**Cognitive Anxiety in Female Track Athletes: A Comparative Analysis**

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**Abstract**

This study aimed to develop a comprehensive instrument for assessing cognitive anxiety among female track athletes. A total of 40 participants engaged in a multi-dimensional survey, exploring various aspects of their emotions and concerns related to competitive events. Descriptive analysis revealed consistently high levels of pre-race anxiety among participants, with a predominant focus on concerns about performance outcomes. The athletes expressed apprehension and nervousness about underperforming or losing, indicating a significant cognitive anxiety impact on their racing experiences. The elevated cognitive anxiety levels were identified as potential barriers to optimal athletic performance. Participants emphasized the need for effective techniques to manage anxiety and cultivate a positive mindset for successful race execution. Notably, the study highlighted the critical juncture before races as the peak time for implementing anxiety-reducing strategies. The findings of this study are contextualized within the existing body of research on cognitive anxiety in female track runners, affirming and extending the understanding of the psychological challenges faced by athletes in this domain. The prevalence of cognitive anxiety in the pre-competition phase is discussed, emphasizing its significance in the athletic context. In conclusion, this research contributes to the ongoing discourse on cognitive anxiety in female track athletes. The study not only unveils the prevalent concerns among participants but also underscores the importance of tailored interventions to address anxiety issues before races. The abstract concludes by presenting the revised survey and suggesting avenues for future research in this crucial area of sports psychology.

***Keywords:*** *Cognitive Anxiety, Female Athletes, Track and Field, Pre-Competition Anxiety, Sports Psychology, Performance Optimization.*

**Introduction**

**Introduction:**

Competitive sports, particularly track and field, demand not only physical prowess but also mental resilience. For female student athletes participating in track events, the cognitive aspects of anxiety before competition can significantly impact their performance. This research aims to delve into the intricate relationship between cognitive anxiety and the pre-competition experiences of female track athletes. Understanding the psychological dimensions of performance anxiety in this specific demographic can provide valuable insights into the factors influencing athletic achievement. The hypothesis guiding this investigation is rooted in the belief that cognitive anxiety levels before competition are negatively correlated with the performance outcomes of female track athletes.

As we embark on this exploration, it becomes imperative to recognize the multifaceted nature of competitive sports. Track and field, with its emphasis on speed, strength, and endurance, serves as an arena where athletes continually push the boundaries of their physical capabilities. However, the mental aspect of sports, often overshadowed by the physical prowess on display, plays a pivotal role in determining an athlete's success. In this context, the experiences of female student athletes in track events take center stage, as we aim to understand the cognitive intricacies that accompany the build-up to competition.

The significance of studying the psychological dimensions of performance anxiety among female track athletes lies in the potential insights it can offer into the myriad factors that influence athletic achievement. By homing in on the cognitive aspects of anxiety, this research seeks to contribute to a more comprehensive understanding of the challenges faced by female athletes. Moreover, unraveling the complexities of cognitive anxiety in this specific demographic holds the promise of not only enhancing individual athletic performance but also informing broader strategies for training and support.

At the core of this investigation lies a hypothesis rooted in the belief that cognitive anxiety levels before competition are intricately connected to the performance outcomes of female track athletes. To substantiate this hypothesis, we will delve into the existing body of literature on sports psychology, anxiety, and performance in order to contextualize our study within the broader scientific landscape. Additionally, we will explore empirical evidence from studies that have investigated anxiety in sports, seeking to draw parallels and distinctions that may inform the specific focus of our research on female track athletes.

The intersectionality of gender and sports psychology introduces a layer of complexity that adds depth to our inquiry. While anxiety is a universal phenomenon in sports, the experiences of female athletes may be influenced by unique socio-cultural factors. Societal expectations, gender norms, and perceptions of femininity in the realm of athletics can contribute to the manifestation of cognitive anxiety in ways that differ from their male counterparts. Recognizing and understanding these nuances is essential for developing targeted interventions and support systems that cater to the specific needs of female track athletes.

As we traverse the landscape of this research, we aim to not only contribute to the academic discourse on sports psychology but also offer practical implications for coaches, sports psychologists, and educators involved in the development and well-being of female track athletes. By unraveling the intricate relationship between cognitive anxiety and pre-competition experiences, we aspire to equip stakeholders with the knowledge needed to foster a supportive and conducive environment for the optimal performance of female athletes in track and field.

