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COMPONENTS OF PERCEPTIONS OF SOCIAL SUPPORT AS A DETERMINANT OF ATHLETES' ENGAGEMENT IN ATHLETIC TRAINING

Abstract

Improving the effectiveness of sports education and ensuring the well-being of future national champions requires understanding the interaction between young athletes' social support, mental toughness, and self-efficacy. This study aimed to examine the relationship between social support perceptions and student-athletes' engagement in athletic training, and to assess the mediating effects of self-efficacy and mental toughness. A total of 167 first- and second-year student-athletes at the Academy of Physical Education and Mass Sports completed a questionnaire assessing training involvement, social support, mental toughness, and self-efficacy. The data were analyzed using correlation, regression, and mediation analyses. Results revealed significant positive correlations between all variables. The independent variables collectively explained 74% of the variance in engagement ($R^2 = 0.735$), highlighting the role of psychological mechanisms in translating social support into sport-related behaviors. The study contributes to sport psychology and higher education pedagogy by providing an empirically supported model in which self-efficacy and mental toughness mediate the effect of social support on athletic involvement. Practically, the findings offer guidance for designing educational programs to enhance sport engagement. Particularly, the identification of the combined influence of self-efficacy and mental toughness emphasizes the importance of a holistic approach to psychological preparation for future champions of Kazakhstan.

Keywords: athlete well-being, student-athlete, engagement, athletic training, social support, self-efficacy, mental toughness, psychological mechanisms, behavioral patterns

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КОМПОНЕНТЫ ВОСПРИЯТИЯ СОЦИАЛЬНОЙ ПОДДЕРЖКИ КАК ДЕТЕРМИНАНТЫ ВОВЛЕЧЁННОСТИ АТЛЕТОВ В СПОРТИВНУЮ ПОДГОТОВКУ

Аннотация

Повышение эффективности спортивного образования и обеспечение благополучия будущих национальных чемпионов требует понимания взаимодействия социальной поддержки, психологической устойчивости и самоэффективности молодых спортсменов. Цель исследования — изучить связь между восприятием социальной поддержки и вовлечённостью студентов-спортсменов в тренировочный процесс, а также оценить медирующую роль самоэффективности и психологической устойчивости. В исследовании приняли участие 167 студентов первого и второго курсов Академии физической культуры и массового спорта, которые заполнили анкету, включавшую показатели вовлечённости в тренировки, социальной поддержки, психологической устойчивости и самоэффективности. Данные обработаны с помощью корреляционного, регрессионного и медиаторного анализов. Результаты показали значимые положительные корреляции между всеми переменными. Независимые переменные совместно объясняли 74% вариации вовлечённости ($R^2 = 0,735$), что подчёркивает роль психологических механизмов в трансформации социальной поддержки в спортивное поведение. Исследование вносит вклад в спортивную психологию и педагогику высшего образования, предлагая эмпирически обоснованную модель, где самоэффективность и психологическая устойчивость выступают ключевыми медиаторами влияния социальной поддержки на вовлечённость в спорт. Практическая ценность заключается в возможности использовать результаты для разработки образовательных программ, повышающих спортивную активность студентов. Особое значение имеет выявление совместного влияния самоэффективности и психологической устойчивости, что подчёркивает необходимость комплексного подхода к психологической подготовке будущих чемпионов Казахстана.

Ключевые слова: благополучие спортсмена, социальная поддержка, самоэффективность, психологическая устойчивость, психологические механизмы, поведенческие паттерны.

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СПОРТШЫЛАРДЫҢ СПОРТТЫҚ ДАЙЫНДЫҚҚА ҚАТЫСУЫНЫҢ ДЕТЕРМИНАНТЫ РЕТІНДЕ ӘЛЕУМЕТТІК ҚОЛДАУДЫ ҚАБЫЛДАУ КОМПОНЕНТТЕРІ

Аңдатпа

Спорттық білім беру жүйесінің тиімділігін арттыру және болашақ ұлттық чемпиондардың әл-ауқатын қамтамасыз ету үшін жас спортшылардың әлеуметтік қолдауы, психологиялық тұрақтылығы және өзін-өзі тиімділігін өзара байланысын түсіну қажет. Зерттеудің мақсаты — әлеуметтік қолдауды қабылдау мен студент-спортшылардың жаттығу процесіне қатысу арасындағы байланысты зерттеу, сондай-ақ өзін-өзі тиімділік пен психологиялық тұрақтылықтың делдалдық рөлін бағалау. Зерттеуге Дене шынықтыру және көпшілік спорт академиясының бірінші және екінші курс студенттері (167 адам) қатысты, олар жаттығуға қатысу, әлеуметтік қолдау, психологиялық тұрақтылық және өзін-өзі тиімділік көрсеткіштерін бағалайтын сауалнаманы толтырды. Мәліметтер корреляциялық, регрессиялық және медиаторлық талдау

