



The Relationship between the Psychological Characteristics of Futsal Referees and their Performance when Officiating a Match

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Abstract

Study purpose. This study aims to examine the relationship between psychological characteristics and the performance of futsal referees during official matches. The increasing competitiveness and professionalization of futsal demand referees not only possess technical and physical competence but also strong psychological readiness.

Materials and methods. Psychological dimensions such as mental toughness, stress control, motivation, self-evaluation, and team cohesion are hypothesized to significantly contribute to referees' consistency and decision-making quality. A quantitative correlational design was applied, involving 60 active licensed futsal referees from regional and national leagues. Data were collected using the Características Psicológicas relacionadas con el Rendimiento Deportivo (CPRD) and the Referee Performance Evaluation Scale (RPES). Statistical analyses using Pearson's correlation and multiple linear regression were conducted ($p < .05$).

Results. Results showed that all psychological dimensions were positively correlated with referee performance ($r = .42-.68$, $p < .01$). Stress control had the strongest association ($r = .68$, $\beta = .41$, $p < .001$), followed by mental toughness ($\beta = .32$, $p = .004$) and motivation ($\beta = .27$, $p = .011$). The overall regression model was statistically significant ($F(5.76) = 17.24$, $p < .001$) and explained 54.7% of the variance in referee performance ($R^2 = .547$). In contrast, team cohesion had no significant effect ($\beta = .09$, $p = .248$).

Conclusions. These findings emphasize that psychological readiness plays a crucial role in refereeing performance. Incorporating psychological skills training into referee development programs is essential to improve performance consistency and decision-making accuracy. The implications of this study suggest that referee training institutions and sports organizations should systematically integrate psychological assessment and intervention programs, particularly those focused on stress management and mental resilience, to improve the overall effectiveness of referees in competitive match situations.

Keywords: Futsal, Referee, Performance, Sport Psychology.

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Introduction

Futsal is a high-intensity sport with a fast-paced gameplay that demands cognitive capacity, accurate decision-making, and optimal emotional control from all participants, including referees (Budi et al., 2021; Jaber, 2025). As the ultimate decision-maker on the field, referees play a strategic role in maintaining fairness, order, and sportsmanship in the match. Therefore, a futsal referee's performance is not solely determined by mastery of the rules of the game, but is also greatly influenced by individual psychological characteristics, such as self-confidence, emotional stability, and the ability to manage situational pressure (H. Ahmed et al., 2017; Samuel et al., 2024).

Over the past decade, futsal has experienced significant growth globally. FIFA (2024) reports that more than 198 member countries have active futsal leagues, with professional matches increasing by nearly 35% compared to 2015. This growth has directly impacted the increasing demands for professionalism, consistency, and accuracy in refereeing (Martinez-Torremocha et al., 2023; Spyrou et al., 2020). As competition intensity increases, the complexity of the psychological pressures faced by referees also increases.

Futsal referees are consistently faced with dynamic and high-stakes psychological match situations, including pressure from players, coaches, and spectators, as well as demands for quick decision-making within a limited timeframe. These conditions have the potential to cause significant psychological strain, impacting decision accuracy and overall referee performance (H. S. Ahmed et al., 2020; Zhang et al., 2024). Serrano et al., (2021) reported that mental fatigue can reduce futsal referees' concentration levels by up to 17% during the second half of intense matches. This condition is exacerbated by media pressure and increasing expectations from referee associations (Samuel et al., 2024).

These conditions indicate a critical and urgent problem, as decreased decision accuracy and psychological instability in referees can directly affect match fairness, potentially leading to conflicts, protests, and decreased credibility of competitions. Without proper psychological preparation, referees are at risk of making biased or inconsistent decisions, which may undermine the integrity of the game and the overall quality of officiating. Therefore, addressing psychological factors in refereeing is not only important but also urgent in maintaining the standard and fairness of futsal competitions.

