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Affective Conditions of Young Athletes Before and After Organized Training Camp

Afektivna stanja mladih atletičara pre i posle organizovanih kolektivnih priprema

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Abstract: *The aim of this study was to examine the impact of a seven-day athletic training camp on the emotional state of young athletes. Changes in affective states were assessed using the PANAS instrument at the beginning and end of the training period. The sample included 84 athletes (25 boys and 59 girls), aged 8 to 18 years (M=11.89; SD=2.36), divided into three age groups: younger school age (10 years and younger), older school age (11–15 years), and high school age (16 years and older). All participants were members of the "Partizan" Athletic Club and with at least one year of training experience. Although descriptive indicators suggested slight changes in affective states, the combined analysis of variance (Mixed between-within subjects ANOVA) did not confirm the presence of statistically significant differences either between pre-test and post-test measures or across the age groups. The results, although statistically nonsignificant, indicate emotional stability among the athletes during the camp, likely due to their previous experience with similar programs, good organization, and social support. The findings highlight the importance of continuous monitoring of athletes' emotional states, particularly among younger age groups. For future studies, it is suggested to implement an extended experimental duration, a larger participant group, and to factor in additional psychological variables.*

Keywords: *PANAS, positive affect, negative affect, children*

Sažetak: *Cilj ovog istraživanja je bio da se ispita uticaj sedmodnevnih atletskih priprema na emocionalno stanje mladih sportista. Promene u afektivnim stanjima analizirane su primenom PANAS instrumenta na početku i kraju priprema. Uzorak je činilo 84 atletičara, 25 dečaka i 59 devojčica, uzrasta 8-18 godina (M=11.89; SD=2.36), podeljenih u tri grupe: mlađi školski uzrast (ispitanici od 10 godina i mlađi), stariji školski uzrast (11-15 godine) i srednjoškolski uzrast (16 godina i stariji). Svi ispitanici su članovi atletskog kluba „Partizan" i imaju najmanje godinu dana trenažnog iskustva. Iako su deskriptivni pokazatelji ukazivali na blage promene u afektivnim stanjima atletičara, kombinovana analiza varijanse, (Mixed between-within subjects ANOVA) nije potvrdila postojanje statistički značajnih razlika ni između početnog i završnog merenja, niti između starosnih grupa. Rezultati, iako statistički neznačajni, sugerišu emocionalnu stabilnost sportista tokom priprema, verovatno zahvaljujući prethodnom iskustvu sa sličnim programima, dobroj organizaciji, kao i socijalnoj podršci. Nalaz ističe važnost kontinuiranog praćenja emocionalnog stanja, posebno mlađih uzrasta. Za buduća istraživanja preporučuje se duži eksperimentalni period, veći uzorak i praćenje drugih psiholoških faktora.*

Ključne reči: *PANAS, pozitivni afekt, negativni afekt, deca*

Introduction

Athletics is a fundamental sport that encompasses basic basic human movements (Ćuk & Rakić, 2019). It is recommended for the healthy and well-balanced development of children and youth. In addition to physical development, participation in sports activities contributes to improved mental health and emotional well-being by enhancing resilience to stress and everyday challenges (Malagodi et al., 2024; Catalino & Fredrickson, 2011). Namely affective states are most commonly measured through two basic dimensions - positive affect (PA) and

Uvod

Atletika je bazičan sport, koja obuhvata osnovne oblike kretanja (Ćuk & Rakić, 2019). Preporučuje se za zdrav i uravnotežen razvoj dece i mladih. Pored fizičkog razvoja, učešće u sportskim aktivnostima doprinosi poboljšanju mentalnog zdravlja i emocionalnog blagostanja, povećavajući otpor na stres i svakodnevne izazove (Malagodi, et al., 2024; Catalino & Fredrickson, 2011).

Afektivna stanja se najčešće mere kroz dve osnovne dimenzije – pozitivan (PA) i negativan afekt (NA). Negativan afekt obuhvata neprijatna osećanja poput zlobe,

negative affect (NA)**.** Negative affect includes unpleasant emotions such as hostility, anger, sadness, fear, and worry (Diener et al., 2010). It impacts children's physical, psychological, and social health, lowering self-esteem, reducing the quality of relationships, and increasing anxiety and depression, which in turn narrows attentional focus (Basso et al., 1996). In contrast, positive affect reflects pleasant emotional experiences (Diener, 1984). It encompasses positive emotions and consists of feelings or experiences that are pleasant, satisfying, happy, and fulfilling. Low levels of positive affect are associated with lower life satisfaction (Bishop et al., 2011). Recent studies confirm that even short-term physical activity programs can produce immediate changes in the affective states of children and adolescents by increasing positive and reducing negative affect (Xin et al., 2025).

To assess these dimensions, the PANAS scale (Positive and Negative Affect Schedule) is frequently used due to its high reliability and sensitivity to short-term changes in emotional states (Watson et al., 1988; Crawford & Henry, 2004). This characteristic makes it suitable for evaluating the effects of seven-day training camps and other short-term sports activities (Laborde et al., 2016). Contemporary research indicates that the PANAS scale, in addition to measuring short-term mood changes, can serve as a useful tool for monitoring the effects of brief sports camps among youth (Liu et al., 2025).

