

# Research Paper: Self-compassion and Pre-competition Anxiety in Martial Arts Student Athletes



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## ABSTRACT

**Introduction:** The present study aimed to investigate the relationship between Self-compassion and precompetitive anxiety among female athlete students.

**Methods:** This was a descriptive correlational study. Two hundred and fifty-three female students (140 taekwondo & 113 karate) were selected among athletes present at the 14th Student Cultural Sports Olympiad. Self-compassion Scale and Competitive State Anxiety-2 were used in this study before competing in games to measure the aforementioned theoretical constructs.

**Results:** The obtained results revealed a significant relationship between pre-competitive anxiety and Self-compassion. Moreover, the components of this characteristic positively predicted self-confidence variance; however, this prediction reversed with somatic and cognitive anxiety.

**Conclusion:** Based on the current study results, Self-compassion plays a moderating role in the pre-competitive anxiety of female martial arts athletes. Therefore, improving this characteristic should be considered to promote self-confidence and reduce the pre-competitive anxiety in these athletes.

## Introduction

Female athletes who experience competitive anxiety may encounter various symptoms (from mild to disabling), before, during, and after a competition. Besides, they might present decreased performance in a range of low to high (choking) [1].

Choking occurs in high-pressure situations and reduces optimal performance in individuals [2].

Anxiety is a response triggered by threat perception and when anger, unhappiness, stress, thoughts of anxiety are associated with physical activity or arousal; it negatively affects individuals' attention and cognition [3]. In sports settings, the definition of anxiety is expanded by creating two levels of response, before or

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during sports competitions, i.e., cognitive and somatic anxiety [4]. Cognitive anxiety involves two dimensions of worry and concentration disruption. Worry is a social consequence of poor performance; concentration disruption implies difficulties in thinking obviously in sports situations [5]. Somatic anxiety refers to the physiological components of an anxiety experience [6].

Martens et al. concluded that individuals experience serious fluctuations in self-confidence in competitive situations that depend on competitive anxiety. Therefore, they considered self-confidence as the third dimension in measuring competitive anxiety [6]. Self-confidence includes the degree to which individuals believe in their ability to perform a task correctly [7]. In the theory of multidimensional anxiety, each component of anxiety has different relationships to performance before and during competition [6]. Some studies have suggested that anxiety is inversely related to self-esteem and athletic performance.

Additionally, various symptoms of anxiety, such as physiological, cognitive, and communicative changes, can indirectly affect athletes' performance [4]. Sports competition is a potentially stressful situation and often experienced by athletes; thus, creating effective coping strategies to help athletes, especially women, seems essential in adapting to these competitively-anxious experiences and experiencing positive sports affairs. Pre-competitive anxiety refers to an important situation to athletes and their appraisal where they have no resources to cope with the situation [8].

Self-compassion is an essential concept that has recently come to the attention of sports psychology, as a source of potential coping with stressors and emotional problems [9, 10]. Self-compassion (SC) is the positive acceptance of self in managing personal problems and difficulties in life. SC consists of three components; self-kindness, common humanity, and mindfulness [11]. In some studies, a negative relationship has been detected between SC and reaction to failure [9, 10]. Studies in sports settings have reported significant changes in increased competitive anxiety near competition compared to the time before or after the competition [12, 13]. Several preliminary studies have indicated the correlation of SC with social physical and trait anxiety in athletes [14, 15].

Previous studies provided indirect evidence of a link between SC and pre-competitive anxiety. For example, Mosewich, et al. [16] revealed that SC is inversely related to the fear of failure, as a critical risk factor for competitive anxiety [17, 18]. Other factors for increasing competitive anxiety, such as perfectionism [19, 20]