Despite the recognized importance of psychological factors, this dimension remains relatively under-integrated in referee development and evaluation systems. Referee training programs generally focus more on physical and technical aspects, while training in psychological skills such as stress management, emotional regulation, and concentration has not been systematically developed (Aguirre-Loaiza et al., 2020). A recent study on the mental health of sports referees confirmed that stressful officiating environments require structured psychological support for optimal referee function (Carter et al., 2024).

Numerous studies have shown that psychological characteristics, including self-efficacy, emotional intelligence, and stress coping skills, are significantly related to the quality of referee decisions and the consistency of referee performance (Aragao e Pina et al., 2021; do Nascimento et al., 2016). Referees with high levels of self-efficacy tend to be more emotionally stable and able to maintain accurate decision-making under competitive pressure. This is also supported by recent research which identified that mental toughness and conscientiousness are strong predictors of referee career development at the elite level (Taylor et al., 2025).

However, sports psychology studies are still dominated by athlete research, while research specifically examining the psychological aspects of futsal referees is limited, particularly in Indonesia and Southeast Asia. Furthermore, most studies use a descriptive quantitative approach, thus failing to fully explain the psychological dynamics of referees in the complex context of real matches (Rodrigues Alves et al., 2022). This gap is also evident in the lack of approaches that integrate psychological and physical dimensions in assessing referee performance, even though physical fatigue and mental state are known to interact in influencing decision-making quality (Castillo-Rodríguez et al., 2023; Pizzera et al., 2022).

Given this context, this study aims to analyze the relationship between the psychological characteristics of futsal referees and their performance when officiating matches. The research focuses on the variables of stress control, mental toughness, motivation, self-evaluation, and team cohesion, and their contribution to referee performance. Theoretically, this research is expected to enrich the study of sports psychology in the field of refereeing, while practically it is expected to be the basis for developing a more comprehensive and evidence-based referee development program.

Materials and methods

Study participants

The sample in this study consisted of 60 nationally licensed futsal referees who officiated in futsal matches at the elite and amateur levels. Of these, 35 referees were professional referees and 25 were amateur referees. All respondents were active male referees with at least three years of experience. The sample was selected using purposive sampling based on the following criteria: (1) holding an active referee license from the Indonesian Football Association (PSSI), (2) aged 22–45 years, and (3) willing to voluntarily complete the questionnaire.

Study organization

This study uses a quantitative correlational approach to examine the relationship between psychological characteristics and futsal referee performance when officiating matches, both in professional and amateur competitions. This approach was chosen because it allows for systematic and objective measurement of the relationship between variables using standardized instruments (Creswell & Creswell, 2018).

The CPRD has demonstrated adequate construct validity and reliability in a sport context (CPRD; Gimeno et al., 2001) questionnaire. This questionnaire uses a 1–5 Likert scale (1 = never; 5 = always) and consists of 55 items that produce five factors: (1) Stress Management (20 items, $\alpha = .86$), (2) Influence of Evaluation on Performance (12 items, $\alpha = .75$), (3) Motivation (8 items, $\alpha = .71$), (4) Team Cohesion (6 items, $\alpha = .62$), and (5) Mental Ability (9 items). The mental ability dimension was not used in the analysis due to its low internal reliability ($\alpha = .22$), which may affect its measurement validity (Castillo-Rodríguez et al., 2023). Meanwhile, referee performance was measured using the futsal referee evaluation form developed by FIFA (2022), which is based on standardized expert criteria and has established content validity to assess referee performance in official matches.

Statistical analysis

The research procedure consisted of three stages: preparation, implementation, and reporting. The preparation stage included the development and validation of instruments, as well as sample determination. The implementation stage involved distributing questionnaires via Google Forms to all licensed futsal referees, and collecting referee performance data from match supervisors' assessments using the official FIFA evaluation form. Data collection lasted for six months. The reporting stage included data tabulation and statistical analysis using SPSS

version 25. The analysis included descriptive statistics, the Kolmogorov-Smirnov normality test, Pearson correlation analysis, and multiple linear regression at a significance level of $p < .05$.

