

UNDERSTANDING OF DROPPING OUT OF SPORTS IN ADOLESCENCE – TESTING THE HIERARCHICAL MODEL OF INTRINSIC AND EXTRINSIC MOTIVATION

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Abstract:

The aim of the research was to test the hierarchical model of intrinsic and extrinsic motivation (HMIEM) as a model for understanding the process of dropping out of sports in adolescence. The task oriented motivational climate created by a coach was defined as the social factor, whereas the satisfaction of need for competence and enjoyment were the psychological mediators of amotivation. Cognitive outcome was defined as the intention to drop out of sports. The sample consisted of 383 respondents, 49.9% boys and 50.1% girls from Serbia, average age 13.74 years, who actively played volleyball, basketball, and handball. Results of the structural modelling equation analysis confirmed that the HMIEM represented a good model for understanding the process of dropping out, and that it explained 18.9% of the intention to drop out of sports in adolescence. Athletes who perceive their coach's behaviour as non-supportive, rigid, primarily focused on achievement, will have sense of incompetence and will lack enjoyment while doing sport. Unsatisfied needs then lead to the development of amotivation – the lack of reasons to do sports, and to the intention to drop out of sports. These results represent a further step towards creating educational programmes for youth sport that might prevent dropping out of sport in adolescence.

Key words: *hierarchical model of intrinsic and extrinsic motivation, dropping out of sport, youth sport, motivational climate, basic needs*

Introduction

Youth sport and dropping out of sports

Over 38 million young people are involved in sports (Dangi & Witt, 2016), since it is the most represented activity for young people. Youth sport is a structured physical activity, with clear sporting rules, trainings, and competitions, managed by adults (Guagliano, Lonsdale, Kolt, Rosenkranz, & George, 2015). Children and youth sports are important at both individual and community level as sports contribute to physical (Lagestad & Mehus, 2018; Vella, Cliff, & Okely, 2014), but also to mental health, psychological and social development (Agans, Johnson, & Lerner, 2017; Bakken, 2017). They are, in fact, a “gateway to elite sport” (Jevtić, 2011), as they play a key role in the detection and guidance of talented athletes to a professional level.

However, despite the fact that many children participate in some form of organized physical activity, sports professionals, as well as researchers, have noticed a worrying trend of enlarged rates of

dropping out of sports in adolescence. Dropping out of sports involves a voluntary premature termination of a sports career at the time when the athletes have not yet realized their potential (Leptir, 2009). It does not refer to stopping playing sports due to an injury, withdrawing from sports or retiring, or changing the type of sport a person is involved in. Dropping out of sports is making a conscious decision to stop practicing a particular sport or sports in general, and it can be seen as maladaptive behaviour of an athlete due to his/her low self-determining motivation (Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002) whose development is influenced by interpersonal relationships and circumstances (Deci & Ryan, 2000).

Specifically, during adolescence, an average of 17 to 35% of young people annually drop out of sports (Lagestad, 2019; Lagestad, Tillaar, & Mamen, 2018; Temple & Crane, 2015; Vella, et al., 2014). More recent meta-data show that 23.9% of young people aged 10-19 years annually quit sports, with 26.8% of girls and 21.4% of boys (Møllerløkken, Lorås, & Pedersen, 2015), and this trend has

been proven consistent across different countries in Europe (Wagnsson, Patriksson, & Carlman, 2013). When it comes to data from Serbia, the first research on dropping out of sports in adolescence, conducted in the territory of Vojvodina in 2017/2018, noted that 11.2% of adolescents, aged 13 to 16 years (who took part in organized sports) dropped out of them after the period of 8 to 10 months (Trbojević, 2018).

Until recently, research has sought to uncover the reasons why young people drop out of sports by conducting qualitative studies, focus groups and interviews with adolescents who have dropped out of sports (Dias, et al., 2018). However, describing and identifying the reasons for dropping out of sports is not effective for the development of prevention programmes addressing the issue of dropping out of sports; it is necessary to understand the very process that takes place within an individual before dropping out of sports (Fraser-Thomas, Cote, & Deakin, 2008). Earlier research suggested that the view from motivational aspect can contribute to a better understanding of athletes' behaviour (Dias, et al., 2018; Lau, Rogers, Haggard, & Passingham, 2004) and the process of dropping out of sports in adolescence (Gardner, Vella, & Magee, 2017; Rottensteiner, Tolvanen, Laakso, & Kontinen, 2015; Sarrazin, et al., 2002; Sol Alvarez, Balaguer, Castillo, & Duda, 2012). One of the motivational models that is integrative is the Hierarchical Model of Intrinsic and Extrinsic Motivation (HMIEM; Vallerand, 1997; Vallerand & Ratelle, 2002). The HMIEM, with its basis in the self-determination theory, basic psychological needs theory, and achievement goal theory, consists of four stages that are mutually and causally related (Figure 1).

