

PSYCHOLOGICAL RESILIENCE AND LEVEL OF COMPETITIVE ANXIETY IN KARATE ATHLETES

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ABSTRACT	KEYWORDS
<p>Competitive anxiety in karate is associated with the specific characteristics of combat sports: the high cost of error, limited time for decision-making, the unpredictability of an opponent's actions, and the significant role of evaluation (refereeing, scoring, warnings). Psychological resilience is viewed as a systemic resource that supports adaptation to stressors and potentially reduces the severity of anxiety or transforms competitive arousal into a "facilitating" form. The purpose of this review article is to summarize data on the relationship between resilience and competitive anxiety in sports and karate, describe valid measurement methods, and highlight promising areas for research and practice in psychological preparation.</p>	<p>Karate, psychological resilience, competitive anxiety, CSAI-2R, CD-RISC, sports psychology.</p>

Introduction

The scientific novelty of the study lies in identifying and generalizing the role of psychological resilience as a resource that reduces the severity of competitive anxiety in karate athletes and weakens the impact of competitive stressors on their emotional state.

Modern competitive sport is characterized by high-intensity physical and psycho-emotional stress, leading to increasing interest in the psychological factors of athletic performance. One of the key psychological states influencing performance is competitive anxiety, which can both facilitate the mobilization of an athlete's resources and, if excessive, lead to disorganization [1].

Competitive anxiety is considered a multidimensional mental state, including a cognitive component (negative expectations, fears, doubts about one's own abilities), a somatic component (physiological manifestations of arousal), and a level of self-confidence [2]. In sports practice, it has been shown that high levels of cognitive anxiety can impair attention, decision-making, and tactical thinking, while somatic anxiety is associated with changes in motor control and muscle tone [3].

The problem of competitive anxiety is particularly relevant in combat sports, including karate. Karate is characterized by a high density of stress factors: direct confrontation with an opponent, limited time to implement technical and tactical moves, the high cost of error, and the subjective nature of judging. These characteristics create conditions for significant emotional stress, especially among young athletes and during high-stakes competitions [4].

In recent years, sports psychology has increasingly focused on the concept of psychological resilience, which is viewed as an athlete's ability to effectively adapt to stressful situations, maintain an optimal level of functioning, and quickly recover from setbacks [5]. In contrast to the traditional notion of resilience as a stable personality trait, modern models emphasize its dynamic nature and dependence on the interaction of individual, social, and organizational factors [6].

Connor - Davidson scale is widely used for empirical assessment of psychological stability. Resilience Scale (CD-RISC), which has demonstrated high reliability and validity in studies of stress and adaptation, including in the sports environment [7]. A number of studies indicate that a higher level of psychological resilience is associated with better indicators of emotional regulation, more adaptive coping strategies and lesser severity of negative emotional states in athletes [8].

In the context of competitive activity, resilience is increasingly viewed as a factor capable of reducing competitive anxiety or mitigating its negative impact on performance. For example, psychological resilience has been shown to moderate the relationship between stressors in the sports environment and manifestations of anxiety and emotional burnout [9]. This is especially important for high-stress sports, such as karate.

Despite the existence of research on competitive anxiety and psychological resilience in sport in general, the number of studies examining their relationship specifically in karate athletes remains limited. Most studies focus either on anxiety or on specific aspects of psychological preparation, without a comprehensive analysis of the role of resilience as an adaptive resource. Therefore, the task of theoretically generalizing and analyzing scientific data on psychological resilience and competitive anxiety levels in karate athletes appears relevant.

The review of scientific literature was conducted using a narrative analytical approach aimed at generalizing and systematizing theoretical and empirical studies devoted to the problem of psychological resilience and competitive anxiety in sports, with an emphasis on karate and other types of martial arts.

The search for sources was carried out in international scientific databases of the Web of Science , Scopus , PubMed , PsycINFO and Google Scholar . The following terms and their combinations were used as keywords: psychological resilience , competitiveness anxiety , sport anxiety , martial arts , karate , CSAI -2, SAS -2, CD - RISC . Additionally, the reference lists of relevant review and empirical articles were analyzed.

The review included both classic works that laid the theoretical and methodological foundations for studying competitive anxiety and resilience, as well as contemporary studies of recent years reflecting current trends in sports psychology. The literature review was qualitative in nature and aimed to identify key concepts, methodological approaches , and main research areas in this field.

In recent decades, the concept of psychological resilience has become a central part of sports psychology research, reflecting increasing demands on athletes to function effectively under intense physical and emotional stress. In the context of sports, psychological resilience is viewed as the ability to maintain or quickly restore optimal levels of mental and behavioral functioning when exposed to stressors associated with training and competition [5] .