and Emotion Regulation (ER) problems [21] were adversely correlated with Self-compassion [22, 23]. Previous research has emphasized paying attention to emotions, such as pre-competition anxiety among athletes [12, 13]. On the other hand, SC is a healthy manner of relating to self when experiencing emotional pain and perceived inadequacy [11]. Cognitive anxiety reflects concern about failure and poor performance [5]; SC is associated with a better perception of performance in athletes [24]. Studies also revealed that SC is associated with risk factors for pre-competitive anxiety and may be correlated with this type of anxiety. Despite limited research on emotion regulation in performance based on SC, the current study aimed to investigate the relationship between SC and pre-competitive anxiety in female martial arts athlete students. In this research, we focused on martial arts. This is because previous studies indicated that female martial arts athletes have less acceptance and SC, compared to their male counterparts [25]. They also experience more competitive anxiety [21, 26]. Competitive anxiety is inversely related to athletic performance [26]. Therefore, this research intended to expand this field of research in the context of academic sports as an essential and influential layer in society. Additionally, the results of non-sports research revealed a negative relationship between SC and social anxiety [27, 28]. It is possible that for this type of anxiety, parallel outcomes to those observed among non-athletes are manifested and may help to generalize the results.

The current study aimed to investigate the relationship between SC and precompetitive anxiety among female athlete students.

## Materials and Methods

The study participants were 253 girls aged between 18 and 26 years, of the following sports: taekwondo (n=140) and karate (n=113). The study subjects were selected by a non-probability and convenience sampling method. All research participants were Iranians who were participating in the 14th Sports and Cultural Olympiads of Iranian Universities and Higher Education Institutions for Girls and Boys, held in Shiraz City, Iran, in summer 2018. The athletes had a mean±SD age of 22.84±2.40 years, practice time of 6.54±2.22 years, and time spent in the team of 9.78±4.74 months. Based on the minimum sample size in multiple regression analysis, a range of 74-120 participants is recommended.

The following instruments were used in the present study for data collection:

**Self-compassion Scale-Short Form (SCS-SF):** This is a 12-item SC scale with 3 aspects, including self-kindness, common humanity, and mindfulness [29]. This questionnaire is scored based on a 5-point Likert-type scale where higher scores indicate greater SC. The SCS-SF is nearly perfectly correlated to the SCS long-form ( $r>0.97$ ) [29]. The validity and reliability of this scale have been confirmed in Iranian culture [30].

**Competitive State Anxiety Inventory (CSAI-2):** The 17 item CSAI-2R [31] assesses three different aspects of competitive anxiety, including somatic anxiety, cognitive anxiety, and SC. A 4-point Likert-type scale is used to rate each item (1=not at all; 4=very much). The CSAI-2 demonstrated desirable internal consistency (Cronbach's  $\alpha=0.80$ ) [31]. The validity and reliability of this scale have been confirmed in Iranian culture [32].

Before participating in this study, each athlete provided an informed consent form. The athletes were administered to two scales of 30 to 40 min according to the scale instructions before competing in martial arts events [32]. Head coaches were not present during the questionnaire completion phase and the completion of the questionnaires lasted approximately 5 minutes. The completion of the questionnaires was not perceived by the participants to affect their psychological preparation.

The collected information was analyzed (descriptive statistics & regression analysis) by SPSS.

## Results

All obtained data were examined for missing values multivariate (Mahalanobis  $D^2$ ). Besides, univariate outliers, collinearity ( $r>\pm 0.30$ ) and multicollinearity [the tolerance ( $>0.10$ ) and variance inflation factor ( $<10$ )] values, auto-correlation ( $1 < \text{Durbin-Watson values} < 3$ ). Histogram, q-q plots, scatter plot, kurtosis, and skewness ( $z < \pm 3.29$ ) were conducted as recommended by Mayers [33]. No missing values, outliers, collinearity, and multicollinearity were found; thus, the assumptions of normality and linearity were met and the main assumptions of the regression test were established.

Descriptive statistics are presented in Table 1. SC and its subscales' evidenced positive correlations with SC ( $r=0.38$  to  $0.48$ ) and negatively related to cognitive anxiety ( $r=-0.38$  to  $-0.48$ ) and somatic anxiety ( $r=-0.36$  to  $-0.44$ ).

