical activity that has a precise goal and that in itself includes elements of commitment and overcoming of oneself or opponents. Sports can be individual or team sports. Team sports are performed in groups and these are usually sports games (basketball, football,

handball...), while in individual sports, individual person stands alone for sporting achievement and success. In the basis of every sport lies a desire for success, for reaching the top score. An athlete is a person with above-average level of physical fitness and it can be said that the pursuit of better personal results lies in the very basis of this concept, but also the pursuit of reward (Ostojić, 2006). Some broader research that dealt with studies of personality types within the „sports population”, emphasize the importance of distinguishing personality types in particular in the context of the basic motive of practising sport. The persons who find competitive sport crucial, show greater extraversion, while those taking health as the basic motive, have a more pronounced trait of conscientiousness. The authors note that it would be necessary to conduct further studies in order to confirm the role of conscientiousness, extraversion and neuroticism in distinguishing between the people who exercise, the participants in sports and those who do not participate in sport at all (Rhodes & Smith, 2006).

Athletes belonging to individual sports and those who belong to the collective or team sports, have different personality traits (Weinberg & Gould, 2003). The fact that relates to the choice of sport was taken into account, while reflecting on what influences the formation of personality in athletes. Some researchers have wondered what else contributes to differences in personality - whether the fact that a particular person is attracted to certain sports; a certain kind of sport and the environment in which the person resides in early childhood, or the impact of „the atmosphere” of individual or collective sport - according to these authors, this is still not clear (Eagleton, McKlevie & De Man, 2007).

With the aim to determine the personality traits on a sample of adolescent athletes, this study used a seven-factor model of personality, which is methodologically based on the Lexical Hypothesis, according to which all socially relevant terms and the terms relevant to the description of the personality, are contained and coded in the spoken language (Čolović, Mitrović and Smederevac, 2005).

The Model Big Five Plus Two is a model derived from the continuation of the psycho-lexical study of Serbian language, according to which the five factor model dimensions are retained - neuroticism, extraversion, openness to experience, agreeableness and conscientiousness, with two more factors of self-assessment - positive and negative valence of seven-factor model (Smederevac, 2000) attached to those. The five-factor model was dominant in personality psychology at the end of the twentieth century, and has been successfully proven in a number of cross-cultural research studies (McCrae et al., 1999, according to Čolović et al., 2005).

The main objective of this study was to investigate the psychological traits of adolescents, candidates for admission to the Faculty of Sport and Physical Education of the University of Novi Sad, while the specific objective was to determine the differences in psychological traits of candidates according to the type of sport - individual or collective.

## Method

*The sample of respondents:* The total number of the respondents included in this study consisted of 128 adolescent boys ( $n = 91$ ) and adolescent girls ( $n = 37$ ), of mean age  $18.75 \pm$  years. By means of inspection of completion of the questionnaires, of the total number of respondents, it was found that 120 (93.8%) were involved in sports of and 4 (3.1%) were not, while 4 (3.1%) of the respondents did not answer this question. When asked whether they belong to an individual or team sport, it was found that 33 respondents (25.8%) belonged to individual sports, 85 (66.4%) to a collective sports and no response was given by 10 adolescents (7.8%). A total of 12 respondents were engaged in sports (9.4%) for the period up to 3 years; 5 respondents were engaged in sports for the period up to 5 years (3.9%), while 109 participants (85.2%) were engaged in sports for more than 5 years. No answer to this question was given by 2 respondents (1.6%).

*The Procedure.* The testing was conducted as a part of regular preparations for the entrance examination of the Faculty of Sport and Physical Education, University of Novi Sad, in June, 2012. The preparations for the entrance examination, last for one month. During that time, the applicants go through various forms of physical and theoretical preparation, with the aim of better understanding the concepts represented in sport and physical education. On one of the theoretical lessons, psychological testing was conducted with the respondents divided into two equal groups in relation to the number. The testing per group lasted for 60 minutes and was conducted under the expert supervision of psychologists and organizational assistance professor and coordinators of the official preparations for the entrance examination of the Faculty of Sport and Physical Education of the University of Novi Sad. The study applied a questionnaire by using a standardized questionnaire for assessing the dimensions of personality - the questionnaire Big Five Plus Two (Smederevac, Mitrović, Čolović, 2010).

