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Exploring the relationship between anxiety, concentration, and performance in sports competitions

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Abstract
This study explores the emotional and physiological responses experienced by athletes during competition, with a focus on anxiety, concentration, and physical symptoms such as tension and heart rate changes. A survey was conducted with 40 participants, assessing their self-reported experiences during competition across 12 questions related to feelings of nervousness, mental distractions, self-doubt, physical tension, and performance-related concerns. The results indicate moderate levels of anxiety and mental distractions, with mean scores ranging from 2.17 to 3.30. The majority of participants reported neutral to slightly positive responses, with high frequencies of mental distractions, physical symptoms like muscle tension, and concerns about performance. These findings suggest that while anxiety and physical discomfort are prevalent during competition, they may not significantly hinder performance for all athletes. The study highlights the need for sport psychology interventions to manage anxiety, enhance concentration, and boost self-confidence. Recommendations include relaxation techniques, cognitive restructuring, and biofeedback training to help athletes perform at their best. Future research could further investigate the relationship between emotional responses and performance across different sports and athlete populations.

Keywords: Anxiety, concentration, performance, mental distractions, physiological responses

Introduction
Anxiety is a prevalent psychological experience in athletes, particularly during competition. The physiological and psychological responses associated with anxiety can significantly impact sports performance, affecting various aspects such as concentration, confidence, and overall focus. Athletes often report feeling nervous or tense before and during competitions, which can interfere with their performance (Jones & Hanton, 2001) [10]. Anxiety, especially performance anxiety, has been shown to negatively affect concentration by leading to intrusive thoughts, self-doubt, and decreased confidence (Martens, 1987) [12]. These emotional and cognitive disruptions can detract from an athlete's ability to perform optimally (Craft, Magyar, Becker, & Feltz, 2003) [3].

Performance anxiety typically arises from the fear of failure and concerns about performing poorly in front of others (Smith, 1989) [15]. It triggers physiological reactions, such as increased heart rate and muscle tension, preparing the body for a 'fight or flight' response (Spielberger, 1966) [16]. These physical manifestations of anxiety are often accompanied by feelings of nervousness, loss of focus, and worry, which in turn, may lead to reduced performance (Cox, 2002) [2]. In particular, anxiety tends to cause athletes to focus on unrelated concerns, leading to mental distractions and self-doubt (Nideffer, 1983) [13]. Additionally, high levels of anxiety can disrupt concentration, which is crucial for task performance in sports (Gupta, 2015) [8].

A commonly observed effect of anxiety in sports is the interruption of an athlete's concentration, as the racing thoughts about performance can impair their ability to focus on the task at hand (Orbach & Regev, 1986) [14]. This disruption in concentration often leads to an increased likelihood of errors, poor decision-making, and ultimately lower performance levels (Williams & Krane, 2001) [19]. In some cases, these distractions can be exacerbated by negative self-talk and a lack of self-confidence, which are key components of anxiety in sports (Levy, 2007) [11]. However, it has also been suggested that anxiety can have both negative and positive

effects depending on its intensity and the individual's ability to manage it (Jones, 2002) [9].

Therefore, understanding the impact of anxiety on sports performance is essential for developing strategies to manage its effects. By examining the experiences of athletes in a university setting, this study seeks to contribute to the existing body of literature on how anxiety influences athletic performance, particularly in terms of concentration, confidence, and performance anxiety.

Methodology

This study aimed to evaluate the impact of anxiety on sports performance among participants at the Directorate of Physical Education, University of Kashmir. A quantitative research design was employed using a structured survey to gather data on the various facets of anxiety during sports competition.

Participants

The sample for this study consisted of 40 participants, all of whom were students involved in sports activities at the Directorate of Physical Education. These participants were selected based on convenience sampling, ensuring that they represented a range of sports disciplines.

