The Relationship Between Self-Efficacy and Performance in Talented Football Players: The Mediating Role of Motivation

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Abstract

Self-efficacy and motivation are known for their positive influences on the performance of athletes. The complex dynamic between these variables in a specific sports environment, such as football, is less understood. That is why the present study looked into the relationship between self-efficacy and performance of talented football players, and the mediating role of motivation. It is hypothesized that self-efficacy has a positive relationship with performance (H1) and that motivation mediates this relationship positively (H2). Self-report questions about self-efficacy, motivation, and performance were sent daily to a professional football club in the Netherlands. A multiple linear regression analysis and a mediation analysis were conducted with data provided by 42 male football players across two seasons. The analyses showed that self-efficacy is positively related to the performance of the players (direct effect: $B = 0.23$, $p = 0.000$; total model: $B = 0.21$, $p = 0.000$) and that motivation is a significantly negative mediator in this relationship ($B = -0.02$, *BootLLCI* = -0.03, *BootULCI* = -0.01). This means that the first hypothesis was supported by data, while the second hypothesis was not. Coaches, psychologists, and policy makers can help the players improve their self-efficacy, which in turn will improve performance. The staff could also see that high levels of motivation may be harmful to the performance of the players. Future research should look into intrinsic and extrinsic motivation to make better predictions about the mediating effect of motivation in the relationship between self-efficacy and performance of talented football players.

Keywords: sport psychology, self-efficacy, motivation, performance, talented football players

The Relationship Between Self-Efficacy and Performance in Talented Football Players: The Mediating Role of Motivation

Zlatan Ibrahimovic's astonishing bicycle kick against England in a 2012 friendly match is arguably the most beautiful goal in football history. The now-retired famous Swedish striker jumped in the air in the ninety-first minute and shot the football from an incredible distance of thirty meters past goalkeeper Joe Hart. The bicycle kick was later rewarded with a Puskas award (Burton, 2022). Zlatan, known for his arrogance, commented on his goal in an interview with Pierce Morgan: "Enjoy cause something like this you never gonna see again" (Peers Morgan Uncensored, 2023, min 79:07). However, Zlatan's arrogance is often overshadowed by his confidence and dedication to the sport. He tells us: "I do not want to be normal, I want to make a difference. So, everything I do, I want to make a difference, because when I make a difference, I'm the best. And that's not arrogance that is confidence" (Peers Morgan Uncensored, 2023, min 54:05). Bandura (1986) describes confidence, or self-efficacy, as a crucial factor leading to successful performances. The importance of self-efficacy is also evident in sports (Anstiss et al., 2018). However, the relationship between self-efficacy and performance is investigated over a wide variety of sports and not specifically in football. In the quote, Zlatan mentioned his motivation of wanting to make a difference and being the best. Motivation, inclination to behavior and the willingness to repeat behavior, has like self-efficacy a positive influence on performance (Yang, 2020). Moreover, it is mentioned that the relationship between self-efficacy and performance is positively mediated by motivation in basketball (Yang, 2020). Here, again, the relationship is not investigated in football. The present study is conducted to fill in the literature gap about self-efficacy and motivation in football. Thus, the forthcoming research question is: What is the relationship between self-efficacy and performance of talented football players, and does motivation mediate this relationship?

The importance of self-efficacy was first conceptualized by Bandura (1977, 1982, 1986). Self-efficacy is defined by the person's evaluations of their capabilities to construct and perform courses of action needed to handle future situations. Alternatively, it is a person's belief about their abilities to achieve something. Bandura (1986) denotes self-efficacy as having an essential role in influencing performance. This statement is agreed upon in various sports domains such as ski-jumping, endurance sports, and basketball (Sklett et al., 2018; Anstiss et al., 2018; Yang, 2020). The main finding is that self-efficacy is a determining factor that predicts the performance of athletes (Sklett et al., 2018; Anstiss et al., 2018; Yang, 2020). However, Kanthack et al. (2014) found that self-efficacy only has a short-term effect on the performance of free throws of basketball players. Noteworthy is that the relationship between self-efficacy and performance in athletes was investigated in different countries. This implies that athletes from diverse countries might differ in their opinions about the importance of self-efficacy due to cultural differences. Additionally, researchers focus on various sports disciplines, resulting in a shortage of literature dedicated to a single sport, such as football. With that being said, there is still a strong consensus that self-efficacy predicts the performance of athletes, but more research is needed towards a specific sport in a particular country, and towards the long-term effects of self-efficacy on performance.