*The questionnaire Big Five Plus Two* (Smederevac, Mitrović, Čolović, 2009) consists of 184 claims and offered answers in the form of 5-point Likert scales. It represents the operationalization of the combination of the five-factor and seven-factor models. It consists of 7 scales: Neuroticism, Extraversion, Conscientiousness, Aggressiveness, Openness to Experience, Negative and Positive Valence. Each subscale has specific subscales intended for the assessment of subdimensions. All scales and subscales are of high reliability. The best metric characteristics belong to Neuroticism scale, and weakest ones to the Negative valence (Smederevac, Mitrović, Čolović, 2009).

The final results of the questionnaire BF + 2 are obtained by means of converting raw scores into T values. It is a special form of the standard score and it is calculated by using the formula  $T=10*Z+50$ , where  $Z = (\text{raw score} - \text{arithmetic mean})/\text{standard deviation}$ .

When it comes to T scores, the arithmetic mean is always 50 and the standard deviation 10, so that any two recent scores are comparable. Raw scores for each scale of the questionnaire are calculated by adding up the answers to these items. In the patterns of the questionnaire, it is indicated which items belong to which scale, so only those answers are being summed up. High T values are the scores 55-65, while the low values are the scores below 35. The values ranging between 45 - 55 represent scores in the domain of the average.

*The Neuroticism Scale* consists of 35 items and includes three subscales: Anxiety, Depression, Negative Affect, through which the level of reactivity to potentially threatening stimuli is assessed. High scores on this scale indicate a chronic negative affect, pessimism, reduced capacity for enduring stressful situations. Extremely low score indicates excessive sangfroid, lack of guilt or caring for others.

*Extraversion Scale* represents the dimension of individual differences in the degree of responsiveness to the external environment, has 24 items, and includes three subscales: Warmth, Sociability and Positive Affect. A high score indicates excessive reactivity, warmth, compassion, optimism, energy and cheerfulness. Low scores are related to social isolation, distant behavior in social contacts, the lack of joy and ability to enjoy life.

*Conscientiousness Scale* operationalizes the attitude towards obligations and consists of a total of 24 items. It includes the following subscales: Negligence, Self-discipline and Observance of the Rules. Unlike other dimensions, this scale has pronounced volitional component, so it can also be called the „Will Power”. The maximum score corresponds to excessive activity, characteristic for workaholics, while low scores are related to the lazy, inert, passive people.

*Aggressiveness Scale* is the scale of 28 items, contains three subscales, which are designated as Anger, Peacefulness and Difficult Personality. High scores on the Aggressiveness Scale are reached

by people who are deficient in impulse control, are elevatedly intrusive, with difficult personality, while low scores refer to the people who are calm and tolerant and avoid conflicts with others.

*Openness-to-Experience Scale* operationalizes striving for progress and development, intellectual curiosity and is largely determined by cultural factors; it contains 20 items and two subscales: Intellect and Novelty Seeking. A high score corresponds to an active process of structuring their free time, the tendency to search for (for them) interesting information, embracing of changes and new technologies. Low scores are related to the possibility of carelessness towards engaging in new experiences that can lead to health and physical integrity related risks, the appearance of rigidity, being overcome by fear while facing new content.

*Negative Valence Scale* consists of 22 items and two subscales relating to Manipulativeness and Negative Self-image. High scores on this dimension are found with intrusive and boastful persons, with expressed negative self-evaluation, which is a consequence of the experience of their own incompetence. Low scores are typical of very gullible and naive people.

*Positive Valence Scale* contains 25 items and two subscales that measure a Sense of Superiority and Positive Self-image. The high scores are achieved by the people who have overrated ideas about their own importance, high self-esteem and a positive attitude on their abilities, talents and virtues. Such people can easily turn into egotism and narcissism. The negative consequences of this behavior can be the rejection by other people. Low scores indicate low self-esteem, condescension, self-deprecation and then social maladjustment.

*Statistical analysis of the data.* To display the indicators of personality traits of adolescent boys and adolescent girls, depending on the type of sports, basic descriptive statistics were applied. To determine the difference between the respondents engaged in individual or collective sports, we used the t-test.

