

Individual Psychological Profiles And Their Influence On Self-Regulatory Behaviour In Sport

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ABSTRACT

The purpose of this paper is to study how individual psychological characteristics of an athlete affect his/her ability to effectively self-regulate during training.

In the course of the study, the testing method was applied (Cognitive Strategies in Sport Scale and Psychological Stress Measurement). Methods of descriptive statistics for the analysis of the mean value and square deviation and Pearson's correlation coefficient (chi-square).

The results of the study showed that there is a statistically significant difference between the mean values of all cognitive strategies. The most pronounced differences were observed between emotional control and other strategies, as well as between focusing attention and other strategies. This suggests that emotional control and attention focus are key cognitive strategies for achieving success in sport. In addition, psychological aspects and individual personality traits of athletes significantly affect their ability to self-regulate during training, which confirms the importance of taking these factors into account when developing training programmes.

The study confirmed that emotional control and focus are key cognitive strategies for achieving success in sport. Individual psychological characteristics of athletes have a significant impact on their ability to effectively self-regulate during training. This highlights the importance of integrating psychological training into training programmes to improve athletes' performance. Further research should focus on developing methods to help improve these aspects.

1. Introduction

Today, sport is one of the aspects of modern culture and social life that has its own content and structure. At the same time, it represents a sphere of activity in which a person can test his or her volitional qualities, go through the experience of overcoming difficulties, and realise the dream of becoming a champion. Thus, sports activity is a good model of personality development (Kamri et al., 2024; Redko, Riznyk, Nikolaiev, Yatsenko & Shuplat, 2024). Humanity has always been interested in the determinants of performance success. To achieve a high goal in sport, it is very important to take into account the individual psychological characteristics of athletes that affect their self-regulation (Tolchieva, 2011; Odynets, 2024).

Self-regulation is the most important process that ensures the effectiveness of any activity. It is especially important in sport, where the subject and the object of activity merge into a single whole (Metu, Agu & Eleje, 2024).

Voluntary conscious self-regulation is a systemic, multi-level process of human mental activity to set goals and manage their achievement (Niering, Monsberger, Seifert & Muehlbauer, 2023). Mental self-regulation is fundamentally recognised by a person as needed, for example, in the event of difficulties

or the conscious construction of new plans and programmes of behaviour (Barraclough, Grecic & Harper, 2024).

Under the influence of individual psychological characteristics, each link of the regulatory process is systematically interconnected and has meaning and function only within the framework of a holistic self-regulation process. In addition, sports activities are often accompanied by stress, and sometimes even without it. For this reason, athletes need to develop the ability to cope with stress (Patenteu et al., 2023). Special studies and observations have shown that athletes with different characteristics of the nervous system and character use stable and unique methods of mental self-regulation during competition. Self-regulatory mechanisms in situations of distress demonstrate a different level of adaptation at which integration occurs to ensure that the system is maintained and performs at its best (Golod et al., 2022; Remilly, Mauvieux, & Drigny, 2023).

Effective coping with defeat leads to the fact that the athlete, gaining experience of leaving the “hopelessness field of negative emotions”, ceases to fear defeat, which leads to greater mental and motor freedom and significantly increases the likelihood of victory. Whereas an insurmountable and “unlived” fear of defeat binds an athlete, puts him or her in a stupor, and a person cannot assess the situation objectively and in a timely manner. Subjectively, defeat is not necessarily the actual place taken in the results protocol. The experience depends on what the athlete expected. In some situations, even the penultimate place can be an inspiring success, while in others, the second place is subjectively equivalent to defeat (AlKasasbeh & Amawi, 2023).

When studying the personality traits of athletes, it is first of all necessary to consider in detail the essence and structure of personality. Every athlete who has a long experience in the sport in which he or she has achieved high results can remember well the person who brought him or her to the first training session and who was his or her first coach. The reasons that became decisive in choosing a sport can also remain in the memory for a long time: to become physically strong, develop a reaction, learn the rules of the game, etc. However, few people can say what allowed them to stay in this sport specialisation, why its conditions (pace, set of sports equipment, atmosphere of training and competition) are suitable for staying in it. Meanwhile, the interaction between the individual psychological characteristics of the athlete and the sport is in such a balanced ratio that the choice made seems natural and does not require explanation (Wang, Fu, Kao, Moreau & Yang, 2023).