Like self-efficacy, motivation is an influential factor leading to success (Yang, 2020; Stasielowicz, 2025). Motivation is defined by the person's readiness to start a behavior and by the forces that continue the behavior (Yang, 2020). Additionally, motivation is the logic behind a person's readiness, actions, and goals (Yang, 2020). There are differences in how adolescents and adults experience motivation (Silverman et al., 2015; Rodman et al., 2021). First, during reward processes, the ventral striatum of an adolescent brain is more active compared to an adult brain. As a result, adolescents are more prone to decision-making errors in a context of motivational salience (Silverman et al., 2015). Second, adolescents spend more

physical effort to achieve a goal, whereas adults preserve energy by having strategic solutions to prevent physical energetic impulses (Rodman et al., 2021). This suggests that young athletes may have motivational difficulties in a football environment. However, the success factor of motivation is apparent in athletes. Amongst researchers, there is a consensus that motivation positively influences the performance of athletes, which is especially true for intrinsic motivation (Lehner & Schuster, 2023; Yang, 2020). Yet, the downside of motivation is also mentioned in saying that motivation is correlated with burnout in athletes, which in turn negatively correlates with the performance of athletes (Tahir et al., 2024; Liu & Hai, 2021). Besides, there was one study by Yang et al. (2023) that did not find a significant correlation between motivation and sports performance. Like self-efficacy studies, motivation is researched in different countries and focuses on a wide array of sports. To enhance the knowledge about the relationship between motivation and performance of athletes, it is important to investigate the relationship in a different domain, such as football. Thus, although motivation is experienced differently in adolescents, motivation generally positively influences the performance of athletes, however, motivation may affect performance negatively via the construct of burnout.

The relationship between self-efficacy and motivation is also investigated (Yang et al., 2023). When athletes believe in their abilities to achieve something, they are more inclined to keep going even when experiencing setbacks. (Yang et al., 2023). In the context of academics and sports participation, the relationship between self-efficacy and motivation is significant (Yu & Song, 2022; Ramos Salazar, 2018). Yang (2020) also found that self-efficacy is related to motivation, but now in the context of the performance of athletes. This suggests that the relationship between self-efficacy and motivation is rigid, even accounting for differences in context. Additionally, Yang (2020) was interested in the mediating effect of motivation between self-efficacy and the performance of athletes. The results showed that self-efficacy

positively affects motivation and, in turn, motivation positively affects the performance of athletes. The mediating effect in this model was small but significant ($B = 0.12$, $p = 0.010$; B = 0.10, $p = 0.000$). Although motivation was a significant mediator in this model, Yang (2020) stated that other contributing factors would likely influence the indirect effect of self-efficacy on performance. The external validity, however, could be considered as low, since data were only collected from different basketball teams. Besides, specific contextual influences such as training, coaching, culture, and country might bias the outcome of this study. Thus, motivation is a significantly positive mediator between self-efficacy and the performance of athletes, but the effect is small.

