COMPETITOR:
JURNAL PENDIDIKAN KEPELATIHAN OLAHRAGA
e-ISSN: 2657-0734 & p-ISSN: 2085-5389 ‖ Volume 18, Number 2, 2026 ‖ P.3911-3920

The Relationship Between Anxiety Levels and Self-Confidence and The Performance Tenes Referees

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ABSTRACT

This study aims to analyze the relationship between anxiety levels and self-confidence on the performance of tennis referees in Central Java. This study uses a quantitative method with a correlational approach. The sample consisted of 30 tennis umpires from Central Java who were selected using the simple random sampling technique. Data collection for self-anxiety was conducted using the SCAT (Sport Competition Anxiety Test) instrument, while self-confidence was measured using the ASQ (Athlete Self-Confidence Questionnaire), and Tennis Umpire Performance. Data analysis techniques were performed thru Pearson correlation tests and simple linear regression. The results of this study indicate that anxiety ($r = 0.076$; $p = 0.845$) and self-confidence ($r = 0.071$; $p = 0.818$) do not have a significant relationship with referee performance. The regression analysis for anxiety ($\beta = 0.058$; $p = 0.845$) and self-confidence ($\beta = 0.102$; $p = 0.818$) also shows that anxiety and self-confidence do not have a significant relationship, with a coefficient of determination ($R^2 = 0.006$) indicating that the level of anxiety only contributes 0.6% to referee performance and ($R^2 = 0.005$) showing that self-confidence only explains 0.5% of the variation in referee performance. The ANOVA test results confirm that the regression model is not significant ($F = 0.41$; $p = 0.845$) for anxiety and ($F = 0.056$; $P = 0.818$) for self-confidence. Thus, it can be concluded that anxiety and self-confidence do not have a significant impact on the performance of tennis referees in Central Java.

ARTICLE HISTORY
Received: 2026/05/21
Accepted: 2026/05/25
Published: 2026/05/31

KEYWORDS
Anxiety;
Self-Confidence;
Performance;
Tennis;
Referee.

AUTHORS' CONTRIBUTION
A. Conception and design of the study;
B. Acquisition of data;
C. Analysis and interpretation of data;
D. Manuscript preparation;
E. Obtaining funding

Cites this Article : Mohamad Khoirul Huda[1A-E*], Soedjatmiko[2B-D]. (2026). The Relationship Between Anxiety Levels and Self-Confidence and The Performance Tenes Referees. **Competitor: Jurnal Pendidikan Kepelatihan Olahraga**. 18 (2), p.3911-3920

INTRODUCTION

Exercise is a physical activity performed in a planned and regular manner, involving repetitive body movements to improve physical fitness. In addition, exercise also refers to physical activities that can be performed spontaneously during free time to maintain physical and mental health. Not only that, exercise can also support an individual's achievements and even serve as a profession (Rahadian, A., & Suryakancana, U., 2020).

Tennis is a sport played with a small ball. It can be enjoyed by people of all ages, from children to adults, both men and women. Additionally, tennis can be played as singles, doubles, or mixed doubles (Soedjatmiko., 2011). Tennis is a sport that

emphasizes the importance of making precise decisions in every match. Therefore, the referee plays a crucial role in making key decisions that ensure the match proceeds fairly and objectively.

According to (Kuswoyo, D. D., Pramono, H., & RC, A. R., 2017) A referee is a person whose job is to officiate a match in accordance with established rules. A referee's performance is influenced not only by social and environmental factors and their understanding of the rules, but also by the psychological state they experience while officiating a match (Jatra, R., & Fernando, D. D., 2019). There are several psychological factors that can potentially affect a referee's performance, one of which is anxiety (Weinberg, R. S., & Gould, D., 2019).