An enthusiastic and supportive coach not only satisfies the need for relatedness but also promotes autonomous motivation in students, thereby increasing participation in physical education (White et al., 2021). Training fosters communication, cooperation, and the development of individual social skills beneficial for personal growth. Training camps, as an integral part of the training process, offer opportunities for both physical and psychological development, as well as social interaction. They also contribute to the development of work habits and team spirit. The relationship between the training process - specifically, sports camps - and athletes' emotional states remains underexplored. Therefore, the aim of this study was to examine the effects of a seven-day athletics training camp on athletes' emotional states by analyzing changes in the perception of positive and negative affect at the beginning and end of the camp. It was expected that the results would show an increase in positive affect and a decrease in negative affect, thus confirming the importance of training camp for the physical and psychosocial development of children and adolescents.

besa, tuge, straha i zabrinutosti (Diener, et al., 2010). Utiče na fizičko, psihološko, socijalno zdravlje dece. Snižava samopoštovanje, smanjuje kvalitet odnosa sa drugima i dovodi do anksioznosti i depresije koja sužava pažnju (Basso, et al., 1996). Nasuprot tome, pozitivan afekt odnosi se na prijatna emocionalna iskustva (Diener, 1984). Uključuje pozitivne emocije i sastoji se od pozitivnih, dobrih, prijatnih, srećnih i zadovoljavajućih osećanja ili iskustava. Nizak pozitivan afekt je povezana sa niskim nivoom zadovoljstva životom (Bishop, et al., 2011). Novija istraživanja potvrđuju da i kratkoročni programi fizičke aktivnosti mogu izazvati neposredne promene u afektivnim stanjima dece i adolescenata, povećavajući pozitivan i smanjujući negativan afekt (Xin et al., 2025).

Za procenu ovih dimenzija često se koristi PANAS skala (Positive and Negative Affect Schedule), zbog njene visoke pouzdanosti i osetljivosti na kratkoročne promene u emocionalnim stanjima (Watson, et al., 1988; Crawford & Henry, 2004). Ova karakteristika čini je pogodnom za procenu efekata sedmodnevnih priprema i kratkotrajnih sportskih aktivnosti (Laborde, et al., 2016). Savremeni radovi ukazuju da PANAS skala, osim što meri kratkoročne promene u raspoloženju, može biti koristan alat za praćenje efekata kraćih sportskih kampova kod mladih (Liu et al., 2025).

Entuzijastičan i pozitivan trener ne samo da poboljšava osnovnu potrebu za povezanošću, već utiče i na autonomnu motivaciju učenika i stoga može povećati učešće u fizičkom vaspitanju (White, at el., 2021). Trening podstiče komunikaciju, saradnju, razvijanje individualnih socijalnih veština pogodnih za razvoj ličnosti. Sportske pripreme kao integralni deo trenažnog procesa pružaju mogućnost kako za fizičko tako i za psihološko i socijalno usavršavanje. Takođe, doprinose i jačanju timskog duha, sticanju radnih navika.

Nedovoljno je istražena veza između trenažnog procesa, odnosno sportskih priprema i emocionalnog stanja sportista. Stoga ovaj rad ima za cilj da ispita dejstvo sedmodnevnih atletskih priprema na emocionalno stanje sportista pri čemu je bilo potrebno analizirati promene u doživljaju pozitivnog i negativnog afekta na početku i kraju priprema. Očekivalo se da će rezultati pokazati porast pozitivnih i smanjenje negativnih emocija kod sportista, kao i da će promene u afektivnim stanjima biti različite u zavisnosti od grupe ispitanika, čime se potvrđuje značaj sportskih priprema u fizičkom, kao i psiho-socijalnom razvoju dece i mladih.

Methods

Study Design

Each year, the "Partizan" Athletics Club organizes a seven-day training camp for its members. The camp is held in Trebinje, at the "City of the Sun" resort, which offers optimal conditions for training and accommodation. Participants follow a structured training program that includes morning jogging and two training sessions per day. Trainings are adapted to the athletes' age and abilities. They are designed to be interesting, with different content, because it is primarily about all-round development, improving existing and acquiring new skills and abilities.

Accommodation is provided in a modern hotel complex with facilities such as swimming pools, sports fields, and parks, contributing to children's relaxation after training. In addition to the athletic component, educational and creative activities were organized (e.g., art workshops, educational videos, reading), as well as excursions to local landmarks. Evening programs included themed events, with a costume party being particularly popular.

The study was conducted during the April 2025 camp. Questionnaires were administered on the first (baseline measurement) and last day of the camp (post - intervention measurement). Participants were informed about the purpose of the study and the procedure. Questionnaires were filled out without revealing identities, in a regulated setting, and with coaches present to offer explanations, particularly for younger respondents. Parents were made aware of the study objectives, data gathering, and data handling, and they gave informed consent for their children to take part.