In line with the research purpose, a multiple regression analysis was conducted to evaluate how SC predicted the scores of pre-competitive anxiety. The multiple regression analysis data are summarized in Table 2. It was determined that the subscales of SC are significant predictors of cognitive anxiety ( $F_{3, 249}=25.04$ ,  $P=0.001$ , with an  $R^2$  change of  $0.24$ ), somatic anxiety ( $F_{3, 249}=20.36$ ,  $P=0.001$ , with an  $R^2$  change of  $0.20$ ), and self-confidence ( $F_{3, 249}=25.27$ ,  $P=0.001$ , with an  $R^2$  change of  $0.23$ ). However, the regression coefficients listed in Table 2 demonstrated that 3 predictors made statistical

Table 1. Descriptive statistics

Variables	Self-compassion				Pre-competition Anxiety		
	1	2	3	4	5	6	7
SC	0.84						
Self-kindness	0.82**	0.71					
Common humanity	0.80**	0.57**	0.73				
Mindfulness	0.86**	0.52**	0.52**	0.73			
Cognitive anxiety	-0.48**	-0.43**	-0.38**	-0.40**	0.75		
Somatic anxiety	-0.44**	-0.37**	-0.36**	-0.37**	0.52**	0.79	
Self-confidence	0.48**	0.42**	0.40**	0.38**	-0.50**	-0.31**	0.70
Min	12	4	4	4	5	7	5
Max	44	14	14	18	19	28	15
Mean±SD	27.18±6.85	8.41±2.47	8.35±2.33	10.43±3.43	11.31±3.51	17.58±5.22	9.64±2.64

Alpha coefficients are presented on the diagonal; \*\* $P<0.01$ .

**Table 2.** Summary of linear regression models of Self-compassion predicting changes in pre-competitive anxiety

Predictive Variables	Outcomes	t	β	R <sup>2</sup>	F
Cognitive anxiety	Self-kindness	-3.50***	-0.25	0.24	25.04***
	Common humanity	-2.00**	-0.14		
	Mindfulness	-2.85**	-0.19		
Somatic anxiety	Self-kindness	-2.56***	-0.19	0.20	20.36***
	Common humanity	-2.00**	-0.15		
	Mindfulness	-2.87**	-0.20		
Self-confidence	Self-kindness	3.23***	0.23	0.23	25.27***
	Common humanity	2.70**	0.19		
	Mindfulness	2.28*	0.16		

\*P<0.05; \*\*P<0.01; \*\*\*P<0.001.

and substantive significant contributions to pre-competitive anxiety components. The results of this analysis indicated that athletes with low Self-compassion experience higher pre-competitive anxiety. Furthermore, the results of this analysis indicated that athletes with high Self-compassion enjoy greater self-confidence (Table 2).

### Discussion

The present study results revealed that SC components could explain changes in each component of competitive anxiety (cognitive, somatic, & self-confidence). By confirming the correlation between SC and pre-competitive anxiety in this study, it can be stated that these findings expanded the results of previous studies [8, 9]; they were in response to failure scenarios after a sports event and provided new research path. Some researchers have also conceptualized SC as a source of stress management. Accordingly, it is influential in reducing risk factors for developing pre-competitive anxiety [13, 21]. Moreover, the present research results provided empirical evidence for the proactive copying role of SC in pre-competitive conditions.

Preliminary evidence was presented for the role of SC in reducing the negative emotion of anxiety that may occur in response to stressful situations. If an athlete is more compassionate during stress, the severity of the next anxiety episode may be reduced. In support of this hypothesis, the results of this study indicated that a higher level of SC was associated with lower levels of cognitive and somatic anxiety. This finding is also consistent with those of Neff, Kirkpatrick, and Rude [34]; they argued that college students with higher SC reported

less anxiety in the face of a stressful situation, compared to those with lower SC [34].

