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PSYCHOLOGICAL SPORTING TALENT AND INDICATORS OF MENTAL HEALTH AT YOUNG MALE AND FEMALE HANDBALL PLAYERS

PSIHOLOŠKI TALENT I OBILJEŽJA MENTALNOG ZDRAVLJA KOD RUKOMETASA I RUKOMETASICA

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Abstract: The main goal of the research is to determine gender differences in the subscales within Multidimensional Scale of Sports' Psychological Talents (MSSPT): Mental Energy Scale (MES), Modified Big Five Inventory (MBFI), Modified Short Hardiness Scale (MSHS), Modified Athletic Engagement Scale (MAES), Modified Athletic Identity Scale (MAIS), Psychological Skills Inventory for Sports (MPSIS) and Modified Optimism Scale (OS)-R. The samples of 105 male (M) and 54 female (F) handball players were examined (age range 12-16 years), members of the teams Prvo plinarsko društvo, Metalac (Zagreb) and Zamet (Rijeka) (M); Zamet (Rijeka) and Samobor (F), in the beginning of 2015. The results revealed that six statistically significant gender differences are found: enthusiasm and motivation (higher means for females), extraversion, resilience, self-confidence and concentration (higher means for males). The results provide the information about possible differentiated approach of the coaches when working with male and female handball players.

Key words: measuring instruments, psychological talents, sport performance, health.

INTRODUCTION

The objective of this article is to gain insight into the gender differences in psychological characteristics that reflect sports talents and some indicators of mental health in top young handball players.

Interdisciplinary approach in handball is necessary for sport development of the athletes, to enable them to fulfill the tasks during the processes of sport competition or/and sport training (Abernethy, 2005; Morrow & James, 2005). Handball is dynamic sports game, which requests high-level demands on the athletes. Handball implies highly intensive

Apstrakt: Osnovni cilj istraživanja bio je utvrditi razlike u subskalama unutar Višedimenzionalne Skale Psiholoških Sportskih Talenata (MSSPT): Modificirane skale mentalne energije (MES), Modificiranog Big Five Inventara (MBFI), Modificirane skale sportskog zalaganja (MAES), Modificirane skale psiholoških vještina (MPSIS) i Modificirane skale optimizma (MOS). Ispitani su uzorci od 105 rukometaša (M) i 54 rukometašice (Ž) (dobni raspon 12-16 godina), članova momčadi timova Prvo plinarsko društvo, Metalac (Zagreb) i Zamet (Rijeka) (M), Zamet (Rijeka) i Samobor (Ž), početkom 2015. godine. Rezultati su pokazali da je pronađeno šest statistički značajnih spolnih razlika: u entuzijazmu i motivaciji (veće aritmetičke sredine za žene), ekstraverzija, ustrajnost, samopouzdanje i koncentracija (veće aritmetičke sredine za muškarce). Dobiveni rezultati daju informacije o mogućem diferenciranom pristupu trenera pri radu s rukometašima i rukometašicama.

Ključne riječi: mjerni instrumenti, psihološki talenti, sportska izvedba, zdravlje.

Uvod

Tema ovog članka je stjecanje uvida u spolne razlike u psihološkim karakteristikama koje odražavaju sportski talent i u nekoliko indikatora mentalnog zdravlja kod vrhunskih mladih rukometaša.

Interdisciplinarni pristup u rukometu je potreban za sportski razvoj pojedinca, koji će mu omogućiti da ispuni zadatke tijekom procesa sportskog natjecanja i / ili sportskog treninga (Abernethy, 2005; Morrow & James, 2005). Rukomet je dinamična sportska igra koja postavlja sportašima zahtjeve na visokoj razini. Rukomet podrazumijeva visoko intenzivnu motoričku aktivnost, te iziskuje visoku razinu bazičnih i specifičnih

motor activity needs high level of basic and specific motor abilities (e.g. explosive strength, agility and speed).