Participants

The sample consisted of 84 athletes (25 boys and 59 girls), members of the "Partizan" Athletics Club from Belgrade, aged 8 to 18 years (M=11.89; SD=2.36). All participants had been actively training in athletics for at least one year. They were divided into three groups: early school age (10 years and younger, N=38), older school age (11–15 years, N=39), and high school age (16 years and older, N=7).

The limited sample size and uneven age-group distribution, especially the small number of high school athletes, constitute a methodological limitation that could reduce the statistical power of the analyses and limit the generalizability of the findings.

Metode

Dizajn studije

Tradicionalno, svake godine atletski klub „Partizan" organizuje za svoje članove sedmodnevne pripreme. Održavaju se u Trebinju u „Gradu Sunca" koji svojim bogatim sadržajem i infrastrukturom pruža optimalne uslove za rad i boravak sportista. Tokom boravka učesnici su izloženi trenažnom programu koji obuhvata jutarnji futing i dva treniga dnevno. Treninzi su prilagođeni uzrastu i sposobnostima atletičara. Osmišljeni su tako da budu zanimljivi, različitog sadržaja jer se pre svega radi o svestranom razvoju, usavršavanju postojećih i sticanju novih veština i sposobnosti.

Smeštaj je organizovan u modernom hotelskom kompleksu koji nudi bogate sadržaje bazene, sportske terene, parkove koji doprinose relaksaciji dece nakon treninga. Pored sportskog dela organizovane su edukativne i kreativne aktivnosti (likovne radionice, čitanje i gledanje edukativnog sadržaja), upoznavanje i obilaženje znamenitosti grada i okoline. Večernji program je podrazumevao različite tematske aktivnosti, među kojima je posebno popularan maskenbal.

Istraživanje je realizovano tokom priprema u aprilu 2025. godine. Upitnici su distribuirani prvog (kako bi se utvrdilo inicijalno emocionalno stanje) i poslednjeg dana priprema (kako bi se utvrdile eventualne promene i dejstvo priprema). Ispitanicima je detaljno objašnjena svrha istraživanja, kao i postupak izvođenja. Popunjavanje upitnika je bilo anonimno, u kontrolisanim uslovima uz prisustvo trenera, koji su bili dostupni za pojašnjenja, posebno kod dece mlađeg školskog uzrasta. Roditelji su obavešteni o cilju, načinu prikupljanja i obradi podataka i dali su saglasnost za učešće svoje dece u istraživanju.

Ispitanici

Uzorak je obuhvatio 84 atletičara (25 dečaka i 59 devojčica), članova atletskog kluba „Partizan" iz Beograda, starosti 8-18 godina (M=11.89; SD=2.36). Ispitanici aktivno treniraju atletiku najmanje godinu dana. Bili su podeljeni u tri grupe: mlađi školski uzrast (10 godina i mlađi, N=38), stariji školski uzrast (11-15 godina, N=39) i srednjoškolci (16 godina i stariji, N=7).

Veličina i neravnomerna raspodela uzorka, posebno manji broj srednjoškolaca, predstavljaju metodološko ograničenje koje može uticati na statističku snagu testova i generalizaciju rezultata.

Instrument

To assess affective states, the PANAS scale (Positive and Negative Affect Schedule; Watson et al., 1988) was used. It measures two dimensions of emotional functioning - positive affect (PA) and negative affect (NA) and consists of 20 items, with 10 items assessing PA (e.g., excited, inspired, interested, strong) and 10 items assessing NA (e.g., distressed, angry, afraid). Each item is rated on a 5 - point Likert scale (1= very slightly or not at all; 5 = extremely), with participants indicating the extent to which they currently feel each emotion. Total PA and NA scores were calculated for each participant prior to statistical analysis. Scores range from 10 (lowest) to 50 (highest), and were used as dependent variables in subsequent analysis.

The PANAS scale has been shown to be reliable, concise, and easy to administer. It is suitable for measuring high-arousal emotional states (Ekkekakis, 2012). PA reflects the degree to which a person feels positively, while NA reflects negative mood (Pfeifer-Seib et al., 2017). In addition to the PANAS, participants provided demographic information, including gender, age, and training experience.

Statistical Analysis

Basic descriptive statistics were calculated for all variables, including mean values (Mean), standard deviations (SD) and the 95% confidence interval (CI).

Prior to interpreting the results, the assumption of homogeneity of variances was tested using Levene's test (Pallant, 2020). The normality of data distribution was examined with the Shapiro–Wilk test, while the reliability of the scale was verified before the main analysis using Cronbach's alpha coefficient (Cronbach α).

To assess the effects of the intervention and differences between groups, a mixed between-within subjects ANOVA was used (Tabachnick & Fidell, 2013). Two factors were included: time (within-subjects variable) and age group (between-subjects variable). A 2 × 3 mixed factorial design was employed to compare the affective states of three age groups (younger school age, older school age, and high school students) at two time points (pre-test and post-test). The actual impact of the independent variables (training camp and group), both jointly (interaction effect) and separately, was evaluated using partial eta squared (η^2), according to Cohen's (1988) guidelines. This analysis was applied to mean scores for PA and NA obtained before and after the camp.

