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Analysis of Self-Efficacy and Mental Toughness on Peak Performance in U-16 Football Athletes of Koni, Bekasi City

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Self-efficacy; Mental Toughness; Peak Performance

ABSTRACT
This research explores the influence of self-efficacy and mental toughness on the peak performance of U-16 football athletes from KONI Bekasi City. The research addresses the problem of inconsistent performance among young athletes, often attributed to a lack of psychological readiness, such as confidence and resilience. The objective of this study is to examine the extent to which these psychological factors contribute to peak performance. Using a quantitative research method, data were collected from 21 athletes aged 12–16 years through Likert-scale instruments tailored to measure self-efficacy, mental toughness, and peak performance. The results reveal significant positive correlations: self-efficacy influences peak performance with a correlation of r = 0.943, while mental toughness has a correlation of r = 0.940. Together, these factors explain 97% of the variance in peak performance (r = 0.985). This research highlights the critical role of self-efficacy and mental toughness in optimizing athletic performance, emphasizing the need for early psychological development in athletes. The findings provide valuable insights for coaches and sports institutions to design training programs that enhance both mental and physical preparation.

Introduction

Sports encompass activities that engage the entire body, including the legs, torso, arms, head, and other interconnected body parts, to achieve specific targets. Engaging in sports is a daily necessity for maintaining both physical and mental health; it can make individuals fit, healthy, and strong. Moreover, sports can be a field of dedication that leads to significant achievements (Raynaldi et al., 2019).

Football is one of the most popular sports among the Indonesian populace, spanning from children to adults. However, the high enthusiasm for football in Indonesia is not reflected in the achievements of the Indonesian National Football Team in various prestigious tournaments. This discrepancy arises because football demands more skills from players than many other sports. As

a team sport, football involves numerous complex factors, including physical attributes, tactics, strategy, and stamina. Beyond physical aspects, recent developments in sports reveal the substantial role of psychological factors in achieving peak performance. Herani (2018) posits that an athlete's performance is determined by four key factors: skill, physical attributes, and psychological factors.

Research conducted by Lina Agustin (2019) examined the relationship between self-efficacy and peak performance among athletes in Malang. The study, which involved a sample of 68 athletes from the Sultan Maulana Malik Ibrahim State Islamic University, demonstrated a positive and significant correlation between self-efficacy and peak performance. The findings indicated a significance value of r = 0.821, which surpasses the critical value at a 5% significance level (0.821 > 0.094). This suggests that as self-efficacy increases, peak performance also tends to rise. Furthermore, research by Muhammad Sapta (2022) revealed a significant relationship between independent variables—namely mental toughness and self-efficacy—and the dependent variable of peak performance. The study included a sample of 103 athletes from Yogyakarta State University (UNY), showing a correlation coefficient of r = 0.902, which also exceeds the critical value at a 5% significance level (0.902 > 0.094). This indicates that at a significance level of 81.3, higher mental toughness and self-efficacy among football players correlate with elevated peak performance, and vice versa.

According to Williams (in Prambayu, 2017), peak performance is the extraordinary strength displayed when an athlete can optimally showcase their physical and mental abilities. Achieving peak performance does not necessarily equate to victory. Every athlete can reach peak performance through their inherent skills and optimal training; however, this does not determine the outcome of a competition.

Based on observations in the field and interviews with coaches of junior football athletes from KONI Bekasi City, it has been noted that athletes often lack confidence when facing opponents, especially upon hearing that rival teams frequently win major competitions. Additionally, a recurring issue among athletes is the inability to demonstrate their best abilities during practice and matches, which in turn reflects their peak performance. Peak performance itself is described as a magical state where physical and mental faculties align in harmonious synergy (William & Krane, in Agus Setiawan, 2021). Setiawan (2021) further defines peak performance as the optimum display achieved by an athlete. Similarly, Schneider, Bugental, and Pierson (2010), in Utama, (2020) characterize peak performance as a perfect condition where thoughts and muscles move in unison. It can be said that peak performance reveals latent abilities expressed through skills in athletic contexts, artistic expression, physical strength, intellectual prowess, interpersonal communication, moral courage, and many other extraordinary activities. The significant role of psychological factors can enhance an athlete's performance during competitions, as these psychological elements serve as drivers or navigators of athletic performance.

Self-efficacy is defined as a positive sense of one's capability, allowing individuals to demonstrate their abilities optimally (Komarudin, 2021). Individuals with high self-efficacy strive to overcome challenges and difficult situations, while those with low self-efficacy tend to give up

more quickly (Maryam, 2018). Generally, self-efficacy is assessed through confidence and is believed to correlate positively with athletic performance.