The importance of detecting psychological sports talents

Top athletes in certain sports are very often equalized among themselves in many relevant elements of sport-related characteristics (morphological, psychological, motor, etc.) (Rogulj et al., 2006). Therefore, psychological characteristics could sometimes be decisive in competition and training processes, by differentiating between successful and less successful teams or individual athletes. Numerous studies are conducted to investigate important psychological characteristics of the athletes. Very often, the focus in these studies was the motivation of the athletes (Seifriz, Duda & Chi, 1992; Mead, Drowatzky & Hardin-Crosby, 2000), traits and moods (Berger et al., 1997), etc. Except the motivation, the athletes' behaviors in critical situations during a competition and during training process are particularly important (James & Collins, 1997; Wiggins, 1998), as same as in situations that emphasize anxiety (Dunn & Nielsen, 1996). The importance of detecting psychological sports talents is particularly important when investigating relevant psychological characteristics in young players.

Multidimensional Scale of Sports' Psychological Talents

In this study, several psychological characteristics are chosen to be examined in male and female handball players, within new battery of measuring instruments called Multidimensional Scale of Sports' Psychological Talents (MSSPT) (Sindik, Missoni & Horvat, 2015; Sindik, Botica & Fiškuš, 2015; Sindik & Bauer Čuk, 2016; Schuster, Sindik & Kavran, 2016).

Athlete engagement is a concept developed by Lonsdale, Hodge and Jackson (2007). The concept of athlete engagement consists of four dimensions: confidence, dedication, vigor, and enthusiasm (Lonsdale et al., 2007). *Mental energy* describes specific biological processes involved in the capacity of brain neurons to do physical work, i.e. to perform physical activity. It is related to the mood or motivational and cognitive processes (Sindik et al., 2015). *Five-Factor Model* and the *Big Five Model* assume that personality can be described with a small number of fundamental constructs (Macdonald, Bore & Munro, 2008). According to these theories, five factors of personality can be described: extraversion, agreeableness, conscientiousness, emotional stability and openness to experience (Pervin & John, 1997). The concept of *optimism* describes expectancies for the future. Optimists assume that adver-

motoričkih sposobnosti (npr. eksplozivna snaga, agilnost i brzina).

Važnost otkrivanja psiholoških sportskih talenata

Vrhunski sportaši u pojedinim sportovima često su izjednačeni međusobno u mnogim relevantnim elementima za sport povezanih karakteristika (morfoloških, psiholoških, motoričkih, itd.) (Rogulj i sur., 2006). Dakle, psihološke karakteristike ponekad mogu biti odlučujuće u procesima treninga i natjecanja, kao i u razlikovanju između uspješnih i manje uspješnih timova ili pojedinih sportaša. Brojne studije su provedene kako bi se istražile važne psihološke karakteristike sportaša. Vrlo često, naglasak u ovim studijama je motivacija sportaša (Seifriz, Duda i Chi, 1992; Mead, Drowatzky & Hardin-Crosby, 2000), osobine i raspoloženja (Berger et al., 1997), itd. Osim motivacije, ponašanje sportaša u kritičnim situacijama tijekom natjecanja i tijekom trenažnog procesa je posebno važno (James & Collins, 1997; Wiggins, 1998), kao i u situacijama koje naglašavaju tjeskobu (Dunn & Nielsen, 1996). Otkrivanje psiholoških sportskih talenata je posebno važno kada se istražuju relevantne psihološke karakteristike u mladim igrača.

Višedimenzionalna Skala Psiholoških Sportskih Talenata (MSSPT)

U ovom istraživanju je više psiholoških karakteristika izabrano da bude ispitano u rukometaša i rukometašiča, primjenom nove baterije mjernih instrumenata nazvane Višedimenzionalna Skala Psiholoških Sportskih Talenata (MSSPT) (Sindik, Missoni i Horvat, 2015, Sindik, Botica i Fiškuš 2015; Sindik-Bauer Čuk, 2016, Schuster, Sindik-Kavran, 2016). *Sportska angažiranost* je koncept koji su razvili Lonsdale, Hodge i Jackson (2007). Koncept sportska angažiranost sastoji se od četiri dimenzije: povjerenja, posvećenosti, snage i entuzijazma (Lonsdale et al., 2007). *Mentalna energiziranost* opisuje specifične biološke procese, uključene u neuronima mozga za fizički rad, tj. obavljanje fizičke aktivnosti. Odnosi se na raspoloženje ili motivacijske i kognitivne procese (Sindik i sur., 2015). *Pet-Faktorski model i Velepatori model ličnosti* pretpostavljaju da se ličnost može opisati s malim brojem osnovnih konstrukata (Macdonald, Bore & Munro, 2008). Prema tim teorijama, pet je faktora ličnosti: ekstraverzija, ugodnost, savjesnost, emocionalna stabilnost i otvorenost prema iskustvu (Pervin & John, 1997). Koncept *optimizma* opisuje očekivanja vezana za budućnost. Optimisti pretpostavljaju da se nevoljama može uspješno rukovati, dok su pesimisti neodlučni i imaju tendenciju predviđanja katastrofa (Seligman, 1990). *Psihološke vje-*