All statistical analyses were performed using IBM SPSS Statistics v.24, and all inferences were drawn at

Instrument

Za procenu afektivnog stanja korišćena je PANAS skala (Positive and Negative Affect Schedule; Watson, et al., 1988) koja meri dve dimenzije emocionalnog funkcionisanja pozitivan afekt (PA) i negativn afekt (NA). Sadrži 20 stavki, 10 koje mere pozitivan afekt (npr. oduševljeno, nadahnuto, zainteresovano, jako,...) i 10 koje mere negativan afekt (npr. nesrećno, gnevno, uplašeno,...). Svaka stavka je praćena petostepenom skalom Likertovog tipa (1 - veoma malo ili nimalo, a 5 - izuzetno, jako), a zadatak ispitanika je bio da izrazi svoj stepen trenutnog raspoloženja ili emocionalnog stanja. Pre statističke analize izračunati su ukupni skorovi za pozitivan i negativan afekt za svakog učesnika. Skorovi se kreću od 10 (najniži) do 50 (najviši) i korišćeni su kao zavisne varijable u daljoj statističkoj obradi.

Dokazano je da je ovaj upitnik pouzdan, kratak i jednostavan za primenu; može se koristiti za merenje stanja visokog uzbuđenja (Ekkekakis, 2012). PA odražava stepen u kojem neko doživljava pozitivno, a NA negativno raspoloženje (Pfeifer-Seib, et al., 2017). Pored PANAS skale, ispitanicima su bila postavljena pitanja o polu, uzrastu i sportskom stažu.

Statistička analiza

Za svaku varijablu izračunati su osnovni deskriptivni parametri - aritmetička sredina (Mean), standardna devijacija (SD) i 95% interval poverenja (CI).

Pre tumačenja rezultata, primenom Levinovog testa (*Levene's test*), proverena je pretpostavka o homogenosti varijansi (Pallant, 2020). Normalnost distribucije podataka proverena je pomoću Shapiro–Wilk testa, a pre glavne analize proverena je pouzdanost skale pomoću Kronbahovog alfa koeficijenta (Cronbach α).

Za procenu efekata eksperimentalnog tretmana i proveru razlika između grupa korišćena je kombinovana analiza varijanse koja se u literaturi naziva *Mixed between-within subjects* ANOVA (Tabachnick & Fidell, 2013). Kombinovana su dva faktora (dve nezavisne varijable): vreme (unutargrupni varijabilitet) i specifičnost tri starosne grupe (međugrupni varijabilitet). Primenjen je 2 x 3 kombinovani nacrt za poređenje podataka tri grupe ispitanika (mlađi i stariji školski uzrast, te srednjoškolski) u dve različite vremenske tačke (pre-test i post-test). Stvarni uticaj nezavisnih varijabli (pripreme i grupa), kako zajednički (interakcija faktora) tako i separatni, procenjen je pomoću parcijalnog eta kvadrata (η^2), na osnovu kriterijuma koje je predložio Cohen (1988). Ovaj postupak primenjen je na prosečne skalarne vrednosti PA i NA dobijene pre i nakon priprema.

the 0.05 significance level ($p < 0.05$).

Results

The normality of the data distribution was tested using the Shapiro–Wilk test, and the results showed that the data for all variables (PA and NA) did not significantly deviate from normal distribution ($p > 0.05$). Reliability coefficients (Cronbach's α) exceeded 0.60, indicating satisfactory reliability of the PANAS scale (PA pre-test = 0.73, PA post-test = 0.79; NA pre-test = 0.79, NA post-test = 0.75).

Descriptive statistics for pre-test and post-test scores on positive and negative affect across all three age groups are presented in Table 1, and illustrated in Figure 1. The results indicate a slight decrease in positive affect in the early school age group (ESA), while there is an increase among the older (OSA) and high school (HSA) age groups. Regarding negative affect, an increase was observed in the early school age group (ESA), whereas a decrease was found in both the older (OSA) and high school (HSA) groups.

Results from the mixed-design ANOVA for positive affect (Table 2) revealed that the interaction between the training intervention and age group was not statistically significant, although the effect size was moderate, with a moderate level of statistical power. The primary impact of the training intervention was not statistically significant. Nevertheless, the primary effect of age group came close to reaching statistical significance, displaying relatively good statistical power, which indicates a possible difference between groups. For negative affect, the interaction between the training intervention and age group, as well as the main effects of both intervention and age group, were not statistically significant. All observed effects were of low magnitude, accompanied by low statistical power, indicating a lack of measurable impact of the intervention.

Kompletna statistička analiza sprovedena je pomoću aplikacionog statističkog programa IBM SPSS v.24. Svi zaključci su izvedeni na nivou značajnosti od 0,05 ($p < 0.05$).

Rezultati

Normalnost distribucije je proverena primenom Shapiro–Wilk testa i rezultati su pokazali da podaci za sve varijable (PA i NA) nisu značajno odstupali od normalne distribucije ($p > 0,05$). Koeficijenti pouzdanosti (Cronbach α) su preko 0.60, što ukazuje na dobru pouzdanost PANAS skale (PA pre-test=0.73, PA post-test=0.79; NA pre-test=0.79, NA post-test=0.75).

