

THE COACH-CREATED MOTIVATIONAL CLIMATE: PREDICTORS OF SATISFACTION AND PHYSICAL SELF-EFFICACY OF CADET FOOTBALL PLAYERS

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Abstract: *The main aim of this research was to examine the relations between the constructs of the coach-created motivational climate, satisfaction, and physical self-efficacy of adolescent football players. The sample included N = 128 football players, average age (M = 17.46 years, SD = 1.09). Three measuring instruments were used: Perceived Motivational Climate in Sport Questionnaire (PMCSQ-2; Duda, & Yin, 2000), Athlete Satisfaction Questionnaire (ASQ; Riemer, & Chelladurai, 1998), and The Physical Self-Efficacy Scale (PSE; Ryckman, Robbins, Thornton, & Cantrell, 1982). Linear regression model was tested and it showed that the variables of perceived motivational climate oriented towards learning ($\beta = .42$, and $\beta = .42$, $p \leq .01$) are statistically significant partial predictors of criteria satisfaction and perceived physical ability of young football players. The obtained findings point to the relevance of the insufficiently examined phenomenon of the coach-created motivational climate, physical abilities, and satisfaction of cadet football players. The final analysis includes the theoretical contribution of the results, limitations of the research, operational implications, and the guidelines for future research.*

Key words: *Adolescence, Football, Cadets, Motivational climate, Favoring players*

INTRODUCTION

The assessment of the coach-created motivational climate, satisfaction, and self-efficacy of young athletes is one of the frequent subject matters of psychological research. Seeing how theoretical analyses attribute much significance to the period of adolescence, the fact that a relatively small number of studies have been conducted on adolescents is surprising. Most of the studies have been oriented towards the period of childhood, maturity and old age (M. Ivanović & U. Ivanović, 2012; Notario-Alonso, Prieto-Ayuso, García-Notario & Contreras-Jordán, 2022; Tušak, Corrado, Coco, Tušak, Žilavec, & Masten, 2022). The findings of the aforementioned studies suggest that the coach-created motivational climate is an important determinant of understanding the satisfaction and self-efficacy of an athlete. Internal encouragement in sports is an important efficacy factor, so the aim of every coach is to govern the training in such a way as to create a highly motivated athlete (Matsumoto & Takenaka, 2004). A coach who values skills and cooperation creates a motivational climate oriented towards learning. In such an atmosphere, athletes see that they are required to make an effort in order to develop their skills and that triumph over the opponent is not the only point of training. Athletes perceive the coach as an individual who respects them and gives them a unique support. On the other hand, the aforementioned authors believe that if a coach emphasizes the importance of winning and has a negative attitude towards an athlete who makes a mistake, he then creates a goal oriented atmosphere. In such cases, an athlete perceives the coach as someone who monitors and therefore has different communication with peers. That creates rivalry within a team, and team members focus on personal efficacy. The coach-created motivational climate contributes significantly to athlete's satisfaction (Baletić, 2022). If an athlete sees that the coach's attitude is oriented towards learning, then he or she will feel intrinsic motivation driven by the satisfaction of improving one's skills (Beck, 2003; Ivanović & Ivanović, 2021b).

The period of adolescence is a phase between childhood and adulthood; it is a stage in which a person reaches relative physical and mental maturity – cognitive, emotional, social, psychosexual, and moral maturity in sports (Schmid, Gut, Yanagida, & Conzelmann, 2020). On the other hand, the same research suggests that more than half of adolescents quit training within one year during that period. That would be the reason to examine latent dimensions, the determinants which influence athlete's satisfaction (Baker, Schorer, & Wattie, 2018). According to the study (Adzhar, Abd Aziz, Zakaria, Osman, & Azmi 2019) satisfaction is regarded as a result of intensive and intense mental state which correlates to experience in sports. The findings of this study suggest that an athlete's satisfaction is a relevant factor