## Results and Discussions

Table 1. Descriptive statistics for the dimensions BF + 2

Scale - dimension	AM	SD	Min	Max
<b><i>BF+2</i></b>				
1. Neuroticism	74,60	17,89	38,00	114,95
2. Extraversion	100,48	9,14	77,00	118,00
3. Conscientiousness	108,53	12,74	77,00	135,00
4. Aggressiveness	77,98	13,59	46,00	112,00
5. Openness	76,91	9,14	57,00	100,00
6. Positive Valence	87,16	11,54	58,00	122,00
7. Negative Valence	38,55	9,16	22,00	65,00

Legend: AM - arithmetic mean      Min - minimum value  
 SD - standard deviation      Max - the maximum value of results

In order to enable comparison between the scales according to the scores, the transformation of the results of the survey into the T-values was performed.

Based on the results shown in Chart 1 and Chart 2, it can be seen that the highest values of T-scores of adolescents were recorded in the area of Extraversion, the lowest values in the domains of Neuroticism and Negative Valence, while in the other four dimensions, the results were very consistent. While analyzing the results of adolescent girls, it can be seen that the highest values were recorded in the two domains - Extraversion (as well as adolescent boys), but also in the domain of Conscientiousness. Just like with adolescent boys, the lowest values were observed in the domains of Neuroticism and Negative Valence, while in the other three domains they were fairly uniform. When comparing the results of T-scores between the genders, fairly consistent values in all scales are observed, except in the domain of Conscientiousness, which is significantly higher among adolescent girls.

Average profiles for each gender are presented graphically.



Chart 1. Average values of T scores for the dimensions BF + 2 by gender

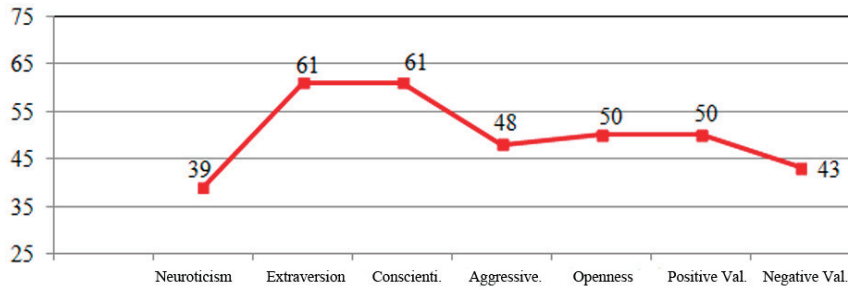


Chart 1. Female gender average profile

Chart 2. Average values of T scores for the dimensions BF + 2 by gender

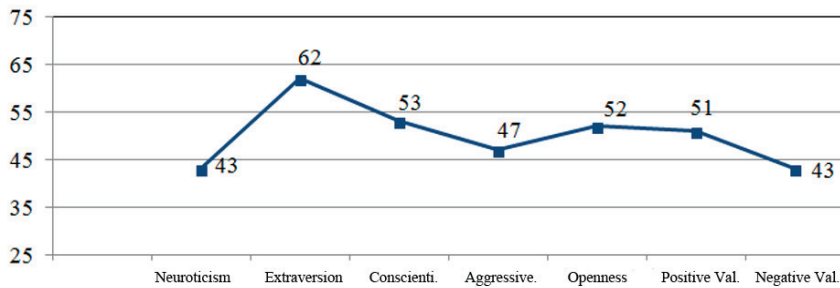


Chart 2. Male gender average profile

T-test for independent samples was applied for determining the differences between the respondents in scores on personality dimensions depending on the sport they were engaged in (individual or collective). There was a significant difference at a less severe level of statistical inference in scores on the dimensions of Openness ( $t=2,43$ ,  $p=0,02$ ), Conscientiousness ( $t=2,11$ ,  $p=0,04$ ) and Neuroticism ( $t=-1,95$ ,  $p=0,05$ ). The respondents who were engaged in individual sports had a higher score on Conscientiousness and Openness, while the respondents who were engaged in team sports had a higher score on the dimension of Neuroticism.