әдістерімен өңделді. Нәтижелер барлық айнымалылар арасында маңызды оң корреляцияларды көрсетті. Тәуелсіз айнымалылар бірге қатысу деңгейінің 74%-ын ($R^2 = 0,735$) түсіндірді, бұл әлеуметтік қолдауды спорттық мінез-құлыққа айналдырудағы психологиялық механизмдердің маңыздылығын көрсетеді. Зерттеу спорт психологиясы мен жоғары білім педагогикасына үлес қосып, әлеуметтік қолдаудың спортқа қатысуға әсерін делдальдайтын өзін-өзі тиімділік пен психологиялық тұрақтылықты негізгі медиаторлар ретінде қамтитын эмпирикалық модель ұсынады. Практикалық мәні — нәтижелерді студенттердің спорттық белсенділігін арттыруға арналған білім беру бағдарламаларын жасау үшін қолдану мүмкіндігі. Ерекше маңыздылығы — өзін-өзі тиімділік пен психологиялық тұрақтылықтың бірлескен әсерін анықтау, бұл болашақ чемпиондарды психологиялық дайындауда кешенді тәсілді қолданудың қажеттілігін көрсетеді.

Түйін сөздер: спортшының әл-ауқаты, әлеуметтік қолдау, өзіндік тиімділік, психологиялық тұрақтылық, психологиялық механизмдер, мінез-құлық паттерндары.

INTRODUCTION An important reserve resource of the country for the sustainable development of Kazakhstanian sport is our athletes, who are entrusted with the mission of raising the prestige of the independent Republic in the international arena. It is obvious that to achieve high performance in sport, certain conditions need to be created for the younger generation. A special group that requires appropriate support are late adolescent athletes. During the first years of higher education, athletes will have to adapt to new educational conditions, combining a difficult period of adaptation with active training and competition.

Over an extended period of time, adolescents who are determined to dedicate their lives to sport develop in a high-intensity training environment that involves periodic psychological pressures: harsh criticism from coaches, exaggerated expectations from victory-oriented parents, and personal distress - all of these obstacles can have a negative impact on the psychological well-being and performance of young athletes.

Due to difficulties that an individual cannot cope with, which include contextualized demands in mastering the curriculum and constant psychological pressure, athletic burnout sets in, which in turn can lead to profound negative consequences including mental health issues, decreased performance, injury, and the end of athletic careers [1]. This process is a maladaptation characterized by feelings of exhaustion, cynicism, and maladaptive dramatically negative reactions towards learning or playing sports [2]. Burnout can be caused by the fact that student-athletes often face increased levels of stress due to increased demands of achieving their best performance - in sport and in learning - leading to potential negative consequences in the form of decreased academic performance and unexpected mental health issues [3].

The above emphasizes the relevance of the problem, and therefore a significant way to improve the performance of athletes, contributing to their outstanding athletic careers, is comprehensive support from understanding educators, sport psychologists, coaches and mentors, who, with the right approach, can facilitate the involvement of young athletes in the process of sports training.

Engagement considered in the current study is one of the main concepts in the field of positive psychology and is of paramount importance in unlocking the training potential of athletes. It is characterized as a stable mental state of an individual filled with positive emotions and is a significant factor influencing behavioral performance and personality development. Applied to the sport thesaurus, Kuokkanen et al. define engagement as a positive state that encompasses young athletes' ability to plan and evaluate their participation in sport and to dream about future endeavors [2].

