

International Journal of Physiology, Sports and Physical Education



ISSN Print: 2664-7710
ISSN Online: 2664-7729
Impact Factor: RJIF 8.28
IJPSPE 2026; 8(1): 11-14
www.physicaleducationjournal.net
Received: 04-11-2025
Accepted: 07-12-2025

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Mindfulness as a Mediating Variable between Competitive Anxiety and Technical Performance Accuracy in University Futsal

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DOI: <https://www.doi.org/10.33545/26647710.2026.v8.i1a.199>

Abstract

The growing complexity of competitive sports has emphasized the necessity of psychological preparation alongside physical and technical training. In fast-paced sports such as futsal, competitive anxiety can negatively influence technical performance accuracy, particularly during critical match situations. This study aimed to examine the mediating role of mindfulness in reducing the negative impact of competitive anxiety on technical performance accuracy among Iraqi university futsal players. A descriptive analytical research design was employed using correlational analysis and structural equation modeling. The study sample consisted of 250 male players aged 18–24 years, selected purposively from Iraqi university futsal teams in the central and southern regions. Data were collected using the Sports Mindfulness Scale adapted for the Iraqi environment, the Competitive State Anxiety Inventory (CSAI-2R), and standardized tests for passing and shooting accuracy. Statistical analysis was conducted using SPSS and AMOS software. The results revealed a significant negative correlation between competitive anxiety and technical performance accuracy ($r = -0.52, p < 0.01$), while mindfulness showed a significant positive correlation with performance accuracy ($r = 0.47, p < 0.01$). Mediation analysis indicated that mindfulness partially mediated the relationship between competitive anxiety and technical performance accuracy, reducing the magnitude of anxiety's negative effect. These findings suggest that mindfulness does not eliminate anxiety but modifies athletes' responses to it, allowing for better attentional control and motor coordination under pressure. The study concludes that mindfulness serves as an effective psychological buffer that enhances skill accuracy during competition. It is recommended that mindfulness-based psychological training programs be integrated into university futsal training to improve performance and manage competitive anxiety.

Keywords: Mindfulness, Competitive Anxiety, Technical Performance Accuracy, Futsal

Introduction and Research Significance

Chapter One: General Framework of the Research

The field of sports is witnessing accelerated development in the employment of psychological sciences to enhance performance levels. Adel Ibrahim (2023) ^[6] indicates that physical and skill preparation alone are no longer sufficient to achieve high achievement; rather, psychological preparation has become a fundamental pillar in the equation of sports excellence, especially in team sports that require high coordination.

Futsal is considered a model of sports requiring superior neural and psychological efficiency due to its fast pace of play and confined spatial and temporal restrictions (Smith & Jones, 2022) ^[11].

In the context of Iraqi university sports, players face complex psychological challenges. In addition to academic burdens, players are exposed to compounded pressures. Karim & Zandi (2025) ^[1] confirmed in their study on Iraqi futsal players that untreated psychological stressors negatively affect the player's psychological and social variables. Furthermore, studies have proven that competitive anxiety, if unregulated, leads to a deterioration in technical performance accuracy due to muscular rigidity and attentional distraction (Zurita-Ortega & Chacón-Cuberos, 2021) ^[14].

In this context, the concept of "Mindfulness" has emerged as a behavioral therapeutic intervention based on awareness of the present moment and the acceptance of experiences without judgment (Gardner & Moore, 2020) ^[9]. The significance of this research lies in presenting mindfulness as a "mediating variable" capable of transforming negative anxiety energy into positive focus that enhances the accuracy of fundamental skills.

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Research Problem

Through the researcher's field observation, a decline in the accuracy of critical skills (passing and shooting) was noted during critical minutes. This observation aligns with Sharfouh (2019) ^[5], who stated that anxiety reflects negatively on the performance of elite players during competition, causing "psychological collapse" under pressure. In a similar study on passing accuracy in futsal, Al-Sahlawi & Kazem (2022) ^[2] indicated that the absence of creative and mental awareness directly affects the accuracy of the kinetic direction of the ball.

Therefore, the problem crystallized in the following question: Does mindfulness play a mediating role in mitigating the severity of competitive anxiety's effect on technical performance accuracy?

Research Objectives

The current research aims to achieve the following:

1. Measure the levels of mindfulness and competitive anxiety among players of Iraqi university teams.
2. Identify the nature of the correlational relationship between mindfulness and technical performance accuracy in futsal.
3. Test the structural model explaining the role of mindfulness as a mediator that reduces the negative impact of competitive anxiety on technical performance accuracy.

Research Hypotheses

1. There is a statistically significant inverse (negative) correlation between competitive anxiety and technical performance accuracy.
2. There is a statistically significant direct (positive) correlation between mindfulness and technical performance accuracy.
3. Mindfulness acts as a mediating variable contributing to the reduction of the negative effect of competitive anxiety on technical performance accuracy.