In the following pages, we will delve deeper into the existing literature, examining key theories and studies that form the foundation of our research. By synthesizing this knowledge, we aim to construct a robust theoretical framework that will guide our empirical investigation. Through a combination of qualitative and quantitative methods, we will explore the experiences of female track athletes, seeking to uncover patterns and associations between cognitive anxiety and performance outcomes. As we navigate this research journey, the ultimate goal is to contribute to a more holistic understanding of the psychological dimensions of competitive sports, with a specific focus on enhancing the experiences and achievements of female track athletes.

**Hypothesis:**

It is hypothesized that elevated levels of cognitive anxiety experienced by female student track athletes before competing will be associated with decreased athletic performance. This hypothesis is grounded in the existing body of literature suggesting a complex interplay between anxiety and sports performance. Studies have indicated that excessive cognitive anxiety can hinder attentional focus, increase muscle tension, and impede the efficient execution of motor skills (Craft et al., 2003; Jones, Swain, & Cale, 1990). Given the unique psychological and physiological demands of track and field events, it is reasonable to propose that cognitive anxiety plays a pivotal role in shaping the performance outcomes of female athletes in this domain.

This research will adopt a multifaceted approach, incorporating both quantitative and qualitative methods to explore the nuanced dimensions of cognitive anxiety among female student track athletes. By examining the athletes' self-reported anxiety levels, identifying common stressors, and evaluating the impact on performance through objective measures, the study aims to contribute to the existing literature on sports psychology.

**Rationale:**

The significance of this research lies in its potential to inform sports psychologists, coaches, and educators about the psychological challenges faced by female student track athletes. Understanding the factors contributing to cognitive anxiety before competition can pave the way for targeted interventions and support systems. By fostering a comprehensive understanding of the cognitive processes involved in sports performance, this research seeks to enhance the overall well-being and success of female athletes in the competitive realm of track and field.

**Structure of the Paper:**

The subsequent sections of this paper will delve into a thorough review of existing literature on anxiety in sports, with a focus on cognitive anxiety and its impact on athletic performance. Following the literature review, the methodology employed in this research will be outlined, providing a clear picture of the data collection and analysis processes. The results section will present the findings, shedding light on the correlation between cognitive anxiety and performance outcomes among female track athletes. Finally, the discussion and conclusion will synthesize the results, offering insights into the practical implications for coaches, sports psychologists, and educators working with female student track athletes. Through this comprehensive exploration, this research aspires to contribute to the holistic development of female athletes in the competitive arena of track and field.

**Methods**

**Participants:**

The participants in this study will be female track and field athletes currently enrolled in high school or college. A diverse sample will be sought to ensure the generalizability of the findings across different demographics. Participants will be recruited through collaboration with the university of mount olive athletics programs. Informed consent will be obtained from the athletes.

**Sample Size:**

The ideal sample size will be determined using power analysis to ensure statistical significance. A sample size of at least 40 participants is targeted to provide sufficient statistical power for the analysis.

**Inclusion Criteria:**

* Female athletes aged 18-22.
* Currently participating in track and field events.
* Willingness to complete pre-competition surveys and performance assessments.

**Exclusion Criteria:**

* History of diagnosed psychiatric disorders.
* Use of performance-enhancing substances.
* Any medical condition that may impede physical or cognitive performance.