According to the HMIEM, individual's perceptions of satisfied basic psychological needs are mediators of the effects of social factors on the type of motivation, because these perceptions are related to the fundamental human needs that the individual seeks to satisfy (Deci & Ryan, 2012; Vallerand, 1997). Motivation that arises from these interac-

tions shapes one's behaviour, affect and cognition. Social factors have a significant contribution to the development of motivation, through the satisfaction of basic psychological needs that have a role of the mediator.

In the present study, the HMIEM was slightly modified and narrowed (Figure 2) on the basis of the preliminary research analyses, which included a larger number of social and psychological factors that indicated the need to narrow down the model in order to carry out structural modelling and define a significant model of dropping out of sports within Serbian adolescents (see more in Trbojević, 2018).

Motivation and psychological mediators

Motivation represents a hypothetical construct used to describe internal or external forces relevant to shaping and developing the initiative, direction, intensity, and duration of behaviour (Vallerand & Thill, 1993). Motivation, according to the self-determination theory (SDT; Ryan & Deci, 2017), stretches along the continuum from amotivation (when an individual has no desire or intention to participate in an activity) through extrinsic motivation (when an individual is active only because of the very value that activity brings) to intrinsic motivation (participating for pleasure). The central concept in the SDT is the concept of autonomous self-regulation. When the individuals are autonomous in their self-regulation, they self-initiate and persist in activity due to their perception of tasks as interesting and important. Therefore, autonomous motivation refers to engaging in a particular type of behaviour because it is perceived to be consistent with intrinsic goals or outcomes (Ryan & Deci, 2017). *Amotivation* is a form of motivation that is not on a continuum of either intrinsic or extrinsic motivation and is similar to the construct of learned helplessness. This form of motivation occurs when a person has the perception that there is no correlation between actions and outcomes, when he or she feels incompetent and does not really know why he

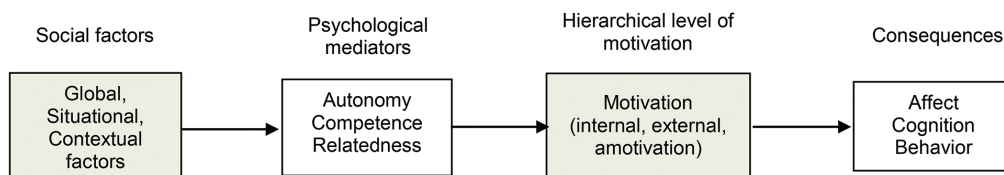


Figure 1. The hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997).

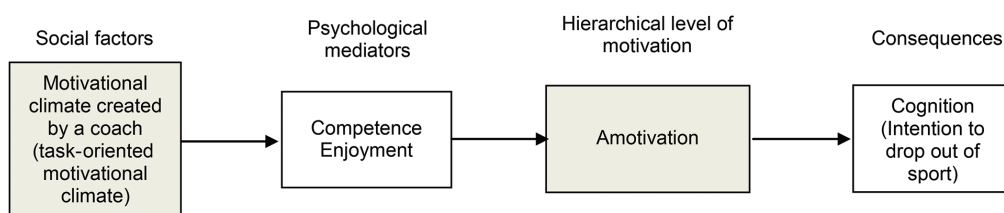


Figure 2. The hierarchical model of intrinsic and extrinsic motivation used in this study.

or she does sports (Ryan & Deci, 2017). Amotivation is preceded by nonadaptive capacity, outcome, effort, and value beliefs (Shen, Wingert, Li, Sun, & Rukavina, 2010). These beliefs actually trigger amotivation; they refer to the experience of incompetence, the belief of a person that he or she does not possess the abilities and skills (physical and psychological) required to perform a particular action; belief in not having strategies that will lead to the desired outcome; lack of desire to put effort into a particular activity due to the person's experience of not being able to reach the level of expected effort and strength; the person's belief that a particular activity has no significant value for him or her (Vlachopoulos & Gigoudi, 2008).