As a meaningful indicator for athletes, engagement not only reflects their psychological health but also stimulates the development of traits such as optimism, perseverance, and creativity, thereby promoting athletic improvement and performance [4]. Thus, this indicator represents a multidimensional construct that includes several dimensions: (1) commitment, which is the willingness to invest effort, material, and time resources to achieve goals that are important to the individual; (2) self-confidence, which is characterized by belief in oneself and one's ability to achieve a high level of

performance with respect to desired goals; (3) vigor, which is defined as a surge of physical, mental, and emotional energy; and (4) enthusiasm, which reflects h

According to a number of studies, the significant factors influencing young athletes' engagement in athletic training are external factors such as team cohesion, extrinsic motivation, coach-athlete relationship, and internal factors such as perfectionism, basic psychological needs, and personality traits [5-7]. In a general sense, key factors such as social support, self-efficacy, and mental toughness influence the level of said engagement. For example, team sports foster a sense of community and belonging to something meaningful in players. They demonstrate the value of qualities such as cooperation, mutual aid, teamwork and sociability. Researchers Bang et al. report that the sense of community experienced by team athletes avoids mental health problems, while solo athletes perform worse [8]. As for subjective efficacy, it is more related to self-confidence and athletic performance. The indicator of mental toughness is characterized by the ability to overcome difficulties and stressful situations.

Studies that have examined the psychological well-being of Olympic champions in detail suggest that athletes need a high level of social support on their path to success, which can be categorized as coaching, parental, and peer support [9]. The main social support for athletes is provided by coaches and mentors, as their opinions are crucial in helping to motivate the athlete's development and self-improvement. Researchers Poucher et al. suggest that enhancing the support provided by coaches can help create a harmonious sporting environment that promotes proportional allocation of resources and enhances athletic performance [10]. In doing so, parental approval, encouragement, and sufficient levels of respectful emotional support shown to young athletes may mitigate the negative effects of stressors present in the sport environment on self-confidence and athletic performance. Finally, peer support promotes the accumulation of positive emotions, reduces mental fatigue, and increases athlete engagement during athletic training and demanding competitions [11].

We were interested in the fact that social support can help individuals to be more successful and thus increase their self-diagnosed efficacy, which according to Chan is the most important psychological factor for athletes [12]. Athletes face various pressures during sporting events and their ability to understand and promptly make good decisions depends on their level of self-efficacy appraisal. A favorable social environment can help young athletes increase self-confidence, thus having a positive impact on subjective efficacy: activities with peers, support from coaches, mentors, and parents, allow for mediated experiences and improve the emotional state of student-athletes. Viewing this finding in the context of the current study, we hypothesized that athletes' evaluations of their own efficacy may have a mediating influence on engagement levels. The assumption is supported by the following evidence: the more stable an individual's sense of self-efficacy and outcome expectation, the more likely they are to initiate and persist in a particular activity [13].

In considering subjective efficacy, mental toughness is also an important mediator of the relationship between social support and athlete engagement in sport training. Mental toughness is essential for athletes to achieve athletic excellence in their careers and is considered by sport psychologists to be the most important personality trait that contributes to competitive performance. Research shows that this indicator is significantly positively correlated with athletic performance [9]. Individuals who possess high levels of mental toughness tend to be highly successful in their athletic careers. They have an unwavering belief in their ability to control stressful situations, and consequently, they perceive any stress as a challenge. By utilizing more effective coping strategies, these athletes exhibit better athletic performance.

Thus, given the importance of engaging young athletes in the process of sports training in order to enhance Kazakhstan's international prestige and improve the health of the nation, studying the factors that influence this indicator is also crucial to understand and develop mechanisms to promote engagement and, consequently, to improve athletic performance by providing athletes with comprehensive support, which emphasizes the relevance of this study.

The scientific novelty of the current study is that although previous authoritative studies have comprehensively evaluated the quality of the training process from technical, physical, and tactical perspectives, little attention has been paid to the determinants that increase athlete engagement in the training process [14-17]. Consequently, the mechanisms of the involvement in question are currently not fully elucidated. The theoretical significance of our work is emphasized by the results obtained, according to which we proposed an empirical model of interrelationships of the studied variables, including components of the perception of social support: subjective effectiveness and mental toughness. From a practical point of view, the results of the current study contain recommendations that can help practicing sports psychologists, coaches, and university teachers to develop a better understanding of the worldview of student-athletes and to provide them with the required support in a timely manner.

MATERIALS AND METHODS. The purpose of the study is to reveal the nature of the relationship between the components of social support perception and the level of student-athletes' involvement in the process of sports training, with the assessment of mediator effects of subjective effectiveness and mental toughness in these relationships. The following hypotheses were formulated within the framework of the goal:

1. Social support has a direct positive influence on the level of involvement of student-athletes in sports training;
2. The perception of student-athletes' own effectiveness mediates the relationship between social support and the level of involvement;
3. Mental toughness mediates the relationship between social support and involvement;
4. Subjective effectiveness and mental toughness form a chain of mediation of the effect of social support on the involvement of young athletes;
5. Social support and mental toughness form a chain of mediation of the effect of social support on the involvement of young athletes;
6. Social support and mental toughness form a chain of mediation of the effect of social support on the involvement of young athletes in sports training.

