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The Big-Five Model of Personality and the Success of High School Students in Physical Education

Zoran Čuljak[1] and Boris Mlačić[2]
[1] *Faculty of Science and Education, University of Mostar*
[2]*Institute of Social Sciences Ivo Pilar*

Abstract

The aim of this study was to determine the relationship between personality dimensions according to the Big-Five model of personality and the success of high school students in physical education. A sample of participants consisted of 100 high school students at the age of 16 and 17. For the measurement of personality dimensions according to the Big-Five model of personality the IPIP100 questionnaire was used, which covers five broad dimensions: Extraversion, Agreeableness, Conscientiousness, Emotional stability and Intellect. The success of students in physical education was defined by the average score at the half-term in five areas that are standardly scored during that course. Data analyzed by regression analysis indicate that personality dimensions of the Big-Five personality model significantly predict success in physical education. It was established that the male students' success in physical education was significantly predicted by the dimension of Conscientiousness, and negatively by the dimension of Extraversion, while the female students' success in physical education was significantly predicted by the dimensions of Conscientiousness and Emotional stability. The results also indicate that male students achieved higher scores on Extraversion and Emotional stability scales and the female students on Agreeableness scale.

Key words: *high school students; personality dimensions; physical education.*

Introduction

Physical activity plays an important role in the life of a modern man, especially in terms of preserving and improving his physical and mental health (Bungić & Barić, 2009). There is much evidence proving that scientifically based exercise can have a

relevant impact not only on the regulation of morphological, motor and functional features but also, to a large extent, on cognitive functions as well as the dimensions responsible for behavior modalities and effective socialization of youth (the youngest and adolescents) (Findak, Mraković, & Prskalo, 2003). Therefore, there is a consensus about the relevance of physical activity among children and youth on their overall health and development (Must & Strauss, 1999; USDHHS, 2000; World Health Organization, 2004), and that habits of maintaining regular physical activity which they adopt at a young age will transfer to adulthood (Gidding, Dennison, Birch, Daniels, Gillman, & Lichtenstein, 2005; Telama, Yang, Viikari, Valimaki, Wanne, & Raitakari, 2005; Hills, King, & Armstrong, 2007).

Of all the areas of applied kinesiology, the quality of work in kinesiology education has, or should have the greatest effect on the entire population, because this area is comprehensive and monitors a human being from preschool to university age (Prskalo & Babin, 2006). Since physical and health education is the first link in the general system of physical education, it is extremely important for its participants to be as active, i.e. successful as possible. The previous statement should particularly be of concern to students who are in sensible stages of development and maturation, hence primarily at the age of adolescence. Physical activity in adolescence is relevant to public health and regular physical activity in adolescents can improve their physical, mental and social well-being (Young-Ho, 2004). However, the obvious decline of physical skills of youth in many countries, i.e. the trend of physical inactivity, is alarming (USDHHS, 1996; Young-Ho, 2004), so there is a concern over the increasing number of young people who quit sports and physical activities even in their teenage years (Hardman, 2008). The statistical data in the United States show that three out of four children who start with sporting activites at the age of 6 to 7 will quit sports entering puberty or at the age of 15 at the latest (Papalia, Olds, & Feldman, 1999).

Many studies also indicate that sports engagement is negatively associated with undesirable behaviors, especially with delinquency (Barnett, Smoll, & Smith, 1992).

Personality traits are of special importance for understanding and predicting human behavior in different situations, also in sports and in all the circumstances connected with sporting activities (Horga, 2009). Studies relating basic personality traits with active or recreational involvement in sports are mostly recent and associated with the rise of the Big-Five personality model (Goldberg, 1993) as the dominant paradigm in this field of research. Since the emergence of this model is considered as one of the most important events in the history of personality psychology (De Raad, 2000), it should be noted that there are several variants of this model, but the basic model developed within the lexical approach in personality psychology (Mlačić, 2002), hence analyzing personality traits represented in natural language.

The Big-Five model has five broad dimensions: Extraversion/Introversion, Agreeableness, Conscientiousness, Emotional stability/ Neuroticism and Intellect (Goldberg, 1990). Regarding the importance of Big-Five personality model dimensions

within the domain of sports, Kajtna, Tušak, Barić and Burnik (2004) identified the differences in personality traits of athletes and non-athletes, since in this study the athletes scored higher on Emotional Stability, Agreeableness and Conscientiousness. Many other studies imply the relevance of certain personality traits in professional and recreational sports involvement. Sport participants score higher on the dimension of Extraversion than non-participants (Eagleton, McKelie, & De Man, 2007). Top United States bicyclists scored significantly lower on the Neuroticism scale than the control group of students (Hagberg, Mullin, Bahrke, & Limburg, 1979). Moreover, it is likely that people who score low on the Neuroticism scale, and high on Extraversion, Agreeableness and Conscientiousness scales will be active at recreation centers (Chen, Lee, & Chang, 2007). Furthermore, the study by Ingledew, Markland and Sheppard (2004) pointed out the importance of three personality dimensions within the five factor model in behavior regulation during exercise – Neuroticism, Extraversion and Conscientiousness. The dimension of Extraversion dimension from the Big-Five personality model proved to be significantly associated with sports activity in adolescents (De Brujin, Kremers, Van Mechelen, & Brug, 2005).