in his attention, achievement, and good life. If an athlete is satisfied with his motor skills and the coach's methods to help him reach his maximum psychophysical potential, he will keep achieving success as a competitor. During adolescence, an athlete will specialize for specific branch of sports (Kliethermes et al., 2021). Training at the higher level happens during the time of adolescence, as these studies suggest. In order to achieve significant results, an athlete must always train. Training is a process focused on developing physical strength and improving technique and sports is not just a game but a chance for it to be a profession. Therefore, one of the deciding transformations happening during adolescence is perceiving social relations such as communication with peers and coach; social relations change in a positive way, communication with parents loses its significance and the coach becomes the most important person in an athlete's life because the coach is the one that spends most time with an athlete. In addition, at that age, the coach represents a strong personality with affective attachment who has the aim to influence the development of an adolescent and motivate him to achieve success and satisfaction in sports (Bailey, Cope, & Pearce, 2013; M. Ivanović, Milosavljević, & U. Ivanović, 2017). Apart from motivational atmosphere, perception of self-efficacy is an important factor of athlete's satisfaction (Wilczyńska, Walczak-Kozłowska, Alarcón, Zakrzewska, & Jaenes, 2022). The aforementioned authors define self-efficacy as the self-evaluation of personal success, competence, and organization of activities that are meant to help achieve athletic success. They believe that the construct motivation significantly includes treatment, internal motivation, and achievement in sports. The dimension of confidence is one's own body represents belief in oneself when one needs to present to others skills and physical characteristics, for example speed, strength, coordination, etc. (Reynders, Vansteenkiste, & Van Puyenbroeck, 2019). Athletes who better manifest physical skills and self-efficacy have a higher level of satisfaction, and physical self-efficacy is a relevant factor in athletic achievement and minimizing anxiety (Sklett, Loras, & Sigmundsson, 2018).

The period of adolescence is characterized by morphological changes such as growth spurt, increase in body mass, tendon and muscle lengthening which manifests itself as disproportionate body constitution (Lipshits-Braziler, Amram-Vaknin, Pesin-Michael, & Tatar, 2022). The same authors claim that such age is also characterized by secondary sex characteristics, and due to fast and disproportionate growth a disbalance in body image occurs. Hence, due to all the psychophysical transformations athletes focus on intense work-out, and the athletes who possess a high level of self-efficacy will see themselves as more competent and efficient.

Keeping in mind the lack of research dealing with this phenomenon and the controversial data obtained in the earlier studies, the aim of this research was to examine the interactions between the variables of coach-created motivational climate, satisfaction, and physical self-efficacy in adolescent football players. In accordance with the theoretical framework, empirical results, and the aim of this research, two hypotheses were formulated: H_1 – the assumption is that the constructs of perceived motivational climate oriented towards learning and perceived physical efficacy of cadet football players are statistically significant in predicting the segment of the variance of their perceived physical efficacy; H_2 – motivational climate oriented towards learning is expected to determine the variability of the perceived physical efficacy of adolescent football players.

METHODS

Participants and procedure

This transversal research was conducted on a pertinent sample and it included 128 cadet football players from five clubs of Kolubara-maćva league: "Budućnost-Krušik 2014" (Valjevo), FC "Radnički" (Valjevo), FC "Jedinstvo" (UB), FC "Železničar" (Lajkovac), and FC "Maćva" (Šabac). The average age of participants was $M = 17,46$ ($SD = 1,09$). All the participants had a minimum of two years of systematic and organized training, three or more times a week.

The testing was conducted during December 2024. Before the group testing began, information regarding the aim of the research and the procedure of data collecting and recording were given to the participants. Participants also gave informed consent, with previous approval from parents and club

managers. They were also told that they can quit at any time and do not have to answer the questions they do not want. The testing lasted approximately 30 minutes.

Instruments

Perceived Motivational Climate in Sport Questionnaire (PMCSQ-2; Newton, Duda, & Yin, 2000). PMCSQ-2 includes participants' perception regarding the coach-created motivational climate. The short version of this questionnaire was used in this research, and it consisted of 14 claims that are separated into three subscales: (1) motivational climate oriented towards learning (seven items, for example "He encourages us to teach each other"), (2) favoring athletes (three claims, for example "He pays attention only to the 'stars' of the team"), and (3) punishment for mistakes (four claims, for example "Whenever an athlete makes a mistake, the coach punishes him"). The participants had to assess the level of agreement with a statement on a five-point Likert scale that ranges from 1 to 5 (from 1 – *completely untrue* to 5 – *completely true*). The result of each subscale was taken as an average score for all claims from all the participants. The final result was calculated as an arithmetic mean of all the answers from all participants, where higher result means higher level of the expressed construct. Cronbach's alpha coefficient, the type of internal consistency, on this sample was satisfactory and ranges from ($\alpha = .79$) for the dimension motivational climate oriented towards learning, ($\alpha = .87$) for favoring athletes, to ($\alpha = .90$) for punishment for mistakes, which all points to satisfactory reliability of the subscales.