This study

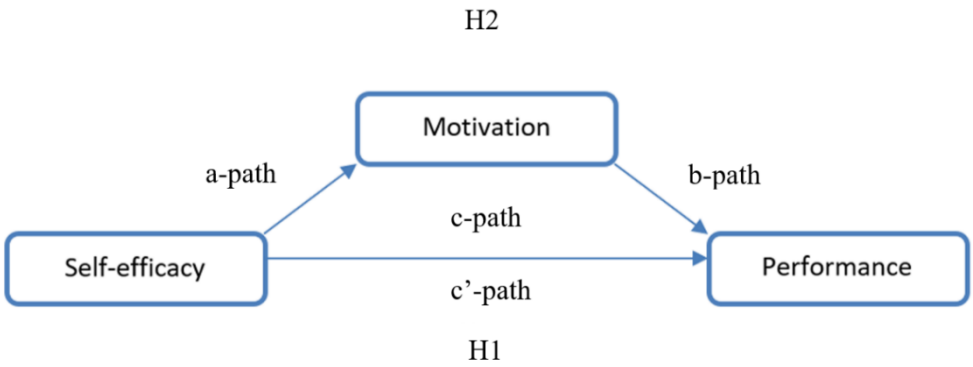
In the present study, we investigate the relationship between self-efficacy and performance of talented football players and the mediating role of motivation in this relationship. The study is conducted in the youth academy of a professional football club in the Netherlands. A simplified version of the mediation model by Yang (2020) will be used as a foundation for this study. We will use motivation as the mediating factor between self-efficacy and the performance of talented football players. The theoretical model can be seen in Figure 1. Previous findings stated that self-efficacy is predictive of the performance of athletes (Sklett et al., 2018; Anstiss et al., 2018; Yang, 2020). In addition, it is investigated that motivation positively mediates this relationship (Yang, 2020). Therefore, it is hypothesized that self-efficacy has a positive relationship with performance in talented football players (H1 in Figure 1). Second, it is hypothesized that motivation positively mediates the relationship between self-efficacy and performance in talented football players (H2 in Figure 1).

The findings of this study are relevant for replication and to fill the research gap in sports sciences. Constructs such as self-efficacy, motivation, and performance of athletes are

being investigated in numerous countries and across a variety of sports such as basketball, ski-jumping, and endurance sports (Yang, 2020; Sklett et al., 2018; Anstiss et al., 2018). When the results of this study are in line with previous findings, it can be said that the effect of self-efficacy on performance and the mediating role of motivation in this relationship are also applicable to a professional football club in the Netherlands. This may contribute to the external validity of this topic. Besides, this study is relevant for (Dutch) football clubs to enhance the performance of their players. First, an individual coaching method can be applied due to the knowledge of how each player differs in their values of self-efficacy, motivation, and performance. Players with low self-efficacy and motivation scores can be guided by a psychologist or coach to enhance these constructs and thereby improving their performance. Players with high self-efficacy and motivation scores do not need as much attention from a psychologist or coach. Second, when players show decreases in their self-efficacy and motivation, the staff can easily detect these changes at an early stage and take appropriate measures. Finally, the club gets insights into how self-efficacy, motivation, and performance are related.

Figure 1

Theoretical model



Note: c: total effect; c': direct effect

Methods

Participants

Data have been collected from three separate football teams, comprising 94 talented male football players (aged 15 to 20), all playing for a club in the highest Dutch football league (Eredivisie). The analysis has been performed with 42 football players, meaning that 52 were not selected via the inclusion criteria (section: Data Pre-Processing). All participants signed an informed consent, signifying that the players (and the parents, depending on age) accepted that the data would only be used for research purposes. Personal data such as weight, height, team, position, and nationality were not reported due to the risk that a player might be identifiable. The football players were not rewarded with incentives to participate in this study. Yet, the players could benefit from the insight gained from the data analysis to enhance self-efficacy, motivation, and performance.

Design, Measures, and Procedure

Spanning two football seasons, talented football players provided self-report data about self-efficacy, motivation, and performance on every training day (comprising four to six field sessions of 75 to 90 minutes and two strength sessions of 60 to 75 minutes) and match days (approximately one match a week). Every morning, up to thirty minutes before the first training (or before the match), the talented football players had to answer one question about self-efficacy and one question about motivation on a designated tablet located outside of the locker room. Likewise, every midday up to thirty minutes after the last training (or after the match), the players had to answer one question about perceived performance on the same tablet. The players walked one at a time out of the locker room to ensure that they could answer the self-report questions in private, without other players or staff interfering. Self-report questions for self-efficacy, motivation, and performance were formulated via a visual analogue scale from zero (respectively: not at all confident, not at all motivated, very bad (far

below my capabilities)) to a hundred (respectively: very confident, maximally motivated, maximally (to the best of my capabilities)). The self-report questions were as follows: “How confident are you that you can perform maximally today?” (self-efficacy) (Wiese-Bjornstal, 2019; Bandura, 2006), “How motivated are you to perform maximally today?” (motivation) (Wiese-Bjornstal, 2019; Barte et al., 2019), “How well did you perform today?” (performance) (Den Hartigh et al., 2022; Brink et al., 2010). These self-report questions are being used since the present study is part of a study by Neumann et al. (2024) that used these self-report questions for measuring self-efficacy, motivation, and performance at the same football club. An important note is that the last self-report question was about the perceived performance of a player and not performance measured by physiological data.