An important part of experiencing competitive anxiety (the cognitive component) is an engagement or worrying about the potential negative consequences associated with poor performance and inability to focus on the present moment, i.e., somehow closely related [5]. Furthermore, this type of engagement orientation or anxiety may be partially reflected in the experience of fear of failure. Besides, it causes the athlete to foster a threatening and anxious attitude about poor outcomes in a competition (e.g., experiencing shame & embarrassment, low self-esteem, upsetting significant others, & losing significant others' interests & having an ambiguous future) [35]. Models that have been conceptualized in ER [36] indicated that negative attitudes toward the situation and its threatening appraisal alter the autonomic nervous system and physical symptoms of anxiety; accordingly, the individual's attempts to control their negative emotions tend to use suppression strategy. However, Mohebi and Zarei indicated that the suppression of emotions leads to more cognitive and physical anxiety in taekwondo female athletes [21]. In contrast, over-identification with negative emotions is a ruminant behavior that leads to further stimulation and reinforcement of negative emotions [14]; in contrast, this is an SC-related component of mindfulness [11].

Additionally, studies in college women athletes suggested that high SC is associated with reduced threat appraisal and increased control appraisal [22]. Besides, cognitive reappraisal, as an adaptive strategy for ER was inversely correlated with pre-competitive anxiety in taek-

kwondo athletes [20]. Mindfulness and self-kindness seem to allow athletes to keep their emotions (under control) in full consciousness without criticism [37]. This creates the space for a cognitive reappraisal of negative emotions in a kind atmosphere and enables the individual to observe and perceive thoughts without judgment and under control, instead of focusing on the concerns and attempting to suppress and replicate those proactive thoughts; accordingly, it makes them more involved and consuming cognitive resources, and observing the situation with more optimism and less cognitive anxiety. Thus, the subject has a better understanding of their performance [11, 38]. Moreover, having SC may assist individuals to consider the situation and its experiences in a “big picture” rather than in isolation. In turn, it is shared by athletes (a component of shared human experience) and prevents personalization and exaggeration. Under the influence of this view, the athlete’s experiences of competitive anxiety and coping with it become normal [11, 39].

In line with the previous explanations and research, SC seems to include appraisal control (as opposed to threat appraisal) and positive cognitive reconstruction, including rare measures, such as optimism, engaging in positive thinking, and reduced anxiety about negative consequences. Then, creating a positive mindset and the prospect of normalizing negative situations can establish its inverse relationship with the risk of competitive anxiety factors; these are used as drives to understand competitive situations as threatening factors and response to these situations. This trend can be discussed in primary and secondary control strategies in the processes of stress, excitement, and coping [22, 38, 39].

The inverse relationship between SC and somatic anxiety suggests that SC may provide a physiological resource for athletes in the face of competitive stress. Furthermore, instead of experiencing anxiety, SC may enhance the tendency to cope with stressful situations. SC was associated with the ability to experience negative emotions instead of avoiding or suppressing them [22, 39]. Moreover, it has been negatively associated with avoidance, suppression, and rumination [11, 14, 40]; accordingly, it can present serious effects on physiological responses [41]. Responding to anxious experiences with self-kindness rather than self-judgment seems to provide a moderating effect on the physiological responses. In addition, maintaining a shared common human perspective during stressful situations creates a comparative physiological profile [42-44]. Pre-competitive anxiety refers to a condition essential to an athlete and the appraisal that they do not have the resources to cope

with [45]. Additionally, the direct relationship between SC and self-confidence indicates that athletes use SC to cope with the problems caused by competition in the form of positive self-talk and self-critical management (self-kindness component). This process allows the athlete to experience better resilience and emotion management in difficult competitive situations [21].

Some research indicated SC training decreased physiological responses (e.g., heart rate variability & alpha-amylase), and subjective responses to social evaluative threats in women [44]. Research also suggested that SC training impacts various neural markers (e.g., self-referential processing attention & emotion) [42]. Female athletes also reported that mindfulness allows them to focus on their current thoughts and feelings with understanding and objectivity [39]. This dimension of SC is associated with increased confidence for cognitive performance in the athlete [39]. In addition, the common sense of humanity allows athletes to normalize the process of coping with problems in sports instead of personalizing inefficiencies and self-doubt; they can use their experiences by increasing their dependence on others [11, 39]. Increased resilience, cognitive efficiency, and representative experience are critical sources of self-confidence in the model [8]. Irons and Lad believed that SC increases courage; accordingly, individuals can question their self-criticism loop as well as drawing high-level, anxious criteria. Next, with a new and compassionate attitude toward self, they can redesign the real and achievable standard [45].