According to (Weinberg, R. S. & Gould, D., 2007) Anxiety is an unpleasant feeling that arises when doing or about to do something and is characterized by symptoms such as nervousness, restlessness, and fear. Anxiety typically occurs when a person is under pressure or facing a problem that is perceived as a threat (Ilsya, M. N. F., & Komarudin, 2019). In the context of tennis matches, anxiety is often experienced by players (athletes), referees, and match officials. High levels of anxiety can impair concentration, slow down decision-making, and increase the likelihood of errors in judgment (Zhiwen Zhang,Liyu Xu,Xiao Qin,&Arsaythamby Veloo, 2024).

Self-confidence is a person's attitude or belief in doing something without experiencing self-doubt or anxiety, so that they do not feel pressured while carrying out a task and can take responsibility for their actions. A person with strong self-confidence is aware of their own strengths and weaknesses (Yulianto et al., 2025). In the context of a tennis match, the umpire must possess a high level of self-confidence so as not to make mistakes when making decisions in difficult situations. Not only that, but the umpire must also be able to think positively so as not to be influenced by pressure from the athletes, spectators, or coaches (Feng et al., 2026).

Tennis umpires face various pressures during matches, such as having to make quick and accurate decisions, social pressure, and expectations from tournament organizers (Damrah et al., 2023). In Central Java, the rapid growth of tennis has been accompanied by an increase in the intensity and quality of competitions. This requires referees to be prepared not only technically, but also mentally and emotionally (Guillén, F., & Feltz, D. L., 2011).

However, there has been no research on psychological factors particularly anxiety among tennis referees at the regional level, such as in Central Java. Previous studies have focused primarily on athletes rather than referees or match officials. (Pelupessy & Dimyati, 2019). In fact, the quality of the referee's decisions is crucial to the credibility and overall quality of the match (Plessner, H., & Haar, T., 2006).

There has been no research to date on the analysis of anxiety levels and self-confidence in relation to tennis referees' performance; previous studies have focused solely on athletes. Furthermore, there has been little research specifically examining the relationship between anxiety levels and self-confidence in relation to tennis referees' performance, particularly in the Central Java region. Moreover, in the context of

refereeing, previous studies have primarily focused on soccer and futsal. However, understanding these two factors is crucial for improving the quality of referees' decision-making and maintaining the integrity of matches.

Given these issues, this study is of great importance. The findings of this study can provide a clearer description of the psychological state of referees and serve as a foundation for future research on the evaluation and development of more effective referee development or training programs, thereby improving the quality and quantity of tennis referees in the future. This study is expected to contribute to the development of sports psychology, particularly regarding the role of mental factors in supporting referee performance. Additionally, the findings are expected to inform the design of mental training programs for tennis referees to help them effectively manage anxiety.

METHODS

This study employs a quantitative method with a correlational approach (ex post facto) to analyze the relationship between anxiety and self-confidence as independent variables and referee performance as the dependent variable among tennis referees in Central Java. The quantitative method was chosen because it uses numerical data and statistical analysis to identify relationships between variables. (Oranga, J., & Matere, A., 2025). A correlational design was chosen because anxiety is a psychological condition that cannot be tested experimentally. In addition, a correlational design is used to analyze the relationship between variables without manipulating the subjects (Putri, L., Muhammad Rizki Rezani, & Dina Hermina, 2025).

The population in this study consists of tennis referees in Central Java Province who are currently active in officiating tennis matches, have experience officiating matches, and hold regional or national licenses or certificates relevant to the research objectives (Willie, 2024). The sample in this study consisted of 30 tennis referees selected using simple random sampling, in which participants were randomly selected from the entire population that met the criteria (Casteel, A., & Bridier, N. , 2021). Data collection was conducted in April 2026 using a Google Forms questionnaire that was distributed in person and via social media.