Deskriptivni podaci pre-testa i post-testa, pozitivnog i negativnog afekta za sve tri grupe prikazani su u Tabeli 1 i ilustrovani Slikom 1. Nalazi pokazuju da je došlo do blagog smanjenja pozitivnog afekta kod mlađeg (MŠU) i povećanja kod starijeg (SŠU) i srednjoškolskog uzrasta (SRU). Što se tiče negativnog afekta, uočeno je povećanje kod mlađeg (MŠU), kao i smanjenje kod starijeg (SŠU) i srednjoškolskog uzrasta (SRU).

Rezultati kombinovane analize varijanse za pozitivan afekat (Tabela 2) pokazuju da interakcija između faktora pripreme i grupa nije statističi značajna, iako je efekat srednje jačine sa umerenom snagom testa. Efekat pripreme takođe nije statistički značajan, dok je efekat faktora grupa sa relativno dobrom snagom testa što ukazuje na mogući efekat razlika između grupa. Za negativan afekt, interakcija između efekta priprema i grupe, kao ni priprema, a ni grupe nisu statistički značajne. Svi efekti su slabog intenziteta, sa niskom snagom testa, što ukazuje na odsustvo uticaja sprovedene intervencije.

Table 1. *Descriptive Statistics for Pre-Test and Post-Test Scores on Positive and Negative Affect*

Tabela 1. *Deskriptivni pokazatelji pre-testa i post-testa za pozitivan i negativan afekt*

			Pre-test			Post-test		
	Group / Grupa	N	Mean	SD	95% CI	Mean	SD	95% CI
PA	ESA / MŠU	38	42.87	4.78	41.30-44.44	42.24	6.52	40.09-44.38
	OSA / SŠU	39	39.33	5.98	37.39-41.27	40.51	4.91	38.92-42.10
	HSA / SRU	7	38.00	8.31	30.32-45.68	41.71	5.41	36.71-46.72
NA	ESA / MŠU	38	12.89	3.14	11.86-13.93	14.03	3.64	12.83-15.22
	OSA / SŠU	39	15.36	5.95	13.47-17.29	15.10	4.30	13.71-16.50
	HSA / SRU	7	15.86	5.87	10.43-21.29	14.57	6.68	8.39-20.75

Table 2. *Mixed Between-Within Subjects ANOVA for Positive and Negative Affect*

Tabela 2. *Kombinovana analiza varijanse za pozitivan i negativan afekt*

Impact	*Wilks' Lambda*	*F*	*p*	η^2	*Observed power*
PA					
*Training camp*group /* Pripreme*grupa	0.94	2.35	0.10	0.06	0.46
Training camp / Pripreme	0.96	3.16	0.08	0.04	0.42
Group / Grupa	/	2.87	0.06	0.07	0.55
NA					
*Training camp*group /* Pripreme*grupa	0.98	0.82	0.44	0.02	0.19
Training camp / Pripreme	1.00	0.03	0.87	0.00	0.05
Group / Grupa	/	2.65	0.08	0.06	0.51

