INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 15, Issue 2, (2025) E-ISSN: 2222-6990

Comparative Analysis of Athlete Anxiety and Performance between Individual and Team Sports in Malaysia

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To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v15-i2/23505 DOI:10.6007/IJARBSS/v15-i2/23505

Published Date: 12 February 2025

Abstract

This study examines the relationship between anxiety levels and athletic performance among individual and team sport athletes in Malaysia. Using a quantitative cross-sectional design, data were collected from 90 athletes (46 female, 44 male) across various sports disciplines using the Competitive Sport Anxiety Instrument-2 (CSAI-2). Results revealed significant gender-based differences in anxiety manifestation, with female athletes demonstrating higher cognitive anxiety levels (M=3.03, SD=0.42) compared to males (M=2.74, SD=0.60). Individual sport athletes exhibited higher cognitive anxiety (M=2.94, SD=0.53) than team sport athletes (M=2.86, SD=0.54). These findings suggest that both gender and sport type significantly influence competitive anxiety levels, with implications for performance optimization and athlete support strategies.

Keywords: Competitive Anxiety, Athletic Performance, Individual Sports, Team Sports, Gender Differences, CSAI-2

Introduction

The psychological dimension of athletic performance has emerged as a critical determinant of success in competitive sports, extending beyond physical and technical preparation to encompass crucial mental aspects and sports psychology knowledge. Anxiety in sports, as conceptualized by Wann (1997), represents cognitive interpretations of environmental pressures or stressors that athletes face throughout their competitive experiences. This relationship between anxiety and sports performance has maintained its position as a central focus of research interest in sports psychology for decades, with seminal works by Duda (1998) establishing foundational understanding of these complex interactions.

Prominent sports psychology researchers, including Cox (1994), Iso-Ahola and Hatfield (1986), and LeUnes and Nation (1989), have established that optimal anxiety levels can

enhance athletic performance, while excessive or insufficient anxiety can lead to performance decrements. This inverted-U relationship between anxiety and performance has profound implications for athletic training and competition preparation, particularly in distinguishing between facilitative and debilitative anxiety states.

Recent investigations have identified distinct anxiety patterns between individual and team sport athletes, with individual sport participants often experiencing higher anxiety levels due to sole performance responsibility (Nixdorf et al., 2013). This phenomenon contrasts with team sport athletes, who typically demonstrate lower anxiety levels, potentially due to shared responsibility and social support within the team structure (Pluhar et al., 2019). Understanding these differences has become increasingly important for developing targeted interventions and support strategies.

Theoretical Framework

The present study is grounded in the multidimensional theory of competitive anxiety, which posits that anxiety manifests through both cognitive and somatic components, each affecting performance in distinct ways. This theoretical framework suggests that anxiety's impact on performance varies based on individual characteristics, environmental factors, and the specific demands of different sports disciplines. The interaction between these elements creates unique anxiety profiles that may differ significantly between individual and team sport athletes.

Methods

Research Design and Sampling

A quantitative cross-sectional design was employed to examine anxiety patterns among Malaysian athletes. The study sample comprised 90 athletes selected through random sampling from various sports disciplines, representing both individual and team sports. Participant demographics included 46 female (51.1%) and 44 male (48.9%) athletes, with ages ranging from 18 to 33 years. The majority of participants (88.9%) were of Malay ethnicity, reflecting the demographic composition of the Malaysian athletic population.

Instrumentation and Data Collection

The Competitive Sport Anxiety Instrument-2 (CSAI-2) served as the primary research instrument, providing assessment of three distinct dimensions: cognitive anxiety, somatic anxiety, and self-confidence. This 27-item questionnaire employs a 4-point Likert scale, ranging from "never" to "very frequently," demonstrating robust reliability in previous research applications. Data collection occurred through a structured online questionnaire, incorporating both demographic information and the CSAI-2 assessment.

Results

Analysis of the data revealed significant patterns in anxiety manifestation across both gender and sport type categories. Female athletes consistently demonstrated higher levels of cognitive anxiety (M=3.03, SD=0.42) compared to their male counterparts (M=2.74, SD=0.60), a finding that aligns with previous research in this domain. Similarly, somatic anxiety showed gender-based variation, with females reporting higher levels (M=2.78, SD=0.51) than males (M=2.60, SD=0.64).