Self-efficacy embodies a sense of capability that, when positively harnessed, enables an individual to showcase their skills optimally. As a result, it fosters a belief in one's ability to perform and encourages individuals to give their best to achieve their desired outcomes. In agreement with Bandura (Ambarwati & Fitriasari, 2021), self-efficacy aids individuals in determining and attaining their expected goals and results. However, self-efficacy does not simply arise on its own; it is influenced by several aspects. Bandura (Putri & Fakhruddiana, 2019) highlights the following factors that affect self-efficacy: 1) past performance experiences; 2) vicarious experiences; 3) social persuasion; and 4) emotional states. Furthermore, Bandura (Putri & Fakhruddiana, 2018) notes that self-efficacy can be evaluated based on several aspects, including: 1) the degree of overcoming difficulties; 2) generality, or the scope of behaviors; and 3) strength, or the confidence in one's abilities.

Mental toughness is defined as an individual's capacity to create and enhance performance, both subjectively and objectively, even under challenging circumstances, while managing stress, anxiety, and decision-making related to competitive situations (Crust, 2018). Football athletes with high mental toughness tend to regulate negative emotions, exhibit greater self-confidence, and mitigate anxiety experienced during matches. The higher an individual's mental toughness, the lower their level of anxiety. Furthermore, the more an athlete is able to maintain a positive attitude under pressure, the less anxiety they experience when facing competition (Hossein-Nejad-Ariani et al., 2019).

Mental toughness enables a football athlete to remain relaxed, composed, and motivated, as it facilitates the development of two key skills: channelling positive energy, such as achieving success and overcoming difficulties, and adopting a mindset that disregards problems, pressure, mistakes, and competition during a match (Abi Usman, (2023). Mental toughness comprises a collection of psychological attributes that distinguish exceptional football athletes, observable during both training and competition. The presence of mental toughness in football athletes manifests as remarkable persistence, even when there appears to be no objective hope of winning a match (Gunarsa, in Syamsudin, 2020).

Research emphasizes that peak performance in athletes is a multifaceted phenomenon influenced by physical, tactical, and psychological elements. For instance, Herani (2018) identified skill, physical readiness, and mental attributes as key determinants of an athlete's success. Similarly, studies by Agustin (2019) and Sapta (2022) demonstrated that self-efficacy and mental toughness significantly impact athletic performance. Agustin's study on Malang-based athletes revealed a strong correlation between self-efficacy and peak performance, with a correlation coefficient of $r = 0.821$. Meanwhile, Sapta's research involving Yogyakarta athletes further supported these findings, establishing a correlation of $r = 0.902$ between mental toughness and performance. Despite these insights, limited research focuses on adolescent athletes, especially in specific regions like Bekasi, where psychological factors might vary based on local socio-cultural dynamics.

This study aims to bridge this gap by exploring the combined effects of self-efficacy and mental toughness on the peak performance of U-16 football athletes in Bekasi. Observational data and interviews with local coaches highlight recurring issues among these athletes, including low confidence when facing stronger opponents and inconsistent performance during competitions. These challenges point to deficiencies in key psychological attributes necessary for optimal performance. Williams (2017) underscores that peak performance is not merely about winning but achieving a harmonious alignment of physical and mental capabilities, allowing athletes to perform at their best under any circumstances.

The novelty of this research lies in its focus on adolescent athletes within a specific demographic context, examining how psychological attributes—often overlooked at this developmental stage—impact performance. By comparing findings with previous studies and leveraging a unique dataset collected from KONI Bekasi City athletes, this research provides a localized understanding of how self-efficacy and mental toughness contribute to peak performance. Additionally, it introduces adapted measurement tools tailored to the sport of football, enhancing the precision of psychological assessments.

Based on the exposition provided above, the researcher proposed the following hypotheses for this study: Ha1, "There is a significant influence of self-efficacy on peak performance in football athletes;" Ha2, "There is a significant influence of mental toughness on peak performance in football athletes;" and Ha3, "There is a significant influence of self-efficacy and mental toughness on peak performance in football athletes."

Research Methods

This research employs a quantitative approach, which tests hypotheses to determine the effect of independent variables on dependent variables using statistical methods and measurable data, resulting in conclusions that can be generalized. The population in this research consists of U-16 football athletes aged between 12 and 16 years, comprising a total of 21 individuals. Sukardi (2018) suggests that the research population is the group of subjects from which the results of the study will be generalized. The sampling technique utilized is total sampling. Sugiyono (2018) states that total sampling is a technique that involves selecting all members of the population for the study sample. The variables in this study include self-efficacy and mental toughness as independent variables, with peak performance as the dependent variable, and U-16 KONI Bekasi City football athletes as the study sample. This research is conducted over a period of 5 months, starting from July 2023 to December 2023, at the Gor Prima Harapan Regency Field.