Research Problem

Self-regulation is clearly important for athletes' success, as it allows them to control their thoughts, emotions and behaviour during training and competition. However, the psychological profiles of athletes can be heterogeneous, which poses a variety of challenges to their ability to self-regulate. Understanding this relationship will help to create better training and support methods that take into account the psychological characteristics of each athlete. As a result, this will lead to improved athlete performance.

Research Focus

The ability of athletes to self-regulate during training and competition is influenced by individual psychological profiles. The study focuses on certain psychological characteristics, such as anxiety, stress tolerance and motivation, which have the most significant impact on self-regulatory behaviour. Particular attention will be paid to how these traits interact with each other and how they can be used to create training and psychological support programmes that meet specific needs.

Research Aim and Research Questions

The study aims to investigate how individual psychological aspects of an athlete's personality contribute to or hinder effective self-regulation during training. Based on the research topic, the following research tasks should be considered:

1. Study the scientific literature on the research topic and identify the main trends and patterns

2. Identify the level of stress of respondents
3. To investigate the levels of self-regulation and factors from the psychological and personal profile that contribute to its formation.

Literature Review

The study of previous research is an important part of scientific research, as it allows to enrich the scientific context and establish the basic knowledge in a particular field of knowledge. Analysing previous studies allows researchers to avoid duplication of research and identify details that require further study. This helps in the selection of sound research methods, which contributes to the achievement of research objectives and reliable results.

The study by Aydoğan, R. (2023) analysed self-regulation skills in the sport environment and decision-making skills among students studying at sports science faculties. The study was carried out on a sample of 224 voluntary participants from the Faculty of Sports Sciences at Adnan Menderes University in Aydın. Of these, 35.7% (n=80) were female and 64.3% (n=144) were male. To measure self-regulation skills in sport, the “Self-Regulation Scale in Sport” was used, and to measure motivational certainty and rational and intuitive decision-making styles, the “Motivational Certainty Scale” and “Rational and Intuitive Decision-Making Styles Scale” were used, respectively. These techniques allowed us to select an appropriate methodological framework for the current study. In the process of data analysis, the mean, standard deviation, minimum and maximum values, as well as the median were calculated based on descriptive statistics. The Mann-Whitney test was used for between-group comparisons, and Spearman's correlation analysis was used to examine the relationships between variables. Linear regression analysis was conducted using the variables that were significant in the univariate analyses. According to the results obtained, students' self-regulation skills in sport predict their motivational determination. Also, self-regulation skills in sport involve both rational and intuitive decision-making styles. Women have a more pronounced intuitive decision-making style than men, while men show a more rational decision-making style than women. These results helped to form a vision of the expected results for the current study.

The next source, Beckmann, Beckmann-Waldenmayer & Wolf (2023), provided important insights for the current study into the understanding of self-regulation for successful sport participation. The authors note that self-regulation encompasses conscious and unconscious processes that ensure the maintenance of goal-directed activity or performance even when faced with external or internal obstacles and impulses need to be controlled. The chapter describes various aspects of the concept and the main functions of self-regulation, such as knowledge and the influence of personality differences. The article also provides examples of the application of psychological techniques that have emerged from theoretical concepts and research on self-regulation.

DesClouds & Durand-Bush (2023) investigate the relationship between smartphone use and self-regulation in sport. The authors aim to examine the self-regulatory processes, conditions, and outcomes associated with athletes' use of smartphones. The study included interviews with 24 high-level athletes from eight sports. The models of self-regulated learning and self-regulatory power were used for the analysis, according to which themes corresponding to the components of these models were identified. Emerging themes were integrated with these models to create the Self-Regulation and Smartphone Use Model (SSUM). The SSUM illustrates a cyclical model of self-regulation and smartphone use through five components: self-regulatory power, processes, conditions, outcomes, and competencies. According to the study, smartphones can both support and hinder self-regulatory processes in sport. They can increase the demands on self-regulation and cause fatigue, but at the same time, they are powerful tools for improving athletes' self-regulatory competencies. For the current study, the results of the work under consideration are extremely important, as it provides practical recommendations for improving athletes' self-regulation.