This study used the Sport Competition Anxiety Test (SCAT), the Athlete Self-Confidence Questionnaire (ASQ), and the Tennis Referee Performance Scale. The Sport Competition Anxiety Test (SCAT) consists of 9 items adapted from athletes for tennis referees to determine the level of anxiety experienced by referees while officiating matches; its validity has been established with factor loadings ranging from 0.49 to 0.70 and high reliability (Cronbach's Alpha of 0.75) (Yamaguchi et al., 2025). The Athlete Self-Confidence Questionnaire (ASQ) consists of 15 statements that have been adapted from athletes to tennis referees, with good construct validity (factor loadings of 0.52–0.81) and very high reliability (a Cronbach's alpha of 0.91) (Nursaba et al., 2024). The referee performance instrument was developed in-house and validated by experts (3 national referees and 1 psychology professor) in accordance with international standards. It

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consists of 13 items with high validity (factor loadings of 0.55–0.84) and very high reliability (a Cronbach's Alpha of 0.92) (Marpaung et al., 2021). All three instruments underwent language adaptation and validity and reliability testing using a sample of 30 referees, yielding product-moment correlation coefficients (< 0.36) outside Central Java; consequently, the data were deemed valid and reliable and appropriate for the context of tennis referees, making them suitable for use in this study.

The research procedure was systematically designed in several key stages, ranging from the preparation stage and data collection to the data processing stage. The entire procedure was conducted online to ensure efficiency and to reach the geographically dispersed sample across Central Java.

The analytical techniques used in this study employed SPSS version 29 software, following several stages of statistical assumption testing. The initial stage involved the Shapiro-Wilk normality test. The Shapiro-Wilk test was chosen because of the sample size (n < 50), making it appropriate for the number of respondents in this study. The next stage involved a linearity test to determine the presence of a linear relationship between the variables of anxiety, self-confidence, and referee performance.

If the normality test results indicated that the data were not normally distributed, the analysis of the relationship between variables was conducted using Spearman's correlation. Conversely, if the data were normally distributed, Pearson's correlation was used. Thus, the analytical techniques employed were tailored to the characteristics of the data distribution obtained. Furthermore, to determine the effect of independent variables on the dependent variable, simple linear regression analysis was performed (Model Summary Test, ANOVA Test, and Regression Coefficient Test).

RESULTS AND DISCUSSION

Result

This study involved 30 tennis referees holding regional and national licenses as respondents to describe the research subject. All respondents are referees who are currently active in Central Java and outside Central Java, with characteristics presented in the table below

Table 1.
Characteristics of a referee

Characteristics	Description
Gender	27 men and 3 women
Licences	21 national and 9 regional
Referee Experience	1 year (8 referees), 2 years (10 referees), 3 years (4 referees), 4 years (1 referee), 5 years (1 referee), 7 years (1 referee), 10 years (1 referee), 14 years (1 referee), 20 years (3 referees).
Region of origin	Demak, Grobogan, Jepara, Batang Regency, Kendal, Semarang Regency, Magelang City, Semarang City, Kudus, Pekalongan, Purworejo, Tegal, Wonogiri,,

The data was collected via a Google Forms-based questionnaire distributed via social media, specifically WhatsApp, using the following link: https://forms.gle/GNeNcEJZ1Jkt3qJC7

Table 2.
Descriptive analysis

	Anxiety	Self-Confidence	Performance of Tennis Referee
Std. Deviation	5.897	4.469	6.676
Mean	49.44	131.40	134.31
Minimum	43	123	124
Maximum	58	140	145

Based on the results of the descriptive analysis, the anxiety variable had a score range of 43–58 with a standard deviation of 5.897, the self-confidence variable had values in the range of 123–140 with a standard deviation of 4.469, and the referee performance variable had values in the range of 124–145 with a standard deviation of 6.676, indicating that the data exhibits a representative and normal distribution suitable for further analysis.

Table 3.
Test of data normality

	Statistic	df	Sig.	Description
Anxiety	0,889	9	0,193	Normal
Self-Confidence	0,960	9	0,339	Normal
Performance of Tennis Referee	0,913	9	0,793	Normal

Based on the results of the normality test using the Shapiro-Wilk test, the p-values were 0.193 for the anxiety variable, 0.339 for the self-confidence variable, and 0.793 for the referee performance variable. Data can be considered non-normal if $p < 0.05$ and can be considered normally distributed if $p > 0.05$. Since all variables have significance values > 0.05, they can be stated as normally distributed. Thus, all data meet the assumptions for analysis, namely Pearson correlation analysis and simple linear regression analysis.

