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Relationship Between Training Intensity and Competitive Anxiety in District-Level BadmintonPlayers

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Abstract: Badminton is a fast-paced competitive sport that demands not only physical readiness but also strong psychological stability. Training intensity plays a crucial role in preparing athletes for competition; however, excessive or poorly managed training loads may influence anxiety levels before performance. The present study aimed to investigate the relationship between training intensity and competitive anxiety among district-level badminton players. Thirty competitive players aged 16–22 years were selected from **Sikar** and **Churu** districts. Training intensity was assessed using the Borg Rate of Perceived Exertion (RPE) scale, and competitive anxiety was measured through the Sports Competition Anxiety Test (SCAT). Statistical analysis revealed a moderate positive correlation between high training intensity and competitive anxiety levels. The findings suggest that while structured training improves preparedness, excessive intensity may elevate psychological stress. The study highlights the importance of balanced training programs for both physical and mental readiness.
Keywords: Training intensity, Competitive anxiety, Badminton, Sports psychology, Performance pressure, RPE scale.

Introduction - Competitive sports performance is influenced by both physical preparation and psychological state. In badminton, athletes are required to perform rapid movements, quick decisions, and precise strokes under match pressure. While physical training improves endurance, strength, and agility, psychological factors such as anxiety can significantly affect performance outcomes. Training intensity refers to the level of effort exerted during practice sessions. Appropriate training loads enhance performance readiness, but excessively demanding sessions may lead to mental fatigue, stress, and anxiety. Competitive anxiety is a common psychological response experienced before or during sports events, characterized by nervousness, worry, and physiological arousal.

Moderate levels of anxiety may improve alertness and performance; however, high anxiety can impair concentration, coordination, and decision-making. Athletes exposed to intense training schedules without adequate recovery may experience heightened psychological pressure, which could influence competitive anxiety.

In district-level sports settings, athletes often undergo rigorous training to improve performance, yet structured psychological monitoring is rarely implemented. Understanding the link between training intensity and competitive anxiety can help coaches design balanced training programs that support both physical conditioning and mental well-being.

Therefore, this study was undertaken to explore the relationship between training intensity and competitive anxiety among badminton players.

Review Of Literature

Research in sports psychology has consistently highlighted the connection between training demands and athletes' emotional responses. **Weinberg and Gould (2019)** explained that psychological factors such as anxiety are closely linked with training stress, competition pressure, and athletes' perceptions of preparedness. They emphasized that anxiety can either enhance alertness or impair performance depending on its level.

Foster et al. (2001) introduced the concept of monitoring training intensity through the Rating of Perceived Exertion (RPE) and demonstrated that higher perceived training loads are associated with greater physical and mental strain. Their work showed that athletes often experience mood disturbances and psychological fatigue when training intensity exceeds recovery capacity.

According to **Jones (1995)**, competitive anxiety consists of both cognitive and somatic components, which influence concentration and motor performance. Elevated cognitive anxiety can cause overthinking and reduced decision-making efficiency, particularly in fast sports.

Martens et al. (1990) developed the Sports Competition Anxiety Test (SCAT) and reported that athletes with higher SCAT scores tend to show increased

nervousness and emotional instability before competition. Their findings indicated that anxiety levels vary depending on training exposure and perceived readiness.

Raglin and Morgan (1987) studied mood states in athletes and found that excessive training without adequate recovery can lead to emotional disturbances and higher anxiety. They concluded that overtraining may negatively influence both physical and psychological performance.

In racket sports, **Abernethy (2008)** observed that mental stress affects perceptual and decision-making skills, which are crucial in badminton. Players under psychological pressure showed slower reactions and reduced shot accuracy.

Craft et al. (2003) conducted a meta-analysis on anxiety and sports performance and found that high anxiety levels often impair motor coordination and consistency, especially in precision-based sports.

Kellmann (2010) emphasized the importance of recovery management, noting that athletes exposed to continuous high-intensity training without psychological recovery strategies are more likely to experience stress and performance anxiety.

Although global research has addressed training load and psychological outcomes, fewer studies focus on district-level badminton players in developing regions. Therefore, studying the relationship between training intensity and competitive anxiety is necessary to understand how training programs influence mental readiness in competitive badminton.

Objectives Of The Study: The present study was conducted with the following objectives:

1. To determine the level of training intensity among district-level badminton players.
2. To assess the competitive anxiety levels of badminton players.
3. To examine the relationship between training intensity and competitive anxiety.
4. To compare anxiety levels among players exposed to different training intensities.
5. To understand how physical training load influences psychological readiness.

Hypotheses Of The Study

1. H1: There will be a significant relationship between training intensity and competitive anxiety among badminton players.
2. H2: Players with higher training intensity will show higher competitive anxiety levels.
3. H3: Training intensity will significantly influence psychological state before competition.
4. H4: There will be measurable variation in anxiety levels based on perceived exertion during training.

Significance Of The Study: This study has both practical and academic importance:

1. Helps coaches understand how training load affects athletes psychologically.
2. Assists in balancing physical training and mental well-being.
3. Encourages monitoring of training intensity using simple tools like RPE.
4. Provides insight into mental health considerations in competitive badminton.
5. Contributes to sports psychology research in district-level sports settings of **Sikar** and **Churu**.
6. Supports development of holistic training programs that enhance both physical performance and emotional control.