The Physical Self-Efficacy Scale (PSE; Ryckman, Robbins, Thornton, & Cantrell, 1982). PSE includes the self-perception of the participants on their physical ability and confidence regarding their motor skills. The overall scale consists of 22 claims that are separated into two subscales: perceived physical ability and confidence in physical self-presentation. The short version of the subscale perceived physical ability consisting of eight claims was used on this sample and adapted for the participant of the said age. Using the five-point Likert scale (from 1 – *I completely disagree* to 5 – *I completely agree*) a participant had the task to mark the level of agreement with the given statements. The higher score meant the higher level of perceived physical ability. The final score of the PSE is an arithmetic mean of the answers to all the claims. Cronbach's alpha coefficient was used to determine the reliability of the scale and it revealed that the reliability was high ($\alpha = .87$) which means that the instrument used is valid.

Athlete Satisfaction Questionnaire (ASQ; Raimrer & Chelladurai, 1998). The measuring instrument ASQ consists of 56 claims that form 15 subscales. In accordance with the aim of this research, only two subscales were used: a) satisfaction with one's individual performance, and b) satisfaction with athlete's ability utilization. Using the five-point Likert scale (from 1 – *very dissatisfied* to 5 – *very satisfied*) a participant had the task to assess the level of agreement with the given statements. Total score on a used scale is a sum of the results from all five claims and it marks the participant's level of satisfaction, where higher score means higher level of satisfaction. The index of the internal consistency of this measuring construct was satisfactory ($\alpha = .85$).

Statistical analysis

The statistical procedures included taking into consideration the measures of central tendency, correlational analysis (the Pearson correlation coefficient), and the multivariate regression model. Statistical significance was defined on the level $p \leq .01$. All of the results obtained in this study were processed using the standard software *Statistika ver. 13*.

RESULTS

The main descriptive values of the manifested variables were the first to be processed (Table 1). The maximum values of the arithmetic mean can be seen on the values perceived physical ability, satisfaction, and perceived motivational climate oriented towards learning, while average results can be seen on the variables favoring athletes and punishment for mistakes. The results of standard deviation vary significantly. Perceived motivational climate oriented towards learning had minimum variability, while satisfaction and perceived physical ability had maximum distribution of the results. Testing the scores of normal distribution, it has been determined that the values of skewness and kurtosis are acceptable because they do not vary outside of ± 1.5 which makes these parametric statistical methods valid

(Tabachnick & Fidell, 2012).

Table 1 Descriptive statistics of the variables used in the research

Variables	<i>AM</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>Sk</i>	<i>Ku</i>
Perceived motivational climate oriented towards learning	29.78	4.01	17.00	36.00	-.04	1.24
Favoring athletes	6.43	3.86	2.00	16.00	.82	-.02
Punishment for mistakes	19.94	4.25	3.00	19.00	-.12	.98
Satisfaction	29.46	6.03	14.00	39.00	0.71	-.23
Perceived physical ability	29.88	5.18	16.00	41.00	-.25	.45

Note. *AM* = arithmetic mean; *SD* = standard deviation; *Max* = maximum value; *Min* = minimum value; *Sk* = standardized skewness; *Ku* = standardized kurtosis.

The results of the correlational analysis are shown in Table 2. The maximum statistically highly significant positive linear correlation was found between the variables perceived physical ability and satisfaction ($r = .64, p \leq .01$), and perceived physical ability and coach's favoring football players ($r = .49, p \leq .01$). The correlation with positive indicators was obtained, which means that participants who manifest higher level of perceived physical ability and favoring from coach have higher levels of satisfaction and physical ability. On the other hand, the minimum significant correlation of low intensity and negative direction was found between perceived motivational climate oriented towards learning and punishing adolescent football players for mistakes ($r = -.19, p \leq .01$). Statistically, this correlation of low intensity points to inverse relations, which means that when one variable increases the other decreases and vice versa.

Table 2 Intercorrelations between PMCSQ-2, ASQ and PSE

Variables	Perceived physical ability	Satisfaction	Perceived motivational climate oriented towards learning	Punishment for mistakes	Favoring athletes
Perceived physical ability		.64**	.29**	.10	-.03
Satisfaction		1	.57**	-.18*	.42**
Perceived motivational climate oriented towards learning			1	-.19*	.49**
Punishment for mistakes				1	.60**
Favoring athletes					1

Note. r = the Pearson correlation coefficient; * $p < .01$ ** $p < .05$

With the aim of examining the relations between the coach-created motivational climate, satisfaction, and physical self-efficacy in cadet football players, data was analyzed using the method of standardized multiple regression where satisfaction and perceived physical ability were dependent (criterion) variables, and perceived motivational climate oriented towards learning, punishment for mistakes, and favoring athletes were independent (predictor) variables.

