

The Study of Competitive Anxiety and Its Regulation on Sports Performance

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Abstract—This study examines the role of competitive anxiety and emotion regulation in influencing sports performance among university athletes. Competitive anxiety, particularly its cognitive and somatic dimensions, has been widely recognized as a significant psychological factor affecting athletic outcomes. However, recent research suggests that the way athletes regulate their emotions may determine whether anxiety facilitates or impairs performance. The present study adopts a quantitative correlational design to investigate the predictive relationship between competitive anxiety (cognitive anxiety, somatic anxiety, and self-confidence), emotion regulation strategies (cognitive reappraisal and expressive suppression), and perceived sports performance. Data were collected from 65 university athletes participating in basketball, volleyball, and football. Standardized instruments including the Competitive State Anxiety Inventory-2 Revised (CSAI-2R) and the Emotion Regulation Questionnaire (ERQ) were utilized. The findings will contribute to the understanding of psychological determinants of performance and provide practical implications for coaches, sport psychologists, and athletes in optimizing competitive outcomes.

I. INTRODUCTION

Sports performance is not solely determined by physical skills and tactical preparation; psychological factors play a crucial role in shaping athletic success. Among these factors, competitive anxiety has been extensively studied due to its strong influence on concentration, confidence, decision-making, and overall performance. Competitive environments often generate heightened emotional responses, which can either enhance or impair an athlete's effectiveness depending on how these emotions are managed. While traditional research has primarily focused on measuring levels of anxiety, contemporary sport psychology emphasizes the importance of emotion regulation strategies. Athletes who effectively regulate

their emotions may transform anxiety into a facilitative force, whereas those who fail to manage emotional responses may experience performance breakdowns. Therefore, understanding both the intensity of competitive anxiety and the strategies used to regulate it is essential for optimizing athletic performance.

This study seeks to integrate these two psychological constructs by examining the combined influence of competitive anxiety and emotion regulation on sports performance among university athletes.

II. OBJECTIVES OF THE STUDY

1. To examine the level of competitive anxiety among university athletes.
2. To assess the emotion regulation strategies (cognitive reappraisal and expressive suppression) used by athletes.
3. To determine the relationship between competitive anxiety and sports performance.
4. To examine the relationship between emotion regulation strategies and sports performance.
5. To investigate the combined predictive effect of competitive anxiety and emotion regulation on sports performance.

III. LITERATURE REVIEW

Sports performance has traditionally been associated with physical ability, technical skills, and tactical preparation. However, psychological factors have increasingly been recognized as critical determinants of success in competitive environments. Among these factors, competitive anxiety has received substantial attention in sport psychology literature (Weinberg & Gould, 2019). More recently, emotion regulation has emerged as a key mechanism explaining why some

athletes perform well under pressure while others do not (Gross, 1998; 2015).

The present study builds upon these theoretical and empirical foundations to examine the combined influence of competitive anxiety and its regulation on sports performance.

1. Competitive Anxiety: Theoretical Foundations

Competitive anxiety is defined as a negative emotional response characterized by worry and physiological arousal in competitive situations (Martens et al., 1990).

Multidimensional Anxiety Theory, developed by Martens, Vealey, and Burton (1990) in their foundational book "Competitive Anxiety in Sport," distinguishes between cognitive anxiety, somatic anxiety, and self-confidence. Research shows that cognitive anxiety negatively correlates with performance, whereas self-confidence positively predicts performance outcomes (Craft et al., 2003).

The Individual Zones of Optimal Functioning (IZOF) model, developed by Hanin (2000) in "Emotions in Sport," proposes that each athlete has an individual optimal emotional zone for peak performance. Anxiety is not always detrimental; its effect depends on whether it falls within an athlete's optimal functioning zone.

Catastrophe Theory (Hardy, 1990) suggests that when cognitive anxiety is high, increased physiological arousal may lead to a sudden drop in performance.

2. Emotion Regulation Theory

Emotion regulation theory was primarily developed by Gross (1998). In the "Handbook of Emotion Regulation" (Gross, 2015), emotion regulation is defined as the processes by which individuals influence the emotions they experience, when they experience them, and how they express them.

The Process Model distinguishes between cognitive reappraisal and expressive suppression. Research indicates that cognitive reappraisal is associated with better psychological adjustment, whereas suppression is often linked to increased stress and reduced well-being (Gross & John, 2003).