The benefits of self-reported single-item questions were apparent in the practicality of self-reported data collection. Data were collected via the internet on a tablet, meaning that no time was needed to perform physical data collection. Besides, the costs of data collection by means of self-report questions were known to be low (Paulhus & Vazire, 2007). Another benefit of self-report questions was the richness of information given by the football players. The players answered the questions based on emotions, sensations, and thoughts, which only self-report questions can measure (Paulhus & Vazire, 2007). It was important to give the players single-items for several reasons. First, single-items were used to measure each variable because they allowed for a clear interpretation of the main and mediation analysis: less noise due to measuring only three datapoints per day per player and no overly complex data analysis. Second, since the football players had to answer self-report questions for two football seasons, it was decided to use three single items to keep the players motivated in answering the self-report questions. Lastly, football clubs allowed their players to invest only a limited amount of time answering the self-report questions. Thus, an ongoing data collection

research design based on three self-report questions was used to capture the data of self-efficacy, motivation, and performance.

The present study was approved by the ethics committee of the Faculty of Behavioral and Social Sciences of the University of Groningen (research code: PSY-2425-S-0016 Determining the resilience of young professional soccer players)

Data Pre-Processing

To come to the final dataset, an inclusion criteria has been made. First, a player was included in the final dataset if less than 20% of the data on each variable (self-efficacy, motivation, and performance) were missing from the point at which the Eredivisie team staff began tracking the training sessions (Neumann et al., 2024). This gives a dataset of 58 talented football players. A cutoff of 20% was chosen because it reflects a balance between data quality and the preservation of a high number of participants to perform a valid analysis. Second, players who only provided data for one day were excluded from the dataset. This resulted in a dataset of 43 talented football players. One player was excluded from the dataset because the lowest amount of datapoints of the player was 19. This player can negatively influence the analysis by loss of statistical power, loss of representativeness, and difficulties with imputations (Oakes, 2017; Ayilara et al., 2019; Buuren, 2018). Finally, the missing values were imputed by using the mean score per variable (self-efficacy, motivation, and performance) for each talented football player (Pedersen et al., 2017). This resulted in the final dataset consisting of 42 talented football players with an average of 287 datapoints (ranging from 84 to 430 datapoints).

Statistical Analyses Strategy

To understand the relationship between self-efficacy and the performance of talented football players, a multiple linear regression analysis was conducted. Following this, a mediation analysis was performed to understand the mediating effect of motivation in this

dynamic. Both analyses were performed on PROCESS-macro (version 4.2; Hayes, 2022) within IBM SPSS Statistics (version 28; IBM CORP., 2021) predictive analytics software.

Results

Model Assumptions

Before diving into the multiple linear regression and mediation analysis, model assumptions of linearity, normality, homoscedasticity, multicollinearity, and autocorrelation must be met. A correlation matrix was made to test linearity (Table 1, Appendix A). The correlation matrix shows no zero correlations, meaning that the model assumption of linearity was not violated. Normality was tested via a histogram of standardized residuals (Figure 1, Appendix A). A roughly symmetrical bell-shaped histogram was apparent, indicating that the model assumption of normality was not violated. For homoscedasticity, a horizontal Loess line can be seen around the X-axis in the scatterplot of standardized residuals versus the predicted values (Figure 2, Appendix A). Therefore, the model assumption of homoscedasticity was not violated. To test multicollinearity, the variance inflation factors were examined (VIFs) (Table 2, Appendix A). Neither self-efficacy nor motivation violated the model assumption of multicollinearity (self-efficacy: *VIF* = 1.26; motivation: *VIF* = 1.26). At last, the Durbin-Watson test statistic was used for assessing autocorrelation in the residuals (Table 3, Appendix A). The model assumption of autocorrelation was not violated (*Durbin-Watson value* = 1.52). Thus, all model assumptions are met.