Participants. The study involved 167 first and second year students aged 18-19 years old, studying at the Academy of Physical Culture and Mass Sports (Astana, Kazakhstan), who gave their prior consent to participate in the experiment. The study was conducted in accordance with international standards and ethical principles. Prior to the experiment, an opinion of the ethical committee on the legitimacy of the study was obtained, and participation in the study was voluntary.

Data collection tool. The study involved questioning participants with the following four questionnaires aimed at assessing each determinant. Statements in all questionnaires were uniformly rated on a 5-point Likert scale, where 1 means “completely inconsistent” and 5 means “completely consistent”.

1. Athletes received social support questionnaire (ARSQ) developed by Freeman et al. consists of 22 items and includes 4 components: emotional support, respectful support, informational support and material support [18]. In the current study, the Cronbach's α coefficient for this questionnaire was 0.81, indicating its high structural reliability.

2. General self-efficacy scale (GSES) is developed by Schwarzer & Jerusalem and consists of 10 statements [19]. In this study, the Cronbach's α coefficient was 0.79, which confirmed the reliability of the scale.

3. Mental toughness inventory (MTI) is proposed by Gucciardi et al. consists of 8 items [20]. The Cronbach's α coefficient was 0.91, indicating high consistency.

4. Engagement in athletic training scale (EATS) developed by Liu et al. consists of 15 items comprising 4 subscales: commitment, confidence, vigor, and enthusiasm. The Cronbach's α coefficient was 0.85.

Data analysis. Analysis of the collected data included descriptive statistics calculus and Spearman correlation analysis (performed using internal R language commands), and bootstrap-adjusted mediation analysis (performed using the PROCESS macro in SPSS software).

RESULTS AND DISCUSSION. According to the results of correlation analysis (Table 1), subjective efficacy ($r = 0.7$), social support ($r = 0.78$) and mental toughness ($r = 0.67$) were positively correlated with athletes' involvement in the athletic training process with a high level of statistical significance. Self-efficacy was positively correlated with mental toughness ($r = 0.58$) and social support ($r = 0.55$), and the results were also statistically significant. Mental toughness was significantly positively correlated with social support ($r = 0.56$).

Table 1. Mean (\bar{x}), standard deviations (σ) and correlation matrix ($n = 167$)

Variable	$\bar{x} \pm \sigma$	1	2	3	4
1. IST	$3,36 \pm 0,83$	–			
2. CE	$3,25 \pm 0,59$	0,70	–		
3. MT	$2,92 \pm 0,64$	0,67	0,58	–	
4. SS	$2,79 \pm 1,11$	0,78	0,55	0,56	–

Note: IST = involvement in sports training; CE = cself-efficacy; MT = mental toughness; SS = social support; all correlations at the $p < 0,05$.

Thus, all four research variables had a mutual positive correlation with high significance, which served as a basis for confirming the proposed research hypotheses. The obtained results suggest that such indicators as subjective efficacy and mental toughness may have an indirect influence through the mechanisms of social support on the involvement of young student-athletes in sports training, in this regard, it was decided to conduct a mediation analysis revealing the indirect influence of the studied indicators. In this case, the mechanisms through which social support influences athletes' level of engagement are explained by athletes' evaluation of their own performance and their mental toughness.

According to the mediation analysis revealing mediated effects (Table 2), it was found that the direct effect size of social support on athlete engagement was 0.363 ± 0.035 (95% CI = [0.277; 0.424]), accounting for 90.75% of the total effect size. Social support influenced sport engagement through subjective efficacy with a mediating effect size of 0.123 ± 0.025 (95% CI = [0.076; 0.175]), representing 30.75% of the total effect size. Social support influenced engagement through mental toughness, with a mediated effect size of 0.058 ± 0.018 (95% CI = [0.03; 0.103]), representing 14.5% of the total effect size. Social support influenced engagement through a related interaction of self-efficacy and mental toughness, with a mediated effect size of 0.035 ± 0.012 (95% CI = [0.016; 0.07]), accounting for 8.75% of the total effect size.