The article by Wixey & Kingston (2023) explores the psychological characteristics necessary for successful development in elite sport among young athletes. The authors interviewed eight professionals working internationally with young athletes in various disciplines. They helped to identify three key psychological characteristics that are considered important for success in sport: resilience, self-regulation and readiness for development. The results obtained by the authors are of great importance for the current study, as they allow us to clarify the factors that influence the success of athletes. The results indicate that these characteristics are of great importance for success not only in certain disciplines, but also in elite sports in general. This makes it possible to understand what psychological qualities and skills are needed for the optimal development of young athletes working in different disciplines. The findings of the study reinforce the need for an interdisciplinary approach to psychological support in talent development programmes.

The study by Guntoro, Putra, Németh & Setiawan (2023) aims to describe and investigate the anthropometric, physical, psychological and personality characteristics of elite athletes from Papua Indonesia in seven different sports. The study involved 118 athletes, including 80 men and 38 women, with a mean age of 25.05 ± 6.9 years. Anthropometric parameters (height, weight, body mass index), physical abilities (flexibility, arm and abdominal muscle strength, leg power, aerobic endurance), psychological abilities and personality traits were measured. The results showed significant differences in anthropometric and physical parameters between the athletes ($p < 0.01$), but psychological abilities and personality traits were not significantly related to the other variables ($p > 0.05$). The study made it possible to analyse different methodological approaches to the study of the psychological state of athletes.

The article by Park & Jeon (2023) discusses psychological training for optimal sports performance, which has received considerable attention from athletes, coaches, and experts. The analysis of bibliographic sources covered 405 articles and reviews published in Thomson Reuters Web of Science from 1992 to 2021. The study included works by 1,048 authors from 543 universities in 54 countries, published in 107 different scientific journals. The results of the bibliometric analysis showed four main clusters of topics: (1) PST for stress, mental resilience and coping strategies, (2) PST for anxiety, motivation, self-confidence and self-efficacy, (3) PST for flow and attention, and (4) PST for emotions. The study confirmed that PST is aimed at improving sports performance through stress management, anxiety control and other psychological strategies. It also points out the importance of paying attention to improving the quality of life of athletes through the introduction of mindfulness and positive psychology.

The analysis of previous scientific sources shows that the relationship between psychological profile and self-regulatory processes in sport is an under-researched aspect. In the modern world, self-regulation technologies are becoming increasingly important tools for athletes and coaches. They can have a positive impact by facilitating access to training information, as well as a negative one by distracting from concentration and increasing stress. However, the research on this relationship is not yet deep enough and needs to be further developed to understand its impact on training and competition performance. This analysis will allow us to develop recommendations for optimising athletes' training.

2. Methodology

General Background

To solve the tasks of the study, an analysis of scientific and methodological literature on the outlined problem was carried out, as well as a statistical analysis of the results obtained during the test. The latter made it possible to generalise the patterns of influence of individual psychological profiles on sportsmen's self-regulation. Also, testing was conducted to determine the levels of stress among athletes.

Sample / Participants / Group

Students of the Department of Physical Rehabilitation and Sports took part in the study, faculty of humanities and social sciences, West Ukrainian National University (n=154) i Department of Theory and Methods of Olympic and Professional Sports, Ternopil Volodymyr Hnatiuk National Pedagogical University (n=97), aged between 17 and 22 years.