3. Anxiety as a Performance Influencer

Woodman and Hardy (2003) conducted a meta-analysis showing cognitive anxiety has a small but significant negative effect on performance. Craft et al. (2003) found self-confidence to be the strongest

predictor of performance among anxiety dimensions. Jones (1995) introduced the concept of anxiety direction, arguing that athletes interpret anxiety as either facilitative or debilitating.

Emotion Regulation and Athletic Performance

Lane et al. (2012) found that emotional control predicts performance outcomes. Uphill, Groom, and Jones (2014) emphasized the importance of regulation strategies in elite athletes. Wagstaff (2014) argued that emotional regulation skills distinguish high-performing athletes from others.

4. Research Gap and Justification

Although extensive research has examined competitive anxiety (Martens et al., 1990; Hardy, 1990), emotion regulation (Gross, 1998; 2015), and anxiety-performance relationships (Woodman & Hardy, 2003), most studies investigate these constructs separately.

There is limited research integrating competitive anxiety dimensions and emotion regulation strategies in the same predictive model among university athletes. Therefore, this study integrates both constructs to better explain variations in sports performance.

IV. RESULTS

1. Participants

The study was conducted among athletes from Hindustan Institute of Technology and Science. A total of 65 competitive athletes voluntarily participated in the survey.

The distribution of participants was as follows:

- Basketball: 33 athletes (21 males, 12 females)
- Volleyball: 12 male athletes
- Football: 20 male athletes

Overall gender distribution:

- 53 males (81.5%)
- 12 females (18.5%)

All participants were actively involved in intercollegiate competitions.

2. Descriptive Statistics

Descriptive statistics were calculated to determine the overall levels of competitive anxiety, emotion

regulation strategies, and perceived sports performance among the athletes.

Variable	Mean	Standard Deviation	Interpretation
Cognitive Anxiety	2.91	0.62	Moderate
Somatic Anxiety	2.75	0.58	Moderate
Self-Confidence	3.12	0.54	Moderately High
Cognitive Reappraisal	5.08	0.83	High
Expressive Suppression	4.21	0.91	Moderate
Perceived Performance	3.67	0.71	Above Average

The results indicate that athletes experienced moderate levels of cognitive and somatic anxiety prior to competition. Self-confidence levels were moderately high, suggesting that athletes generally believed in their ability to perform successfully. Emotion regulation results showed that athletes frequently used cognitive reappraisal strategies, while expressive suppression was moderately used. Perceived performance ratings were above average.

3. Correlation Analysis

Pearson correlation analysis was conducted to examine the relationships between competitive anxiety dimensions, emotion regulation strategies, and sports performance.

Variable	Correlation with Performance
Cognitive Anxiety	-0.46
Somatic Anxiety	-0.39
Self-Confidence	+0.52
Reappraisal	+0.48
Suppression	-0.28

$p < .05$ $p < .01$

The results revealed a moderate negative correlation between cognitive anxiety and performance ($r = -0.46$, $p < .01$). Somatic anxiety also showed a significant negative relationship with performance ($r = -0.39$, $p < .01$). Self-confidence demonstrated a strong positive correlation with performance ($r = .52$, $p < .01$). Cognitive reappraisal was positively associated with performance ($r = .48$, $p < .01$), while expressive

suppression was negatively associated ($r = -0.28$, $p < .05$).

4. Multiple Regression Analysis

A multiple regression analysis was conducted to determine whether competitive anxiety and emotion regulation significantly predict sports performance.

Model Summary:

$R = 0.70$

$R^2 = 0.49$

Adjusted $R^2 = 0.45$

$F(5, 59) = 11.32$

$p < .001$

The model explains 49% of the variance in sports performance, indicating a strong predictive relationship.

Predictor	Beta (β)	t	Significance
Cognitive Anxiety	-0.31	-2.84	$p < .01$
Somatic Anxiety	-0.19	-2.01	$p < .05$
Self-Confidence	+0.36	3.41	$p < .001$
Reappraisal	+0.29	2.76	$p < .01$
Suppression	-0.15	-1.72	$p = .07$

Self-confidence emerged as the strongest positive predictor of performance. Cognitive anxiety significantly predicted lower performance, while cognitive reappraisal positively contributed to performance outcomes. Expressive suppression showed a negative but marginal effect.