Table 2. Results of mediation analysis ($n = 167$)

Trajectory	B	SE	95 % CI	
			Lower threshold	Upper threshold
SS → IST	0,363	0,035	0,277	0,424
SS → CE → IST	0,123	0,025	0,076	0,175
SS → MT → IST	0,058	0,018	0,03	0,103
SS → CE → MT → IST	0,035	0,012	0,016	0,07
Cumulative effect	0,579	0,033	0,511	0,646

Note: B = unstandardized regression coefficient; SE = standard error; CI = confidence interval.

The direct effects are shown in Figure 1 ($R^2 = 0.735$). The above allows us to conclude that self-efficacy and mental toughness are not only independent of each other, these indicators are also mediated by social support and involvement of athletes in the process of sports training.

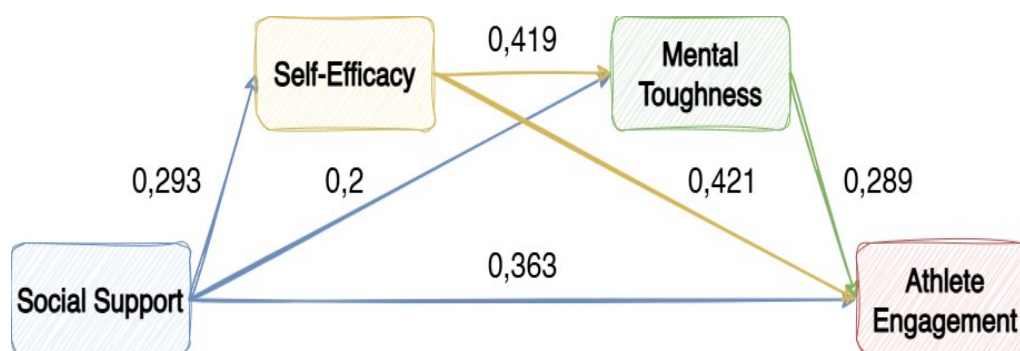


Figure 1 – Model of relationships between the variables under study
Values: unstandardized regression coefficients

To summarize the results, we note that the design of the current study was developed to examine the underlying mechanisms through which components of self-perceived social support influence student-athletes' engagement in the athletic training process. Based on the results of the statistical analyses, an empirical integrative model of the determinant relationships was developed, including students' ratings of their own athletic performance as well as mental toughness, to examine in detail the relationship between social support and athletic engagement. Moreover, the mediating effects of self-efficacy and mental toughness, as well as their interaction, reached statistical significance, hence, the results obtained confirmed the validity of the hypothesized pattern of relationships of the studied variables and confirmed all the hypotheses put forward in the current study.

The presented study reveals the internal mechanism of social support influencing student-athletes' engagement in athletic training, which has specific theoretical and practical significance. The results show that social support, as an important external resource, can significantly increase athletes' engagement and motivate them to devote themselves to training and competition with enthusiasm, energy, confidence and conviction, which is consistent with the results of a previous study conducted by Poucher et al. The findings in the current work support researcher Li's conclusion that social support increases athlete engagement by providing student-athletes with the necessary resources to succeed under stressful and high external pressures.

Similar results were obtained by researchers Gao et al. who reported that exercise has a significant positive predictive effect on subjective efficacy, reporting that sport engagement can increase an individual's self-confidence and ability to cope with social problems. Our work establishes a direct significant relationship of social support on athletes' engagement, as well as an indirect relationship through self-efficacy, which indirectly confirms the results of foreign scholars.

Similar findings were reported by Shi et al. who also found a positive correlation between determinants of social support and athletes' engagement in athletic training [9]. In all cases, the correlations were statistically significant, which was also observed in the current study.

A study by Bang et al. found that team sports helped overcome depression in student-athletes and positively influenced their subjective efficacy. In the current study, we did not look exclusively at team sports; however, the effects of mental toughness and self-diagnosed efficacy on engagement in athletic training have been shown to be influential. We believe that athletic training will, in turn, enhance mental toughness and reduce stress in young athletes.

Researcher Chan studying the social support mechanisms of student-athletes, found them to have a positive effect on predicting athletic performance and enhancing career subjective efficacy, which in

turn promoted athletic career development. In the present study, social support had a direct impact on athletes' evaluation of their performance, confirming the Asian scholar's conclusion.