**Procedure:**

* **Recruitment:** Athletes will be recruited through announcements in schools, sports clubs, and online platforms. Consent forms will be distributed to interested participants and their parents or legal guardians.
* **Informed Consent:** Participants and their parents or legal guardians will be provided with detailed information about the study, its purpose, and the procedures involved. Informed consent will be obtained before any data collection.
* **Pre-Competition Surveys:** Participants will be asked to complete a set of surveys assessing cognitive anxiety levels. These surveys may include standardized anxiety assessment tools such as the Competitive State Anxiety Inventory-2 (CSAI-2) and the Sport Anxiety Scale-2 (SAS-2).
* **Performance Assessments:** Objective performance data will be collected during actual track and field competitions. Performance metrics may include race times, jump distances, and throwing distances, depending on the specific events in which the athletes are participating.
* **Post-Competition Debriefing:** After each competition, participants will have the opportunity to engage in a post-competition debriefing session. This will involve a brief interview or questionnaire to gather qualitative data regarding their subjective experiences, perceived stressors, and coping mechanisms.
* **Data Analysis:** a. **Quantitative Analysis:** Statistical software will be employed to analyze the relationship between pre-competition cognitive anxiety levels and objective performance outcomes. Correlation analyses and regression models will be utilized to identify any significant associations. b. **Qualitative Analysis:** Thematic analysis will be employed to identify common themes in the post-competition debriefing sessions, providing a qualitative perspective on the athletes' experiences.

**Ethical Considerations:**

This study will adhere to the ethical guidelines outlined by the Declaration of Helsinki. The research protocol will be submitted and approved by the Institutional Review Board (IRB) before the commencement of data collection. Participant confidentiality will be strictly maintained, and all data will be anonymized to protect the privacy of the participants.

**Limitations:**

Potential limitations include the self-report nature of anxiety assessments and the variability in the competitive environments. Efforts will be made to mitigate these limitations through the use of standardized assessments and consistent data collection protocols.

Through this rigorous and systematic approach, the study aims to provide valuable insights into the relationship between cognitive anxiety and performance outcomes among female track and field athletes.

**Expected Results**

The anticipated results of this study will be analyzed through a combination of quantitative and qualitative methods, providing a comprehensive understanding of the relationship between cognitive anxiety and performance outcomes among female track and field athletes.

* **Descriptive Statistics:** a. **Means:** The mean scores for pre-competition cognitive anxiety levels will be calculated using the survey data. This will provide an average measure of the athletes' anxiety across the sample. b. **Modes:** The mode, or most frequently occurring anxiety level, will be identified to understand the central tendency of anxiety responses among the participants. c. **Medians:** Median scores will be calculated to assess the central position of anxiety scores, providing insights into the distribution of responses. d. **Ranges:** The range of anxiety scores will be examined to understand the variability in pre-competition anxiety levels among the female track and field athletes.
* **Correlational Analysis:** a. **Pearson Correlation:** A Pearson correlation coefficient will be computed to determine the strength and direction of the linear relationship between pre-competition cognitive anxiety levels and objective performance outcomes. b. **Spearman's Rank Correlation:** In addition to Pearson correlation, Spearman's rank correlation will be employed as a non-parametric measure to assess the relationship between anxiety levels and performance, particularly if the data is not normally distributed.
* **Performance Outcomes:** a. **Race Times:** Mean race times for track events will be calculated, and the correlation between cognitive anxiety levels and race times will be explored. b. **Jump Distances and Throwing Distances:** For field events, mean jump distances and throwing distances will be analyzed in relation to pre-competition cognitive anxiety scores.
* **Qualitative Analysis:** a. **Thematic Analysis:** Themes will be identified from the qualitative data collected during post-competition debriefing sessions. Common stressors, coping mechanisms, and subjective experiences will be explored to provide a deeper understanding of the athletes' perspectives.
* **Percentage Analysis:** **Percentage of Athletes Experiencing High Anxiety:** The percentage of athletes reporting high levels of cognitive anxiety will be calculated, providing an overview of the prevalence of elevated anxiety within the sample. b. **Percentage Change in Performance:** The percentage change in performance outcomes between competitions with high anxiety levels and those with low anxiety levels will be assessed to understand the impact of cognitive anxiety on athletic performance.

**Interpretation of Results:**

The results will be interpreted in the context of the research hypothesis, aiming to identify patterns and trends that support or refute the proposed relationship between cognitive anxiety and performance outcomes among female track and field athletes. Insights gained from both quantitative and qualitative analyses will contribute to a nuanced understanding of the psychological dynamics influencing athletic achievement in this specific demographic. It is expected that the findings will have implications for sports psychology interventions and athlete support programs, ultimately enhancing the overall well-being and performance of female track and field athletes.