Instrument

The primary data collection tool was a Sports Anxiety Questionnaire. This self-report questionnaire was designed to measure various aspects of anxiety and its impact on sports performance, including factors such as nervousness, self-doubt, distractions, and physical symptoms like tension or rapid heartbeat. The questionnaire consisted of 12 items, each rated on a 4-point Likert scale, ranging from "Not at all" (1) to "Very much" (4). This scale allowed participants to express their level of agreement with each statement regarding anxiety-related experiences during sports competition.

Procedure

The questionnaire was distributed to the participants in person, and they were given clear instructions on how to respond to the items. Participants were asked to rate their experiences of anxiety on a scale from 1 to 4. The data collection took place over a period of two weeks, ensuring that all participants had enough time to provide thoughtful and accurate responses.

Once the completed questionnaires were collected, the responses were tabulated and analyzed quantitatively to identify the prevalence and intensity of anxiety-related symptoms during sports activities. The mean scores for each item were calculated to assess the overall levels of anxiety, with higher scores indicating more intense anxiety.

Data Analysis

Descriptive statistics were used to analyze the data, with frequency distributions and mean scores being computed for each item on the questionnaire. The data were organized in a way that allowed for an easy interpretation of anxiety levels across different aspects of sports performance. The results were analyzed to identify patterns of anxiety that may affect concentration, performance, and overall sports experience.

Ethical Considerations

The study followed ethical guidelines to ensure participant confidentiality and voluntary participation. Informed consent was obtained from all participants, and they were assured that their responses would remain anonymous and would only be used for the purpose of this research.

Results

Q1. During competition, I feel nervous

R.V.	F	Fx
4	8	32
3	13	39
2	13	26
1	6	6
ΣF = 40		103

Mean = 103 / 40 = 2.57

The mean score of 2.57 suggests a neutral to slightly positive response, indicating that most participants neither strongly agree nor disagree with feeling nervous during competition. The highest frequency of responses is at 3 (agree) and 2 (neutral), suggesting moderate levels of nervousness are experienced.

Q2. During competition, I find myself thinking about unrelated things

R.V.	F	Fx
4	22	88
3	10	30
2	6	12
1	2	2
ΣF = 40		132

Mean = 132 / 40 = 3.30

The mean score of 3.30 suggests a generally positive response, with most participants agreeing (response of 4) that they think about unrelated things during competition. This indicates a higher tendency for participants to experience distractions or unrelated thoughts during competition.

Q3. During competition, I have self-doubts

R.V.	F	Fx
4	15	60
3	14	42
2	8	16
1	3	3
ΣF = 40		121

Mean = 121 / 40 = 3.02

The mean score of 3.02 suggests a generally positive response, with most participants agreeing (response of 4) that they have self-doubts during competition. This suggests that a significant number of participants experience doubts about their abilities during competitions.

Q4. During competition, my body feels tense

R.V.	F	Fx
4	5	20
3	8	24
2	19	38
1	8	8
ΣF = 40		90

Mean = 90 / 40 = 2.25

The mean score of 2.25 indicates neutral responses, suggesting that participants do not overwhelmingly feel tense during competition. The highest frequency of responses is at 2

(neutral), indicating that many participants feel slightly tense, but not excessively so.

Q5. My mind wanders during sports competition

R.V.	F	Fx
4	17	68
3	7	21
2	11	22
1	5	5
ΣF = 40		116

Mean = 116 / 40 = 2.90

The mean score of 2.90 indicates a neutral to slightly positive response. Most participants report that their minds wander, with the highest frequency being a response of 4 (agree), suggesting that many participants experience mental distractions during competition.

Q6. I am concerned, I won't be able to concentrate during competition

R.V.	F	Fx
4	23	92
3	6	18
2	10	20
1	1	1
ΣF = 40		131

Mean = 131 / 40 = 3.27

The mean score of 3.27 indicates a positive response, with most participants expressing concern (response of 4) about their ability to concentrate. This suggests that concentration is a common concern for participants during competition.