Table 4.
Pearson correlation test

	Pearson's r	Sig	Description
Anxiety – Performance of Tennis Referee	0,076	0,845	Not related
Self-Confidence – Performance of Tennis Referee	0,071	0,818	Not related
Anxiety – Self-Confidence	-0,243	0,528	Not related

The results of the Pearson correlation test showed that the relationship between anxiety and referee performance had a p-value of 0.845 ($p > 0.05$), indicating that there was no significant relationship, and a correlation coefficient of $r = 0.076$, indicating a very weak relationship. The relationship between self-confidence and referee performance showed a p-value of 0.818 ($p > 0.05$) with a correlation coefficient of $r = 0.071$; thus, self-confidence does not have a significant relationship with referee performance. Furthermore, the relationship between anxiety and self-confidence showed a negative correlation ($r = -0.243$); the relationship between these two variables was found to be insignificant with a p-value of 0.528 ($p > 0.05$).

Table 5.
Test of the linear relationship between anxiety and referee performance

	Deviation from Linearity
Anxiety – Performance of Tennis Referee	0,104

Table 6.
A Test of the Linearity of Self-Confidence on Referee Performance

	Deviation from Linearity
Self-Confidence – Performance of Tennis Referee	0,329

Based on Table 5, the results of the linearity test show a p-value of 0.104 (p > 0.05); therefore, it can be concluded that the relationship between anxiety and referee performance is linear. Meanwhile, the results of the linearity test in Table 6 show that the significance value is p = 0.329 (p > 0.05), so it can be concluded that there is a linear relationship between self-confidence and referee performance.

Table 7.
Model Summary: Simple Linear Regression Analysis of Anxiety and Referee Performance

Model	R	R^2	Adjusted R^2	RMSE
	0,76[a]	0.006	- 0,136	4.800

Based on the results of the analysis, the coefficient of determination (R^2) of 0.006 indicates that anxiety levels contribute only 0.6% to referee performance. Furthermore, the adjusted R^2 value of -0.136 indicates that the regression model is not strong enough to explain the data.

Table 8.
ANOVA test of simple linear regression for anxiety and referee performance

	F	Sig
Regression	0,41	0,845[b]

The results of the ANOVA test showed a calculated F-value of 0.041 with a significance level of 0.845 (p < 0.05), indicating that anxiety does not have a significant effect on referee performance.

Table 9.
Test of the simple linear regression coefficient for anxiety–referee performance

Model	Unstandardized	Std.Error	Standardized	t	p
(Constant)	128.562	14.318		8.979	<0,001
Anxiety	0,058	0,288	0,076	0,203	0,845

Based on the results of the regression analysis, the anxiety coefficient was 0.058 with p = 0.845 (p > 0.05), indicating that anxiety has a positive correlation with referee performance but does not have a significant effect on it.

Table 10.
Model Summary: Simple Linear Regression Test of Confidence vs. Referee Performance

Model	R	R^2	Adjusted R^2	RMSE
	.071[a]	.005	-.085	6.955

The results of the analysis of the coefficient of determination, R^2 = 0.005, indicate that self-confidence explains only 0.5% of the variation in referee performance. Meanwhile, the adjusted R^2 with a negative value (-0.085) indicates that the regression model is unable to predict referee performance.

Table 11.
ANOVA Test of Simple Linear Regression: Confidence vs. Referee Performance

	F	Sig
Regression	.056	.818[b]

The results of the ANOVA test showed an F-value of 0.056 with a p-value of 0.818 ($p < 0.05$), indicating that the regression model was not significant; thus, self-confidence was not found to predict referee performance.

