

The Relationship Between Competitive Anxiety, Trait Anxiety, and Injury Rates Among Iranian Premier League Futsal Players

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ABSTRACT

Objective: The present study aimed to examine the relationship between components of competitive anxiety and trait anxiety with the injury rates of futsal players currently competing in the Iranian National Futsal Premier League.

Methods: A convenience sampling method was employed, selecting 40 elite futsal players who were accessible and willing to participate (Mean age: 23.6 ± 3.46 years; Mean experience: 3 ± 1.58 years). Data were collected using an injury checklist, the Competitive State Anxiety Inventory-2 (CSAI-2), and Spielberg's Trait Anxiety Questionnaire. Data analysis was performed using the Kolmogorov-Smirnov (K-S) test, Pearson correlation coefficient, and the Chi-square test.

Results: The results indicated a significant positive correlation between somatic anxiety and injury rate ($P = 0.001$). Furthermore, among the characteristics of anxiety, only cognitive anxiety demonstrated a significant positive correlation with the rate of injury ($P = 0.047$). Although a negative relationship was observed between self-confidence and injury rates, this correlation was not statistically significant. Regarding injury distribution, 87.03% of injuries occurred in the lower limbs, primarily affecting the knees (29.26%) and thighs (24.39%).

Conclusion: The findings suggest that psychological factors are increasingly critical in sports medicine; specifically, identifying these psychological risk factors may help in preventing physical injuries.¹ In this context, coaches and medical staff can identify vulnerable athletes by recognizing psychological risk factors, thereby preventing injuries and reducing athletes' time away from competition.

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Introduction

Sports injuries are very common in competitive sports and can significantly reduce athletes' effective career span [1]. Given the substantial investments made by sports clubs, there is a prioritized effort to protect athletes as valuable human resources and maintain financial stability by minimizing injury risks [2]. Generally, the consequences of these injuries are categorized into physical and psychological effects [3]. Consequently, psychological factors have been extensively studied to improve injury prevention, rehabilitation, and athletic performance [4].

Professional athletes possess distinct psychological traits that, while contributing to their competitive success, may also predispose them to a higher risk of injury [5]. Previous research identifies several psychological predictors of sports injuries, including highly competitive anxiety, low self-esteem, chronic stress, significant life changes, and inadequate social support. Effective management of these factors is essential for decreasing injury incidence and facilitating the recovery of athletes [6].

Anxiety arises when individuals doubt their capacity to manage stressful situations [7]. Johnson categorized anxiety into two types: state (conditional) and trait (characteristic). State anxiety is a transient emotional state characterized by subjective feelings of tension and apprehension, often accompanied

by autonomic nervous system activation in response to perceived threats. Conversely, trait anxiety is a relatively stable behavioral disposition that leads individuals to perceive non-threatening situations as dangerous [8]. Competitive state anxiety is further multidimensional, comprising cognitive anxiety, somatic anxiety, and self-confidence. Cognitive anxiety involves negative expectations, inability to concentrate, and negative self-evaluation. Somatic anxiety refers to the physiological manifestations of arousal, such as increased heart rate, shortness of breath, moist hands, and muscle cramps [8]. Self-confidence represents the belief in one's ability to achieve success in sporting events [9].

The ability to manage stress and anxiety is an inseparable component of modern sports [9]. Estimates show that more than 25 million people in the United States sustain injuries during sports and exercise annually; those experiencing significant life stress without adequate coping mechanisms are at a disproportionately higher risk [10]. Studies indicate that 75% of elite football players suffer injuries during their careers [11]. While Leone et al. (2021) identified a clear link between competitive/trait anxiety and injury risk in soccer, Steffen et al. (2009) found no significant correlation among top-tier players. Two primary theories explain this relationship: the "distraction theory," where stress reduces peripheral attention (Williams et al., 1991), and the "muscle tension theory," where high stress increases

muscle stiffness, interfering with coordination and increasing injury susceptibility [12].

Futsal players appear particularly vulnerable to stress due to the high intensity of the sport, the requirement for rapid decision-making, and the pressure of playing in confined spaces near spectators. Research consistently shows that the majority of injuries in court sports occur in the lower extremities. Bahr and Reeser (2003) noted that 10–19% of acute injuries treated in emergency rooms are sports-related, primarily affecting the knees and ankles. Lindenfeld et al. (1994) reported that ankle sprains are the most common injury in futsal. Similarly, Potkian et al. (1996) found that ankle sprains, followed by knee ligament injuries, pose the highest risk [13, 14].