In another study, Gu & Xue examined the effects of student-athletes' team cohesion on athletes' mental toughness and engagement in athletic training. The researchers concluded that engagement can be significantly predicted by mental toughness, which is consistent with our findings. Mental toughness, according to the researchers, is achieved through the development of high levels of cohesion and teamwork.

More recently, Gu et al. conducted another study that found that coach-athlete engagement was also influenced by the relationship between coach and mentee. In the current article, we categorise this type of relationship as social support, given the multi-dimensional nature of this construct, which includes a corresponding component. As such, the current study obtained similar results demonstrating the impact of social support on student engagement in athletic training.

Sport burnout has been the subject of research by other scholars Tian & Sun. The researchers concluded that mental resilience did not significantly mediate the relationship between subjective efficacy and sport burnout in athletes. The authors also emphasise that the relationship between self-efficacy and burnout is mediated by the athlete's mental toughness and engagement. The researchers conclude that increasing mental toughness and self-efficacy appraisal, as well as high involvement in athletic training, may be winning strategies for reducing burnout in young athletes. The findings of Tian & Sun are partially consistent with the findings we presented, as we have not studied athletic burnout in the current work.

A study by Hill et al. found that student-athletes' engagement was influenced by their personality trait of perfectionism. We did not examine this predictor in the current study, which could support further research. In this regard, another research work conducted by Liu et al. to validate the questionnaire that was used in the current study is also worth mentioning. The instrument is used as a valid and reliable measure to assess athletes' engagement in sports training and will be useful for future research studies.

CONCLUSION The current study aimed to determine the nature of the relationship between the components of social support perception and the level of young athletes' involvement in the process of sports training, as well as to identify the mediator effects of subjective effectiveness and mental toughness in this relationship. The results obtained confirmed all the hypotheses put forward: social support is indeed positively correlated with involvement in sports training, and self-diagnosed effectiveness and mental toughness are significant mediators of this relationship both separately and in the combined effect.

The mechanisms underlying the identified relationships can be explained in terms of social cognitive theory and the concept of psychological resilience. Social support creates a favourable psychological environment in which young athletes feel protected and valued, which contributes to the formation of positive beliefs about their own abilities (subjective efficacy). These beliefs, in turn, enhance student-athletes' ability to overcome difficulties and maintain mental toughness under the influence of stressors and related challenges that inevitably accompany sporting activities. The combination of these aspects creates a powerful psychological foundation that allows student-athletes to maintain a high level of engagement, confidence and enthusiasm in the training process.

The study resulted in a number of practical recommendations for professionals working with student-athletes and other stakeholders:

1. Creation of complex programmes of psychological support in sports universities, aimed not only at direct stimulation of involvement in the process of sports training, but also at the development of subjective efficiency and mental toughness as key mediators of this process.
2. Development of a monitoring system for psychosocial well-being in student-athletes that includes assessment of perceived social support, mental toughness, and self-diagnosed efficacy.

3. Organisation of trainings for coaching and teaching staff aimed at developing skills to provide effective social support that takes into account individual psychological characteristics of student-athletes.

4. Introduction of disciplines and modules into the educational process of sports universities aimed at developing students' skills of mental resilience, subjective effectiveness, and the ability to productively use available social support resources.

5. Development of individualised psychological support programmes that take into account the specifics of the relationship between social support, mental toughness and self-diagnosed effectiveness of specific individuals.

6. Introduce reflective and self-reflective practices into the training process to enable athletes to recognise and strengthen the links between social support, self-belief and mental toughness.

7. Creating a learning environment that fosters strong social bonds between students, teachers and coaches, which is a natural source of multidimensional social support.

Thus, the current study provided practical evidence that perceptions of social support are a significant predictor of student-athletes' engagement in the training process, and this relationship is mediated by a complex interaction between self-diagnosed performance and mental toughness. The proposed and empirically validated integrative model linking social and psychological aspects of sports activity is an innovative approach to understanding the factors determining the success of sports training in the context of higher education.

Of particular value is the identification of the combined mediator effect of subjective effectiveness and mental toughness, which expands the existing theoretical ideas about the mechanisms of psychological adaptation in sport and opens new opportunities for practical application. The results demonstrate that effective support for student-athletes should be multilevel and aimed not only at creating a favourable social environment, but also at the purposeful development of internal psychological resources. The current study lays the foundation for further study of the complex ecosystem of factors that shape the success of athletic activity in the academic environment and offers specific guidelines for improving the system of psychological support for student-athletes.

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