Table 12.
Test of the simple linear regression coefficient for self-confidence – referee performance

Model	Unstandardized	Std.Error	Standardized	t	p
(Constant)	120.902	56.840		2.127	.057
Self-Confidence	.102	.434	.071	.236	.818

Based on the results of the regression analysis, the confidence coefficient was 0.102 with $p = 0.818$ ($p > 0.05$), indicating that confidence has a positive relationship with referee performance but does not have a significant effect on it.

Discussion

Based on the results of the data analysis, anxiety does not appear to have a significant relationship with the performance of tennis referees in Central Java. This can be seen from the results of the Pearson correlation test with a value of ($r = 0.076$; $p = 0.845$), indicating that the relationship is very weak. Additionally, the simple linear regression ANOVA results ($F = 0.41$; $p = 0.845$; $p < 0.05$) reinforce this finding that anxiety does not have a statistically significant effect on referee performance. The regression coefficient ($\beta = 0.058$; $p = 0.845$) indicates that anxiety levels contribute only 0.6% to the variation in referee performance, while the remainder is influenced by other factors. The findings of this study indicate that anxiety has no significant relationship with the performance of tennis referees in Central Java. This is attributed to the characteristics of Central Java tennis referees, the majority of whom (70%) hold national-level licenses. Furthermore, extensive experience and high-level certifications foster effective coping mechanisms, so that match-related pressures such as pressure from athletes or spectators are no longer perceived as threats that disrupt the referee's performance on the court. Referees with extensive experience are able to manage psychological disturbances automatically. Thus, psychological pressure is viewed as a routine part of a match or competition.

Meanwhile, the results of this study the regression coefficient ($\beta = 0.102$; $p = 0.818$) and Pearson correlation ($r = 0.071$; $p = 0.818$) indicate that self-confidence has no significant relationship with the performance of tennis referees in Central Java. The coefficient of determination ($R^2 = 0.005$) indicates that self-confidence explains only 0.5% of the variation in referee performance. The results of the ANOVA test ($F = 0.056$; $p = 0.818$) further support this finding that the regression model is not significant for referee performance. Although theoretically self-confidence plays an important role in decision-making under difficult conditions, the data from this study indicate that for referees in Central Java, through experience and extensive practice, self-confidence is

stable and has been internalized. Consequently, self-confidence is not a factor that alters the quality of decisions made while officiating matches.

Previous research on the psychological factors affecting match officials or referees has shown that referees with high levels of self-efficacy are better able to manage cognitive anxiety under intense pressure (Guillén & Feltz, 2011). In addition, (Jatra & Fernando, 2019) states that psychological factors influence performance, but are also influenced by social environmental factors and an understanding of the rules. According to (Yang et al., 2024) found that at extreme levels of anxiety, concentration can be impaired and decision-making can be flawed.

This study has several limitations, including a limited sample size, as it involved only 30 tennis referees in Central Java. This may limit the generalizability of the study's findings when describing the conditions of all tennis referees on a broader scale, such as at the national or international level. Furthermore, data collection via an online self-report (Google Form) carries the risk of subjective bias, leading respondents to provide answers they perceive as normative rather than reflecting the actual psychological conditions they experience while officiating matches. Future research is recommended to involve a larger sample size and employ mixed-methods approaches to provide a more in-depth explanation of causal relationships.

CONCLUSION

The results of the study indicate that anxiety levels and self-confidence do not have a significant relationship with the performance of tennis referees in Central Java. Simultaneously, anxiety levels and self-confidence do not have a significant effect on tennis referee performance. These findings indicate that tennis referee performance in Central Java is more influenced by other factors, such as match officiating experience and license level. Thus, this study is expected to serve as a basis for evaluation in developing tennis referee competencies in technical aspects and match leadership professionalism in Central Java.

ACKNOWLEDGMENTS

The author of this study would like to express his deepest gratitude to all of his friends who assisted him in the preparation of this study.

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