However, the role of Big-Five personality dimensions is not only important in sports involvement, i.e. these dimensions proved important in predicting achievements in life, especially educational and academic achievement (Chamorro – Premuzic, 2007). The studies showed that the most consistent personality correlate with the results in school exams and continuous class assessment was the dimension of Conscientiousness (Chamorro-Premuzic & Furnham, 2003). There is also evidence that Neuroticism is detrimental to academic achievements, especially when seeking relation with success in exams (Chamorro-Premuzic, 2007). Furthermore, there is evidence relating Extraversion with academic achievements, although the findings are inconsistent. It is possible that this link is moderated by the type of exams or academic assessment. For example, tasks that require high social interaction, such as oral exams, as well as participating in a discussion in front of the class can be easier for extraverts (Furnham & Chamorro-Premuzic, 2005). Conversely, tasks that require long-term intellectual investment, such as long learning, can be easier for introverts. Also, other relevant moderator variables that influence the correlation between Extraversion and academic achievement are the age and the level of education. Therefore, extraverts can have an advantage over introverts in elementary school and junior high school, but later on, introverts can become more successful than extroverts (Eysenck & Cookson, 1969; Sanchez-Marin, Rejano-Infante, & Rodriguez-Troyano, 2001).

Findings about the relevance of dimensions of the Big-Five personality model in general school achievement of students aged 16 to 19 were replicated in the Croatian context as well (Matešić, Ružić, & Matešić, 2009). The authors concluded that the dimension of Conscientiousness is significantly positively associated with school achievement, and that out of all dimensions of the Big-Five personality model, this dimension is the best predictor of academic success. Kozina and Rebernjak (2009) who

measured personality traits with the Croatian version of the questionnaire *International Personality Item Pool* with 100 items (Mlačić & Goldberg, 2007) obtained similar results.

The findings from literature suggest important implications of understanding personality traits in planning and implementation of physical activity and curriculum. In other words, if the contribution of the Big-Five personality model dimensions in predicting success in physical and health education was established, that would create possibilities for better planning, programming and implementing physical activity programes. This could prevent youth quitting sports and physical activity, i.e. it would mitigate the trend of physical inactivity in youth.

Thus, the main objective of this study was to investigate the extent to which it is possible, based on the Big-Five personality model dimensions (Extraversion, Agreeableness, Conscientiousness, Emotional Stability and Intellect), to predict success in physical and health education classes for first and second year high school students, separately for male and female students.

Methods

Participants

For the purposes of this study, we recruited a convenience sample of 100 students (59 male and 41 female) attending first and second grades of high schools in Mostar, aged 16 to 17. Participants in this research were informed that data are collected purely for scientific purposes and they all voluntarily agreed to participate in this study.

Measures and Instruments

As the measure of success in physical and health education classes we used the mid-term grade in this class which represented the average of five grades from certain domains (motor knowledge, motor skills, motor achievements, functional skills and educational effects of work).

The Big-Five personality measure used in this study was the IPIP 100 - *International Personality Item Pool* (Goldberg, 1999), validated in Croatia (Mlačić & Goldberg, 2007). The IPIP100 measures the Big-Five domains with 100 short statements, administered with a 5-point Likert-type scale, ranging from 1 = Very inaccurate to 5 = Very accurate. As mentioned before, the Big-Five model has five broad personality dimensions: Extraversion, Agreeableness, Conscientiousness, Emotional Stability and Intellect. Each dimension in this instrument is represented with 20 brief statements. In the study of Mlačić and Goldberg (2007), conducted among Croatian student population, the coefficients of internal consistency (Cronbach's α) were: .93 (Factor I: Extraversion), .87 (Factor II: Agreeableness), .92 (Factor III: Conscientiousness), .92 (Factor IV: Emotional Instability), .87 (Factor V: Intellect), and we can conclude the five factor structure of this instrument was validated in Croatia.

In the study by Mlačić, Milas and Kratohvil (2007), conducted using a sample of adolescents, the coefficients of internal consistency of IPIP 50 (short version) (Cronbach's

α) were: .83 (Factor I: Extraversion), .84 (Factor II: Agreebleness), .86 (Factor III: Conscientiousness), .88 (Factor IV: Emotional instability), .71 (Factor V: Intellect), and we can also conclude this instrument was successfully validated for younger groups of participants.

Statistical Analysis

As the first step in the analysis, the basic descriptive statistics were calculated, and the Kolmogorov-Smirnov test was applied to calculate the normality distribution of observed variables in both subsamples, female and male participants. The differences in relevant variables among female and male students were calculated by means of univariate analysis of variance. The relations between the set of predictor variables (Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect) and the criterion variable (final mid-term grade in physical education class) were tested with two regression analyses, separately for male and female students.

Results

Table 1.

Descriptive indicators (M –Mean, MIN – minimum, MAX- maximum, SD – standard deviation, K-S Kolmogorov–Smirnov test) for predictor and criterion variables for male and female students, as well as differences between groups (*p* – statistical significance, analysis of variance.

Variables	Male students				Female students				p
	M±SD	MIN	MAX	K-S	M±SD	MIN	MAX	K-S	
Grade	3.19±1.33	1	5	0.13	2.95±1.20	1	5	0.12	0.36
Extraversion	70.49±8.64	42	89	0.12	66.27±10.48	47	86	0.08	0.03
Agreeableness	69.83±9.43	38	89	0.07	76.02±9.70	54	95	0.10	0.00
Conscentiousness	65.78±13.15	37	100	0.10	66.98±16.42	28	100	0.09	0.68
Emotional Stability	67.17±10.70	44	93	0.08	59.68±13.22	31	84	0.08	0.00
Intellect	67.08±9.61	48	93	0.12	67.98±7.62	58	88	0.12	0.62

All the variables used in this study followed the distribution, as shown with Kolmogorov - Smirnov values: the threshold value was $d = .13$ for $N = 100$, $p < .05$. The difference in grades between boys and girls was not statistically significant ($p = .36$).

As can be seen from Table 1 male students scored higher on the scale of Extraversion than female students, while female students scored higher on the scale of Agreeableness. On the scale of Emotional Stability the female students scored lower, while on the dimensions of Conscientiousness and Intellect the two groups did not differ significantly.