Descriptive Statistics

Prior to discussing the direct effects and the mediating effect, the descriptive statistics were calculated (Table 1).

Tabel 1

Descriptive statistics

	N	Mean	Standard deviation
Self-efficacy	12,035	75.92	11.99
Motivation	12,035	86.15	13.01
Performance	12,035	72.35	12.42

Main analyses

To answer the research question: ”What is the relationship between self-efficacy and performance of talented football players, and does motivation mediate this relationship?”, it is important to understand the dynamics of the theoretical model shown in Figure 1. First, according to the multiple linear regression analysis, the relationship between self-efficacy and motivation was significantly positive (B = 0.49, p = 0.000; Table 4, Appendix B). Meaning, the higher the self-efficacy, the higher the motivation was rated. Second, the relationship between motivation and performance was significantly negative (B = -0.04, p = 0.000; Table 4, Appendix B). This implies that the higher the motivation, the lower the performance was rated by the football players. Lastly, the relationship between self-efficacy and performance was significantly positive (B = 0.23, p = 0.000; Table 4, Appendix B). This means that high values of self-efficacy were associated with high values of performance.

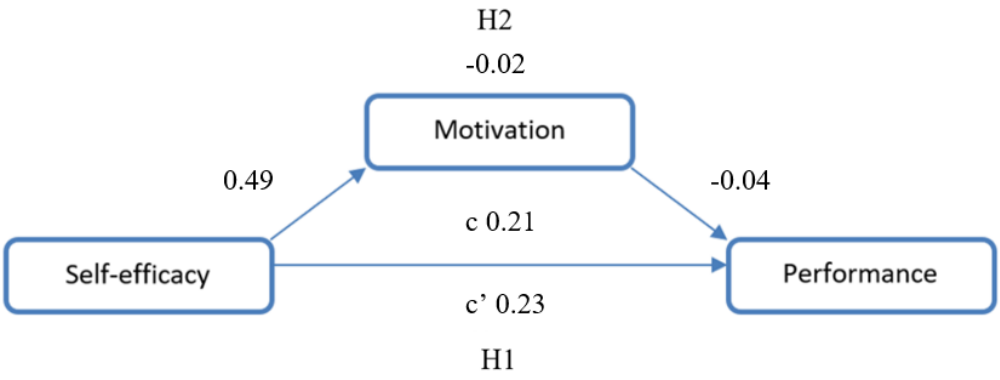
After examining the direct effects, the mediating role of motivation can be analyzed. The indirect effect of self-efficacy on performance via the mediator motivation was significantly negative (B = -0.02, *BootLLCI* = -0.03, *BootULCI*; Table 4, Appendix B). This means that high levels of self-efficacy are associated with high levels of motivation, and that high levels of motivation are associated with low levels of performance. Due to the significantly negative mediating role of motivation, the total effect of self-efficacy on

performance (when motivation was included in the model) was weaker compared to the direct effect of self-efficacy on performance ($B = 0.21$, $p = 0.000$; Table 4, Appendix B).

Summarizing, a multiple linear regression and mediation analysis were used to perform the main analyses. According to the analyses, the relationship between self-efficacy and performance was significantly positive, even when the mediator motivation was included in the model. This suggests that the first hypothesis, "self-efficacy has a positive relationship with performance in talented football players" was supported by data. The relationship between self-efficacy and performance was significantly negative mediated by motivation. This suggests that the second hypothesis, "motivation positively mediates the relationship between self-efficacy and performance in talented football players", was rejected. All findings, including the direct effect of self-efficacy on motivation and the direct effect of motivation on performance, were visualized in Figure 2. Concluding, hypothesis one was supported by data, while the second hypothesis was rejected.

Figure 2

Results of the Theoretical Model



Note: c: total effect; c': direct effect. All values are significant.