Q7. Before competition, my heart races

R.V.	F	Fx
4	4	16
3	13	39
2	9	18
1	14	14
ΣF = 40		87

Mean = 87 / 40 = 2.17

The mean score of 2.17 suggests neutral responses, with most responses clustered around 1 (strongly disagree) and 3 (agree). This implies that many participants do not experience a racing heart before competition, while a moderate portion of them do.

Q8. During competition, I feel my stomach sinking

R.V.	F	Fx
4	23	92
3	7	21
2	3	6
1	7	7
ΣF = 40		126

Mean = 126 / 40 = 3.15

The mean score of 3.15 indicates a positive response, with the majority of participants agreeing (response of 4) that they feel their stomach sinking during competition. This suggests that feelings of anxiety or nervousness are relatively common among participants during competition.

Q9. I am concerned about performing poorly

R.V.	F	Fx
4	8	32
3	15	45
2	10	20
1	7	7
ΣF = 40		104

Mean = 104 / 40 = 2.60

The mean score of 2.60 indicates a neutral to slightly positive response, suggesting that participants are moderately concerned about their performance. The highest frequency of responses is at 3 (agree), suggesting that concerns about performance are somewhat prevalent.

Q10. Thoughts of doing poorly interfere with my concentration during competition

R.V.	F	Fx
4	11	44
3	15	45
2	10	20
1	4	4
ΣF = 40		113

Mean = 113 / 40 = 2.82

The mean score of 2.82 indicates a neutral to slightly positive response with most of the responses at 3. This shows that thoughts of doing poorly slightly interfere with concentration but are not overwhelmingly disruptive.

Q11. My body feels tight during competition

R.V.	F	Fx
4	14	56
3	12	36
2	5	10
1	9	9
ΣF = 40		111

Mean = 111 / 40 = 2.77

The mean score of 2.77 indicates a neutral to slightly positive response, with the highest frequency of responses at 4 (strongly agree). This suggests that a significant number of participants feel their bodies tighten during competition.

Q12. I am worried about reaching my goal

R.V.	F	Fx
4	9	36
3	11	33
2	8	16
1	12	12
ΣF = 40		97

Mean = 97 / 40 = 2.42

The mean score of 2.42 indicates neutral responses, with the majority of responses being at 1 (strongly disagree). This indicates that most participants are not excessively worried about reaching their goals during competition.

Overall Summary

- **Most Frequent Emotional Responses:** Participants generally report feelings of nervousness, distraction, and occasional physical symptoms like tightness or a sinking stomach during competition. The main concerns are

concentration and self-doubt.

- **Least Frequent Emotional Responses:** Worry about reaching goals and performing poorly seems to be less common, with most participants not significantly concerned about these aspects.

Discussion

The findings from the survey regarding the emotional and physiological responses of participants during competition reveal important insights into how athletes experience anxiety, stress, and concentration issues. Below, the discussion is organized by themes identified in the data, highlighting the relevance of these findings in the context of sports psychology and competitive performance.

1. Nervousness and Anxiety During Competition

The data reveals a moderate level of nervousness among participants during competition, as reflected in the mean score of 2.57 for the statement "During competition, I feel nervous." This suggests that most participants experience some degree of nervousness, which is consistent with the well-documented phenomenon of competitive anxiety in sports psychology. According to Martens *et al*. (1990) [12], competitive anxiety can manifest in both cognitive and somatic forms, influencing performance. While a moderate level of anxiety can be motivating, excessive anxiety can impair focus and performance. This finding indicates that while some athletes experience mild anxiety, the majority may not be overwhelmed by it, but it still has an impact on their performance.

2. Mental Distractions and Concentration Issues

The survey findings suggest that mental distractions are a common issue, with participants frequently reporting that they think about unrelated things during competition (mean score of 3.30) and have self-doubts (mean score of 3.02). This is particularly concerning since concentration and self-confidence are key factors that influence athletic performance. The impact of these distractions can be profound, as athletes' ability to focus directly affects their execution of skills. Nideffer's (1981) [13] concept of attention control highlights how athletes must manage both external and internal distractions during competition. The moderate levels of mental distraction in the survey indicate that some athletes may struggle with maintaining focus, which could hinder their ability to perform optimally.