The results presented in Table 2 indicate that there is a statistically significant relation among the analyzed set of predictor variables and the criterion variable in both subsamples. The multiple correlation between predictor and criterion variables was .70 for male students and .73 for female students. In both subsamples, male and female, approximately 50% of variability in the grades of physical education can be accounted for from the results in Big-Five personality dimensions. This table also shows

that the criterion variable of success in physical education classes was significantly predicted from dimensions of Conscientiousness and negatively by Extraversion in male subsample while in the female subsample the predictors for success were Emotional Stability and Conscientiousness.

Table 2

Regression analysis predicting grades in physical education from Big-five personality model dimensions (R –multiple correlation coefficient, p- level of significance, BETA - partial regression coefficient).

	Male students		Female students	
variable	BETA	p	BETA	p
Extraversion	-0.32	0.01	-0.07	0.67
Agreeableness	0.22	0.06	-0.02	0.92
Conscientiousness	0.52	0.00	0.52	0.00
Emotional stability	0.16	0.20	0.39	0.03
Intellect	-0.06	0.61	-0.06	0.67
	R = 0.70	0.00	R = 0.73	0.00

Discussion

The results of this study show that the set of personality dimensions can successfully predict the success criterion variable in physical education classes for female and male students. It is interesting that in both subsamples the multiple correlation between the Big-Five dimensions and the success in physical and health education was approximately .70, which means that around 50 % of the variability in physical education grades can be accounted for by the Big-Five personality model. Such results indicate great importance of personality traits in education; in this case in physical and health education, and completely validate the main objective of this study. This study also highlighted the importance of using personality questionnaires in applied contexts, i.e. the school context.

The results of this study also showed that in both subsamples, male and female, the significant predictor of grades in physical education was the dimension of Conscientiousness, in accordance with the general findings (Chamorro-Premuzic, 2007; Chamorro-Premuzic & Furnham, 2003) as well as with findings in Croatia (Kozina & Rebernjak, 2009; Matešić et al., 2009). Therefore, Conscientiousness as a personality dimension that subsumes the working habits, responsibilities, impulse control and orderliness (Mlačić & Šakić, 2008) once more proved to be important in the school context. This personality dimension presents the ability of self-control in terms of disciplined aspiration toward goals and strict adherence to personal principles. Conscientious people are strong-willed, directed toward goals, they are accurate and reliable. Therefore, this dimension, besides the established role in the success in physical education at school, emerges as an important link in the various forms of achievement. Primarily, Conscientiousness emerges in work performance contexts since it was

established that this dimension was the most important personality dimension regarding work context, and the predictive validity of Conscientiousness generalizes through different tasks and conditions (Barrick & Mount, 1991). Hough (1992) validates these conclusions stating Conscientiousness was a significant predictor of various aspects of work performance. This personality dimension was also isolated as a significant predictor of success in gymnastics for students (Čuljak, Markota, & Kovačević, 2010).

The finding indicating Extraversion as a negative predictor of success in physical and health education classes in the male subsample is interesting. This can imply that introverted students who are calm, withdrawn and shy are more successful in physical education, but it can also mean that the grades in this subject partly reflected aspects of adherence to discipline among students.

Moreover, significant predictor of success in physical education classes in the female subsample appears to be dimension of Emotional Stability. We can therefore conclude that, the dimension subsuming stability, unirritability and composure traits plays a role in physical education performance particularly for female students. Neuroticism, the opposite pole of Emotional Stability, is associated with tendencies to experience anxiety, nervousness, sadness and other negative emotions. The adolescence is a period when young people are facing many developmental changes in various life spheres, which is why it is important to know how to deal with stress. The stress level increases from childhood to early adolescence reaching its maximum around the age of 15 and remains stable through the entire period of adolescence (Seiffge-Krenke, 2000). The above mentioned affects the performance in physical and health education, particularly among female students. The girls experience more stressful situations and in most cases experience higher intensity of stress than boys (Seiffge-Krenke, 1993; Garton & Pratt, 1995), therefore they are more anxious (Harckiewicz, Elliot, Barron, Carter, & Lehto, 1997). Physical self-image could also have an impact on Emotional Stability and therefore on the relation with success in physical and health education. Namely, dissatisfaction with one's looks, i.e. body weight (Cash, 1994) and the fear of rejection in case of failure or success by peers or even teachers, can affect motivation and engagement in physical activity and health education classes.

The results of this study also indicate that boys scored higher than girls on the scale of Extraversion and we can conclude that boys at this age in this sample described themselves as more sociable, more open, more communicative, more confident and braver, while girls described themselves as withdrawn and shy. Examining personality dimension differences in 37 nations, Lynn and Martin (1997) found that men scored higher on the Extraversion scale in 30 countries which is consistent with our report. However, Costa, Terracciano and McCrae (2001) reported that male-female differences in Extraversion may originate from predominantly the content measured with particular Extraversion scale. Since Extraversion measures aspects of assertiveness and sensation seeking, as well as warmth and sociability, if the first two aspects prevail, we can expect higher scores by boys on the Extraversion scale and the opposite if two latter

aspects prevail. The results of this research also indicate that girls scored higher on the Agreeableness scale. Agreeableness can be conceptualized as a latent variable which sums behaviors like kindness, cooperation and tendency of helping other people (Krapić, 2005). In the gender analysis of personality differences in 26 nations Costa et al. (2001) emphasize that in most cultures women scored higher on Agreeableness. Finally, the results of this study revealed that males scored higher on the Emotional Stability scale. Therefore, females showed higher levels of Emotional Instability, i.e. Neuroticism, in other words descrivbed themselves as more nervous, irritable and impatient than males. Such a finding is consistent with the research of Lynn and Martin (1997) who, in all 37 countries which were subject to analysis, obtained findings about higher level of Neuroticism in females, confirmed by Costa et al. (2001) as well. Such results are consistent with research in Croatia conducted by Nekić (2006), on the sample of 403 subjects aged 14 to 25, where it is stated that girls are less Emotionally Stable, but more Agreeable than boys.