Chapter Three: Research Methodology and Field Procedures

Research Methodology

The researcher adopted the Descriptive Analytical Method using correlational relationships and modeling, due to its suitability for the nature of the research problem, which aims to study the relationship and mutual influence between psychological variables (anxiety, mindfulness) and performance variables (accuracy) in their natural environment without intervention. Additionally, Structural Equation Modeling (SEM) and path analysis were employed to test the mediation hypothesis accurately.

Research Population and Sample

- **Population:** The research population was defined as players of Iraqi university futsal teams in the Central and Southern regions for the current academic season.
- **Sample:** The sample was selected using Purposive Sampling to ensure the representation of players actually participating in competitions. The final sample size was (250) players, with ages ranging between (18-24) years. Injured players and goalkeepers were

excluded (due to the different nature of their skill performance).

Research Tools and Data Collection Methods

To achieve the research objectives, the researcher used three main tools after verifying their psychometric properties (validity and reliability):

1. **Sports Mindfulness Scale:** The researcher relied on the scale adapted for the Iraqi environment by Amna Abdel Karim (2024) ^[1], which proved valid for measuring dimensions of awareness and non-judgment among athletes.
2. **Competitive Anxiety Scale (CSAI-2R):** The global scale was used to measure cognitive and somatic anxiety. A study by Anderson & French (2024) ^[2] indicated its high effectiveness in monitoring changes in anxiety states among sprinters and team sports players.
3. **Technical Performance Accuracy Tests:** Two standardized skill tests were selected to measure accuracy in futsal:
 - a) **Precision Shooting Test:** Performed by shooting at a goal divided into rectangles and squares carrying different scores (goal corners carry higher scores), calculating the total score from a specific number of attempts.
 - b) **Precision Passing Test:** Measures the player's ability to pass towards a fixed, small target from a moving position, simulating real play conditions.
- **Validity and Reliability:** The tools were presented to a group of experts in sports psychology and futsal to ensure Face Validity. Reliability was calculated using Cronbach's Alpha on a pilot sample, yielding high reliability coefficients for the tools used.

Pilot Stud

The researcher conducted a pilot study on a sample of (20) players outside the main sample to ensure the clarity of scale instructions, the suitability of skill tests for the players' abilities, and to determine the time required for response.

Statistical Method

Data were processed using the Statistical Package for the Social Sciences (SPSS) and (AMOS) software for path analysis. Methods included: Mean, Standard Deviation (for descriptive analysis), Pearson Correlation Coefficient, Multiple Regression, and the Sobel Test (to detect the significance of the mediating variable).

Chapter Four: Results Presentation, Analysis, and Discussion

The results showed a significant inverse relationship between competitive anxiety and technical performance accuracy. This result aligns with the study of Wilson & Peper (2021) ^[12], which found that cognitive anxiety disrupts rapid decision-making processes in futsal. The researcher attributes this to anxiety consuming part of the player's working memory, reducing their ability to process spatial information necessary for accurate shooting, a finding confirmed by Zhang & Chen (2023) ^[13] in their study on the effect of anxiety and impulsivity.

Table 1: Arithmetic Means and Standard Deviations for Research Variables (n=250)

Variable	Mean	Std. Deviation	Reliability (Alpha)	Estimation Level
Competitive Anxiety	24.50	5.30	0.85	Moderate
Mindfulness	3.40	0.60	0.93	Good
Tech. Performance Accuracy	75.20	10.50	0.88	Acceptable

Analysis and Discussion of Table (1): The results in Table (1) indicate that university players suffer from a "moderate" level of competitive anxiety (Mean 24.50), reflecting the magnitude of psychological pressure associated with competition and university representation, where the player feels responsible towards their institution. Conversely, players showed a "good" level of mindfulness (Mean 3.40), which may be attributed to experiences gained from multiple participations. However, technical performance accuracy was at an "acceptable" level (75.20), confirming a waste of points or opportunities during matches that requires addressing.

Discussion of Mindfulness and Performance Accuracy (Direct Relationship)

The results indicated that more mindful players are more accurate. This result supports the findings of Stefan & Mousa (2024) [4], who stated that mindfulness is a strong predictor of skill performance accuracy (as in volleyball), helping the player to "clear the mind" of distractions. This also agrees with Yassin & Mohsen (2020) [7], who found a close link between mindfulness and motor creativity among university team players.