sity can be handled successfully, while the pessimists are more doubtful, hesitant, and tend to anticipate disaster (Seligman, 1990). *Psychological skills* (Cox, Liu & Qiu, 1996; Meyers, Bourgeois, LeUnes, & Murray, 1999) are invented to differentiate between the mental skills in various sport quality levels, from the recreational to elite level athletes (Cox et al., 1996; Meyers et al., 1999). *Mental toughness* could be the natural or developed psychological ability that enable to someone to cope better than his/her opponents with the many demands (of the competition, training and lifestyle) in sport situation. Mentally tough individual tends to remain determined, focused, confident, and in control under pressure (Jones, 2002). *Hardiness* is a set of attitudes, beliefs, and behavioral tendencies, with three positively linked components: commitment, control and challenge (Kobasa, 1979; Hanton, Evans & Neil, 2003). In the concept of hardiness in MSSPT, the original hardiness scales are combined with the aspect of resilience in mental toughness. *Athletic identity* describes the degree of strength and exclusivity to which a person is identified with her/his athlete role (Brewer, Van Raalte, & Linder, 1990). It is a significant social dimension of self-concept, which is affected by experience, relations with others and involvement in sport activities (Cornelius, 1995).

In previous studies, the researchers found that the most significant differences are found in dimensions of MSSPT between the players of different age groups, while no differences are found according to winning medals in junior state championship or according to the membership in the junior national team (Sindik & Bauer Čuk, 2016). Two profiles of male handball players are found in this study: in the first cluster were older players with higher means in self-esteem and mental energy as strength while making errors, while in the second cluster were grouped younger players with higher means in all other psychological characteristics (Sindik & Bauer Čuk, 2016). In this and all other studies conducted using MSSPT (Sindik, Missoni & Horvat, 2015; Sindik, Botica & Fiškuš, 2015; Schuster, Sindik & Kavran, 2016), satisfactorily reliability type internal consistency is found almost in all psychological concepts and subscales, except in Modified Big Five Inventory (MBFI). In MBFI, all subscales were unsatisfactorily reliable (Sindik, Missoni & Horvat, 2015).

On the other hand, all abovementioned psychological characteristics are reflecting both sports talents and some indicators of mental health as well. Namely, all chosen psychological characteristics are desirable from the aspect of psychological mental health, directly (neuroticism, anxiety control, ability to cope with stress) or indirectly. The insight in gender differences could provide the infor-

štine (Cox, Liu & Qiu, 1996; Meyers, Bourgeois, LeUnes & Murray, 1999) su izmišljene da bi razlikovale mentalne sposobnosti sportaša različitih razina sportske kvalitete, od rekreativnih do elitnih sportaša (Cox et al., 1996; Meyers et al., 1999). *Mentalna čvrstoća* je prirodna ili razvijena fizička ili psihološka sposobnost koja omogućuje nekome da se nosi bolje od drugih sportaša s brojnim zahtjevima (natjecanje, trening i način života) u sportskoj situaciji. Psihički čvrst pojedinac teži da ostane određen, usredotočen, uvjeren, i pod kontrolom kad je pod pritiskom (Jones, 2002). *Otpornost* je skup stavova, uvjerenja i sklonosti u ponašanju, s tri pozitivno povezane komponente: predanost, kontrola i izazov (Kobasa, 1979; Hanton, Evans & Neil, 2003). U konceptu mentalne čvrstoće u MSSPT, izdržljivost je dana u kombinaciji s tri aspekta otpornosti. *Sportski identitet* opisuje stupanj snage i ekskluzivnost na kojoj se osoba poistovjećuje sa sportaševom ulogom (Brewer, Van Raalte & Linder, 1990). To je značajna društvena dimenzija koncepta o sebi, koji je pod utjecajem iskustva, odnosa s drugima i uključivanja u sportske aktivnosti (Cornelius, 1995).