Despite the small field size, which also contributes to head and face injuries due to close-range impacts, and heavier ball lower limb injuries remain dominant. Given these risks, medical staff and coaches are increasingly focused on recognizing internal psychological factors to prevent incidents and reduce recovery time. Therefore, the present study was conducted to investigate the relationship between indicators of state and trait anxiety and the rate of injuries among Iranian Premier League futsal players.

Materials and Methods

Study Design and Participants

This survey study was conducted using a correlational research design. The study population consisted of all active futsal

players competing in the Iranian Men's Premier League during the 2011–2012 (1390–1391) season. A convenience sampling method was employed, selecting 40 elite futsal players who were accessible and willing to participate (Mean age: 23.6 ± 3.46 years; Mean experience: 3 ± 1.58 years).

Tools

Injury Report Form: This form was completed in collaboration with the team medical staff. It is a modified version of the injury report form published by Fuller et al. (2006) in the *British Journal of Sports Medicine*. The questionnaire consisted of several sections:

Section 1: Captured the exact time of the incident, the location/mechanism of the injury, and the player's return to the game.

Section 2: Investigated the injury context (training vs. competition), type (concussion vs. non-concussion), foul involvement, and referee decisions.

Section 3: Detailed the specific time and location of the incident.

Section 4: Included a tracking table for players who sustained more than one injury during the season.

Competitive State Anxiety Inventory-2

(CSAI-2): To assess state anxiety (conditional anxiety), the revised 27-item version (Form D) was employed [15]. This inventory measures three subscales: cognitive anxiety, somatic anxiety, and self-confidence, with 9 items dedicated to each subscale. The Persian version of this

inventory has demonstrated high validity and reliability, with reported Cronbach's alpha values of 0.89 and 0.75 in the Iranian population [16].

Spielberger's State-Trait Anxiety Inventory (STAI): While this inventory comprises two 20-item forms for state and trait anxiety, only the trait anxiety form was used in the present study. The reliability of this instrument in this study was confirmed with Cronbach's alpha values (0.89, 0.75, 0.93) for its various dimensions, consistent with its standardized Iranian version [15].

Procedure and Definition of Injury

Following the injury definition by Fuller et al. (2006), a player was considered injured if they required medical attention, physician examination, or chiropractic care, resulting in exclusion from at least one training session or match. Data regarding injuries and trait anxiety were collected throughout the league season. Additionally, the CSAI-2 was administered to players by the team psychologist 45 minutes before competition to capture pre-game competitive anxiety.

Statistical Analysis

Data were analyzed using SPSS version 24. Descriptive statistics (mean and standard deviation) were used to summarize the data.

The Kolmogorov-Smirnov (K-S) test was applied to check the normality of distribution, and Pearson's correlation coefficient was used to determine the relationship between variables. To analyze injury frequencies, the Chi-square (X^2) test was utilized. Data analysis was conducted at a significance level of $P < 0.05$ using SPSS version 24.

Results

The Kolmogorov-Smirnov (K-S) test was used to assess the normality of the data distribution. The results confirmed that the data followed a normal distribution ($Z = 0.72$, $P = 0.64$). Consequently, Pearson correlation coefficients were calculated to examine the relationships between anxiety variables and the frequency or number of injuries (Table 1).

The analysis revealed a significant positive correlation between trait anxiety and the frequency or number of injuries ($r = 0.727$, $P = 0.001$). Regarding the subscales of competitive state anxiety, only cognitive anxiety showed a significant positive correlation with injury rates ($r = 0.504$, $P = 0.047$). Although a negative correlation was observed between self-confidence and the frequency or number of injuries ($r = -0.397$), this relationship did not reach statistical significance ($P = 0.128$).

Table 1. Pearson Correlation Coefficients Between Anxiety and frequency or number of injuries

Variable	Statistical Test	Trait Anxiety	Cognitive Anxiety	Somatic Anxiety	Self-Confidence
frequency or number of injuries	Correlation (r)	0.727**	0.504*	0.153	-0.397
	Significance (P)	0.001	0.047	0.571	0.128

A Chi-square test was applied to analyze the injury data. A total of 82 injuries were recorded, averaging 2.05 injuries per player. The majority of injuries (87.03%) occurred in the lower limbs, with the knees (29.26%) and

thighs (24.39%) being the most affected areas. Upper limb injuries accounted for 14.63% of the total, with 7.31% occurring in the face (Table 2).