Instrument and Procedures

1. The Cognitive Strategies in Sport Questionnaire (CSQ) is a questionnaire designed to assess nine cognitive strategies that athletes frequently use. These strategies include: visualisation, which involves the use of images to represent a desired outcome or action; self-talk, which is an internal dialogue to motivate, reassure or instruct; goal setting, which involves setting clear and measurable goals; positive self-instruction, which uses encouraging statements to increase confidence; attribution, which explains the reasons for success or failure; arousal control, which aims to regulate the level of emotional arousal before competition; relaxation techniques, which help to

2. Psychological Stress Measurement (PSM) refers to methodologies and instruments used to quantify the level of psychological stress experienced by a person. Stress is a psychological and physical response to demands that exceed a person's capacity to cope, and its accurate measurement is crucial for diagnosing mental health problems, understanding human behaviour, and evaluating the effectiveness of interventions (Lemyre, Tessier & Fillion, 1991).

Data Analysis

Descriptive statistics methods for analysing the mean and standard deviation (Vargha, Torma & Bergman, 2015). To determine the reliability of the data obtained, we used Pearson's chi-square criterion (χ^2) which is determined by the formula:

$$\chi^2 = \frac{1}{n_2 n_1} \sum_{i=1}^m \frac{(x_i n_2 - y_i n_1)^2}{x_i + y_i}; \quad (1)$$

where n_1, n_2 – the number of lexemes in the first and second compared rows;

m – number of levels in the compared data series;

x_i, y_i – Frequency values at the i -th level in the first and second rows of data;

$\chi^2_{\text{емпіричне}}$ – empirical value of the level of aggression formation.

3. Result and Discussion

Research into cognitive strategies is a crucial step towards understanding how athletes can optimise their performance and psychological state. Athletes use cognitive strategies such as visualisation, self-talk, goal setting and relaxation techniques to control their emotions, attention and motivation during training and competition. Figure 1 shows the results of the study of cognitive strategies.

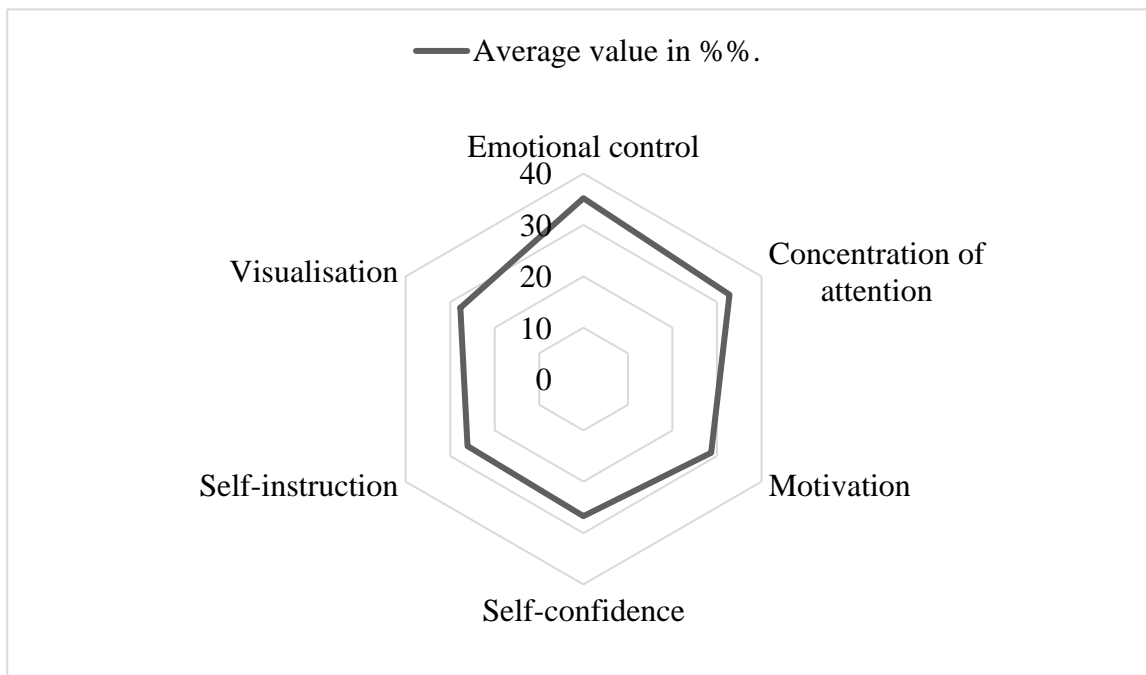


Figure 1. Results of the study of students' cognitive strategies using the Cognitive Strategies in Sport Scale (CSQ)

A Pearson statistical analysis was conducted for all eight CSQ strategies to determine whether there was a statistically significant difference between the means. The results are shown in Table 1.