Absence of high self-regulating forms of motivation, i.e. a high degree of amotivation is associated with the intention to drop out and dropping out of sports (Sarrazin, et al., 2002; Sol Alvarez, et al., 2012). Given that amotivation is seen as a low self-regulating form of motivation or lack of motivation, with non-adaptive beliefs about personal capabilities, it is not surprising that it plays a significant role in dropping out of sports. However, amotivation does not act alone on the decision-making process to quit. According to the SDT, an athlete whose basic psychological needs have not been satisfied develops a low self-regulating motivation that influences his or her behaviours, choices, and decisions to participate in sports (Adie, Ntoumanis, & Duda, 2008; Deci & Ryan, 2012). The theory of basic psychological needs (the micro theory of SDT) sees that the development of motivation is influenced by the degree to which basic psychological needs are met, that is, the need for competence, autonomy, and relatedness (Ryan & Deci, 2017). These psychological needs are universal, and they are antecedents of motivation. Motive is a driving force, coloured by a satisfied need, so there is a mutually interdependent relationship between the satisfied need and motivation. An athlete whose psychological needs are satisfied will develop autonomous forms of motivation due to experiencing self-regulation and an internal locus of control, and *vice versa* (Huhtiniemi, Sääkslahti, Watt, & Jaakkola, 2019; Ntoumanis, 2012; Trbojević Jocić, 2021).

In youth sports, the need for competence is expressed through developmental changes and the demands of the environment and the training process (Wagnsson, et al., 2013). Thus, the adolescent athlete develops goals aimed at experiencing competence and participates in sport to achieve self-actualization (White, Kavussanu, & Guest, 1998). The need for competence refers to the need to perceive one's own behaviour and interactions with the social environment as effective, with the expectation and belief that the individual can overcome challenges. The need for competence was distinguished in this study on the basis of the results of

previous research that found a correlation between the need for competence and motivation (Chen, Elliot, & Sheldon, 2019; Huhtiniemi, et al., 2019) and dropping out of sports (Crane & Temple, 2015; Lagestad & Sørensen, 2018; Schlesinger, Löbig, Ehnold, & Nage, 2018). In addition to the need for competence that has a relevant role in athlete's behaviour, a great deal of research has found that enjoyment of and in activity plays a significant role in the development of high self-regulatory forms of athlete's motivation (Gråsten & Watt, 2017; Ryan & Deci, 2017; Yli-Piipari, Wang, Jaakkola, & Liukkonen, 2012) and in further sports participation (Young & Medic, 2011). Enjoyment can be viewed as a psychological mediator of sports participation because it represents a hedonistic need (Wateman, Schwartz, & Conti, 2008) expressed in the domain of sport.

Social factor – The role of the coach

The satisfaction of basic psychological needs and the development of autonomous forms of motivation are influenced by significant others who, through their behaviour, can create a social context that is either supportive or discouraging, which directs the individual towards or from the developmental goal and thus influences the development of motivation (Weinstein & DeHaan, 2014). One of the social and situational contexts of motivation related to the satisfaction of basic psychological needs (Pulido, Sánchez-Oliva, Sánchez-Miguel, Amado, & García-Calvo, 2018; Trbojević Jocić, 2021;), athlete's individual motivation (Pulido, et al., 2018; Sol Alvarez, et al., 2012), and participation in sport (Pannekoek, Byrne, & Fursland, 2013; Sol Alvarez, et al., 2012) is motivational climate created by others.

Motivational climate, a construct from the achievement goal theory – AGT, refers to the perception of social cues and expectations of others that encourage the development of goal orientation, and encourage involvement in the activity itself based on that goal orientation (Lochbaum, et al., 2016; Vazou, Ntoumanis, & Duda, 2006). Motivational climate shapes athlete's beliefs and sense of achievement that further influences his or her behaviour in situations where achievement is expected. It has significant implications for motivation and cognitive, behavioural, and affective outcomes in sport (Ames, 1992; Harwood, Keegan, Smith, & Raine, 2015). Depending on the goal orientation of significant others, motivational climate can be either task-oriented or ego-oriented (Ames, 1992).

A task-oriented motivational climate rewards and encourages refinement and mastery of the task with one's own skills, dedication, and effort, providing social support and understanding by significant others. The motivational climate created this way is related to athlete's greater satisfaction

and intrinsic motivation to do sports (Sol Alvarez, et al., 2012; Harwood, et al., 2015). Giving positive feedback that aims to improve the athletic ability of the athletes, rather than humiliating and rejecting them in the absence of high achievements, gives the athletes the sense of competence as well as the sense of being accepted and connected to significant others in the sport. Since the task-oriented motivational climate supports hard work and effort, internalization of success will occur, i.e. the athlete will be aware that success has come from his or her development and learning and that it is the result of an internal factor, not of a chance or situation. Such internalized success is associated with higher self-esteem, but also with a greater degree of enjoyment in sport itself, which underpins further participation in sports (Ryan & Deci, 2000). On the other hand, an ego-oriented motivational climate encourages social comparisons, inter team rivalry, and achievement for the sake of the sense of superiority, with criticism and rejection by significant others in the event of failure. This way, the athlete perceives training and doing sports as a means to victory, which is why there is no internalization of success (Gillet, Vallerand, Amoura, & Baldes, 2010), and therefore doing sports is not a source of enjoyment; instead, it is a source of pressure and fear of failure. Absence of the task-oriented motivational climate is associated with unsatisfied basic psychological needs and leads to amotivation (Braithwaite, Spray, & Warburton, 2011; Deci & Ryan, 2000; Harwood, et al., 2015; Pulido, et al., 2018; Sol Alvarez, et al., 2012).