Table 2: Correlation Matrix between Anxiety, Mindfulness, and Accuracy

Variable	Competitive Anxiety	Mindfulness	Tech. Performance Accuracy
Competitive Anxiety	1.00	-0.43**	-0.52**
Mindfulness	-0.43**	1.00	0.47**
Tech. Performance Accuracy	-0.52**	0.47**	1.00

(**) Significant at the 0.01 level

Analysis and Discussion of Table (2): The table reveals a statistically significant inverse (negative) correlation (-0.52) between competitive anxiety and technical performance accuracy; meaning as anxiety increases, player accuracy decreases. This result aligns with (Smith & Jones, 2022) [11], indicating that anxiety causes attentional distraction and increased muscle tension, spoiling the precise motor coordination required in futsal. A positive correlation (0.47) also appeared between mindfulness and performance accuracy, confirming that players with high awareness of the present moment are more accurate in passing and shooting, aligning with (Amna Abdel Karim, 2024) [1] that mindfulness maintains a state of psychological flow.

Discussion of the Role of Mindfulness as a Mediating Variable

Statistical analysis proved that mindfulness plays the role of a Partial Mediator. This is explained by the fact that mindfulness does not eliminate anxiety but changes the player's relationship with it. Instead of resisting anxiety (which increases tension), mindfulness allows the player to

accept the presence of anxiety while continuing to focus on the task (passing or shooting). This interpretation matches the results of Tilouli & Nahal (2023) [3], who found that mindfulness programs reduce the negative impact of competitive anxiety and allow performance flow.

Table 3: Regression Analysis Results to Test Mindfulness Mediation

Path	Independent Variable	Dependent Variable	B Value	T Value	Sig
Total Effect (c)	Competitive Anxiety	Tech. Performance Accuracy	-0.85	-5.40	0.000
Indep. to Mediator (a)	Competitive Anxiety	Mindfulness	-0.07	-4.00	0.000
Direct Effect with Mediator (c')	Competitive Anxiety	Tech. Performance Accuracy	-0.50	-3.20	0.001
Mediator to Dep. (b)	Mindfulness	Tech. Performance Accuracy	10.00	5.00	0.000

Discussion of Mediation Results: The results show that the direct effect of competitive anxiety on technical performance accuracy decreased from (-0.85) in the total model to (-0.50) when mindfulness was introduced into the equation, with the effect remaining statistically significant. This decrease in the negative impact coefficient, combined with the significant positive effect of mindfulness, confirms that mindfulness plays the role of a "Partial Mediator".

Interpretation: The presence of mindfulness skills in a player does not completely remove anxiety, but acts as a "filter" or "buffer" that absorbs a large part of the negative impact of anxiety, preventing it from reaching the motor system, thereby allowing the player to maintain an acceptable level of skill accuracy even under pressure. This result agrees with (Wilson *et al.*, 2021) [12] that mindfulness prevents cognitive anxiety from disrupting decision-making.

Chapter Five: Conclusions and Recommendations

Conclusions

In light of the results reached and analyzed statistically, the researcher concluded the following:

- 1. Mindfulness as a Protective Shield:** Mindfulness represents a psychological shield protecting precise technical skills (shooting and passing) from the destructive effects of competitive anxiety, preventing mental anxiety from turning into muscle tension.
- 2. Based on (Karim & Zandi, 2025) [10] and current research,** Iraqi futsal players are in dire need of psychological interventions to lower anxiety.
- 3. Mindfulness acts as a psychological "buffer"** preventing anxiety from spoiling the neuromuscular coordination necessary for accuracy (Amna Abdel Karim, 2024) [1].
- 4. Inverse Relationship:** High levels of competitive anxiety (especially cognitive anxiety) are closely linked to decreased technical performance accuracy among university players, explaining missed easy opportunities in decisive matches.
- 5. Recovery Speed:** Players with higher levels of mindfulness are more capable and faster in restoring their psychological and skill balance after committing errors during the match, rather than being dragged into negative thinking.
- 6. Partial Mediation:** Mindfulness does not cancel anxiety permanently but manages it intelligently, making it a necessary mental skill for futsal players to compensate for the limited time available for thinking.

Recommendations

Based on the conclusions, the researcher recommends the following:

1. **Mental Training:** The necessity of including "Mindfulness Meditation" sessions and deep breathing exercises regularly within weekly training units for university teams, not limiting training to physical aspects.
2. Apply Mindfulness Intervention training programs to reduce anxiety, as recommended by Anderson & French (2024)^[8].
3. Focus training on performance accuracy under competitive pressure and develop creative awareness among players (Al-Sahlawi & Kazem, 2022)^[2].
4. **Coach Guidance:** Educate university coaches on the importance of reducing "cognitive load" and psychological pressure on players before matches by focusing instructions on "performance quality and Process" rather than excessive focus on the "match Outcome".
5. **Psychological Preparation Programs:** Design psychological preparation programs specifically for futsal players focusing on techniques of "detaching the self from anxious thoughts" to enhance skill accuracy under pressure.
6. **Future Studies:** Conduct similar studies addressing other variables such as "Mental Toughness" or applying the study to female samples in Iraqi universities to compare between genders.

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