Table 1. Results of statistical analysis using Pearson's coefficient

Comparison	p-value
Emotional control - Focusing attention	0.02
Emotional control - Motivation	<0.001
Emotional control - Self-confidence	<0.001
Emotional control - Self-instruction	<0.001
Emotional control - Visualisation	<0.001
Focusing - Motivation	0.01
Focusing - Self-confidence	<0.001
Focusing - Self-instruction	<0.001
Focusing - Visualisation	<0.001
Motivation - Self-confidence	0.03
Motivation - Self-instruction	<0.001
Motivation - Visualisation	<0.001
Self-confidence - Self-help	0.04
Self-confidence - Visualisation	<0.001
Self-instruction - Visualisation	0.02

The results of the study show that each cognitive strategy that was assessed has statistically significant correlations with each other. This means that athletes with good results in one strategy are also likely to have good results in other strategies. The presence of the strongest correlations between emotional control and the other strategies indicates that the ability to control one's emotions is important for success in sport. Focus, motivation, and self-esteem are also strongly correlated, which are also important components of sport performance. The data obtained allow us to form a vision of the individual psychological profile of the respondents. The next step was to study the psychological stress experienced by athletes during training. The results are presented in Table 2.

Table 2. Results of the study of psychological stress

Stress component	Average value (%)	Standard deviation
Emotional state	38.2	10.4
Cognitive state	32.1	9.8
Behavioural state	31.7	10.2
Physiological state	29.4	8.6

Table 2 presents the results of the psychological stress survey, showing the mean values and standard deviations for emotional, cognitive, behavioural and physiological stress factors. Emotional stress is average, 38.2%, with a standard deviation of 10.4%. This indicates that the study participants showed moderate variability in emotional stress. Participants reported a mean cognitive stress level of 32.1% with a standard deviation of 9.8%. These results show significant cognitive stress compared to emotional stress. The average level of behavioural stress was 31.7% with a standard deviation of 10.2%. This result shows a similar level of stress, which demonstrates the human response to stressors. Respondents had an average physiological stress of 29.4 per cent with a standard deviation of 8.6 per cent. This part has a physiological response to stress that is relatively lower but noticeable.

The results show that emotions cause the most stress, followed by cognitive and behavioural stress. Although physical stress appears to be less, it is still present. The results showed that the study participants experienced stress in various forms, with a particular focus on the emotional and cognitive aspects.

Discussion

As the current study shows, the growth of achievements in sports, the possibility of successful performances in competitions is largely determined by the level of development of self-regulation skills - an important component of the system of psychological and pedagogical training of athletes, which is considered as the main part of the complex pedagogical process, which is a significant reserve for improving the efficiency of sports activities. An analysis of the scientific literature has shown that self-regulation of sports activity is a scientifically stable direction in the theory of sports training (Örencik, Schmid, Schmid & Conzelmann, 2023; Jordet & Toering, 2023; Li, Ding, Shi, Fan & Guo, 2023). As this study demonstrates, it is a consciously managed process aimed at creating an optimal state in an athlete.

The idea of the importance of applying the peculiarities of individual psychological profiles in sports activity is widely covered in Kelly et al. (2023). According to scientists, sports activity takes place in difficult, extreme conditions, and places increased, often extreme, demands on a person's mental capabilities. Therefore, ensuring the stability of activity in such conditions is of great importance. In this regard, in recent years, coaches and psychologists have begun to pay great attention to the formation of self-regulation of behaviour and activity as components of the psychological training of athletes. This position is fully consistent with the results obtained in the current study and emphasises its importance.