In recent years, there has been a growing body of research that confirms the importance of social relationships in sports, especially during adolescence (Stuntz & Weiss, 2009). The way an individual interprets interpersonal relationships plays a key role in understanding motivational processes (Xan Yang, 2011). A coach has a significant role in the life of a young athlete (Rocchi, Pelletier, & Couture, 2013; Sol Alvarez et al., 2012). A quality coach-athlete relationship is a key factor in creating a social climate, as it is directly linked to self-regulatory forms of motivation and continued participation in sports (Gardner, Magee, & Vella, 2016; Pulido, et al., 2018). With his or her leadership style, the coach shapes motivational climate in the team, which further shapes the athlete's motivation (Pulido, et al., 2018; Rottensteiner, et al., 2015; Sarrazin, et al., 2002). Highly demanding training and the lack of support and understanding from the coaches can prompt the belief of athletic incompetence in an athlete. The pressure to progress also affects and diminishes the degree of enjoyment in doing sports. Thus, the athlete who estimates that doing sports requires too much investment, creates maladaptive beliefs that he or she does not personally possess the skills necessary to achieve

results, thus leading to decreased motivation to do sports (Gardner, et al., 2016).

Intention to drop out of sports

The hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997; Vallerand & Ratelle, 2002) has proven to be relevant to explaining the cognitive, affective, and behavioural outcomes in athletes (Gillet, et al., 2010; Sarrazin, et al., 2002; Sheehan, Herring, & Campbell, 2018; Standage & Emm, 2003). In this study, the intention to drop out of current sports is taken as a cognitive outcome of the HMIEM. Intention is a proximal predictor of behaviour (Ajzen, 1985; Ajzen & Fishbein, 1980), primarily in exercise (Sol Alvarez, et al., 2012), and is influenced by social and psychological factors. Understanding of the interactions that may lead to creating a particular intention in an athlete can contribute to the early development of a set of prevention programmes aiming at influencing the intention before it becomes the behaviour.

Given the importance of sport in the psychosocial and physical health of individuals (Agans, et al., 2017; Bakken, 2017; Cecchini, Fernandez-Rio, Mendez-Gimenez, Cecchini, & Martins, 2014), this research addressed the process of dropping out of sports in adolescence, a critical developmental period, between the years 13 and 16 of age. At this age, young people move on to the further sports developmental stage – the specialization stage (Cote & Fraser-Thomas, 2007), deciding on one sport to continue and commit to, where the demands of coaches and the environment become larger, and social relations highly relevant. Annually, about 35% of young people drop out of sports (Fraser-Thomas, et al., 2008), which is why clubs and national teams have difficulty in forming senior teams to participate in higher competition ranks. Also, the adolescents who drop out of sports are at risk of developing psychophysical problems and of engaging in risky behaviours (Agans, et al., 2017). This research begins from the HMIEM (Vallerand, 1997; Vallerand & Ratelle, 2002) in order to understand the process of dropping out of sports in adolescence.

Therefore, the research problem is: To what extent does HMIEM explain the intention of young athletes to drop out of the sport they are currently pursuing?

Method

Procedure

Consent from the authors was first provided for all the used questionnaires. The questionnaires were translated from English to Serbian. A public invitation for participation in the research was sent to clubs in the territory of Vojvodina, stating that young athletes, aged 13 to 16 years, who have been

practicing the same sport for a minimum of one year, at a given club for a minimum of six months, can participate in the research. In February and March 2017, data collection was conducted in the territory of Vojvodina (the north part of the Republic of Serbia). Data were collected out in the premises of the clubs, either in a sports hall or a changing room. Before completing the questionnaires, the potential respondents were asked if they would like to participate in a survey addressing young athletes. It was emphasized that participation was voluntary and that all those who were not interested in consistently participating and completing the questionnaires could return to training. While completing the questionnaires, the athletes were alone with the psychologist. Data collecting conditions were not ideal due to the lack of adequate premises for filling in the questionnaires, as well as the fact that some respondents filled in the questionnaires immediately after or just before their training session.

Sample

The sample included young athletes in the territory of Vojvodina, aged 12-17 years, who practiced the same sport for 4.28 years on average, in the same club (where they currently train) for 38.46 months. The inclusion criteria were that participants were doing a given sport for at least one year and that they were doing it in the club where they were currently training for at least six months.