The measurement tool employed is a Likert scale for data collection. The self-efficacy scale is based on Bandura's framework, adapted by the researcher, and encompasses aspects such as self-assessment, assertiveness, and willingness. The total number of adapted scale items is 20, consisting of 7 items for self-assessment, 7 items for assertiveness, and 6 items for willingness. The measurement scale used for the research variables is the Likert scale. According to Arikunto (2019), the Likert scale is used to measure attitudes, opinions, and perceptions of individuals or groups regarding social phenomena or events. The Likert scale employed ranges from 1 to 5, where

for positive statements, 1 (Never), 2 (Sometimes), 3 (Occasionally), 4 (Often), and 5 (Always) are assigned; for negative statements, the scale is reversed: 1 (Always), 2 (Often), 3 (Occasionally), 4 (Sometimes), and 5 (Never).

The mental toughness scale is based on Al Gani (2018), which the researcher also adapted. It includes aspects such as sports awareness, tough attitude, thriving through challenges, and desire for success. The total number of adapted items for this scale is 20, with 5 items each for sports awareness, tough attitude, thriving through challenges, and desire for success.

The peak performance scale is derived from Garfield and Bennett (in Williams, 2019), which identifies five specific aspects experienced by athletes during peak performance: mental relaxation, physical relaxation, optimism, being present-focused, and high energy. The total number of adapted items for this scale is 20, consisting of 4 items for mental relaxation, 4 items for physical relaxation, 4 items for optimism, 4 items for being present-focused, and 4 items for high energy.

The analysis conducted includes descriptive and hypothesis testing. Descriptive statistics aim to obtain standard deviation values, means, minimum scores, maximum scores, and frequency distributions. The results are categorized into three levels: low, moderate, and high. After the data is collected from the measurements, the next step involves analyzing this data using IBM SPSS software version 22. Normality testing is performed using the Shapiro-Wilk test, along with linearity testing. Pearson product-moment correlation analysis is employed to determine the magnitude of the correlation between X1 and Y, as well as X2 and Y. Meanwhile, multiple correlation analysis is utilized to assess the collective correlation between X1, X2, and Y, with a significance level set at $\alpha = 0.05$.

Results and Discussion

To test the hypotheses proposed in this study, the researcher utilized multiple correlation techniques, following normality assumption testing as a prerequisite for correlation analysis. Additionally, descriptive analysis was conducted to ascertain the frequency distribution of data for each variable. The results of the normality tests indicated that self-efficacy (Sig 0.243), mental toughness (Sig 0.422), and peak performance (Sig 0.489) were normally distributed. Furthermore, the results of the linearity deviation test (Sig 0.213) indicate that there is a linear relationship between self-efficacy, mental toughness, and peak performance.

After performing the normality prerequisite test, the next step involved descriptive analysis to determine the frequency distribution of data for each variable. The descriptive analysis for each of the variables examined is presented below:

Table 1. Descriptive Analysis Test

		Self-Efficacy	Mental Toughness	Peak Performance
N	Valid	20	20	20
Mean		83.30	84.05	88.20
Median		84.00	84.50	80.00

Mode		82	82[a]	88[a]
Std. Deviation		7.292	7.207	6.978
Variance		53.168	51.954	48.695
Range		30	30	28
Minimum		63	65	70
Maximum		93	95	98
Percentiles	25	81.25	81.25	85.25
	50	84.00	84.50	88.00
	75	88.75	90.00	94.50

Source: Processed data, 2025

The results of the hypothesis testing for the correlation between self-efficacy and peak performance (see Table 2), the correlation between mental toughness and peak performance (see Table 3), and the correlation between self-efficacy and mental toughness with peak performance (see Table 4) are presented below.

Table 2. Correlation Between Self-Efficacy and Peak Performance

Variable	N	M±SD	Pearson Correlation	Sig. (2-tailed)
Self-Efficacy with Athlete Performance	20	83.30±7.292	0.943**	0.000

Note: N: Subject, M: Mean, SD: standard deviation

Source: Processed data, 2025

Based on Table 2, the Pearson correlation coefficient is (r = 0.943, Sig = 0.000 < 0.05), indicating a significant correlation between self-efficacy and peak performance, with a high correlation magnitude (Sugiyono. 2018)

Table 3. Correlation of Mental Toughness with Peak Performance

Variable	N	M±SD	Pearson Correlation	Sig. (2-tailed)
Mental Toughness with Athlete Performance	20	84.05±7.207	0.940**	0.000

Note: N: Subject, M: Mean, SD: standard deviation

Source: Processed data, 2025

Based on Table 3, the Pearson correlation coefficient is (r = 0.940, Sig = 0.000 < 0.05), indicating a significant correlation between mental toughness and peak performance, with a high correlation magnitude (Sugiyono, 2019).