V. RELIABILITY ANALYSIS OF THE CSAI-2R

Reliability Analysis

The reliability of the Competitive State Anxiety Inventory-2 Revised (CSAI-2R) was examined to ensure the internal consistency of the instrument within the present study. Reliability refers to the extent to which a measurement tool produces consistent and stable results across its items. In psychological research, internal consistency reliability is commonly assessed using Cronbach's alpha coefficient.

The CSAI-2R consists of 17 items distributed across three subscales: Cognitive Anxiety (5 items), Somatic Anxiety (7 items), and Self-Confidence (5 items). Since these subscales represent distinct but related

psychological dimensions, Cronbach's alpha was calculated separately for each component, as well as for the overall scale.

Cronbach's alpha is calculated using the following formula:

$$\alpha = (k / (k - 1)) [1 - (\sum \sigma_i^2 / \sigma^2_t)]$$

Where:

k = number of items,

σ_i^2 = variance of each individual item,

σ^2_t = variance of the total test score.

In the present study (N = 63 university athletes), the reliability analysis produced the following results:

Cognitive Anxiety: $\alpha = .84$

Somatic Anxiety: $\alpha = .81$

Self-Confidence: $\alpha = .86$

Overall CSAI-2R Scale: $\alpha = .89$

These values exceed the recommended threshold of .70 for acceptable reliability, indicating good to excellent internal consistency. The results suggest that the items within each subscale consistently measure the intended psychological construct. The overall reliability coefficient of .89 further supports the suitability of the CSAI-2R for assessing competitive anxiety among university athletes in this study.

Therefore, the CSAI-2R demonstrated satisfactory psychometric properties within the present sample, allowing for confident interpretation of subsequent correlation and regression analyses.

Summary of Findings

1. Competitive anxiety negatively affects sports performance.
2. Self-confidence significantly enhances performance.
3. Cognitive reappraisal improves performance outcomes.
4. The combination of anxiety and emotion regulation explains nearly half of performance variability.

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RESEARCH QUESTIONNAIRE

Study Title: The Study of Competitive Anxiety and Its Regulation on Sports Performance

Section 1: Demographic Information

Item	Question	Response
1	Age	
2	Gender	Male Female
3	Sport	
4	Competitive Level	Regional National International
5	Years of Competitive Experience	

Section 2: Competitive Anxiety (CSAI-2R)

Instruction: Please indicate how you feel right now, before this competition.
Response Scale: 1 = Not at all, 2 = Somewhat, 3 = Moderately so, 4 = Very much so

Cognitive Anxiety

No.	Statement	1	2	3	4
1	I am concerned about performing poorly.				
2	I am concerned about losing.				
3	I am concerned that others will be disappointed with my performance.				
4	I am worried about reaching my performance goals.				
5	I am concerned that I may not perform to my potential.				

Somatic Anxiety

No.	Statement	1	2	3	4
6	I feel nervous.				
7	My body feels tense.				
8	My heart is racing.				
9	I feel jittery.				
10	I feel tense in my stomach.				
11	My hands are clammy.				
12	I feel physically uncomfortable.				

Self-Confidence

No.	Statement	1	2	3	4
13	I feel confident about performing well.				
14	I feel at ease.				
15	I feel mentally strong.				
16	I feel secure.				
17	I am confident I can meet the challenge.				

Section 3: Emotion Regulation (ERQ)

Instruction: Indicate your agreement with the following statements regarding how you manage your emotions during competition.
Response Scale: 1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neutral, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree

Cognitive Reappraisal

No.	Statement	1	2	3	4	5	6	7
18	I control my emotions by changing the way I think about the situation.							
19	When I want to feel less negative emotion, I change the way I think about the competition.							
20	When I am anxious, I try to think about the situation differently.							
21	I reinterpret stressful situations to reduce anxiety.							
22	I think about competition in a way that helps me stay calm.							
23	I change my perspective to manage my emotions.							

Expressive Suppression

No.	Statement	1	2	3	4	5	6	7
24	I control my emotions by not expressing them.							
25	I keep my emotions to myself.							
26	When I feel anxious, I make sure not to show it.							
27	I suppress my emotional reactions during competition.							

Section 4: Perceived Sports Performance

Instruction: Reflect on your most recent competition.

Response Scale: 1 = Very low, 2 = Low, 3 = Moderate, 4 = High, 5 = Very high

Perceived Performance

No.	Statement	1	2	3	4	5
28	I performed at my optimal level.					
29	I achieved my performance goals.					
30	I maintained concentration throughout the competition.					
31	I executed my skills effectively.					
32	Overall, I am satisfied with my performance.					