The sample consisted of 383 respondents, 49.9% boys and 50.1% girls; their average age was 13.74 years. The survey involved respondents who were actively involved in volleyball, basketball, and handball. These sports were chosen because they were all indoor team sports, with similar dynamics and were among the sports that were highly represented in the adolescent population in the territory of Vojvodina.

Instruments

A sociodemographic questionnaire constructed for this research purposes consisted of sociodemographic variables and questions about sports experience, school success and family sports experience, place of residence, socioeconomic status of the family and the respondent's playing position.

Perceived Motivational Climate in Sport Questionnaire-2 – PMCSQ-2 (Newton, Duda & Yin, 2000) consists of 33 items pertaining to players'

perceptions of the motivational climate formed by the coach. The theoretical setting of the questionnaire consists of six subscales: Cooperative Learning, Effort/Improvement, Important Role, which all make up a task-oriented motivational climate; and Intra-Team Member Rivalry, Unequal Recognition, and Punishment for Mistakes, which all make up an ego-oriented motivational climate. In this research, a shortened version of the questionnaire was used to create a subscale that would address a task-oriented motivational climate. The subscale consisted of seven items, rated on a five-point Likert scale (1: strongly disagree, 5: strongly agree), with higher scores indicating task-oriented motivational climate. The items that largely represented the subscale itself were selected (example: *On this team coach believes that all of us are crucial to the success of the team*). Validity analysis of the modified questionnaire and of the task-oriented motivational climate subscale indicated satisfactory metric characteristics ($\alpha=.76$). For more details about the used questionnaire, see Trbojević (2018).

Basic Need Satisfaction in Sport Scale – BNSSS (Ng, Lonsdale, & Hodge, 2011) has been developed to measure the satisfaction of basic psychological needs in sport, i.e. the need for autonomy, competence, and relatedness. The scale consists of five subscales: Competence, Relatedness, and three subscales Choice, IPLOC (internal perceived locus of causality), and Volition, which together form the Autonomy subscale. The scale consists of 20 items, where an athlete marks how he or she feels while training on a five-point Likert scale (1: strongly disagree, 5: strongly agree), with higher scores indicating satisfied need (item example: *I can overcome challenges in my sport*). In this study, the Competence subscale was applied, consisting of five items whose reliability coefficient in this sample was $\alpha=.79$.

Sport Commitment Questionnaire-2 (Scanlan, Russell, Beals, & Scanlan, 2003) consists of 13 subscales; two of them measure two types of psychological commitment, and 11 subscales measure the sources of that commitment. In this study the subscale Enjoyment ($\alpha=.93$) was used, which consists of five items rated on a five-point Likert scale (1: strongly disagree, 5: strongly agree), with higher scores indicating enjoyment in doing sports (item example: *Playing this sport is fun*).

Planning for further participation in sport for the purposes of this research was assessed on a

Table 1. Sample structure by the type of sport they practice

| | Basketball | Volleyball | Handball | Total |
|-------|------------|------------|----------|-------|
| Boys | 68 | 63 | 58 | 191 |
| Girls | 70 | 66 | 58 | 192 |
| Total | 138 | 129 | 116 | 383 |

one-item basis, in line with previous research (e.g. Gillet, et al., 2010) where the athlete estimates the extent to which he or she has a particular intention. The item reads: "I'm thinking about dropping out of this sport" (response scale: never, rarely, occasionally, often, and always).

The Sport Motivation Scale-II (Pelletier, Rocchi, Vallerand, Deci, & Ryan, 2013) consists of 18 items (three items are represented for each type of motivation) that measures six types of motivation: internal motivation, identified motivation, introjected motivation, integrated motivation, external motivation, and amotivation. Using a five-point Likert scale (1: strongly disagree, 5: strongly agree), an athlete corresponds to what extent a particular reason for doing sports relates to him or her. The Amotivation subscale ($\alpha = .67$) was used in this study, with higher scores indicating that the athlete has amotivation (item example: *I used to have good reasons for doing sports, but now I am asking myself if I should continue*).

Statistical analysis

For data analysis we used program SPSS 20. Descriptive statistics were used to estimate basic descriptive data and a correlation analysis to assess the degree of correlation among the examined variables. The correlation analysis is a necessary precondition for conducting the structural equation modelling analysis that tested the significance of the HMIEM in explaining the intention to drop out of organized sports. Data were processed by Mplus 7. The structural equation modelling was performed using a robust maximum likelihood method (MLR), which is recommended in situations where the distributions of some of the variables deviate significantly from normal. When testing the model fit indices in the study, the following measures of accuracy were used: the root mean-square error of approximation – RMSEA Index; the standard-

ized root mean-square residual – SRMR. In addition to the absolute fit index, the relative indices were also used: comparative fit index (CFI) and Tucker-Lewis index (TLI, also called non-normed fit index, NNFI). In this study, to accept or reject the model, recommendations of Thompson (1997) and Hu and Bentler (1998) were followed: a model can be accepted if it satisfies two measures of accuracy (CFI and RMSEA; Thompson, 1997); or if it satisfies the SRMR index and one of the TLI / RMSEA / CFI indexes (Hu & Bentler, 1998).