U prethodnim studijama, istraživači su otkrili da su najznačajnije razlike pronađene u dimenzijama MSSPT između rukometaša različitih dobnih skupina, a nema pronađene razlike prema osvajanju medalje na juniorskom državnom prvenstvu ili prema članstvu u juniorskoj reprezentaciji (Sindik i Bauer Čuk, 2016). Dva profila rukometaša pronađena su u ovoj studiji: u prvom klasteru bili su stariji igrači s više samopouzdanja i mentalne energije u situacijama počinjenih pogreški, dok su u drugom klasteru bili grupirani mlađi rukometaši s naglašenijim ostalim psihološkim karakteristikama (Sindik & Bauer Čuk, 2016). U ovoj i svim drugim studijama korištenjem MSSPT (Sindik, Missoni & Horvat, 2015; Sindik, Botica & Fiškuš, 2015; Schuster Sindik & Kavran, 2016), zadovoljavajuća pouzdanost tipa unutarnje konzistencije je pronađena u gotovo svim psihološkim konceptima i subskalama, osim za Modificirani inventar Big Five (MBFI). U MBFI, sve subskale su bile nepouzdanane (Sindik, Missoni i Horvat, 2015).

S druge strane, sve gore navedene psihološke karakteristike odražavaju i sportske talente i nekoliko indikatora mentalnog zdravlja istovremeno. Naime, sve izabrane psihološke karakteristike su poželjne s aspekta psihološkog mentalnog zdravlja, izravno (neuroticizam, kontrola anksioznosti, sposobnost nošenja sa stresom) ili posredno. Uvid u spolne razlike može pružiti informacije o karakteristikama koje su važne za trenera da bi usredotočio svoju pozornost na njih, kada radi sa sportašima u muškoj ili ženskoj rukometnoj momčadi.

mation about the characteristics that are more important to coaches to focus their attention, when working with the athletes in male or female handball team.

The main goal of this research is to determine gender differences in subscales within Multidimensional Scale of Sports' Psychological Talents (MSSPT): Mental Energy Scale (MES), Modified Big Five Inventory (MBFI), Modified Athletic Engagement Scale (MAES), Modified Athletic Identity Scale (MAIS), Modified Short Hardiness Scale (MSHS), Modified Psychological Skills Inventory for Sports (MPSIS) and Modified Optimism Scale (MOS).

METHOD

Sample

The research was conducted on a purposeful sample of 159 subjects 105 male (M) and 54 female (F) handball players (age range 12-16 years), members of the handball teams: Prvo plinarsko društvo (N=68), Metalac (N=14) (Zagreb) and Zamet (N=23) (Rijeka) (M); Zamet (N=19) (Rijeka) and Samobor (N=35) (F), in the beginning of 2015. Average age of the subjects was 13.80 ± 4.12 years, while their experience of training handball was 5.31 ± 3.61 years.

Measuring instruments

In this study, seven measuring instruments from Multidimensional Scale of Sports' Psychological Talents (MSSPT) are used. The theoretical frameworks of these psychological measuring instruments are obtained from belonging measuring instruments, but with significant modifications: Modified Life Orientation Test (in this study MOS, 10 items) (Scheier, Carver & Bridges, 1994), Modified Big Five Inventory-10 (MBFI, 10 items) (Rammstedt & John, 2007), Modified Athlete Engagement Questionnaire (MAES, 16 items) (Lonsdale, Hodge & Jackson, 2007), Modified Short Hardiness Scale (MSHS, 15 items), Modified Athletic Identity Scale (MAIS, 11 items), Mental Energy Scale (MES, 14 items) (Sindik, Botica & Fiškuš, 2015) and Psychological Skills Inventory for Sports (MPSIS, 44 items) (Mahoney et al., 1987). In all the questionnaires, the five-point Likert-type scale is used, in range from 1 (absolutely disagree) to 5 (absolutely agree). In this study, as well as in previous study conducted only in males (Sindik, Missoni & Horvat, 2015), MBFI obtained unsatisfactorily reliable subscales. All other subscales in all questionnaires revealed satisfactorily reliability type internal consistency (Cronbach's alpha), in range from 0.55 to 0.92. All subscales and their belonging to certain psychological concepts are observable in Table 1.