Modern theoretical models emphasize that psychological resilience is not an exclusively stable personality trait, but rather a dynamic process that develops through the interaction of an athlete's individual resources and factors in the sporting environment. Key stressors include competitive

pressure, injuries, mistakes, coaches' and fans' expectations, and organizational training conditions. Protective factors for resilience include achievement motivation, self-confidence, effective coping strategies, emotional regulation skills, and social support [6].

One of the most famous theoretical models is grounded theory of psychological resilience, proposed in the work "A grounded theory of psychological resilience and optimal sport performance," which views resilience as the result of appraising a stressful situation as a "challenge" rather than a "threat." According to this model, a positive cognitive appraisal of stressors facilitates the mobilization of an athlete's resources and the maintenance of an optimal level of competitive effectiveness. This concept has received empirical support in studies of elite athletes and is widely used in modern sports psychology.

For the empirical study of psychological resilience in sports, various psychodiagnostic methods are used, among which the most common is the Connor - Davidson Resilience Scale (CD - RISC). This scale was developed to assess a person's ability to cope with stress and adapt to adverse conditions and has demonstrated high reliability and validity in clinical and sports samples [7]. The CD - RISC provides an integrated indicator of resilience, reflecting such components as personal competence, tolerance for negative emotions, and the ability to recover from failure.

Along with CD - RISC , other tools are used in sports research, including Brief Resilience Scale (BRS) and specialized questionnaires focused on the context of sports activity. However, a number of authors point out the methodological limitations of using questionnaires exclusively, as they do not always reflect the processual nature of resilience. In this regard, modern research recommends combining quantitative methods with an assessment of stressors, coping strategies, and conditions of the sports environment, which allows for a more comprehensive interpretation of the phenomenon of psychological resilience [8].

Thus, psychological resilience in sport is a multidimensional and dynamic construct, the measurement of which requires a comprehensive approach. In the context of competitive activity, including karate, resilience can be viewed as an important adaptive resource, contributing to the reduction of negative emotional states and maintaining stable athletic performance.

Competitive anxiety is one of the most studied psychological phenomena in sports psychology and is considered an emotional state that arises when evaluating athletic performance and the significance of results. The intensity and direction of competitive anxiety can have both a mobilizing and a disorganizing effect on an athlete's performance, necessitating its detailed structural analysis and precise measurement [1].

Contemporary models view competitive anxiety as a multi-component construct, including at least two main components: cognitive and somatic, as well as the closely related component of self-confidence. Cognitive anxiety reflects the athlete's thoughts and includes concerns about performance, fear of making mistakes, doubts about one's own abilities, and negative expectations. High levels of cognitive anxiety are associated with impaired concentration, decreased decision-making, and increased rigidity in tactical thinking [3].

Somatic anxiety is associated with physiological manifestations of emotional arousal, such as increased heart rate, increased muscle tension, tremors, respiratory changes, and gastrointestinal discomfort. Moderate somatic arousal can promote optimal motor performance, but excessive somatic arousal negatively impacts coordination and precision, which is particularly critical in martial arts [1].

Self-confidence within the multidimensional model of anxiety is viewed as a relatively independent component, reflecting an athlete's subjective belief in their ability to successfully cope with a competitive task. High self-confidence is typically associated with a more adaptive interpretation of pre-competition arousal and a lesser negative impact of anxiety on performance [2].

For martial arts, including karate, this structure is of particular importance, since the cognitive and somatic manifestations of anxiety directly affect the timing of offensive and defensive actions, distance control, and the ability to quickly recover from errors.

To assess competitive anxiety in sports practice, standardized psychodiagnostic methods validated on various sports samples are used. The most common are the CSAI -2/ CSAI -2 R and Sport Anxiety Scale -2 (SAS -2).

Revised Competitive State Anxiety The CSAI-2 Inventory -2 (CSAI -2 R) is designed to assess the current (situational) level of anxiety immediately before a competition and allows for the separate measurement of cognitive anxiety, somatic anxiety and self-confidence [2].

Sport Anxiety The SAS - 2 Scale is aimed at measuring competitive anxiety as a relatively stable individual characteristic (trait) and includes the subscales “anxiety”, “somatic anxiety” and “impaired concentration” [10].