Results

Descriptive analysis of the data showed that the participants achieved above the theoretical average scores at the following investigated variables: task-oriented motivational climate, competence, and enjoyment, and an extremely low score on amotivation variable (Table 2).

The correlation analysis indicated a statistically significant correlation between the examined variables. According to Table 2, it can be observed that the task-oriented motivational climate created by the coach was significantly positively related to the need for competence and enjoyment satisfaction, and negatively related to amotivation and intention to drop out of sport. Needs for competence and enjoyment satisfaction were statistically significantly positively correlated with one another, and statistically significantly negatively related to amotivation and intention to drop out of sport. Amotivation was statistically significantly positively related to the intention to drop out of sport.

A structural equation model in which the social factor is a task-oriented motivational climate created by a coach, and psychological mediators are need for competence and enjoyment, with amotivation as a motivational factor and the intention to drop out of sports as a cognitive outcome, shown in Scheme 1, satisfies two criteria of the index of

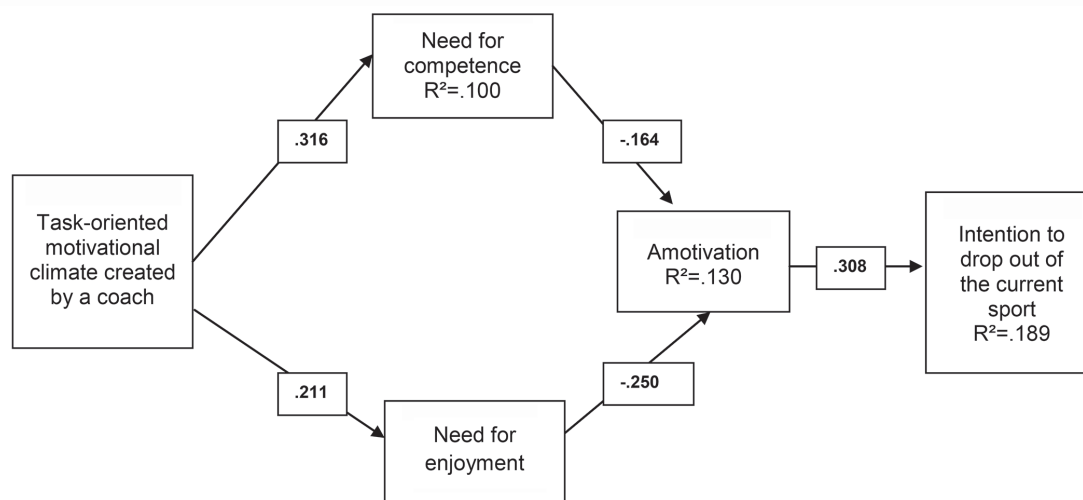
Table 2. Descriptive statistics and correlations of the study variables

| Variable | n | Min/Max | M | SD | 1 | 2 | 3 | 4 | 5 |
|---|-----|---------|-------|------|---|-------|-------|--------|--------|
| 1. Task-oriented motivational climate created by a coach ^a | 356 | 5/35 | 31.68 | 3.84 | - | .335* | .205* | -.219* | -.183* |
| 2. Competence ^a | 357 | 1/5 | 4.45 | .524 | | - | .345* | -.289* | -.248* |
| 3. Enjoyment ^a | 381 | 1/5 | 4.85 | .39 | | | - | -.317* | -.300* |
| 4. Amotivation ^a | 373 | 1/5 | 3.84 | 1.84 | | | | - | .399* |
| 5. Intention to drop out of the current sport ^a | 382 | 1/5 | 1.29 | .75 | | | | | - |

Note. ^a Range 1-5. * $p < .01$

Table 3. Parameters of the tested model

| | Chi-square | df | p | CFI | TLI | RMSEA | SRMR |
|-------|------------|----|------|------|------|-------|------|
| Model | 4.016 | 1 | .045 | .956 | .561 | .089 | .048 |



Scheme 1. Path analysis of the model of dropping out of sports.

accuracy and rejects the null hypothesis ($\chi^2=4.016$, $p>.05$; CFI=.956; SRMR=.048).