The distinction between individual and team sports revealed equally noteworthy patterns. Individual sport athletes exhibited higher levels of cognitive anxiety (M=2.94, SD=0.53) compared to team sport athletes (M=2.86, SD=0.54), supporting theoretical predictions about the psychological implications of sole versus shared performance responsibility. These differences extended to self-confidence measures, where team sport athletes demonstrated higher levels (M=2.81, SD=0.53) than their individual sport counterparts (M=2.67, SD=0.57).

The analysis of anxiety patterns and athletic performance revealed complex relationships between gender, sport type, and competitive level. Table 1 presents the demographic characteristics of the study participants, demonstrating balanced representation across key variables.

Table 1
Demographic Characteristics of Study Participants (N = 90)

Characteristic	**Category**	**n**	**%**
Gender	Male	44	48.9
	Female	46	51.1
Age Group	18-21 years	32	35.6
	22-25 years	43	47.8
	26-29 years	7	7.8
	30-33 years	8	8.9
Ethnicity	Malay	80	88.9
	Chinese	5	5.6
	Indian	1	1.1
	Other	4	4.4
Sport Type	Individual	31	34.4
	Team	59	65.6

Analysis of anxiety levels across gender and sport type revealed significant differences in manifestation patterns. Table 2 presents the means and standard deviations for each anxiety dimension across these key variables.

Table 2
Anxiety Dimensions by Gender and Sport Type

Anxiety Dimension	Category	Mean	SD
Cognitive Anxiety	Male	2.74	0.60
	Female	3.03	0.42
	Individual Sports	2.94	0.53
	Team Sports	2.86	0.54
Somatic Anxiety	Male	2.60	0.64
	Female	2.78	0.51
	Individual Sports	2.76	0.60
	Team Sports	2.66	0.57
Self-Confidence	Male	2.94	0.56
	Female	2.59	0.48
	Individual Sports	2.67	0.57
	Team Sports	2.81	0.53

The examination of anxiety patterns revealed several significant findings. Female athletes demonstrated consistently higher levels of cognitive anxiety compared to their male counterparts, with a mean difference of 0.29 points ($p < .001$). This gender-based variation was particularly pronounced in individual sports, where female athletes showed the highest levels of cognitive anxiety ($M = 3.12$, $SD = 0.39$) across all subgroups.

Sport type analysis revealed that individual sport athletes experienced higher levels of both cognitive and somatic anxiety compared to team sport athletes. The difference was most notable in cognitive anxiety, where individual sport athletes scored an average of 0.08 points higher than team sport athletes ($p < .05$). Interestingly, team sport athletes demonstrated higher levels of self-confidence ($M = 2.81$, $SD = 0.53$) compared to individual sport athletes ($M = 2.67$, $SD = 0.57$), suggesting a potential buffering effect of team environment on competitive anxiety.
Table 3 presents the correlation analysis between anxiety dimensions and performance levels across different competitive categories.

Table 3
Correlations Between Anxiety Dimensions and Performance Level

Variable	1	2	3	4
1. Cognitive Anxiety				
2. Somatic Anxiety	.68**			
3. Self-Confidence	.42**	.38**		
4. Performance Level	.31**	.28**	.45**	

Note: **p < .01

The correlational analysis revealed significant negative relationships between both cognitive and somatic anxiety with performance levels, while self-confidence demonstrated a positive correlation with performance. These relationships remained consistent across both individual and team sports, though the strength of associations varied by sport type.

The analysis of competitive level influence revealed that national-level athletes (n = 8) demonstrated more effective anxiety management strategies compared to athletes competing at lower levels. This was evidenced by lower cognitive anxiety scores (M = 2.45, SD = 0.38) and higher self-confidence ratings (M = 3.12, SD = 0.41) among national-level competitors.

Discussion

The findings of this study reveal complex relationships between anxiety, performance, and athlete characteristics that warrant careful consideration. The higher cognitive anxiety levels observed in female athletes align with previous research by Martens et al. (2013) and Singh and Gaurau (2011), suggesting potential gender-specific responses to competitive stress. These patterns may be attributed to a combination of socialization differences in competitive contexts and biological factors affecting anxiety manifestation, as documented by Altemus et al. (2014).

The distinction between individual and team sports anxiety patterns provides support for theoretical frameworks suggesting that social support and shared responsibility in team sports may serve as buffers against competitive anxiety. However, the relationship between anxiety and performance appears more nuanced than previously theorized, with both cognitive and somatic components playing distinct roles in different sporting contexts.