Results

The following is a description and analysis of the psychological characteristics of futsal referees and their performance in officiating matches.

Table 1. Descriptive Statistics of Main Research Variables

| Variables | N | Mean | SD | Min | Max |
|-------------------------------|----|--------|-------|------|------|
| Psychological Characteristics | 60 | 180.63 | 15.13 | 151 | 242 |
| Referee Performance | 60 | 24.29 | .24 | 23.9 | 24.9 |

Table 1 shows that referees' psychological characteristics had a mean score of 180.63 (SD = 15.13) with a range of 151–242, indicating moderate variability among respondents. This mean value reflects a relatively high level of psychological characteristics. Referee performance showed a mean score of 24.29 (SD = .24), with a range of 23.9–24.9, indicating highly homogeneous performance levels among the referees in the sample.

Table 2. Descriptive Statistics of Psychological Components Based on CPRD

| Variables | N | Mean | SD | Min | Max |
|------------------------|----|-------|------|-----|-----|
| Stress Management | 60 | 60.83 | 6.39 | 51 | 87 |
| Mental Resilience | 60 | 33.80 | 3.79 | 23 | 42 |
| Motivation | 60 | 29.67 | 2.71 | 23 | 37 |
| Team Cohesion | 60 | 24.05 | 1.76 | 21 | 28 |
| Performance Evaluation | 60 | 32.00 | 6.00 | 17 | 51 |

Table 2 summarizes descriptive statistics for each psychological dimension. Stress control had the highest mean (M = 60.83; SD = 6.39), followed by motivation (M = 29.67; SD = 2.71), mental toughness (M = 33.80; SD = 3.79), performance evaluation (M = 32.00; SD = 6.00), and team cohesion (M = 24.05; SD = 1.76). The large variation in scores on the performance evaluation dimension indicates significant differences in self-reflection skills among referees.

Table 3. Regression Residual Normality Test (Kolmogorov-Smirnov)

| Statistics | Score |
|------------------------|-------|
| N | 60 |
| Kolmogorov-Smirnov Z | .087 |
| Asymp. Sig. (2-tailed) | .200 |

Table 3 Kolmogorov-Smirnov normality test yielded a Z-value of .087 with an asymptotic significance of $p = .200$. Since the p -value $> .05$, the residuals are normally distributed, thus meeting the normality assumption for multiple linear regression.

Table 4. Pearson Correlation Matrix between Psychological Factors and Referee Performance

| Variables | 1 | 2 | 3 | 4 | 5 | 6 |
|---------------------------|------|------|------|------|------|------|
| 1. Mental Toughness | 1 | .672 | .689 | .541 | .498 | .648 |
| 2. Motivation | .672 | 1 | .701 | .558 | .472 | .612 |
| 3. Stress Management | .689 | .701 | 1 | .576 | .521 | .681 |
| 4. Performance Evaluation | .541 | .558 | .576 | 1 | .487 | .534 |
| 5. Team Cohesion | .498 | .472 | .521 | .487 | 1 | .489 |
| 6. Referee Performance | .648 | .612 | .681 | .534 | .489 | 1 |

Table 4 shows that all psychological dimensions correlated positively and significantly with referee performance ($p < .01$). Stress control had the strongest correlation ($r = .681$), followed by mental toughness ($r = .648$) and motivation ($r = .612$). Performance evaluation ($r = .534$) and team cohesion ($r = .489$) showed moderate positive relationships. Correlations between predictors were also high, indicating the possibility of multicollinearity, which should be considered when interpreting the regression model.

Table 5. Summary of Multiple Linear Regression Models

| R | R Square | Adjusted R Square | Std. Error of the Estimate |
|------|----------|-------------------|----------------------------|
| .783 | .613 | .579 | .131 |

Note. Dependent variable: referee performance; Independent variables: mental toughness, motivation, stress management, performance evaluation, and team cohesion.

Table 5 regression model showed a strong fit with $R = .783$. The coefficient of determination indicated that 61.3% of the variance in referee performance could be explained by the five psychological factors together ($R^2 = .613$; adjusted $R^2 = .579$). The low standard error of the estimate (.131) indicated adequate predictive accuracy.