The value of multiple correlation coefficient shown in Table 3, with the risk level lower than 1%, is ($R = .69$) which means that there is intense linear correlation between the group of predictors and criterion. The value of the coefficient of multiple determination (squared R) shows that linear regression model explains 49% of the criterion variable participants' satisfaction.

In the regression model, two predictor variables showed positive and statistically significant partial influence on the variable satisfaction: perceived motivational climate oriented towards learning ($\beta = .42, p \leq .01$) and perceived physical ability ($\beta = .51, p \leq .01$). That means that cadet football players who achieve higher results on the: perceived motivational climate oriented towards learning and perceived physical ability have higher score on satisfaction. In addition, the regression equation has shown that the two other independent variables (punishment for mistakes and favoring athletes) are not statistically

significant predictors of the examined population of football players.

Table 3 Multiple regression analysis of criterion variable satisfaction

Predictors	β	SE
Perceived motivational climate oriented towards learning	.42**	.12
Punishment for mistakes	.09	1.45
Favoring athletes	.11	.23
Perceived physical ability	.51**	1.16
R	.69	
R ²	.49	

Note. B = standardized regression coefficient, SE = standard error, R = multiple correlation coefficient R² = coefficient of determination; **p ≤ .01

Table 4 shows the calculated multiple correlation coefficient (R = .56), and with the risk level of 1%, it reveals the moderate intensity of linear correlation between the independent variables and criterion. The predictive model accounts for 20% of the variability of the dependent variable perceived physical ability as the coefficient of determination (squared R) is (R² = .20).

Table 4 Multiple regression analysis of criterion variable perceived physical ability

Predictors	β	SE
Perceived motivational climate oriented towards learning	.43**	.17
Punishment for mistakes	.08	1.33
Favoring athletes	.03	.49
R	.56	
R ²	.20	

Note. β = standardized regression coefficient, SE = standard error, R = multiple correlation coefficient R² = coefficient of determination; **p ≤ .01

Only the predictor variable perceived motivational climate oriented towards learning showed the statistically significant partial contribution to multiple regression, with a positive indicator ($\beta = .43$, $p \leq .01$). That implies that young football players who realize higher scores on the perceived motivational climate oriented towards learning achieve higher scores on perceived physical ability. On the other hand, the other two examined variables (punishment for mistakes and favoring athletes) did not show any statistical significance.

DISCUSSION

A significant number of empirical studies that dealt with adolescent athletes revealed that pleasure and satisfaction are important determinants of an athlete's decision to quit or keep training. That was precisely the aim of this research, to examine the influence of perceived coach-created motivational climate on perceived self-efficacy and satisfaction of cadet football players.

Research findings show that coach's actions that create motivational climate oriented towards learning and the perceived physical ability are relevant in explaining athlete's satisfaction (M. Ivanović & U. Ivanović, 2022; M. Ivanović & U. Ivanović, 2018; Tušak et al., 2022). The aforementioned authors believe that the adolescent athletes who perceive the coach and his actions that influence their sports technique and skills development will create emotional support and manifest a higher level of satisfaction with their own sports activity. Motivational climate oriented towards learning is created on the basis that the coach-created motivational climate and daily training sessions are necessary for achieving success. In such atmosphere, an athlete perceives the coach as an expert who supports him and teaches him sports techniques, which leads to higher level of satisfaction. However, what contributes

to athlete's satisfaction is also perceived physical ability, for example, speed, strength, and agility, which also has significant influence on confidence, self-efficacy, and achieving success (Zeng, Meng, Sun, & Xie, 2019). The aforementioned authors believe that during adolescence the knowledge regarding body constitution becomes important, while doubt in one's physical competence prevents athlete from expressing his best skills and satisfaction. Physical self-efficacy is an important factor for athletes because their body shape and motor skills, primarily speed and strength, are important factors for winning a game that requires physical contact with an opponent (De Francisco, Arce, Sánchez-Romero, & Vílchez, 2018).

Based on the results of the correlational analysis conducted for this research, one can see that there is a statistically significant correlation between the coach-created climate, physical self-efficacy, and satisfaction in cadet football players. Motivational climate directly contributes to the satisfaction and perceived physical self-efficacy of cadet football players.