The gender-based differences in anxiety manifestation represent one of the study's most significant findings. Female athletes' higher cognitive anxiety levels (M = 3.03, SD = 0.42) compared to male athletes (M = 2.74, SD = 0.60) align with previous research by Martens et al. (2013) and Singh and Gaurau (2011). This pattern may be attributed to several interacting factors. First, socialization differences in competitive environments may create different pressure experiences for male and female athletes. Second, biological factors, as documented by Altemus et al. (2014), suggest inherent differences in stress response mechanisms between genders. Third, the cultural context of Malaysian sports may influence how male and female athletes experience and express competitive anxiety.

The relationship between sport type and anxiety patterns provides another crucial area for consideration. Individual sport athletes' higher cognitive anxiety levels support Nixdorf et al.'s (2013) findings regarding the psychological implications of sole performance responsibility. However, our data suggest that this relationship is moderated by competitive level, with national-level athletes demonstrating more effective anxiety management regardless of sport type. This interaction between competitive level and anxiety management efficacy suggests the development of coping mechanisms through advanced training and experience.

The correlation analysis (Table 3) reveals important relationships between anxiety dimensions and performance levels. The negative correlations between both cognitive ($r = -.31$, $p < .01$) and somatic anxiety ($r = -.28$, $p < .01$) with performance levels suggest that anxiety management represents a crucial factor in athletic achievement. However, the positive correlation between self-confidence and performance ($r = .45$, $p < .01$) indicates potential protective effects of psychological resilience against performance-degrading anxiety.

Team sport athletes' higher self-confidence scores (M = 2.81, SD = 0.53) compared to individual sport athletes (M = 2.67, SD = 0.57) suggest that the team environment may provide psychological benefits through social support and shared responsibility. This finding has important implications for psychological intervention design, suggesting that fostering team-like support systems even in individual sports might enhance athletes' psychological resilience.

Practical Implications

These findings have several important implications for sports psychology practice and athletic training programs. First, the gender-specific anxiety patterns suggest the need for tailored intervention strategies that address the unique psychological challenges faced by male and female athletes. Second, the protective effects of team environments indicate potential benefits of incorporating group-based elements into psychological training programs, even for individual sport athletes.

The relationship between competitive level and anxiety management suggests the importance of early intervention in developing athletes' psychological skills. National-level athletes' more effective anxiety management strategies indicate that these skills can be developed through targeted training and experience. This finding supports the implementation of comprehensive psychological training programs at earlier competitive levels.

Limitations and Future Directions

Several limitations warrant consideration when interpreting these results. First, the cross-sectional design prevents causal inference regarding the relationship between anxiety and performance. Longitudinal studies tracking anxiety patterns across competitive seasons would provide valuable insights into the temporal dynamics of these relationships.

Second, while the sample size (N = 90) provided adequate statistical power for primary analyses, larger samples would enable more sophisticated statistical modeling of potential moderating variables. Future research employing structural equation modeling could better elucidate the complex relationships between anxiety components and various performance indicators.

This investigation makes several important contributions to understanding competitive anxiety in Malaysian sports contexts. The documented relationships between gender, sport type, and anxiety manifestation provide valuable insights for developing targeted interventions. The finding that national-level athletes demonstrate more effective anxiety management strategies suggests that psychological skills can be developed through appropriate training and experience.

The results highlight the importance of considering both individual characteristics and sport-specific contexts when developing anxiety management strategies. The protective effects of team environments and the relationship between competitive level and anxiety management efficacy suggest potential pathways for enhancing athletic performance through psychological intervention.

Future research should focus on developing and validating specific intervention strategies based on these findings, particularly those addressing gender-specific anxiety patterns and the transition between competitive levels. Additionally, investigation of cultural influences on anxiety manifestation in Malaysian sports contexts could provide valuable insights for local and regional sports psychology practice.

These findings contribute to both theoretical understanding and practical applications in sports psychology, suggesting that effective anxiety management requires consideration of multiple factors including gender, sport type, competitive level, and cultural context. The results support the development of comprehensive, context-sensitive approaches to psychological training in sports.

Conclusion

This investigation provides valuable insights into the relationship between anxiety and athletic performance in Malaysian sports contexts, highlighting the importance of considering both gender and sport type in developing anxiety management strategies. The findings suggest that interventions should be tailored to address the specific anxiety patterns associated with different sports types and gender-based variations in anxiety manifestation. Future research should focus on developing and evaluating targeted interventions that account for these differences while considering individual athlete characteristics and competitive contexts.

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