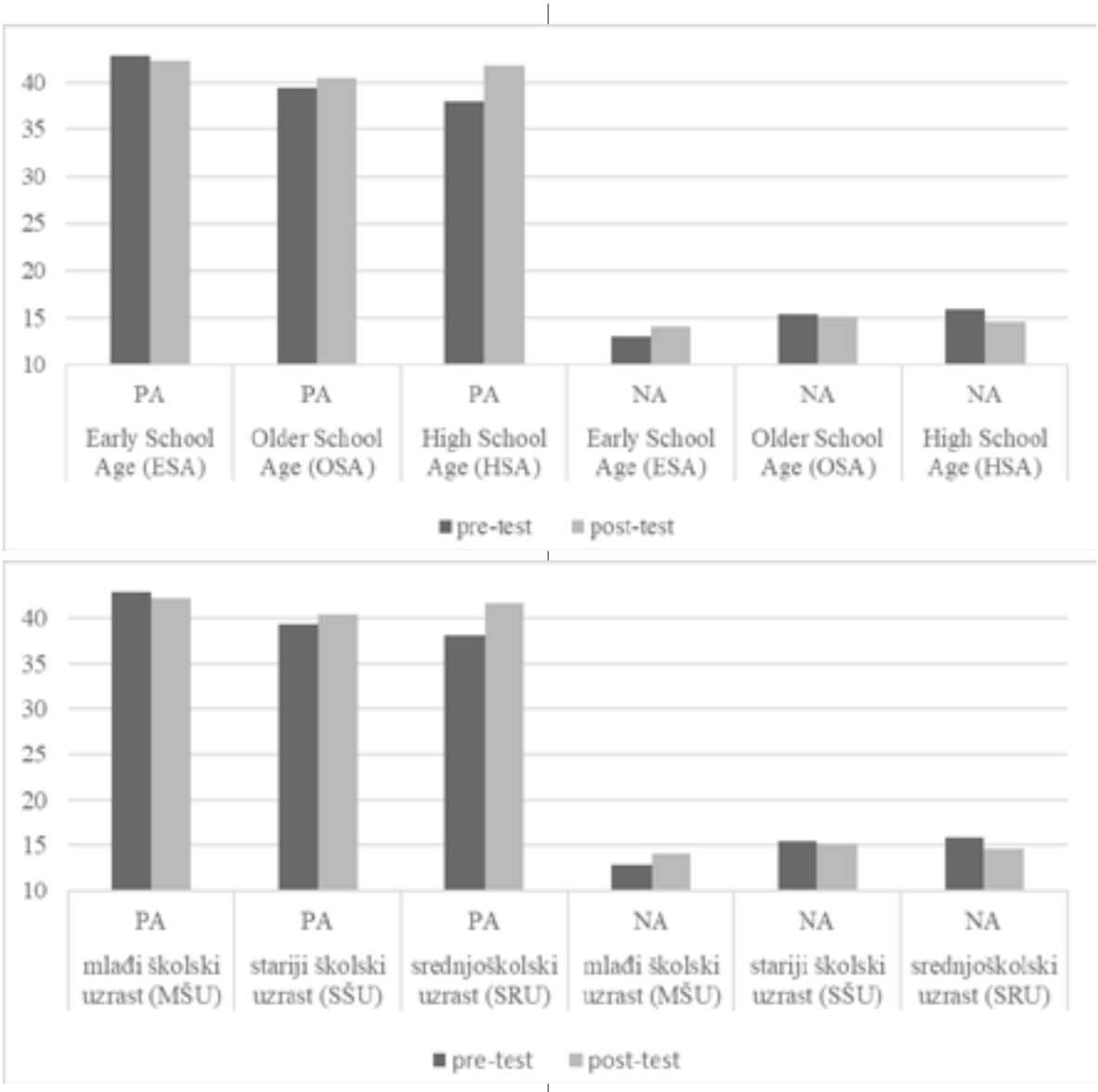

Figure 1. *Mean pre-test and post-test values for positive and negative affect across all three groups*

Slika 1. *Prosečne vrednosti pre-testa i post-testa za pozitivan i negativan afekt za sve tri grupe*

Discussion

The purpose of this study was to investigate how a seven-day athletic training camp affects the emotional states of young athletes by assessing changes in their experiences of positive and negative feelings, measured at the start and finish of the camp using the PANAS tool. It was assumed that the training program, various activities, staying in a stimulating environment would contribute to an increase in positive affect and a decrease in negative affect. Although descriptive statistics indicated some changes in mean values, the results of the mixed-design ANOVA did not reveal statistically significant differences.

Positive affect slightly increased in the older and high school groups, while remaining stable in the younger group, which may suggest that prior sports experience, social support, and well-designed activities contribute to emotional stability. Similar findings were reported by Pasquerella and associates, indicating that short training camps can maintain elevated positive affect up to 24 hours post-activity (Pasquerella et al., 2025).

The obtained partial eta squared values for positive affect suggest the presence of a small to moderate effect size, particularly for the group factor, which may indicate differences in emotional responses depending on age. However, these differences were not statistically significant. The emotional experiences of children and teenagers are not stable or constant as they grow (Li et al., 2022). One study found that in late adolescence, the stability of positive emotions tends to decrease (Reitsema et al., 2022), and that adolescents frequently experience rapid mood shifts and tend to conceal their emotions (Žiropađa & Miočinović, 2012). Results from a six-week high- and moderate-intensity exercise program have demonstrated a significant positive impact on mood improvement (Balchin et al., 2016). Bandura (1977) emphasized long ago that regular physical activity can aid in improving emotional control and enhancing self-confidence, while also reducing negative emotions and increasing self-efficacy (Tikac et al., 2021).

A slight increase in negative affect (NA) was observed among children in the early school-age group. This may be attributed to initial enthusiasm gradually diminishing as the camp progressed - reflecting a decline in positive emotions due to fatigue, stress, social conflicts, or separation from family. The rise in negative affect is likely the result of accumulated physical and psychological strain, as well as insufficient sleep and rest (Clemente et al., 2019; Selmi et al., 2022). Decreased physical performance may also be associated with fatigue accumulation (Coutts & Reaburn, 2008; Selmi et al., 2020). Training camps may induce significant mood disturbances (Selmi et al., 2022).

Diskusija

Cilj ovog istraživanja bio je da se ispita dejstvo sedmodnevnih atletskih priprema na emocionalno stanje sportista pri čemu je bilo potrebno analizirati promene u doživljaju pozitivnih i negativnih afekata na početku i kraju priprema, popunjavanjem PANAS instrumenta. Pretpostavljeno je da će trenažni program, raznovrsne aktivnosti, boravak u stimulativnom okruženju doprineti porastu pozitivnih i smanjenju negativnih afekata. Iako su deskriptivni pokazatelji pokazali izvesne promene u prosečnim vrednostima, rezultati kombinovane analize varijanse nisu pokazali statistički značajne razlike.