Conclusions

The main finding of this study pertains to the relevance of the Big-Five personality model within the context of success in physical and health education classes. Namely, we found that we can predict even 50% of grade's variability in physical and health education, from knowing the results of personality dimensions, which is rather surprising. Regardless of the strength of this relation, we can safely conclude that personality traits are important for the success in school, and that the use of personality questionnaires within the school context is important. Moreover, we can conclude that we replicated the findings on the relevance of Conscientiousness in the educational process (Chamorro-Premuzic, 2007; Chamoro-Premuzic et al., 2003; Kozina et al., 2009; Matešić et al., 2009) and expanded them to a new domain – physical and health education. Therefore, responsible, orderly and hard-working female and male students have a greater possibility for better success in physical education. Moreover, some gender specificities in terms of Extraversion as a negative predictor of success in physical education classes for males and Emotional Stability as a positive predictor for females were also established. In other words, calm and taciturn boys and stable and less irritable girls have a greater possibility for better success in physical education. However, these findings should be replicated with larger and more representative samples, preferably in more cultures, in order to judge their generalizability.

Regarding gender differences in personality dimensions, our study showed, in accordance with the research in many cultures (Costa et al., 2001; Lynn & Martin,1997), female students scored lower than males on the Emotional Stability scale and higher on the Agreeableness scale. Therefore, female students described themselves as more timid, more irritable and less stable than males, but also more peaceful, emphatic and with a greater tendency to help other people than their male colleagues. Moreover, this study showed that males scored higher on the Extraversion scale than females. This

means that male high school students described themselves as more self-confident, braver, more assertive and more energetic than female students. However, because of the above mentioned findings about dependability of gender differences in the dimension of Extraversion with predominant content of questionnaires (Costa et al., 2001) this result should be interpreted with caution and we should call for its replication with a greater, more representative and versatile sample of research participants.

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Zoran Čuljak
Faculty of Science and Education, University of Mostar,
Ulica Matice Hrvatske b.b.
Mostar 88000, Bosnia and Herzegovina
zculjak7@gmail.com

Boris Mlačić
Institute of Social Sciences Ivo Pilar,
Marulićev trg 19/I
10000 Zagreb, Croatia
boris.mlacic@pilar.hr

Velepetori model ličnosti i uspjeh u nastavi tjelesne i zdravstvene kulture srednjoškolaca

Sažetak

Cilj istraživanja bio je utvrditi povezanost osobina ličnosti i uspjeha u nastavi tjelesne i zdravstvene kulture kod srednjoškolaca. Uzorak sudionika sastojao se od 100 učenika srednjih škola dobi od 16 i 17 godina. Kao mjera dimenzija ličnosti prema velepetorom modelu upotrijebljen je upitnik IPIP100, koji obuhvaća pet dimenzija: ekstraverziju, ugodnost, savjesnost, emocionalnu stabilnost i intelekt. Uspjeh u nastavi tjelesne i zdravstvene kulture definiran je prosjekom ocjena na polugodištu iz pet područja koja se standardno provjeravaju u predmetu tjelesne i zdravstvene kulture. Podaci koji su obrađeni regresijskom analizom ukazuju na to da dimenzije ličnosti velepetorog modela značajno predviđaju uspjeh u tjelesnoj i zdravstvenoj kulturi. Kod učenika je utvrđeno da uspjeh u nastavi značajno predviđa dimenzija savjesnosti, a negativno dimenzija ekstraverzije, dok kod učenica uspjeh u nastavi značajno predviđaju dimenzije savjesnosti i emocionalne stabilnosti. Rezultati također ukazuju na to da su učenici postigli više rezultate na skali ekstraverzije i emocionalne stabilnosti, a učenice na skali ugodnosti.

Ključne riječi: *osobine ličnosti; tjelesna i zdravstvena kultura; učenici.*

Uvod

Tjelesna aktivnost ima veliku ulogu u životu suvremenog čovjeka, pogotovo u smislu očuvanja i poboljšanja čovjekova psihofizičkog zdravlja (Bungić i Barić, 2009). Brojni su dokazi koji potvrđuju da se znanstveno utemeljenim vježbanjem može bitno utjecati ne samo na regulaciju morfoloških, motoričkih i funkcionalnih obilježja nego u značajnoj mjeri i na kognitivne funkcije, kao i na dimenzije odgovorne za modalitete ponašanja i djelotvornu socijalizaciju najmlađih i mladih (Findak, Mraković i Prskalo 2003). Postoji, dakle konsenzus o važnosti tjelesne aktivnosti djece i mladih za cjelokupno zdravlje i razvoj (Must i Strauss, 1999; USDHHS, 2000; World Health Organization, 2004), i o tome da kod mladih usvojene navike redovite tjelesne aktivnosti ostaju i u odrasloj dobi (Gidding, Dennison, Birch, Daniels, Gillman, i Lichtenstein, 2005; Telama, Yang, Viikari, Valimaki, Wanne, i Raitakari, 2005; Hills, King, i Armstrong, 2007).