Glavni cilj ovog istraživanja bio je utvrditi spolne razlike u subskalama unutar Višedimenzionalne Skale Psiholoških Sportskih Talenata (MSSPT): Skale mentalne energije (MES), Modificiranog inventara Big Five (MBFI), Modificirane skale sportskog angažmana (MAES), Modificirane skale sportskog identiteta (MAIS), Modificirane kratke skale otpornosti, Modificiranog inventara sportskih psiholoških vještina (MPSIS) i Modificirane skale optimizma (MOS).

METODA

Uzorak

Istraživanje je provedeno na namjernom uzorku od 159 ispitanika, 105 rukometaša (M) i 54 rukometašica (Ž) (raspon dobi od 12-16 godina), članova rukometnih klubova: Prvo plinarsko društvo (N=68), Metalac (N=14) (Zagreb) i Zamet (N = 23) (Rijeka) (M); Zamet (N=19) (Rijeka) i Samobor (N=35) (Ž), na početku 2015. godine. Prosječna dob ispitanika bila je $13,80 \pm 4,12$ godina, a iskustvo treninga rukometa bilo je $5,31 \pm 3,61$ godina.

Mjerni instrumenti

U ovom istraživanju, koristilo se sedam mjernih instrumenata iz Višedimenzionalne Skale Psiholoških Sportskih Talenata (MSSPT). Teoretski okviri tih psiholoških mjernih instrumenata dobiveni su iz pripadnih mjernih instrumenata, ali sa značajnim modifikacijama: Modificirana skala optimizma (u ovom istraživanju MOS, 10 stavki) (Scheier, Carver & Bridge, 1994), Modificirani inventar Big Five (MBFI, 10 stavki) (Rammstedt & John, 2007), Modificirana skala sportske angažiranosti (MAES, 16 stavki) (Lonsdale, Hodge i Jackson, 2007), Modificirana kratka skala otpornosti (MSHS, 15 stavki), Modificirana skala sportskog identiteta (MAIS, 11 stavki), Skala mentalne energije (MES, 14 stavki) (Sindik, Botica i Fiškuš, 2015) i Modificirana skala psiholoških sportskih vještina (MPSIS, 44 stavki) (Mahoney i sur., 1987). U svim anketama, koristila se petostupanjska Likertova skala, u rasponu od 1 (uopće se ne slažem) do 5 (potpuno se slažem). U ovom istraživanju, kao i u prethodnom istraživanju provedenom samo na rukometašima (Sindik, Missoni i Horvat, 2015), za MBFI su subskale bile nezadovoljavajuće pouzdane subskale. Sve ostali subskale u svim ostalim upitnicima pokazale su zadovoljavajuće pouzdanosti tipa unutarnje konzistencije (Cronbach alfa), u rasponu od 0,55 do 0,92. Sve subskale i njihove pripadnosti određenim psihološkim konceptima vidljivi su u tablici 1.

Procedure

According to the Ethical Codex of the Croatian Psychological Chamber, psychologists conducted the measurement of psychological characteristics. The subjects voluntarily and anonymously took part in the research, with the consent of their coaches, clubs' managements and themselves, as well as with the parents' signing of the informed consent, for all the players.

Statistical analysis

The overall results for certain subscales have been defined as simple linear combinations for the estimations on each item of the certain subscale. Cronbach alpha coefficients are used to determine internal consistency reliability of the subscales in psychological measuring instruments. Gender differences were tested using Man Whitney U-test. Statistical analyses were conducted using the statistical program IBM SPSS 23.0, while all statistical significances are commented on the level of $p < 0.05$.