Discussion

General

The present study looked into the relationship between self-efficacy and performance of talented football players of a professional football club in the Netherlands and the

mediating role of motivation in this relationship. Football players were expected to answer daily self-report questions about self-efficacy, motivation (30 minutes before the first training or matchday), and performance (30 minutes after the last training or matchday). Longitudinal data of 42 football players across two football seasons were processed to perform a multiple linear regression and mediation analysis.

The outcomes of this study related to the hypotheses can be split into two parts. As hypothesized, self-efficacy was positively associated with performance in talented football players. Even when the model included motivation as a mediator, higher self-efficacy levels were still associated with higher levels of performance. This reinforces the idea that self-efficacy has an essential role in influencing (sport) performance (Bandura, 1986; Sklett et al.,2018). Moreover, the important relationship between self-efficacy and performance is now, besides ski-jumping, endurance sports, and basketball, also apparent in football (Sklett et al., 2018; Anstiss et al., 2018; Yang, 2020).

Second, although Yang (2020) stated that motivation was a significantly positive mediator in the relationship between self-efficacy and performance of athletes, the present study did not find the same results. We found that high levels of self-efficacy were related to high levels of motivation, and high levels of motivation were negatively related to the performance of football players. This shows that motivation was a negative mediator or a suppressor variable (MacKinnon et al., 2000). The result of this suppressing effect was that the total effect (model with self-efficacy, motivation, and performance) was lower than the direct effect (model with self-efficacy and performance). An important notion is that the mediating effect of motivation was significant but small and must be interpreted with caution (*B* = -0.02, *BootLLCI* = -0.03, *BootULCI* = -0.01*;* Table 4, Appendix B). An argument can be made that the unstandardized *B*-value of motivation (*B* = -0.02) is too small and therefore, motivation might be considered as practically insignificant. Besides, the large number of

datapoints collected in the present study could be a reason that the mediating effect was significant, because any effect can generate a significant result when the amount of datapoints is high (Wasserstein & Lazar, 2016). However, it could also be argued that lots of small but significant effects are practically significant (concept of marginal gains) in the development of talented football players (Hall et al., 2012; Migliaccio et al., 2024).

There could be several reasons of why the mediating effect of motivation in the relationship between self-efficacy and performance was negative. First, according to the self-determination theory of Deci and Ryan (2000), there were differences between internal and external motivation affecting performance. Internal motivation (associated with experiences of autonomy and competence) was associated with better performance, while external motivation (associated with reward, social pressure, and recognition) was not (Lehner & Schuster, 2023; Deci & Ryan, 2000). Although our study showed that high levels of self-efficacy were associated with higher levels of motivation, the motivation of the talented football players could be external (by money, prestige, pressure, etc.), therefore lowering their performance. Second, high levels of motivation were related to burnout in athletes, which in turn negatively correlates with the performance of athletes (Tahir et al., 2024; Liu & Hai, 2021). Third, a phenomenon called “choking under pressure” might occur when motivation levels are high (Baumeister, 1984). Suggesting that when a player strives for the best performance, suboptimal levels of performance were achieved. This was explained by overly focusing on inner experiences, in pressuring situations, which interferes with automatic processes to perform highly (Baumeister, 1984). Lastly, performance-avoidance goals could explain why high levels of motivation affect performance negatively in football players (Pekrun et al., 2006; Elliot & Church, 1977). Performance-avoidance goals were associated with fear of failure and the external motivation to avoid negative performances and negative evaluations of competence. Over time, performance-avoidance goals can lower intrinsic

motivation as well as performance (Pekrun et al., 2006; Elliot & Church, 1977). A reason why data did not show a decrease in motivation could be that players reported high levels of external motivation, which was driven by fear and avoidance of negative evaluations, instead of internal motivation. Thus, external motivation, burnout, choking under pressure, and performance-avoidance goals are factors that could explain why high levels of (internal) motivation were associated with lower levels of performance.

Strengths

The present study offers several strengths that highlight the relevance of the research findings. First, ecological validity was high. The talented football players answered the self-report questions in a real-world setting (at their football club), unlike studies held in a laboratory. The concern with laboratory studies was that these studies were oversimplified and highly controlled, which means that laboratory studies did not account for the dynamics that took place in a real-world setting (Holleman et al., 2020). Since football players answered the self-report questions at their football club, the players were highly familiar with the environment and had no encounter with the researchers.