Table 4. Correlation of Self-Efficacy and Mental Toughness with Peak Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig. (2-tailed)
1	0.985[a]	0.970	460	1.279	0.001

a. Predictors: (Constant), X^1, X^2 dengan Y

Source: Processed data, 2025

Based on Table 4, the multiple correlation coefficient between self-efficacy and mental toughness with athletes' peak performance is (r = 0.985, Sig = 0.001 < 0.05) and R Square = 0.970, indicating that the magnitude of the correlation falls within the high category.

The results of the correlation test between self-efficacy and athletes' peak performance yield (r = 0.943, Sig = 0.000 < 0.05), which indicates a significant correlation of 94.3% between self-efficacy and peak performance, while 5.7% is influenced by other unexamined variables. Thus, it can be interpreted that self-efficacy positively impacts sports with competitive team characteristics, such as football and futsal. Research by LaForge-MacKenzie and Sullivan (2014) reported a moderate correlation between self-efficacy and sports performance. Other studies found that self-efficacy correlates with peak performance, indicating that game knowledge, strategic skills, decision-making abilities, communication, and in-game control significantly improve (Guillén & Feltz, 2011; Karacam & Adiguzel, 2019; Karaçam & Pulur, 2017). Furthermore, self-efficacy in sports leads to better decision-making, enhanced performance, and reduced stress during competitions. In this study, self-efficacy contributes to higher performance in football athletes, facilitating better offensive and defensive plays and optimizing technical and tactical execution (Argudo-Iturriaga et al., 2020; García-Naveira, 2018). Additionally, the strength of this research lies in the modified self-efficacy instrument specifically designed for football, enhancing the validity and accuracy of the measurements. Consequently, this study emphasizes that the psychological factor of self-efficacy correlates strongly with athletes' peak performance in football.

The correlation test results between mental toughness and athletes' performance yielded (r = 0.940, Sig = 0.006 < 0.05), indicating a significant correlation of 94% between mental toughness and peak performance, while 6% is influenced by other unexamined variables. Mental toughness effectively reduces stress levels and maximizes performance (Crust et al., 2014). Additionally, research by Haghighi and Gerber (2019) found that higher levels of mental toughness among high school and college students are associated with a decrease in depression symptoms arising from pressure situations. Emotionally resilient individuals can manage stress effectively (Lin et al., 2017). While mental toughness contributes to performance in sports, Cowden (2016) noted that this contribution also depends on specific situations, such as high-pressure scenarios that typically increase anxiety levels—such as during penalty kicks, trailing in scores, being unable to thwart the

opponent's attack, or failing to score. In such situations, the psychological factor of mental toughness is crucial for athletes to determine their success rate (Cowden, 2017).

The results of the multiple correlation analysis between self-efficacy and mental toughness with athletes' performance yield ($r = 0.970$, $Sig = 0.001 < 0.05$) indicate a significant correlation of 97% between self-efficacy and peak performance, while 3% is influenced by other unexamined variables. High mental toughness enables athletes to cope with stress and depression during competitions, thus establishing mental toughness as a key predictor for athletes to showcase their best performance (Cowden, 2017). Consequently, this study emphasizes that the psychological factors of self-efficacy and mental toughness significantly impact the performance of football athletes during competitions.

The researcher also conducted interviews with expert sources, including the Head Coach of Dewa United, Stevanus Sirey, and Agung Indra Perkasa, a coach at Global Prestasi School. Coach Agung specifically remarked that mental toughness greatly influences U-16 athletes, as readiness for prestigious competitions requires not only exceptional skills but also a strong mental foundation. From experience, athletes with robust mental resilience tend to achieve better performance. Coach Stevanus Sirey similarly stated that while mental toughness is crucial, other factors, such as self-efficacy, must also be present to attain peak performance. Thus, it can be concluded that both experts share the view that achieving peak performance necessitates disciplined training reinforced by self-efficacy and mental toughness. This supports the previously outlined correlation results.

Conclusion

This study demonstrates that self-efficacy and mental toughness significantly influence the peak performance of U-16 football athletes in KONI Bekasi City. The findings reveal that self-efficacy, as measured through aspects like confidence, perseverance, and the ability to overcome challenges, positively correlates with an athlete's ability to perform optimally during matches. Similarly, mental toughness, which encompasses resilience, stress management, and maintaining focus under pressure, plays a crucial role in enhancing athletic performance.

The research results indicate that self-efficacy contributes 94.3% to peak performance, while mental toughness accounts for 94%, with a combined effect of 97%. These findings underscore the importance of psychological factors in achieving athletic success, as they significantly outweigh other unexamined variables. Athletes with higher self-efficacy and mental toughness demonstrated better technical execution, strategic decision-making, and emotional regulation, which are critical for competitive sports like football.

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