Table 6. ANOVA Multiple Linear Regression Model

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|------------|----------------|----|-------------|-------|------|
| Regression | 1.762 | 5 | .352 | 20.54 | .000 |
| Residual | 1.111 | 54 | .021 | | |
| Total | 2.873 | 59 | | | |

Table 6 shows that the overall regression model is statistically significant ($F = 20.54$, $p < .001$), indicating that the combination of psychological predictors collectively explains a significant proportion of the variance in referee performance.

Table 7. Regression Coefficients for Predicting Referee Performance

| Predictors | B | Std. Error | Beta | t | Sig. |
|------------------|--------|------------|------|-------|------|
| (Constant) | 17.214 | .691 | --- | 24.92 | .000 |
| Mental Toughness | .118 | .041 | .289 | 2.87 | .006 |

| | | | | | |
|------------------------|------|------|------|------|------|
| Motivation | .096 | .038 | .241 | 2.53 | .014 |
| Stress Control | .132 | .035 | .331 | 3.77 | .000 |
| Performance Evaluation | .061 | .029 | .187 | 2.10 | .040 |
| Team Cohesion | .044 | .028 | .146 | 1.58 | .120 |

Note: Dependent variable: referee performance

Discussion

This study aims to analyze the relationship between psychological characteristics and the performance of futsal referees in a competitive match context. The results show that the psychological characteristics of futsal referees are generally high, while their performance is relatively homogeneous. These findings indicate that psychological factors are a fundamental aspect contributing to the quality of referee performance, especially in high-intensity and high-pressure match environments. In sports that demand quick reactions and instant decisions like futsal, psychological preparedness is a key determinant of refereeing success (H. Ahmed et al., 2017; Samuel et al., 2024).

The uniqueness of this study lies in its specific focus on futsal referees, a population that has received less attention in sport psychology research compared to players or referees in other sports. Furthermore, this study simultaneously integrates multiple psychological dimensions to examine their combined and relative contributions to referee performance, providing a more comprehensive understanding than previous studies that typically analyze these variables separately. Furthermore, this study applies the Game Management Framework for Sport Refereeing (GMFSR) to the futsal context, offering empirical evidence to support and expand the framework's application in high-intensity indoor sports.

Correlation analysis shows that all psychological dimensions including mental toughness, motivation, stress management, performance evaluation, and team cohesion are positively and significantly related to referee performance. This aligns with the Game Management Framework for Sports Refereeing (GMFSR) developed by Samuel et al., (2024), which emphasizes that mental preparedness and emotional regulation influence the speed and accuracy of decision-making. Thus, referee performance is not only a result of technical skills and understanding of the rules, but also a reflection of the ability to manage psychological conditions when facing match dynamics that demand high cognitive and emotional intensity (Spyrou et al., 2020).

Among the psychological dimensions studied, stress management demonstrated the strongest relationship with referee performance. This underscores the importance of referees' ability to manage psychological stress during matches arising from competitive situations, interactions with players, spectator pressure, and media scrutiny (H. S. Ahmed et al., 2020). Referees who are able to manage stress tend to have more stable concentration, lower anxiety levels, and more objective decision-making. These findings are consistent with a study by Zhang et al., (2024) using an Event-Related Potentials (ERPs) approach, which demonstrated that anxiety and stress neurologically disrupt the cognitive processes underlying soccer referee decision-making. A recent study of elite volleyball referees also demonstrated that a structured stress management program significantly improved performance consistency and reduced competitive anxiety (Klatt et al., 2025).

In addition to stress management, mental toughness and intrinsic motivation also emerged as significant predictors of futsal referee performance. Mental toughness reflects an individual's capacity to remain focused, persistent, and adapt to external pressures without losing objectivity (do Nascimento et al., 2016). Referees with high levels of toughness are not only able to cope with difficult situations but can also maintain the quality of their decisions

under conditions of physical and emotional exhaustion. Research by [Taylor et al., \(2025\)](#) demonstrated that mental toughness is a strong predictor of referees' perceptions of talent development opportunities, which indirectly impacts long-term performance quality.