Methodology

Research Design: The study adopted a **descriptive correlational research design** to examine the relationship between training intensity and competitive anxiety among badminton players. This design was suitable as the study aimed to observe natural variations in training load and psychological response without experimental manipulation.

Selection Of Subjects: A total of **30 district-level badminton players** were selected from sports academies and training centers in **Sikar** and **Churu** districts.

Grouping Basis	Number of Participants
Total Players	40

Participants represented active competitive players preparing for district or inter-school/inter-college tournaments.

Inclusion Criteria:

1. Age between **16–22 years**
2. Minimum **2 years of badminton playing experience**
3. Regular participation in training sessions
4. Medically fit and free from injury

Exclusion Criteria:

1. Players recovering from injury
2. Any diagnosed psychological disorder
3. Irregular training participation

Variables Of The Study:

Category	Variable
Independent Variable	Training Intensity
Dependent Variable	Competitive Anxiety

Tools Used:

Variable	Tool	Description
Training Intensity	Borg Rating of Per -ceived Exertion (RPE) Scale	Measures perceived physical effort during training
Competitive Anxiety	Sports Competition Anxiety Test (SCAT)	Standard questionnaire assessing anxiety before competition

Data Collection Procedure:

1. Players were briefed about the purpose of the study.
2. Training intensity data were recorded during regular practice sessions using the RPE scale.
3. Competitive anxiety levels were measured using the SCAT questionnaire before competition.
4. All responses were recorded confidentially.
5. Data collection was completed over a 4–6 week

observation period.

Ethical Considerations:

1. Participants provided informed consent.
2. Confidentiality of responses was ensured.
3. Players were free to withdraw at any stage.
4. No harmful or stressful procedures were involved.

Statistical Analysis: Mean and standard deviation values were calculated to describe anxiety and training intensity levels. **Pearson's correlation coefficient** was used to determine the relationship between training intensity and competitive anxiety.

Results: The purpose of the study was to examine the relationship between training intensity and competitive anxiety among district-level badminton players. Data collected from 40 participants were analyzed using descriptive statistics and Pearson's correlation method.

Table 1: Descriptive Statistics

Variable	N	Mean	Standard Deviation
Training Intensity (RPE Score)	40	14.8	1.9
Competitive Anxiety (SCAT Score)	40	21.6	3.4

Interpretation: The average RPE score indicates that players generally trained at a moderate to high intensity level. The SCAT scores suggest a moderate level of competitive anxiety among participants.

Table 2: Correlation Between Training Intensity and Competitive Anxiety

Variables Compared	Pearson's r	Significance Level
Training Intensity & Competitive Anxiety	**0.52**	Significant at 0.05 level

Interpretation: A moderate positive correlation (r = 0.52) was observed between training intensity and competitive anxiety. This indicates that as perceived training intensity increases, anxiety levels also tend to rise.

Key Findings:

1. Players reporting higher training intensity showed higher anxiety scores.
2. Training load appears to influence psychological state before competition.
3. Balanced training intensity may be necessary to prevent excessive anxiety.

Discussion: The findings of the present study reveal a moderate positive relationship between training intensity and competitive anxiety among district-level badminton players. Players who reported higher perceived exertion during training sessions also demonstrated higher anxiety levels before competition.

This relationship may be explained by the psychological demands associated with intense training. While challenging training sessions enhance physical readiness, they can also increase mental pressure and expectations regarding performance. When athletes perceive training as highly demanding, they may experience worry about their ability to perform at the same level during competition, contributing to cognitive anxiety.

The results align with previous sports psychology research suggesting that excessive training load without adequate recovery can lead to mental fatigue and emotional stress. High training intensity may elevate physiological arousal, which, when interpreted negatively, can manifest as nervousness and performance-related anxiety.

At the same time, moderate anxiety can improve alertness and focus; however, beyond an optimal level, anxiety can interfere with concentration, coordination, and decision-making—skills that are crucial in badminton due to its fast pace and need for quick responses.

The study highlights the importance of monitoring training intensity not only for physical performance but also for psychological well-being. Coaches should ensure that training loads are balanced with adequate recovery and mental preparation strategies to prevent excessive competitive anxiety.

Conclusion: The study concludes that there is a significant relationship between training intensity and competitive anxiety among district-level badminton players. Players who trained at higher perceived intensity levels showed increased anxiety before competition. This suggests that while intense training improves physical preparedness, it may also contribute to psychological stress if not properly managed.

Moderate training loads may help athletes remain physically ready without excessive emotional pressure. Therefore, balanced training programs that include recovery and mental preparation are essential for optimal performance. Monitoring perceived exertion can be a useful tool for identifying when training intensity may begin to affect psychological well-being.

Recommendations: Based on the findings, the following recommendations are suggested:

1. Coaches should regularly monitor training intensity using simple tools like the RPE scale.
2. Training programs should include adequate recovery periods to prevent mental fatigue.
3. Psychological preparation techniques such as relaxation, breathing exercises, and visualization should be integrated into training routines.
4. Players experiencing high anxiety should receive guidance in stress management strategies.
5. Future studies may examine additional psychological factors such as confidence, motivation, and focus.
6. Research can be extended to different age groups and female badminton players for broader understanding.

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