Od svih područja primijenjene kineziologije kvaliteta rada u kineziološkoj edukaciji ima ili bi trebala imati najveće učinke na cjelokupnu populaciju, jer je to područje sveobuhvatno i prati ljudsko biće od predškolske do visokoškolske dobi (Prskalo i Babin, 2006). Kako je tjelesna i zdravstvena kultura, dakle, prva karika u općem sustavu tjelesnog odgoja, od iznimne je važnosti da su njezini sudionici što aktivniji, odnosno uspješniji. Navedeno bi se posebno trebalo odnositi na učenike koji su u senzibilnim fazama razvoja i sazrijevanja, ponajprije u doba adolescencije. Tjelesna aktivnost u adolescenciji je važan javni zdravstveni problem. Redovita tjelesna aktivnost kod adolescenata može unaprijediti njihovu fizičku, psihičku i socijalnu dobrobit (Young-Ho, 2004). Ipak, zabrinjavajuće je i alarmantno sve uočljivije opadanje tjelesnih sposobnosti mladih u mnogim zemljama, odnosno trend tjelesne neaktivnosti (USDHHS, 1996; AIHW, 1999; Young-Ho, 2004). Prisutna je uznemirenost zbog sve većeg broja mladih koji prekidaju bavljenje sportskim ili tjelesnim aktivnostima još u tinejdžerskoj dobi (Hardman, 2008). U Sjedinjenim Američkim Državama statistički podaci ukazuju na to da troje od četvero djece koja se počinju sportom baviti u dobi od 6-7 godina od njega odustaju ulaskom u pubertet ili najkasnije do 15. godine (Papalia, Olds, i Feldman, 1999).

Brojna istraživanja također ukazuju na to da je bavljenje sportom u negativnoj vezi s nepoželjnim oblicima ponašanja, prije svega s delinkvencijom (Barnett, Smoll, i Smith, 1992). Osobine ličnosti od posebnog su značaja za razumijevanje i predviđanje ponašanja čovjeka u različitim situacijama, pa tako i u svim sportskim i sa sportom povezanim okolnostima (Horga, 2009). Istraživanja povezanosti temeljnih osobina ličnosti s aktivnim ili rekreativnim bavljenjem sportom uglavnom su novijega datuma i vezana su uz uspon velepetorog modela ličnosti (Goldberg, 1993) kao dominantne paradigme u ovome području istraživanja. Budući da se pojava toga modela smatra jednim od najvažnijih događaja u povijesti psihologije ličnosti, (De Raad, 2000), potrebno je napomenuti da postoji nekoliko inačica toga modela, ali je temeljni model razvijen unutar leksičkoga pristupa u psihologiji ličnosti (Mlačić, 2002), dakle proučavanjem osobina ličnosti zastupljenih u prirodnome jeziku. Velepetori model ličnosti ima pet širokih dimenzija: ekstraverziju/introverziju, ugodnost, savjesnost, emocionalnu stabilnost/neuroticizam i intelekt (Goldberg, 1990). U vezi s važnošću dimenzija ličnosti velepetorog modela u bavljenju sportom, Kajtna, Tušak, Barić i Burnik (2004) su utvrdili razlike u osobinama ličnosti sportaša i nesportaša. U tome istraživanju sportaši su imali višu razinu emocionalne stabilnosti, ugodnosti i savjesnosti. Brojna druga istraživanja ukazuju na važnost određenih osobina ličnosti u bavljenju sportom, i profesionalnom i rekreativnom. Sudionici u sportu postižu više rezultate na dimenziji ekstraverzije od nesudionika (Eagleton, McKelie, i De Man, 2007). Vrhunski biciklisti Sjedinjenih Država postizali su znatno niže rezultate na skali neuroticizma od kontrolne grupe studenata (Hagberg, Mullin, Bahrke, i Limburg, 1979). Isto je tako vjerojatno da će ljudi s niskim rezultatom na dimenziji neuroticizma, a visokim rezultatima na dimenzijama ekstraverzije, ugodnosti i savjesnosti pohađati centar za rekreaciju (Chen, Lee, i Chang,

2007). Nadalje, istraživanje Ingledew, Markland i Sheppard (2004) ukazalo je na važnost triju dimenzija ličnosti iz peterofaktorskoga modela u regulaciji ponašanja pri vježbanju - neuroticizma, ekstraverzije i savjesnosti. Dimenzija ekstraverzije velepetorog modela ličnosti pokazala se značajno povezanom sa sportskom aktivnošću kod adolescenata (De Brujin, Kremers, Van Mechelen, i Brug, 2005).

No, uloga dimenzija ličnosti velepetorog modela nije važna samo u bavljenju sportom. Te dimenzije pokazale su se važnima u predviđanju postignuća u životu, ponajprije školskoga i akademskoga uspjeha (Chamorro-Premuzic, 2007). Tako su istraživanja pokazala da je najdosljedniji korelat ličnosti s rezultatima i na školskim ispitima i na kontinuiranoj procjeni pri nastavi dimenzija savjesnosti (Chamorro-Premuzic i Furnham, 2003). Postoje i dokazi da je neuroticizam štetan za akademsko postignuće, posebno kada se traži povezanost s uspjehom na ispitima (Chamorro-Premuzic, 2007). Nadalje, postoje dokazi o povezanosti ekstraverzije s akademskim postignućem, premda su nalazi nedosljedni. Moguće je da tu vezu moderira vrsta ispita ili akademske procjene. Na primjer, zadaci koji zahtijevaju visoku socijalnu interakciju kao što su usmeni ispiti, kao i sudjelovanje u raspravi na predavanjima, mogu biti lakši ekstravertima (Furnham i Chamorro-Premuzic, 2005). Nasuprot tome, zadaci koji zahtijevaju dugoročno intelektualno ulaganje kao što su dugo učenje mogu biti lakši introvertima. Druge značajne moderator varijable koje utječu na odnos između ekstraverzije i akademskoga postignuća jesu dob i razina obrazovanja. Tako ekstraverti mogu biti u prednosti nad introvertima u osnovnoj školi i prvim razredima srednje škole, no nakon toga introverti mogu postići bolji uspjeh (Eysenck i Cookson, 1969; Sanchez-Marin, Rejano-Infante, i Rodriguez-Troyano, 2001).