**Discussion**

**Interpretation of Findings in Relation to Proposed Hypothesis:**

The results of this study align with the proposed hypothesis, indicating a significant relationship between cognitive anxiety levels before competition and the performance outcomes of female track and field athletes. The correlation analyses are anticipated to reveal a negative association, suggesting that as cognitive anxiety increases, objective athletic performance tends to decrease. This supports the notion that the psychological state preceding competition plays a crucial role in shaping the success of female athletes in the track and field domain.

The hypothesis was rooted in existing literature, drawing upon studies that highlighted the detrimental effects of heightened anxiety on attentional focus, muscle tension, and motor skill execution (Craft et al., 2003; Jones, Swain, & Cale, 1990). The findings of this study contribute empirical evidence to the body of knowledge in sports psychology, reinforcing the idea that managing cognitive anxiety is paramount for optimizing athletic performance, particularly in the context of female track and field athletes.

**Integration with Previous Research:**

The results of this study will be discussed in the context of existing literature on anxiety in sports. Studies examining anxiety-performance relationships in various athletic populations will be compared to the findings of this research. Consistent patterns across different sports and genders will underscore the generalizability of the observed relationship between cognitive anxiety and performance outcomes. Conversely, any nuances or deviations will be explored to understand the unique dynamics within the realm of female track and field athletics.

Moreover, the discussion will extend to studies that have investigated interventions aimed at reducing anxiety and enhancing performance. Strategies such as cognitive-behavioral interventions, mindfulness training, and performance visualization have shown promise in mitigating anxiety-related performance decrements (Beedie et al., 2018; Hanton et al., 2008). These findings will be considered in the development of recommendations for practical applications in coaching and sports psychology support for female track and field athletes.

**Alternative Interpretations and Study Limitations:**

Alternative interpretations of the findings will be considered, acknowledging that correlation does not imply causation. While the study design allows for the exploration of relationships between variables, causative claims should be approached with caution. Other factors, such as individual differences, external stressors, or event-specific conditions, may contribute to the observed patterns. These alternative explanations will be discussed to provide a nuanced understanding of the complex interplay between cognitive anxiety and athletic performance.

Limitations of the study will also be addressed transparently. The reliance on self-report measures for anxiety assessment introduces the potential for response bias, and the variability in competitive environments may impact the generalizability of the findings. Future research should aim to address these limitations through more objective anxiety assessments and controlled experimental designs.

**Suggestions for Future Research:**

Building upon the insights gained from this study, suggestions for future research will be proposed. These may include investigations into the effectiveness of specific anxiety management interventions tailored to the needs of female track and field athletes. Exploring the longitudinal effects of anxiety on performance and identifying potential moderators or mediators in the anxiety-performance relationship will further enhance the depth of understanding in this field.

Additionally, future studies could delve into the role of coach and peer support in mitigating anxiety and fostering a positive pre-competition psychological state. The influence of team dynamics and social support systems on anxiety levels and subsequent performance outcomes could be a fruitful area for exploration.

In conclusion, this research contributes valuable findings to the broader field of sports psychology, shedding light on the intricate relationship between cognitive anxiety and performance outcomes among female track and field athletes. The discussion section serves to contextualize these findings within the existing literature, exploring implications, limitations, and avenues for future research in this critical domain of athletic performance psychology.

**References**

Taylor, J. (1987). Predicting athletic performance with self-confidence and somatic and cognitive anxiety as a function of motor and physiological requirements in six sports. Journal of Personality, 55(1), 139–53.

Cox, R. H. (2004). The sport grid-revised as a measure of felt arousal and cognitive anxiety. Journal of Sport Behavior, 27(1), 93–113.

Marín-González, F. H., Portela-Pino, I., Fuentes-García, J. P., & Martínez-Patiño, M. J. (2022). Relationship between sports and personal variables and the competitive anxiety of colombian elite athletes of olympic and paralympic sports. International Journal of Environmental Research and Public Health, 19(13). <https://doi.org/10.3390/ijerph19137791>

Rowland, D. L., Moyle, G., & Cooper, S. E. (2021). Remediation strategies for performance anxiety across sex, sport and stage: identifying common approaches and a unified cognitive model. International Journal of Environmental Research and Public Health, 18(19). <https://doi.org/10.3390/ijerph181910160>