Pozitivan afekt je blago porastao kod starijeg i srednjoškolskog uzrasta, dok je kod mlađeg uzrasta bio stabilan, što može ukazivati da prethodno sportsko iskustvo, socijalna podrška i dobro osmišljene aktivnosti doprinose emocionalnoj stabilnosti. Slične rezultate iznose Pasquerella i saradnici, koji su pokazali da kratki trenažni kampovi mogu održati povišen pozitivan afekt i do 24 sata nakon završetka aktivnosti (Pasquerella et al., 2025).

Dobijene vrednosti parcijalnog eta kvadrata za pozitivan afekt sugerišu postojanje efekta male do srednje jačine, naročito u faktoru grupa i može ukazivati na razlike u emocionalnom odgovoru zavisno od uzrasta. Međutim, ove razlike nisu statistički značajne. Emocije dece i adolescenata nisu stabilne ili konstantne tokom razvoja (Li, et al. 2022). Jedna studija je pokazala da je posebno u kasnoj adolescenciji stabilnost pozitivnih emocija smanjena (Reitsema, et al., 2022), kao i da adolescenti naglo menjaju raspoloženja i prikrivaju svoja osećanja (Žiropađa i Miočinović, 2012). Rezultati šestonedeljnog vežbanja visokog i umerenog intenziteta imaju značajan pozitivan uticaj na poboljšanje raspoloženja (Balchin, et al., 2016). Bandura je još davno rekao da redovna fizička aktivnost može pomoći u poboljšanju kontrole emocija i povećanju samopouzdanja (Bandura, 1977), kao i smanjenju negativnih emocija i povećanju samoefikasnosti (Tikac, et al., 2021).

Kod dece mlađeg školskog uzrasta uočeno je blago povećanje NA. Ovo može biti rezultat početnog entuzijazma koji polako slabi kako pripreme odmiču, tj. doživljaj određenog pada u pozitivnim emocijama zbog umora, stresa, društvenih konflikata, razdvojenosti od porodice. Porast negativnog afekta je posledica akumulacije fizičkog i psihološkog napora, nedostatka sna i odmora (Clemente, et al., 2019; Selmi, et al., 2022). Smanjenje fizičkih performansi može biti povezano sa akumulacijom umora (Coutts & Reaburn, 2008; Selmi, et al., 2020). Sportske pripreme mogu dovesti do značajnih poremećaja raspoloženja (Selmi, et al., 2022). Kod dece starijeg

In contrast, a reduction in negative affect was noted among older school and high school students, suggesting better adaptation to environmental changes and more effective emotional regulation. Children and adolescents over the age of 12 gradually develop more advanced emotional regulation strategies (Zimmermann & Iwanski, 2014). These findings are supported by research from Li et al. (2022), which indicates that the impact of physical activity on positive emotions is more pronounced in groups older than 12 years compared to younger age groups.

In the case of negative affect, the results indicated extremely low effect sizes and very low statistical power, confirming the absence of a significant impact of the training camp on negative affect. An effective training program requires a balance between load and recovery, along with individualization and progression (Kasper, 2019). In addition to the lack of statistically significant results, emotional stability observed during the training camp represents a positive finding. The consistency of emotional states across all three age groups may suggest that the camp was well-designed and effectively implemented, allowing for the maintenance of emotional balance in children (Skinner Zimmer-Gembeck, 2007).

This stability may also be the result of social support, team cohesion, a structured daily schedule, and the presence of coaches - all of which contribute to a sense of psychological safety. It is important to note that a low level of statistical power was recorded (*power* < 0.60), which increases the risk of failing to detect actual effects due to insufficient sample size. The small sample, the short intervention period (only seven days), as well as the nature of the instrument used (the PANAS scale measures momentary affective states, which can fluctuate from minute to minute), represent the main limitations of this study.

Conclusion

It was expected that the track and field training camp, featuring an engaging and diverse training program alongside educational, creative, and social activities, would contribute to emotional improvement in the athletes. However, the results suggest that the seven-day camp did not lead to significant changes in the participants' emotional states. Preliminary findings suggest a slight decrease in positive affect and an increase in negative affect among the younger school-age group, whereas the older and high school groups exhibited the opposite trends, with a modest increase in positive affect and a decrease in negative affect. Although the observed changes were in the expected direction, the Mixed between-within subjects ANOVA did not reveal statistically significant

školskog uzrasta i srednjoškolaca dolazi do smanjenja NA, što ukazuje da se bolje prilagođavaju promenama uslova sredine i bolje upravljaju svojim emocijama. Deca i adolescenti stariji od 12 godina postepeno razvijaju efikasniju emocionalnu regulaciju (Zimmermann & Iwanski, 2014). To podržavaju rezultati istraživanja Lija i saradnika (Li, et al., 2022) koji pokazuju da je uticaj fizičke aktivnosti na pozitivne emocije veći u grupi starijoj od 12 godina nego u mlađim grupama.