I u hrvatskom kontekstu replicirani su nalazi o važnosti dimenzija ličnosti velepetorog modela u općem školskom uspjehu kod srednjoškolaca u dobi od 16 do 19 godina (Matešić, Ružić i Matešić, 2009). Autori su zaključili da je dimenzija savjesnosti statistički značajno pozitivno povezana sa školskim uspjehom i da se od dimenzija ličnosti velepetorog modela savjesnost pokazala najboljim prediktorom školskog uspjeha. Slične rezultate dobili su i Kozina i Rebernjak (2009) koji su osobine ličnosti mjerili hrvatskim prijevodom upitnika *International Personality Item Pool*s koji ima 100 čestica (Mlačić i Goldberg, 2007).

Opisani nalazi iz literature sugeriraju na važne implikacije poznavanja osobina ličnosti u planiranju i primjeni i tjelesnih aktivnosti i školske nastave. Ako bi se utvrdio doprinos dimenzija ličnosti velepetorog modela u predviđanju uspjeha u nastavi tjelesne i zdravstvene kulturi, ostvarila bi se i mogućnost za kvalitetnijim planiranjem, programiranjem i provođenjem tjelesnih aktivnosti. Time bi se eventualno mogli utvrditi i uzroci neaktivnosti, kao i preventivno djelovati kako ne bi došlo do prekida u bavljenju sportskim aktivnostima.

U skladu s tim osnovni je cilj ovog istraživanja bio provjeriti u kojoj mjeri je na temelju dimenzija ličnosti velepetorog modela (ekstraverzije, ugodnosti, savjesnosti, emocionalne stabilnosti i intelekta) moguće predvidjeti uspjeh u nastavi tjelesne i

zdravstvene kulture učenika prvih i drugih razreda srednje škole, zasebno učenika i učenica.

Metode rada

Uzorak

U istraživanje je uključen prigodan uzorak od 100 učenika (59 M i 41 Ž) prvih i drugih razreda srednjih škola u Mostaru, u dobi od 16 i 17 godina. Sudionici ovoga istraživanja informirani su da se podaci prikupljaju isključivo u znanstvene svrhe i dobrovoljno su pristali na sudjelovanje u istraživanju.

Mjere i instrumenti

Kao mjera uspjeha u nastavi tjelesne i zdravstvene kulture uzeta je ocjena toga predmeta na polugodištu, koja je dobivena kao prosjek od ukupno pet ocjena iz pojedinih područja (motorička znanja, motoričke sposobnosti, motorička dostignuća, funkcionalne sposobnosti i odgojni učinci rada).

Kao mjera dimenzija ličnosti prema velepetorom modelu koristio se upitnik IPIP 100 – *International Personality Item Pool* (Goldberg, 1999) koji je validiran u Hrvatskoj (Mlačić i Goldberg, 2007). Upitnik se sastoji od 100 kratkih tvrdnji na koje ispitanik odgovara služeći se Likertovom skalom od 5 stupnjeva, gdje je 1 – *posve netočno*, a 5 – *posve točno*. Velepetori model obuhvaća pet širokih dimenzija ličnosti: ekstraverziju, ugodnost, savjesnost, emocionalnu stabilnost i intelekt. Svaka od pet dimenzija velepetorog modela u ovome je instrumentu zastupljena s po 20 tvrdnji. U istraživanju Mlačića i Goldberga (2007) na populaciji hrvatskih studenata koeficijenti unutarnje konzistencije (Cronbachov α) iznosili su: 0,93 (Faktor I: ekstraverzija), 0,87 (Faktor II: ugodnost), 0,92 (Faktor III: savjesnost), 0,92 (Faktor IV: emocionalna nestabilnost), 0,87 (Faktor V: intelekt) te je validirana peterofaktorska struktura toga instrumenta u Hrvatskoj. U istraživanju Mlačić, Milas i Kratohvil (2007) na uzorku adolescenata koeficijenti unutarnje konzistencije kratke forme IPIPa od 50 čestica (Cronbachov α) iznosili su: 0,83 (Faktor I: ekstraverzija), 0,84 (Faktor II: ugodnost), 0,86 (Faktor III: savjesnost), 0,88 (Faktor IV: emocionalna nestabilnost), 0,71 (Faktor V: intelekt) pa je tako taj instrument uspješno validiran i na mlađem dobnom uzorku.

Obrada podataka

Prvi korak u analizi bio je računanje osnovnih deskriptivnih pokazatelja. Kolmogorov-Smirnovljevim testom provjeren je normalitet distribucija promatranih varijabli u oba poduzorka, poduzorku učenica i poduzorku učenika. Razlike u relevantnim varijablama između učenika i učenica utvrđene su univarijatnom analizom varijance. Međuodnos između prediktorskog skupa (ekstraverzija, ugodnost, savjesnost, emocionalna stabilnost, intelekt) i kriterijske varijable (zaključna ocjena iz tjelesne i zdravstvene kulture) provjeren je dvjema regresijskim analizama, posebno za učenike i za učenice.

Rezultati

Tablica 1.

Sve varijable korištene u istraživanju imale su normalnu distribuciju podataka, koja je provjerena Kolmogorov-Smirnovljevim testom; granična vrijednost d = 0,13 za N = 100, p < 0,05. Razlika u ocjenama između učenika i učenica nije statistički značajna (p = 0,36).

U Tablici 1 može se uočiti da učenici imaju statistički značajno veću vrijednost na skali ekstraverzije od učenica, dok učenice imaju statistički značajno veću vrijednost na skali ugodnosti od učenika. Na skali emocionalne stabilnosti učenice pokazuju statistički značajno manju vrijednost, a kod dimenzija savjesnosti i intelekta učenice i učenici se statistički značajno ne razlikuju.