The findings of the regression analysis conducted on our sample revealed that the coach-created motivational climate is a significant factor of perceived physical self-efficacy in young football players. The adolescent football players' recognition of physical self-efficacy during training is influenced by various determinants which are created based on how they experience social environment, primarily peers and coach. Cultivating social relations during training sessions is a relevant factor in guiding football players, more significant than their achievement. The relevant factors in the perception of physical self-efficacy are the relationship a coach has with the cadet football players, his method of managing the team, as well as the athlete's belief in his own physical ability. Physical development of an athlete is one of the responsibilities of a coach (Opstoel, Chapelle, Prins, Meester, Haerens, & van Tartwijk, 2020). The aforementioned authors believe that a coach evaluates the level of an athlete's physical ability and the technique elements that need to be perfected for an athlete to achieve better success. A coach also creates a motivational climate oriented towards learning and doesn't see an athlete's imperfections as obstacles but as incentives and approaches the athlete in order to help him overcome his weaknesses. Improving physical competence includes a form of development, not pressure and burden. Such approach does not create rivalry between players as coach teaches his players to compare their achievements to individual improvements, which leads to higher level of self-efficacy, and achievement is regarded as a result of personal effort (M. Ivanović, & U. Ivanović, 2021b; Kenioua & Nawal, 2021). So, thanks to such an atmosphere, athlete is focused more on himself and, with the help of the coach, builds his belief in physical self-efficacy.

This transversal research has a few methodological limitations which have to be taken into account when interpreting the obtained results. First, the pertinent sample was insufficiently representative, and due to the chosen geographic region, one cannot generalize the results for the adolescent football population. Therefore, it is recommended that future research expand to entire Serbia and include a greater number of participants of both sexes, and those who practice individual sports. Another limitation has to do with the method of self-evaluation which means that one cannot exclude the presence of methodological variance and the problems of perceiving one's own behavior. In addition, there is a probability that certain participants gave dishonest and socially desirable answers, which could be caused by the sitting arrangement as participants sat close to each other.

However, despite the methodological limitations, this cross-sectional study offers useful results and an important basis for future research and practice. It shows that the construct coach-created motivational climate explains the part of the proportion of satisfaction and physical self-efficacy of cadet football players, which can serve as a guideline for future research.

As the chosen predictors of the variable motivational climate explained a relatively small percentage of the variance satisfaction and physical self-efficacy, and a big part of the variability remained unexplained, future research should include other variables such as peer and parent evaluation in order to obtain more realistic indicators of criterion variables. However, other variables should be examined as well but in a real sports situation, such as pro-social behavior, emotional intelligence, and stress variance, which could play a significant part in predicting satisfaction and physical self-efficacy. In addition, future research should check the differences in the perceived coach-created motivational climate between the adolescents of both sexes in individual and team sports and the coach's contribution

to their perceived satisfaction and physical self-efficacy. Finally, future research should be longitudinal or experimental, which will enable a better understanding of the complex relations in question.

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MOTIVACIONA ATMOSFERA UTICAJEM TRENERA: PREDIKTOR ZADOVOLJSTVA I TELESNE SAMOUSPEŠNOSTI FUDBALERA KADETA

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Sažetak: Osnovni cilj ovog empirijskog istraživanja bio je ispitivanje relacija konstruktata motivacione atmosfere uticajem trenera, zadovoljstva i telesne samouspešnosti kod fudbalera adolescenata. Uzorak je obuhvatio $N = 128$ fudbalera prosečne starosti 17.46 ($SD = 1.09$ godina). Korišćena su tri merna instrumenta: Upitnik percipiranog motivacionog stanja generisanog od strane trenera (Perceived Motivational Climate in Sport Questionnaire – PMCSQ-2 (Newton, Duda, & Yin, 2000), Upitnik o zadovoljstvu sportista (Athlete Satisfaction Questionnaire – ASQ, Riemer, & Chelladurai, 1998) i Upitnik telesne samouspešnosti (The Physical Self-Efficacy Scale – PSE, Ryckman, Robbins, Thornton, & Cantrell 1982). Testirani regresioni linearni model je pokazao da su varijable percipirano motivaciono stanje orijentisano na učenje ($\beta = .42$, i $\beta = .42$, $p \leq .01$) statistički značajni parcijalni prediktori kriterijuma zadovoljstva mladih fudbalera i percipirane telesne sposobnosti. Dobijeni nalazi osvetljavaju relevantnost do sada nedovoljno istraženih fenomena motivacione klime uticajem trenera, telesne sposobnosti i zadovoljstva kod fudbalera u kadetskom uzrastu. Zaključna analiza zbraja teorijski doprinos rezultata, nedostatke, operacionalizovane implikacije, kao i neophodne pravce za buduća istraživanja.

Ključne reči: adolescencija, fudbal, kadetski uzrast, motivaciona klima, favorizovanje igrača