In our opinion, psychological training in sport is of the same importance as theoretical, technical, tactical and other types of training and is closely interrelated with them. Moreover, it is necessary to carry it out already at the stage of initial training of athletes, since it is at this stage that not only comprehensive prerequisites are created for intensive specialised training at the following stages, the purpose of which is to achieve the highest results, but also a sufficiently high level of sportsmanship in the chosen sports, and, in particular, in athletics. These ideas are confirmed in the work of Pacewicz & Smith (2023). The authors of the article note that until relatively recently, the content of psychological preparation was limited to the regulation of the athlete's pre-starting states, pre-

performance adjustment, and the creation of mental readiness. At the present stage of development of sport, the tasks of psychological training, in our opinion, have expanded immeasurably and are related to the development and formation of the athlete's personality, the development of the ability to self-control and self-regulation, the creation of a favourable psychological climate, and favourable relationships between the coach and the athletes. And it is here that the peculiarities of the individual psychological profile of the athlete are of great importance (Biswas & Biswas, 2023).

As it has been identified and demonstrated in the results of the study, self-regulation is carried out as a single process, ensuring the mobilisation and integration of human psychological characteristics to achieve the goals of activity and behaviour. The process of self-regulation contributes to the development of harmonious behaviour, on the basis of which the ability to manage oneself in accordance with the realisation of the goal, to direct one's behaviour in accordance with the requirements of life and professional or educational tasks develops.

In Beauchamp, Kingstone & Ntoumanis (2023), two types of regulatory profiles were identified according to structural and level characteristics: harmonious and accentuated. If all components of self-regulation are relatively equally developed, a harmonious regulatory profile is diagnosed, and if there are pronounced differences in the level of component formation, an accentuated profile is diagnosed. It is obvious that a harmonious regulatory profile can be formed at different overall levels of regulation: high, medium or low. The individual style of activity is formed only at rather high levels of sportsmanship, while the parameters of the individual style are specialised in accordance with the specifics of sports activity, on the one hand, and the individual characteristics of the athlete, on the other. These conclusions are confirmed by the results of the current study.

An in-depth understanding of the processes of self-regulation in sport determines the theoretical significance of this study, as it is an important part of the psychological and pedagogical training of athletes. Its results support the idea that self-regulation skills are important for achieving high sports performance. In addition, it may be important for the development of new theoretical models that explain the relationship between physiological, psychological and behavioural elements of athletes' performance.

The study is of practical importance as it can be used to improve training programmes and psychological support for athletes. Identification of certain elements of self-regulation that contribute to success in competition can help coaches and psychologists create targeted interventions that improve athletes' psychological preparation. These include, but are not limited to, teaching methods of self-control, emotion management, goal setting and motivation.

4. Conclusion and future scope

The findings confirm the critical role of self-regulation in sport performance, indicating that the development of these skills is an important reserve for improving training efficiency and sport performance. This study makes a significant contribution to the theory of sport psychology by expanding the understanding of how individual psychological profiles of athletes influence their ability to self-regulate and perform well.

The analysis of the data obtained in the course of the study showed that self-regulation skills are a consciously controlled process aimed at creating an optimal state in an athlete. It has been found that a harmonious individual psychological profile contributes to higher results in sports, and the development of these skills is associated with psychological training, which is as important as technical, tactical and other types of training.

The current study can be used in sports training programmes to create targeted interventions that improve athletes' psychological preparation. Practical benefits of the research findings may include teaching ways to self-control, manage emotions, set goals and motivate. Coaches can use this

knowledge to improve the relationship between coaches and athletes and create a favourable psychological environment in teams. In addition, the data can help psychologists working with athletes provide more effective psychological support.

Ongoing research could include a more detailed study of the peculiarities of self-regulation in different sports and the creation of new methods of teaching them. In addition, in order to create more coherent models of athlete training, it is necessary to investigate how the physiological, psychological and behavioural components of self-regulation are interrelated. Research could also be directed towards investigating how different psychological training methods work at different stages of an athlete's sport career.

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