RESULTS AND DISCUSSION

Among all analyzed gender differences in psychological talents and characteristics of mental health in young handball players, six statistically significant differences are found, in the subscales, as following: enthusiasm and motivation (higher means for females), extraversion, resilience, self-confidence and concentration (higher means for male handball players) (Table 1).

Table 1. Gender differences in psychological talents and characteristics of mental health in young handball players

Varijable / Variables	Spol / Gender	Arit. sred. / Mean	Std. raspršenje / Std. Deviation	Man Whitney U-test (p)
samocijenjenje / self-esteem	Muški / Male	4.048	0.815	.153
	Ženski / Female	4.318	0.623	
posvećenost / dedication	Muški / Male	4.381	0.708	.426
	Ženski / Female	4.511	0.526	
energija / energy	Muški / Male	4.433	0.702	.223
	Ženski / Female	4.627	0.438	
entuzijazam / enthusiasm	Muški / Male	4.641	0.665	.044
	Ženski / Female	4.830	0.249	
mentalna energiziranost / mental energy	Muški / Male	4.270	0.732	.657
	Ženski / Female	4.344	0.470	
ekstraverzija / extraversion	Muški / Male	3.680	0.901	.001
	Ženski / Female	3.136	0.581	
savjesnost / conscientiousness	Muški / Male	3.494	0.745	.643
	Ženski / Female	3.409	0.781	
ugodnost / agreeableness	Muški / Male	4.192	0.708	.565
	Ženski / Female	4.091	0.796	

Postupak

Prema Etičkom kodeksu Hrvatske psihološke komore, psiholozi su proveli mjerenje psiholoških karakteristika. Ispitanici su dobrovoljno i anonimno sudjelovali u istraživanju, uz suglasnost njihovih trenera, klubova i uprave, uz potpisivanje informiranog pristanka roditelja za sve sportaše.

Statistička analiza

Ukupni rezultati za pojedine subskale definirani su kao jednostavne linearne kombinacije za procjene za svaku stavku određene subskale. Cronbach alfa koeficijenti koristili su se za utvrđivanje pouzdanosti tipa unutarne konzistencije, za sve subskale u psihološkim mjernim instrumentima. Spolne razlike su testirane pomoću Man Whitneyeva U-testa. Statističke analize provedene su pomoću statističkog programa IBM SPSS 23.0, dok su sve statistički značajne razlike komentirane na razini rizika $p < 0.05$.

REZULTATI I RASPRAVA

Među svim analiziranim spolnim razlikama u psihološkim talentima i karakteristikama mentalnog zdravlja u mladih rukometaša/ica, šest statistički značajnih razlika pronađeno je u subskalama: entuzijazma i motivacije (veće aritmetičke sredine za rukometašice), ekstraverzija, ustrajnost, samopouzdanje i koncentracija (veće aritmetičke sredine za rukometaše) (tablica 1).

Tablica 1. Spolne razlike u psihološkim talentima i obilježjima mentalnog zdravlja kod mladih rukometaša i rukometašica