Table 1 - Basic tools for measuring competitive anxiety in sports

Methodology	Measured components	Type of anxiety	Features of application
CSAI-2	Cognitive anxiety, somatic anxiety, self-confidence	Situational (state)	A classic tool widely used before starting
CSAI-2R	Cognitive anxiety, somatic anxiety, self-confidence	Situational (state)	Improved factor structure and psychometric properties
SAS-2	Anxiety, somatic anxiety, impaired concentration	Personality (trait)	Suitable for assessing persistent manifestations of anxiety
SCAT	General competitive anxiety	Personality (trait)	Limited differentiation of components

Consequently, competitive anxiety is a complex, multidimensional construct that requires a differentiated approach to assessment. The use of validated methods allows us not only to identify the overall level of anxiety but also to determine the predominant components, which is essential for developing psychological training programs for karate athletes and analyzing the role of psychological resilience in regulating competitive states.

An analysis of modern research in sports psychology suggests that psychological resilience is a significant resource associated with the manifestation of competitive anxiety in athletes. In most empirical studies, resilience acts either as a negative predictor of anxiety or as a moderator, weakening the impact of sporting stressors on an athlete's emotional state [6].

Several studies show that athletes with higher levels of psychological resilience are characterized by lower levels of cognitive and somatic anxiety, as well as higher self-confidence in the pre-competition period. This is explained by a more adaptive cognitive assessment of the stressful situation and the use of effective self-regulation strategies [7].

Research on organizational and competitive stressors has found that psychological resilience can mitigate the negative impact of stress factors on competitive anxiety and burnout. For example, in the

study " Organizational stressors predict competitive trait anxiety and burnout in young athletes : Psychological resilience as a moderator " showed that at a high level of stability, the relationship between stressors and competitive anxiety is significantly reduced, which confirms the buffering role of this construct [9].

In the context of martial arts and karate, there is less empirical data, but existing studies point to similar patterns. Thus, a link has been found between more adaptive coping strategies and a more favorable anxiety profile in martial arts athletes, which indirectly confirms the role of resilience as a resource for emotional regulation [4]. Individual studies on samples of karatekas also indicate the importance of individual psychological resources in regulating pre-competition states, especially in conditions of high competitive significance.

Table 2 - Key findings from studies on the relationship between psychological resilience and competitive anxiety

Sample	Key variables	Key findings
Elite athletes [5]	Resilience, stress, efficiency	Resilience is associated with adaptive appraisal of stressors and better mental functioning
Review [6]	Resilience, stressors	Resilience acts as a protective factor against negative mental states
Young athletes [9]	Resilience, stressors, anxiety	Resilience moderates the association of stressors with competitive anxiety
Martial arts (including karate) [4]	Anxiety, coping	Adaptive strategies are associated with lower anxiety
Systematic review [8]	Resilience in sports	The buffering role of resistance under stress conditions has been confirmed

Thus, the literature suggests that psychological resilience plays an important role in regulating competitive anxiety, reducing its maladaptive manifestations and promoting self-confidence. This relationship is of particular interest to karate athletes due to the high stress of competitive activity and the need for rapid emotional self-regulation.

Modern research in sports psychology shows that reducing competitive anxiety and developing psychological resilience are achieved through targeted psychological interventions aimed at developing self-regulation skills and adaptive cognitive assessment of stressful situations. One of the most studied areas is psychological training programs (Psychological Skills Training (PST), which includes goal setting, self-talk , imagery, attention control, and pre-competition routines. Meta-analytic data confirm the effectiveness of these interventions in reducing competitive anxiety in athletes of various training levels [11].

Mindfulness -based approaches, which promote awareness, improve emotional regulation, and reduce cognitive anxiety, are also a promising approach . Several studies and meta-analyses have shown that mindfulness training has a moderate but consistent effect on reducing anxiety and increasing psychological resilience in athletes [12]. These approaches are particularly relevant for sports with high decision-making speed, including karate.

In addition, the development of psychological stability is associated with the formation of adaptive coping strategies and a supportive sports environment. Research emphasizes the importance of sociopsychological factors, such as the coach's interaction style with the athlete, clarity of role expectations, and organizational support, which can reduce the impact of stressors and thereby indirectly reduce the level of competitive anxiety [8].

Thus, the most effective interventions are considered to be those that combine psychological skills development, mindfulness training, and optimization of the sports environment, which simultaneously reduces the maladaptive manifestations of competitive anxiety and strengthens the psychological resilience of athletes.

An analysis of scientific literature shows that psychological resilience is an important resource for athletes' adaptation to competitive stress and is closely linked to the level of competitive anxiety. Higher levels of resilience are associated with lower levels of cognitive and somatic anxiety and higher levels of self-confidence. In competitive karate, psychological resilience can serve as a buffer, mitigating the negative impact of stressors on athletes' emotional state. The use of validated psychodiagnostic methods and the implementation of comprehensive psychological training programs create the preconditions for the targeted development of resilience and the optimization of karate athletes' competitive performance.

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