Table 2. The results of T-test for differences in scores BF + 2 according to the type of sport (individual N = 33 and collective N = 85)

Scale - dimension	sport	AM	SD	t	p
<b>BF+2</b>					
<b>1. Neuroticism</b>	individual	69,37	20,22	<b>-1,95</b>	<b>0,05</b>
	collective	76,40	16,44		
2 Extraversion	individual	100,97	9,18	0,12	0,91
	collective	100,75	9,19		
<b>3. Conscientiousness</b>	individual	112,74	12,37	<b>2,11</b>	<b>0,04</b>
	collective	107,29	12,63		
4. Aggressiveness	individual	77,83	16,62	0,06	0,95
	collective	77,65	12,45		
<b>5. Openness</b>	individual	80,36	9,37	<b>2,43</b>	<b>0,02</b>
	collective	75,94	8,69		
6. Positive Valence	individual	88,18	11,21	0,48	0,64
	collective	87,05	11,68		
7. Negative Valence	individual	36,67	8,51	-1,13	0,26
	collective	38,67	8,69		

## Conclusions

Based on all results obtained, it can be said that both for men and women **Extraversion** and **Conscientiousness** are in the area of high values, while **Neuroticism** and **Negative Valence** are low; the other three properties are average. As already mentioned, previous research studies confirmed that the population of athletes is characterized by high level of extroversion in comparison to those who do not engage in any sport; the population of athletes is characterized by a higher level of emotional stability and is more open for acceptance of new experiences (Hughes, Case, Stuempfle, & Evans, 2003).

The female respondents, had higher T - scores on Conscientiousness, while on other subscales their scores were pretty even. The results of some previous studies (Allen, Geenles and John, 2013) show that, compared to men, women show higher levels of neuroticism, extraversion, consent and conscientiousness. Some of the results obtained, suggest that women who play sports often exhibit greater closeness, when compared to men and women who are not involved in sports. Although studies have not directly dealt with this hypothesis, numerous studies compare the results of personality tests of men and women who participate in organized sports activities. In one study involving adolescent athletes, it was observed that the girls involved in sports are a lot more extrovert and that they exhibit a much higher level of emotional instability compared to boys (Newcombe & Boyle, 1995). A recent study which included a wider the scope of personality dimensions, indicates that, compared to men, women demonstrate higher levels of neuroticism, conscientiousness and compliance (Allen et al., 2011).

Individual athletes in this study showed higher scores on the personality dimensions of Conscientiousness and Openness. Since the Conscientiousness is operationalized through the attitudes towards obligations and includes subscales of Negligence, Self-discipline and Observance of the Rules, it can be said that the members of individual sports showed more tendencies to observe the rules, showed disciplined behavior and greater accountability to the commitments. Unlike other dimensions, this scale has a more pronounced volitional component, so it can be assumed, that these people were more inclined to hard work, with more noticeable volitional component than the members of the collective sports. Similar results were obtained in previous research studies, which showed that the athletes who are engaged in team sports show higher levels of extraversion and lower levels of conscientiousness, compared with athletes who are engaged in individual sports (Allen et al., 2011)

It can be said that the members of the individual sports of this sample, showed a greater tendency to Openness to Experience, which is manifested as a tendency towards progress and develop-

ment, intellectual curiosity and is largely determined by cultural factors; it contains two subscales: Intellect and Novelty Seeking. Such a high score would correspond to the traits related to the pronounced ability of individual athletes, towards a better structuring of their free time, the search for new information, embracing of changes and new experiences. Since lower scores on the Neuroticism dimension were observed, it is also true to say that the individual athletes showed therefore greater emotional stability. An explanation of these results may lie in the fact that the members of individual sports are often in situations of making independent decision, they bear the responsibility for success or failure on their own and are going through different situations in which everything depends solely on them. If we are talking about regular attendance of the training sessions - this requires a strong will, and for the achievement of results, one needs personal hard work and commitment, in order to enhance personal abilities. In individual modern sport, new technologies and knowledges appear almost on daily basis. A person in an individual sport is being self-motivated and it can be assumed that this is the origin of the higher scores on Openness and Conscientiousness; the person is being self-controlled and therefore the scores on the Neuroticism scale are smaller. Stambulova (2006) found similar data; on a sample of Russian athletes, she concluded that the individual athletes are more introverted, with more individual targets, and are more independent. She concluded that, in comparison to the members of the team sports, the situation of being compared with the competition, is completely different and more frequent; she also concluded that these athletes, due to their acquired specific experience, have a higher ability to control themselves, they are less neurotic, and are more independent when it comes to bearing the responsibility in relation to achievement of the results (Franck, 2009).

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