The model statistically significantly explains 18.9% of the variance of intention to drop out of the current sport. In Scheme 1, only statistically significant relationships are shown, where it can be observed that the task-oriented motivational climate created by a coach is a statistically significant predictor of the need for competence and enjoyment satisfaction, which are statistically significant psychological mediators (negative correlation) of amotivation. Then follows amotivation that acts on the intention to drop out of the current sport. If the coach has created a motivational climate that is not task-oriented, the need for competence and enjoyment will not be satisfied. Unsatisfied psychological needs lead to the development of low self-regulatory forms of motivation and amotivation. The absence of a motive to participate in an activity leads to the expressed intention to discontinue the activity.

Discussion and conclusion

Dropping out of sports represents a complex process that has a widespread influence on the development of youth sports, sports achievements, economic and social aspect of one society (Koković, 2000), and simultaneously on the development of an individual (Agans, et al., 2017; Bakken, 2017). In the last thirty years, scientists and sports experts have begun to focus more on this problem, acknowledging concerning statistics that show 17 to 35% rates of young athletes annually drop out of youth sport – organized sporting activity within clubs. However, even though dropping out of sports has gained more of the “spotlight”, there are still few research programmes that try to determine and develop the model capable of explaining the very process that undergoes beneath or in the background of the dropping out behaviour (Fraser-Thomas, et al., 2008). Most research relied on the reasons

why young adolescents do sports, or why did they drop out of sports. A question word “why” has a significant role in understanding the motivation for engaging and staying in a particular activity. The hierarchical model of intrinsic and extrinsic motivation (HMIEM; Vallerand, 1997; Vallerand & Ratelle, 2002) is a motivational model that integrates social factors, psychological needs satisfaction, motivation, as well as cognitive, emotional and behavioural outcomes. Using this model as a base in this research, we wanted to examine the role of the coach’s behaviour (task-oriented motivational climate that he or she creates) as a significant social factor in youth sports, the development of amotivation, through the need for competence and need for enjoyment (dis)satisfaction as psychological mediators, and the intention to drop out of sports as the cognitive outcome.

Results show that this model meets the two criteria of the measures of accuracy, thus allowing the null hypothesis to be rejected, and explains 18.9% of the variance of the intent to drop out of the current sport (Scheme 1). The task-oriented motivational climate created by the coach is a statistically significant predictor of amotivation, with the need for competence and enjoyment satisfaction as psychological mediators. Then amotivation influences the intention to drop out of sports. Earlier research that examined the HMIEM in the context of dropping out of sports, where the influence of a social agent on the development of motivation was examined, with psychological needs as psychological mediators, found that the model explains about 6% of the variance of an athlete’s intention (Joesaar, 2012).

These results confirm the assumptions of the HMIEM, but also indicate that the process of dropping out of sports can be interpreted through the motivational processes going on in a young athlete. The coach stands out as a significant figure in the

process of dropping out of sports. A great deal of research has already highlighted the importance of the role of coaches in athletic development and athletic achievements (Sol Alvarez, et al., 2012; Poczwardowski, Barott, & Jowett, 2006; Rocchi, et al., 2013). The coach is a figure who is at the same time a sports expert, but also an adult responsible for psychophysical health of his or her athlete. At the specialization stage, young athletes enter a more demanding training process and spend more time with the coach. The way he or she approaches to sports, but also to work with young athletes, plays a significant role in developing the athlete's motivation and intention to either continue doing or drop out of sports.

Motivational climate created by the coach refers to the athlete's perception of social cues and expectations of the coach that encourage the development of goal orientation and encourage involvement in the activity itself (Lochbaum, et al., 2016). Obtained results show that the task-oriented motivational climate, created by the coach, shapes athlete's beliefs and sense of achievement – sense of competence. Such a climate encourages hard work, the development of skills, and testing them in the context of achievement. Athletes are directed towards their internal locus of control, self-evaluation and not so much on normative evaluation of sport competence. This kind of climate creates a supportive and learning environment that underpins athletes' sense of competence and enjoyment. Providing constructive feedback, supporting hard work and effort contributes to the internalization of success and sense of competence. The internalized success is associated with self-esteem, but also with a greater degree of enjoyment in sport itself, which affects further participation in sports (Harwood, et al., 2015; Ryan & Deci, 2000). Absence of the task-oriented motivational climate is associated with athletes' sense of incompetence due to a high pressurising normative evaluation of own success and external locus of control. When motivational climate is not directed towards learning and coping with failure and challenges, athletes will perceive training and doing sports as only a means to victory, which is why there is no internalization of success (Gillet, et al., 2010). In line with the achievement goal theory and self-determination theory, motivational climate represents situational context of motivation, which athletes perceive as social factors that have an effect of internal psychological processes. As previous and this research has found that the absence of task-oriented motivational climate is associated with unsatisfied basic psychological needs and leads to amotivation (Braithwaite, et al., 2011; Deci & Ryan, 2000; Pulido, et al., 2018; Sol Alvarez, et al., 2012).