otvorenost / <i>openness to experience</i>	Muški / <i>Male</i>	4.404	0.707	.560
	Ženski / <i>Female</i>	4.500	0.577	
neuroticizam / <i>mental stability</i>	Muški / <i>Male</i>	4.180	0.964	.909
	Ženski / <i>Female</i>	4.205	0.648	
vlastiti identitet / <i>self-identity</i>	Muški / <i>Male</i>	4.265	0.747	.896
	Ženski / <i>Female</i>	4.288	0.528	
ekskluzivnost / <i>exclusivity</i>	Muški / <i>Male</i>	4.308	0.626	.555
	Ženski / <i>Female</i>	4.394	0.479	
socijalni identitet / <i>social identity</i>	Muški / <i>Male</i>	4.385	0.558	.480
	Ženski / <i>Female</i>	4.477	0.475	
negativni afektivitet / <i>negative affectivity</i>	Muški / <i>Male</i>	3.859	0.793	.568
	Ženski / <i>Female</i>	3.750	0.768	
predanost / <i>commitment</i>	Muški / <i>Male</i>	4.436	0.429	.524
	Ženski / <i>Female</i>	4.372	0.356	
kontrola / <i>control</i>	Muški / <i>Male</i>	4.470	0.541	.620
	Ženski / <i>Female</i>	4.408	0.425	
izazov / <i>challenge</i>	Muški / <i>Male</i>	4.184	0.509	.293
	Ženski / <i>Female</i>	4.310	0.432	
ustrajnost / <i>resilience</i>	Muški / <i>Male</i>	3.776	0.665	.026
	Ženski / <i>Female</i>	3.421	0.600	
motivacija / <i>motivation</i>	Muški / <i>Male</i>	4.047	0.733	.018
	Ženski / <i>Female</i>	4.264	0.159	
samopouzdanje / <i>self-confidence</i>	Muški / <i>Male</i>	3.387	0.784	.002
	Ženski / <i>Female</i>	2.843	0.442	
anksioznost / <i>anxiety</i>	Muški / <i>Male</i>	2.617	0.612	.705
	Ženski / <i>Female</i>	2.561	0.625	
mentalna pripremljenost / <i>mental preparedness</i>	Muški / <i>Male</i>	2.745	0.876	.542
	Ženski / <i>Female</i>	2.621	0.718	
naglasak na momčad / <i>emphasis on team</i>	Muški / <i>Male</i>	3.474	0.490	.103
	Ženski / <i>Female</i>	3.669	0.489	
koncentracija / <i>concentration</i>	Muški / <i>Male</i>	2.905	0.584	.003
	Ženski / <i>Female</i>	2.491	0.500	
optimizam / <i>optimism</i>	Muški / <i>Male</i>	4.052	0.513	.525
	Ženski / <i>Female</i>	4.128	0.401	

Legend - subscales: Modified Big Five Inventory (MBFI) - extraversion, agreeableness, conscientiousness, emotional stability, intellect; Modified Athletic Engagement Scale (MAES) - dedication, self-esteem, enthusiasm and energy; Mental Energy Scale (MES) - mental energy; Modified Short Hardiness Scale (MSHS) - commitment, control, challenge and resilience; Modified Athletic Identity Scale (MAIS) - self-identity, exclusivity, negative affectivity and social identity; Modified Optimism Scale (MOS) - optimism; Modified Psychological Skills Inventory for Sports (MPSIS): motivation, self-confidence, anxiety, mental preparedness, emphasis on team, concentration

The main findings obtained reflect six statistically significant gender differences. Enthusiasm (the subscale of Modified Athletic Engagement Scale) and motivation (aspect of Modified Psychological Skills Inventory for Sports) are more emphasized in female handball players. The most

Legenda - subskale: Modificirani inventar Big Five (MBFI) - ekstraverzija, savjesnost, ugodnost, otvorenost, neuroticizam; Modificirana skala sportske angažiranosti (MAES) - samocijenjenje, posvećenost, energija, entuzijazam; Skala mentalne energije (MES) - mentalna energiziranost; Modificirana kratka skala otpornosti (MSHS) - predanost, kontrola, izazov, ustrajnost; Modificirana skala sportskog identiteta (MAIS) - vlastiti identitet, ekskluzivnost, socijalni identitet, negativni afektivitet; Modificirana skala optimizma (MOS) - optimizam; Modificirana skala psiholoških sportskih vještina (MPSIS): motivacija, samopouzdanje, anksioznost, mentalna pripremljenost, naglasak na momčad, koncentracija

Glavni dobiveni rezultati odražavaju šest statistički značajnih spolnih razlika. Entuzijazam (subskala MAES) i motivacija (aspekt MPSIS) su izraženiji u rukometašica. Najrazumnije objašnjenje moglo bi se naći u ulozi

reasonable explanation could be found in a specific role of handball coaches, who could ensure high level of enthusiasm of female players (Lonsdale et al., 2007), what could have an impact on keeping high level of motivation. Moreover, higher level of extraversion, resilience, self-confidence and concentration in male handball players could be also explained in terms of role of the coach in certain club, but also related with specific features of certain group of players. Unexpected results could be only higher level of extraversion in male handball players, which is contrary to the expectations (Macdonald et al., 2008). It could be explained in terms of specific features of certain group of players, but also the period of adolescence, with high importance of the peers in this life period. Although, extraversion is a subscale from MBFI, which is not enough reliable.