U slučaju negativnog afekta, rezultati su bili izuzetno niskog intenziteta, uz vrlo nisku snagu testa, što potvrđuje odsustvo značajnog uticaja priprema na negativan afekt. Efikasan trenažni program zahteva balans između opterećenja i oporavka, uz individualizaciju i progresiju (Kasper, 2019). Pored statističke neznačajnosti rezultata, emocionalna stabilnost tokom priprema predstavlja pozitivan nalaz. Stabilnost emocija u sve tri grupe može ukazivati da su pripreme bile dobro osmišljene i realizovane, što je omogućilo održavanje emocionalne ravnoteže kod dece (Skinner & Zimmer-Gembeck, 2007).

Važno je napomenuti da je zabeležena niska vrednost statističke snage (power<0.60), što povećava rizik da se realni rezultati ne prikazuju zbog nedovoljne veličine uzorka. Mala i neravnomerno raspoređena veličina uzorka, posebno kod srednjoškolaca, kratak vremenski period (samo 7 dana delovanja intervencije), kao i priroda instrumenta (PANAS skala meri trenutno stanje i može varirati iz minuta u minut) su glavna ograničenja ove studije. Uticaj pola nije analiziran u ovoj studiji, što predstavlja potencijalnu varijablu koja može uticati na afektivna stanja i trebalo bi je uključiti u budućim istraživanjima.

Zaključak

Očekivalo se da će atletske pripreme uz zanimljiv i raznovrstan trenažni program, edukativne, kreativne i društvene aktivnosti doprineti emocionalnom poboljšanju kod atletičara. Međutim, rezultati pokazuju da sedmodnevni boravak dece nije izazvao velike promene u afektivnom stanju učesnika.

Preliminarni nalazi ukazuju da je kod mlađeg školskog uzrasta došlo do blagog smanjenja pozitivnog i povećanja negativnog afekta, dok su kod starijeg i srednjoškolskog uzrasta zabeleženi suprotni trendovi, blagi porast pozitivnog i smanjenje negativnog afekta. Iako su promene išle u očekivanom smeru, kombinovana analiza varijanse (Mixed between-within subjects ANOVA) nije pokazala statistički značajne razlike ni između početnog i završnog merenja (p>0.05), niti između starosnih grupa.

differences between pre- and post-test measurements ($p > 0.05$) or between age groups. The reliability of the PANAS scale was satisfactory (Cronbach's α ranging from 0.73 to 0.79), confirming the adequacy of the instrument used. These results suggest a certain degree of emotional stability among participants during the camp, which may be attributed to prior training experience, well-organized activities, and social support. Nevertheless, the small number of participants in the older groups and the short duration of the camp likely contributed to the absence of statistically significant effects.

A practical implication of these findings is the need for continuous monitoring of athletes' emotional states, particularly among younger age groups, as well as the implementation of appropriate psychological support during training, camps, and competitions. Coaches and parents should pay attention to potential signs of emotional stress, such as sudden mood changes, withdrawal, fatigue, or loss of motivation, and provide timely support through conversation, encouragement of rest, and balancing physical load with psychological well-being. Psychological stability and emotional regulation are important factors for long-term athletic development and mental health preservation. For future research, it is recommended to include a larger sample, additional psychological variables (e.g., stress, motivation), and a longer experimental period to gain a better understanding of athletes' emotional states. Additionally, combining qualitative and quantitative methods would provide a more comprehensive insight into athletes' emotional experiences during training camps.

Pouzdanost PANAS skale bila je zadovoljavajuća (Cronbach α od 0.73 do 0.79), što potvrđuje adekvatnost korišćenog instrumenta.

Ovakvi rezultati sugerišu određenu emocionalnu stabilnost učesnika tokom priprema, što se može pripisati prethodnom trenažnom iskustvu, dobroj organizaciji i socijalnoj podršci. Ipak, manji broj ispitanika u starijim grupama i kratak period trajanja priprema verovatno su uticali na odsustvo statistički značajnih efekata.

Praktična implikacija ovih nalaza jeste potreba za kontinuiranim praćenjem emocionalnog stanja sportista, posebno kod mlađih uzrasta, kao i uvođenje adekvatne psihološke podrške tokom treninga, priprema i takmičenja. Treneri i roditelji bi trebalo da obrate pažnju na moguće znakove emocionalnog stresa, kao što su nagle promene raspoloženja, povlačenje, umor ili gubitak motivacije, i da pravovremeno pruže podršku razgovorom, podsticanjem odmora i balansiranjem između fizičkog opterećenja i psihološkog blagostanja. Psihološka stabilnost i emocionalna regulacija predstavljaju važne faktore za dugoročan sportski razvoj i očuvanje mentalnog zdravlja.

Za buduća istraživanja preporučuje se veći uzorak, uključivanje dodatnih psiholoških varijabli (npr. stres, motivacija), kao i duži eksperimentalni period kako bi se bolje razumelo stanje sportista. Takođe, bilo bi korisno kombinovati kvalitativne i kvantitativne metode kako bi se dobio sveobuhvatniji uvid u emocionalna iskustva sportista tokom priprema.

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