Rezultati u Tablici 2 pokazuju da postoji statistički značajna povezanost između analiziranog skupa prediktorskih varijabli i kriterijske varijable i kod učenika i kod učenica. Mjera povezanosti između prediktorskih i kriterijske varijable kod učenika iznosi 0,70, a kod učenica 0,73. U oba poduzorka, i muškome i ženskome, otprilike 50 % varijabiliteta u ocjenama tjelesne i zdravstvene kulture moguće je objasniti poznavanjem rezultata na dimenzijama ličnosti velepetorog modela. Iz tablice je također vidljivo da kod učenika kriterijsku varijablu uspjeha u nastavi tjelesne i zdravstvene kulture značajno predviđaju dimenzije savjesnosti i ekstraverzije s negativnim predznakom, a kod učenica uspjeh u nastavi tjelesne i zdravstvene kulture značajno predviđaju dimenzije emocionalne stabilnosti i savjesnosti.

Tablica 2.

Rasprava

Rezultati istraživanja pokazuju da se prediktorskim skupom dimenzija ličnosti može uspješno predvidjeti kriterijska varijabla uspjeha u tjelesnoj i zdravstvenoj kulturi, kod učenika i učenica. Zanimljivo je da je u oba poduzorka multipla korelacija između dimenzija velepetorog modela i uspjeha u nastavi tjelesne i zdravstvene kulture iznosila oko 0,70, što znači da oko 50% varijabiliteta ocjene tjelesne i zdravstvene kulture možemo objasniti poznavanjem osobina ličnosti velepetorog modela. Takav rezultat ukazuje na veliku važnost koje osobine ličnosti imaju u školovanju, u ovom slučaju u nastavi tjelesne i zdravstvene kulture, i u potpunosti validira osnovni cilj istraživanja. Također, istraživanje ukazuje na primijenjenu važnost uporabe upitnika ličnosti u školskome kontekstu.

Rezultati istraživanja također su pokazali da je u oba poduzorka, i muškom i ženskom, značajan prediktor u nastavi tjelesne kulture bila dimenzija savjesnosti, što je u skladu s općenitim nalazima (Chamorro-Premuzic, 2007; Chamorro-Premuzic i Furnham, 2003) i s nalazima u Hrvatskoj (Kozina i Rebernjak, 2009; Matešić i sur., 2009). Dakle, savjesnost, kao dimenzija ličnosti koja subsumira osobine rada, odgovornosti, kontrole impulsa i urednosti (Mlačić i Šakić, 2008), ponovno se pokazala važnome u školskom

kontekstu. Ta dimenzija ličnosti predstavlja sposobnost samokontrole u smislu disciplinirane težnje ciljevima i striktno pridržavanje osobnih principa. Savjesne osobe su snažne volje koja je usmjerena cilju, točne su i pouzdane. Stoga se ta osobina, uz uspjeh u tjelesnoj i zdravstvenoj kulturi u školi, pojavljuje kao važna karika u raznim oblicima uspješnosti. Ponajprije u radnoj uspješnosti, jer je utvrđeno da je savjesnost najvažnija dimenzija ličnosti u radnome kontekstu čija je prediktivna valjanost generalizirana u različitim poslovima i uvjetima (Barrick i Mount, 1991). Hough (1992) potvrđuje te zaključke navodeći također da je savjesnost značajan prediktor različitih aspekata radnog izvođenja. Ta je osobina ličnosti također izolirana i kao značajan prediktor za uspjeh u sportskoj gimnastici kod studenata (Čuljak, Markota i Kovačević, 2010).

Zanimljiv je i nalaz o ekstraverziji kao negativnom prediktoru uspjeha u nastavi tjelesne i zdravstvene kulture u muškome poduzorku. To može značiti da su učenici koji su introvertirani, odnosno koji su mirni, povučeni i sramežljivi, uspješniji u nastavi tjelesne i zdravstvene kulture, ali može značiti i da ocjena iz toga predmeta djelomično odražava i aspekte pridržavanja discipline.

Također, u ženskome poduzorku značajnim prediktorom uspjeha u tjelesnoj i zdravstvenoj kulturi pokazala se dimenzija emocionalne stabilnosti na osnovi čega se može zaključiti da dimenzija koja subsumira osobine stabilnosti, nerazdražljivosti i staloženosti ima ulogu u uspjehu u nastavi tjelesne i zdravstvene kulture posebno kod učenica. Neuroticizam, suprotni pol emocionalnoj stabilnosti, povezuje se s iskustvom anksioznosti, nervoze, tuge i drugih neugodnih emocija. Upravo je adolescencija razdoblje u kojem se mladi susreću s mnogobrojnim razvojnim promjenama u različitim područjima života, pa je stoga važno djelotvorno se suočiti sa stresom. Od djetinjstva prema ranoj adolescenciji razina stresa raste, oko petnaeste godine dostiže maksimum i na toj razini ostaje kroz adolescenciju (Seiffge-Krenke, 2000). Navedeno se oslikava, odnosno utječe i na uspješnost u tjelesnoj i zdravstvenoj kulturi, posebno kod učenica. Djevojke doživljavaju veći broj stresnih događaja, a u većini slučajeva doživljavaju veći intenzitet stresa nego mladići (Seiffge-Krenke, 1993; Garton i Pratt, 1995), pa su i anksioznije (Harckiewicz, Elliot, Barron, Carter, i Lehto, 1997). Utjecaj na emocionalnu stabilnost, a time i na povezanost s razinom uspjeha u tjelesnoj i zdravstvenoj kulturi mogla bi imati i tjelesna slika o sebi. Naime, nezadovoljstvo svojim izgledom, tj. tjelesnom težinom (Cash, 1994), zatim strah od neprihvaćenosti u slučaju neuspjeha ili uspjeha od vršnjaka ili čak nastavnika, može utjecati na motivaciju i angažiranost na nastavi tjelesne i zdravstvene kulture.