The benefit of this research is the application of MSSPT in investigating gender differences among the athletes, particularly in young handball players, with confirming good psychometrical characteristics of all psychological subscales, except those from MBFI.

The main shortcoming of the research is the fact that MSSPT is still in the phase of developing, while the MBFI has to be replaced with better measuring instrument, maybe with more items. Moreover, in spite of relative equalizing of the participants according to the level of sport excellence, the samples are not randomized.

In future research it would be useful to improve the quality of MBFI (in terms of its psychometric properties), applying it on a larger and more representative samples of athletes. Practical implication of this study could be focused on determining orientation gender-adjusted standards in chosen psychological characteristics in MSPPT. Namely, these results obtained provide the information about possible differentiated approach of the coaches when working with male and female handball players (Nideffer & Bond, 2012).

CONCLUSION

Six statistically significant gender differences are found. For enthusiasm and motivation, higher means are found for females), while for extraversion, resilience, self-confidence and concentration, higher means are found for male handball players. In spite of similar characteristics in many psychological and mental health features, across the genders, the results provide the information about differentiated approach of the coaches, when working with male or female handball players.

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The authors have contributed equally.

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rukometnih trenera, koji mogu osigurati visoku razinu entuzijazma kod rukometašica (Lonsdale et al., 2007), što bi moglo imati utjecaja na održavanje visoke razine motivacije. Također, viša razina ekstraverzije, otpornosti, samopouzdanja i koncentracije kod rukometaša mogu istovjetno biti objašnjeni ulogom trenera u nekom klubu, ali može biti i povezana sa specifičnim obilježjima određene skupine igrača. Neočekivani rezultati mogu biti samo viša razina ekstraverzije kod rukometaša, što je suprotno očekivanjima (MacDonald et al., 2008). To bi se moglo objasniti u smislu posebnih obilježja određene skupine igrača, ali i razdoblja adolescencije, s visokim važnosti vršnjaka u tom životnom periodu. Međutim, ekstraverzija je i subskala iz MBFI, koja nije dovoljno pouzdana.

Praktična korist ovog istraživanja je primjena MSSPT u istraživanju spolnih razlika među sportašima, osobito kod mladih rukometaša, a potvrđene su i dobre psihometrijske karakteristike većine psiholoških subskala, osim onih iz MBFI.

Glavni nedostatak istraživanja je činjenica da je MSSPT još uvijek u fazi razvoja, a MBFI mora se zamijeniti s boljim mjernim instrumentom, možda s većim brojem stavki. Osim toga, unatoč relativnom izjednačavanju sudionika prema razini sportske izvrsnosti, uzorci nisu slučajno odabrani.

U budućim istraživanjima bilo bi korisno poboljšati kvalitetu MBFI (u smislu njegovih psihometrijskih svojstava), primjenom na većim i reprezentativnijim uzorcima sportaša. Praktična implikacija ovog istraživanja može biti usmjerena na određivanje orijentacijskih spolno prilagođenih standarda u odabranim psihološkim karakteristikama unutar MSPPT. Naime, ovi rezultati daju informacije o mogućem diferenciranom pristupu trenera pri radu s rukometašima i rukometašicama (Nideffer & Bond, 2012).

ZAKLJUČAK

Pronađeno je šest statistički značajnih spolnih razlika. Za entuzijazam i motivaciju (izraženije su kod rukometašica), dok su za ekstraverziju, otpornost, samopouzdanje i koncentraciju, više vrijednosti prosječnih rezultata pronađene za rukometaše. Unatoč sličnim karakteristikama u mnogim psihološkim obilježjima i pokazateljima mentalnog zdravlja, podaci o spolnim razlikama daju informacije o mogućnostima diferenciranog pristupa trenera, kada radi s rukometašima ili rukometašicama.

Izjava autora

Autori pridonijeli jednako.

Konflikt interesa

Mi izjavljujemo da nemamo konflikt interesa.

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