3. Physical Symptoms of Stress

The findings also suggest that physical symptoms such as muscle tension, racing heart, and stomach discomfort are prevalent during competition. The mean scores for "During competition, my body feels tense" (2.25), "Before competition, my heart races" (2.17), and "During competition, I feel my stomach sinking" (3.15) reveal that many athletes experience somatic symptoms of stress. These responses are consistent with the somatic anxiety component described by Martens (1990) [12], where the body experiences physical sensations such as muscle tightness, increased heart rate, and stomach discomfort, which can distract athletes from their focus and performance. The presence of these physical symptoms indicates that stress, whether mental or physical, significantly affects athletes during competition, and addressing these symptoms through relaxation and mental training techniques could help improve performance

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4. Self-Doubt and Performance Worry

Self-doubt and worry about performance were also significant themes in the findings, with participants expressing concern about performing poorly (mean score of 2.60) and feeling worried about reaching their goals (mean score of 2.42). These findings highlight the role of self-efficacy in sports. According to Bandura (1997), self-efficacy, or the belief in one's ability to succeed, is crucial for high performance in sports. Self-doubt can undermine confidence and lead to underperformance. While not all athletes may experience these feelings equally, the presence of self-doubt among many participants suggests that interventions aimed at improving confidence and self-efficacy, such as mental skills training and cognitive restructuring, could help athletes perform at their best.

5. Relationship Between Anxiety and Performance

The relationship between anxiety, distraction, and performance has been well-studied in sports psychology. The findings from this survey underscore the complex nature of this relationship. The moderate levels of anxiety and mental distractions observed suggest that while these emotions and physical symptoms are present, they may not be severe enough to significantly impair performance across the board. However, for some athletes, these factors could still serve as barriers to optimal performance. The concept of the Yerkes-Dodson Law suggests that there is an optimal level of arousal for peak performance, and both under-arousal and over-arousal can detract from effective performance. The results from this study imply that athletes need to find ways to manage their anxiety and mental distractions to stay within the optimal zone for performance.

6. Implications for Sport Psychology Interventions

The findings from this study have important implications for sport psychology professionals. The moderate levels of anxiety, self-doubt, and mental distractions reported by the athletes suggest that interventions aimed at improving concentration and reducing anxiety would be beneficial. Strategies such as relaxation techniques, visualization, and cognitive restructuring could help athletes better manage their mental and physical responses during competition. Training athletes to focus on the present moment and block out distractions could also improve concentration, leading to better performance. Additionally, biofeedback and other relaxation techniques could help reduce somatic anxiety symptoms such as muscle tension and heart rate elevation, which were commonly reported in the survey.

7. Future Research Directions

While this study provides valuable insights into the emotional and physiological responses during competition, future research could explore the following areas:

- **Longitudinal Studies:** Conducting studies over an extended period could provide deeper insights into how athletes' emotional responses evolve over time and with experience.
- **Comparative Studies:** Comparing athletes across different sports or skill levels could reveal how specific types of competition or training affect emotional responses.
- **Gender and Cultural Differences:** Investigating how emotional responses differ across genders or cultures could lead to more tailored interventions for diverse athlete populations.

Conclusion

The results of this study emphasize the multifaceted nature of the emotional and physiological challenges athletes face during competition. While some athletes experience mild anxiety, distraction, and physical discomfort, these factors can still affect concentration and performance. The findings suggest that interventions aimed at improving concentration, reducing anxiety, and boosting self-confidence could help athletes manage their emotional responses and optimize their performance. By addressing these emotional and physiological responses, sport psychology professionals can play a pivotal role in enhancing the competitive experience for athletes across different levels and disciplines.

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