According to many authors (e.g., Harter, 1978, 1990; Ryan & Deci, 2000), the need for compe-

tence implies an individual's need to demonstrate his or her own abilities and avoid situations where he or she may demonstrate personal incompetence (Cox, 2011). If athletes continuously experience incompetence, they will notice that their actions are not related to the outcome (Duda & Hall, 2001), they will not enter into situations that may lead to the demonstration of their incompetence, i.e. they intend to drop out of sports. On the other hand, the instinctive need of an individual to enjoy the activities they are engaged in is related to the motivation for doing them. The lack of enjoyment of doing sports prevents the development of internal reasons for participating in them, and thus the athletes see sport as an activity that does not bring a significant benefit to them. Enjoyment stands out as one of the most significant factors in sports participation (Light, Harvey, & Memmert, 2011), and the lack of it is a risk factor for the development of amotivation and dropping out of sports. Non-autonomous forms of self-regulation make it impossible to internalize personal values, beliefs, and interests that encourage volitional actions (Weinstein & DeHaan, 2014). In this way, amotivation leads to an athlete's intention to drop out of sports due to the lack of experience of willing participation in sports and internal reasons for doing it, i.e. there is no correlation between action and outcome (Deci & Ryan, 2000).

The self-determination theory, achievement goal theory, and theory of basic psychological needs note that social factors influence, through psychological mediators, the development of motivation. Motivation is the driving force of individuals, which directs them towards or from activity (Vallerand & Thill, 1993). Based on the model examined, it is observed that the behaviour of the coach influences the degree of satisfaction of the need for competence and enjoyment. If these two needs are not satisfied, the athletes will develop amotivation that will make them more likely to drop out of sports.

The obtained results indicate the importance of understanding of the process of dropping out of sports as a motivational process, influenced by social factors. Also, they confirm that the way an individual perceives the environment and behaviour of others is a significant predictor of the individual's psychological responses (Ames, 1992). As sport is an activity that entails competition and requires constant development of abilities and skills, it is not surprising that the need for competence stood out as a significant psychological mediator of motivation, with a hedonistically oriented need for enjoyment.

Despite the fact that this research is the first to address the process of dropping out of organized youth sports in the Republic of Serbia, there are some limitations to the research that may also provide guidance for future research. The conditions in which the respondents completed the ques-

tionnaires were not satisfactory. In spite of the fact that steps were taken to fill in the questionnaires in peace and comfort, the majority of the respondents filled in them on the locker room floor, just before or after their training session. Having in mind that instrument for assessing psychological processes in sports are mainly developed for adult population, limitation of this research as well as the guidance for future research would be adapting and creating new instruments for youth athletes. The aim of this research was to examine the process of dropping out of team indoor organized sports in adolescence. Future research should cover as many different sports as possible – team and individual alike, with examining the effects of other social agents as parents, peers and teammates as significant interpersonal relationships that have a role in satisfying the basic psychological needs and developing motivation for sports, especially in adolescence. Gender differences in dropping out of sports were obtained in some research, but future research should move forward in identifying gender difference through collective and individual youth sports regarding not just the percentage of dropping out of sports, but also athletes' motivation for sports, training process, attitudes, beliefs, and relevant factors that influence their development.

The practical implications of the results are reflected in the creation of educational seminars for sports professionals. Since adolescence is a turbulent developmental and sporting period, it is necessary to educate sports professionals, coaches first,

about the changes that occur during this period, as well as about the needs that young athletes have, and how they can contribute to their satisfaction. The training process is demanding for both the athlete and the coach, therefore psychological support in the form of working with coaches and athletes can contribute to the creation of age-appropriate and developmentally appropriate training programmes and sessions that try to develop intrinsic motivation because it greatly affects the athletic achievement, but also the psychological well-being of the individual.

Having in mind that youth sport has protective role during adolescence (Agans, et al., 2017; Vella, et al., 2014), understanding the process of dropping out of sports has a significant value for individual and communities' development, but mainly for the sports itself. As sport is professionalized and has political, financial, and legal aspects, dropping out of sports in adolescence represents a great loss. Senior, junior and cadet teams are formed based on the success achieved by athletes in the younger age categories. One top athlete is selected from a population of 10,000 children who practice sports (Samardžić Marković, 2010), therefore dropping out of sports in adolescence narrows the selection pool of players and hinders the selection process. It is necessary to continue investigating the process of dropping out of sports and motivational process that develops during adolescence in order to decrease the percentage of young athletes who drop out of sports.

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