Table 2. Distribution and Frequency of Injuries by Body Part

Injured Part	Frequency (f)	Percentage (%)
Knee	24	29.26
Thigh	20	24.39
Leg (Tibia/Fibula) & Achilles	10	12.19
Ankle	10	12.19
Face	6	7.31
Other Upper Limbs	12	14.66
Total	82	100.00

As presented in Table 3, the descriptive analysis of the psychological profiles indicates that Self-confidence had the highest mean score (28.06, SD = 4.26) among the athletes. Regarding anxiety subscales, Cognitive Anxiety (15.19, SD = 5.29) was

found to be slightly higher than Somatic (Physical) Anxiety (13.64, SD = 3.84). Additionally, the recorded Injury Rate for the players during the study period was 2.08, SD = 0.43 per athlete.

Table 3. Descriptive statistics of psychological factors and injury rates (n=40)

Variables	Mean	Standard Deviation (SD)
Self-confidence	28.06	4.26
Cognitive Anxiety	15.19	5.29
Physical Anxiety	13.64	3.86
Rate of Injury	2.08	0.43

Discussion

Understanding athletes' psychological states and their relationship with the occurrence of injuries is of paramount importance [17]. If sports professionals can identify and monitor the psychological factors that influence the frequency or number of injuries, preventative

measures can be implemented more effectively. The current study aimed to explore the relationship between competitive state/trait anxiety and injury rates among Iranian Premier League futsal players.

Our findings indicated a significant positive correlation between trait anxiety and injury occurrence, which aligns with the research of Smith et al. (2000) and Janson et al. (2009). These authors argue that trait anxiety serves as a predisposition that leads athletes to perceive competition as more threatening [12]. In the high-pressure environment of futsal, where rapid decision-making is required, this anxiety can manifest through the Muscle Tension Hypothesis, where increased psychological stress leads to heightened muscular tension, thereby reducing flexibility and increasing the risk of acute physical injuries.

Regarding competitive state anxiety, a significant positive relationship was found between cognitive anxiety and injury rates, consistent with Galambous et al. (2005). However, this contradicts the findings of Kellmann et al. (2020), who reported no such relationship in basketball players. This discrepancy may arise from the differing technical demands of futsal versus basketball. Futsal players face extreme time pressure and spatial constraints, which may cause perceptual narrowing (the "tunnel vision" effect). According to the Attentional Distraction Hypothesis, this narrowing prevents players from detecting peripheral cues, such as a tackle or an uneven surface, thus increasing injury risk.

Furthermore, the lack of significance between somatic (physical) anxiety and injuries in this study can be explained by the Inverted-U Hypothesis and the Multidimensional Theory of Anxiety [22].

Our descriptive data showed that most elite players maintained moderate levels of physical arousal. At this moderate level, somatic anxiety may actually facilitate performance rather than hinder it, as elite athletes are often trained to interpret physiological arousal (like increased heart rate) as "readiness" rather than "fear" [21, 23].

Limitations and Suggestions

Despite the insights provided, this study has limitations. First, the sample size (N=40) is relatively small and limited to one league, which may affect the generalizability of the results. Second, injury data were collected based on a checklist; future studies should incorporate more objective clinical assessments. Additionally, the study did not control for external variables such as sleep quality, nutrition, or previous injury history, which could act as confounding factors.

Conclusion

In conclusion, psychological factors, specifically trait and cognitive anxiety, are significant predictors of physical injuries in futsal. Coaches and medical staff should move beyond a purely physical approach and incorporate psychological screening and mental toughness training into their programs. Identifying vulnerable athletes through anxiety assessments can reduce the financial and physical costs associated with injuries.

Article message

The results of the present study demonstrated a significant positive relationship between components of competitive anxiety—

particularly somatic and cognitive anxiety—and the incidence of injuries among futsal players. These findings highlight the critical role of psychological variables in sports injury pathology.

Data Availability Statement

Data are available from the author upon request.

Ethical considerations

In conducting the present study, all ethical considerations were taken into account in accordance with the guidelines of the Ethics Committee of Lahijan Azad University.

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Conflict of interest

According to the authors, the results of this study do not present any conflict of interest with any organization or institution.

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