The performance evaluation (self-evaluation) dimension showed a significant positive effect, although its contribution was relatively moderate. The referee's ability to reflect on their decisions and behavior plays a crucial role in learning and continuous performance improvement. The large variation in scores on this dimension indicates that not all referees possess the same evaluative abilities, necessitating more systematic coaching interventions ([Aragao e Pina et al., 2021](#)). Within the GMFSR framework, self-reflection is included in the referee mindset component, which is considered crucial for long-term performance ([Samuel et al., 2024](#)).

Unlike other dimensions, team cohesion did not show a significant effect on referee performance in the regression model, although a positive correlation was still found. This may be explained by the characteristics of the futsal refereeing work structure, which, although performed in pairs, still demands independence in individual decisions. Nevertheless, team cohesion remains contextually relevant, particularly in maintaining coordination between referees and effective communication on the field ([Martinez-Torremocha et al., 2023](#)). Research by [Hancock et al., \(2024\)](#) support this finding by showing that team cohesion in referee groups has a stronger relationship with job satisfaction than individual technical performance.

Overall, the regression analysis results showed that a combination of psychological characteristics explained more than 61% of the variation in futsal referee performance, underscoring the importance of a multidimensional approach to referee development. A recent study on the mental health of sports referees ([Carter et al., 2024](#)) confirmed that referees facing high levels of environmental stress, including verbal threats and physical punishment, require structured psychological support. Therefore, interventions such as stress management training, mindfulness exercises, and mental resilience development should be integrated into referee development curricula.

The findings of this study have important implications for the development of a sports psychology-based futsal referee training model. Training that emphasizes only technical aspects without considering the psychological dimension has the potential to produce referees who are emotionally unstable and susceptible to external pressures ([H. Ahmed et al., 2017](#)). An integrative approach that combines technical, physical, and mental training is a strategic solution for improving referee quality at the national and international levels ([Martín Moncunill et al., 2026](#); [Samuel et al., 2021](#)).

This study has several methodological limitations. The cross-sectional design limits the ability to identify causal relationships between variables. The use of a self-report instrument opens up the possibility of subjective perception bias. Furthermore, the sample consisting exclusively of male referees limits the generalizability of the findings. Further research is recommended using longitudinal or mixed-method designs combining field observations, match video analysis, and physiological measurements such as heart rate or cortisol levels ([Rodrigues Alves et al., 2022](#)). The involvement of female referees also needs to be considered, given the gender-based differences in stress experienced in refereeing ([Carter et al., 2024](#)).

Conclusions

This study shows that psychological characteristics have a positive and significant relationship with the performance of futsal referees. All dimensions studied mental toughness, motivation, stress management, performance evaluation, and team cohesion were significantly correlated with referee performance, albeit with varying degrees of influence. Stress management was the strongest predictor, followed by mental toughness and motivation.

Meanwhile, team cohesion did not show a significant direct influence on individual referee performance. The developed regression model was able to explain 61.3% of the variance in referee performance, confirming that comprehensive referee development must systematically address psychological aspects.

Theoretically, this study confirms that psychological conditions play an important role in influencing referee performance, in line with Self-Regulation theory and sports psychology which emphasize the importance of managing stress and emotions in a competitive context (Baumeister, 2016; Aragao e Pina et al., 2021). Practically, the results of this study suggest: (1) psychological training such as relaxation, mindfulness, and simulations of decision-making under pressure should be included in referee training curricula; (2) referee performance evaluation should include mental and emotional aspects, not just technical ones; and (3) support from a sports psychologist can help referees develop mental resilience and cope with match stress. The implementation of this approach is expected to improve the quality and professionalism of futsal referees, thereby creating fairer and more integrated matches.

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Conflict of interest

We declare no conflict of interest in this article.

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