Along with this explanation, promoting and educating SC to female athletes are effective in self-criticism, rumination, and high concern about mistakes [23, 46]; such issues can have devastating effects on their self-confidence [39, 47]. Studies also reported that SC is associated with the ability to manipulate failure and return more quickly from it in athletes [9, 38]. Besides, it is an important characteristic in building self-confidence [48]. SC is related to one’s attitude of acceptance and self-perception; looking back on failures and performance weaknesses as an opportunity to learn, grow, and respond to these experiences of self-kindness seems to be useful in one’s better understanding of performance, confidence, and attempt for achieving personal potentials in the sport with a positive mindset [21, 49, 50]. Thus, reducing anxiety and increasing self-confidence is not unexpected.

The current study has limitations that should be addressed in future work. First, in the literature on anxiety, some studies recommend that the direction of competitive anxiety should be considered in addition to its



intensity, like Jones' model [51]. Previous studies indicated that SC is associated with perceived control over difficult situations. Future studies are needed to focus on examining SC in interpreting competitive anxiety for more accurate results. Moreover, a study revealed that SC in athletes is associated with a better perception of performance [24]. Therefore, examining Self-compassion, competitive anxiety, and athletic performance in a model helps to better understanding SC in competitive anxiety and performance.

Second, employing convenience sampling among college athletes attending the 14th Student Cultural Sports Olympiad limited the generalizability of findings to larger collegiate populations across Iran. Further investigation in different athletic populations and sports is therefore warranted.

Third, considering that the current study was correlational, causal conclusions cannot be made about the research findings. Experimental designs as well as an exploration of SC intervention that allows assessing causation, like studies that have examined the effectiveness of SC in failure context are recommended [46, 52].

Fourth, the present study findings may be limited to the particular period investigated (30-40 min; pre-competition). Previous studies [13, 14] indicated that competitive anxiety changes over time (before, during, & after). Therefore, future studies should examine the relationship between competitive anxiety through longitudinal investigations to generalize the present findings to other (i.e., longer) periods.

Finally, given that one dimension of pre-competitive anxiety was related to physical symptoms, assessing the physiological responses to anxiety (e.g., changes in heart rate and ventilation, cortisol and alpha-amylase, blood pressure, etc.) provides a desirable understanding of the role of SC on athletes' somatic anxiety. Measuring physiological responses to failure in previous studies [9] and studies [44] on non-athletes in their research approach resulted in valuable findings in this regard, which can be considered in the next studies.

## Conclusion

Overall, this research suggested that SC has been considered among the factors involved in the emotional behavior of female university athletes. This study supported the role of SC in sports settings, especially in a stressful situation or acute phase, like before competitions. The high level of SC characteristic not only was

inversely related to the symptoms of cognitive and somatic anxiety but also with promoting self-confidence in pre-competition conditions. Such conclusions provided useful information and some practical implications for professionals working in college sports for preventative intervention in acute phase anxiety management during competitive cycles usually associated with martial arts. Professionals involved in female college sports must provide experiences concerning the development of Self-compassion. This is because these characteristics could act as protective factors for pre-competitive anxiety and as promotional factors for self-confidence during sports. Furthermore, it is important to avoid negative experiences that develop in college sports participants respecting self-judgment and criticism, isolation, and over-identification; accordingly, these characteristics are associated with decreased self-confidence and increased pre-competitive anxiety.

## Ethical Considerations

### Compliance with ethical guidelines

The related Ethics Committee of the Department of Sports Psychology, University of Tehran approved the present study.

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### Authors' contributions

All authors have contributed equally to this article.

### Conflict of interest

The authors declared no conflict of interest.

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