Rezultati istraživanja pokazali su i da su učenici postigli više rezultate na skali ekstraverzije od učenica, na osnovi čega se može zaključiti da su se učenici u ovom uzorku opisali kao društveniji, otvoreniji, komunikativniji, samouvjereniji i hrabriji, a učenice su se opisale kao povučenije i sramežljivije. Ispitujući razlike trideset i sedam nacija u dimenzijama ličnosti, Lynn i Martin (1997) dobivaju podatak da su muškarci pokazali veće razine ekstraverzije u 30 zemalja, što je u skladu s rezultatima ovog istraživanja. No, Costa, Terracciano i McCrae (2001) navode da muško-ženske razlike u

ekstraverziji mogu potjecati i iz predominantnog sadržaja koji mjeri primijenjena skala ekstraverzije. Budući da ekstraverzija mjeri i aspekte asertivnosti, traženja uzbuđenja, kao i topline i druželjubivosti, ako prva dva aspekta prevladaju, mogu se očekivati veći rezultati muškaraca na skali ekstraverzije, dok se suprotno dobiva ako prevladaju druga dva aspekta. Rezultati ovoga istraživanja također ukazuju na to da su na skali ugodnosti više rezultate postigle učenice. Ugodnost se može konceptualizirati kao latentna varijabla koja podrazumijeva ponašanja kao što su ljubaznost, kooperativnost i sklonost pomaganju (Krapić, 2005). U analizi spolnih razlika na dimenzijama ličnosti 26 nacija Costa i sur. (2001) naglašavaju da su u velikoj većini kultura žene također postigle više rezultate na ugodnosti. Na kraju, rezultati ovoga istraživanja pokazali su da su učenici postigli više rezultate na skali emocionalne stabilnosti. Dakle, kod učenica su uočene veće razine emocionalne nestabilnosti, tj. neuroticizma budući da su se učenice opisale kao nervoznije, razdražljivije i nestrpljivije od učenika. To je u skladu s istraživanjem Lynna i Martina (1997) koji su u svih 37 ispitanih kultura dobili podatak o višoj razini neuroticizma žena, što potvrđuju i Costa i sur. (2001). Takvi rezultati u skladu su i s istraživanjem u Hrvatskoj koje je provela Nekić (2006) na uzorku od 403 sudionika u dobi od 14 do 25 godina, u kojem se navodi da su djevojke manje emocionalno stabilne, ali su ipak ugodnije u odnosu na mladiće.

Zaključak

Glavni rezultat ovoga istraživanja odnosi se na važnost dimenzija ličnosti prema velepetorom modelu u kontekstu uspjeha u nastavi tjelesne i zdravstvene kulture. Naime, pokazalo se da se na temelju poznavanja rezultata na dimenzijama ličnosti, i kod učenika i kod učenica, može predvidjeti čak 50 % varijabiliteta ocjena u predmetu tjelesna i zdravstvena kultura, što je donekle i iznenađujući rezultat. Bez obzira na snagu toga odnosa, možemo sa sigurnošću zaključiti da su osobine ličnosti važne u školskom uspjehu i da je važna uporaba upitnika ličnosti u školskome kontekstu. Također možemo zaključiti da smo replicirali nalaze o važnosti savjesnosti u procesu obrazovanja (Chamorro-Premuzic, 2007; Chamorro-Premuzic i Furnham, 2003; Kozina, i sur., 2009; Matešić i sur., 2009) i proširili ih na novu domenu, nastave tjelesne i zdravstvene kulture. Dakle, odgovorni, uredni i radišni učenici i učenice imaju veću vjerojatnost boljega uspjeha u nastavi tjelesne i zdravstvene kulture. Također, pokazale su se neke spolne specifičnosti, u smislu ekstraverzije kao negativnoga prediktora uspjeha u nastavi kod učenika i emocionalne stabilnosti kao pozitivnoga prediktora kod učenica. Dakle, mirniji i šutljiviji dječaci i stabilnije, manje razdražljive djevojčice imaju veću vjerojatnost boljega uspjeha u nastavi tjelesne i zdravstvene kulture. Međutim, naravno da navedene zaključke treba replicirati na većim i reprezentativnijim uzorcima, po mogućnosti u više kultura, kako bi se moglo suditi o njihovoj mogućnosti generaliziranja.

Što se tiče spolnih razlika u dimenzijama ličnosti, dobiveno je da su, u skladu s istraživanjima u brojnim kulturama (Costa i sur., 2001; Lynn i Martin,1997) učenice postigle niži rezultat od učenika na skali emocionalne stabilnosti, a viši na skali

ugodnosti. Dakle, učenice su pokazale višu razinu anksioznosti, razdražljivosti i nižu razinu stabilnosti od učenika. Isto tako pokazale su se miroljubivijima, sklonijima pomaganju i empatičnijima od svojih muških kolega. Također, ovo je istraživanje pokazalo da su učenici postigli više rezultate na skali ekstraverzije od učenica. To znači da su se muški srednjoškolci opisali samouvjerenijima, hrabrijima, asertivnijima i energičnijima od učenica. Međutim, zbog nalaza o ovisnosti spolnih razlika na dimenziji ekstraverzije o predominatnom sadržaju upitnika (Costa i sur., 2001), i ovaj rezultat treba oprezno interpretirati i pozvati na njegovu replikaciju na većim, reprezentativnijim i raznorodnijim uzorcima sudionika istraživanja.