Second, the present study gives insights into the dynamics between self-efficacy, motivation, and performance of talented football players aged 15 to 20. Typically, research focused on these constructs has been conducted with adult athletes, 19 and above (Sklett et al., 2018; Anstiss et al., 2018). This means that the present study was conducted with a unique participant pool and thus fills in the research gap of the dynamics between self-efficacy, motivation, and performance in young athletes.

Third, the unique advantage of the present study lies in the comprehensiveness of the dataset. The comprehensiveness of the dataset can be seen in the number of datapoints that have been collected across two football seasons (average of 287 observations per player). The large number of data points accounts for high statistical power, which makes the research

findings more reliable (Moore et al., 2021). Besides, the richness of the dataset can be used for a time-series analysis in future research to see fluctuations in the variables per player across time.

Limitations

Despite the advantages of our longitudinal study, the present study was accompanied by limitations. First, the scores on self-efficacy, motivation, and performance could be biased. Contextual factors, such as mood, may affect how constructs are perceived and hence affect the self-reported scores on these variables (Askim & Knardahl, 2021). Also, the players themselves could report socially desirable answers to look good in the data analysis (Holtgraves, 2004). Besides, behavior could be modified because the players know that data will be collected on self-efficacy, motivation, and performance. Not only that, the players also have to reflect on these variables every day, and might think that although the data is intended to help the players with their development, they can be afraid that the data will be used against them. This phenomenon was known as the Hawthorne effect (McCambridge et al., 2014).

Second, another problem with self-report measures is that constructs as performance cannot be objectively measured. There was no physiological apparatus that could record objective performance scores. A way to cope with this bias is to incorporate objective measures, such as goals, with subjective self-report measures to assess performance (Almago et al., 2020). Future research may also look into assists, tackles and amount of minutes played per game, to asses performance more effectively.

Third, the present study has low external validity. This implies that because the study was conducted with young football players of a professional football club in the Netherlands, the findings cannot be generalized to adult athletes, all sports, and different countries. Especially for the mediation effect (motivation was a significantly negative mediator in the

relationship between self-efficacy and performance), it cannot be generalized since this was not in line with previous literature (Yang, 2020). However, like previous literature, the present study did find a positive effect of self-efficacy on performance in a football context (Sklett et al., 2018; Anstiss et al., 2018; Yang, 2020). This means that the positive effects of self-efficacy on performance are also true in football.

Lastly, causal claims about the mediation effect of motivation cannot be made since self-efficacy and motivation were measured at the same time (30 minutes before the first training or matchday). For this reason, it is suggested to measure each variable at different times of the day. Despite the limitations, the present study provides insights into the complex relationship between self-efficacy, motivation, and performance in talented football players.

Future directions

The knowledge gained from the strengths and limitations of this study will guide future research to establish better results. The results of this paper showed two findings: high levels of self-efficacy were associated with high levels of performance, and motivation was a significant negative mediator. The first finding was in line with previous literature (Sklett et al., 2018; Anstiss et al., 2018; Yang, 2020). This indicates that self-efficacy was a positive predictor of performance in a football context. Future research should focus on establishing this relationship in different sports. However, the second finding was not in line with previous literature (Yang, 2020). Future research should replicate this study to investigate whether motivation is still a negative mediator in a different context (for example, in different sports). Specifically, future research can look into more accurate measures of performance. This can be done by looking at the discrepancy between self-reported performance and measured performance. Data can provide a solution to measure performance more objectively (e.g., data for goals, assists, tackles, number of runs, and distance covered). Future research should also measure the distinction between internal and external motivation. Knowing the self-reported

values of, and fluctuations in, internal and external motivation provides insights into the important motives of a player (autonomy and competency or reward, social pressure, and recognition) (Lehner & Schuster, 2023; Deci & Ryan, 2000). These insights are useful because, in previous research, internal motivation was associated with better performance, while external motivation was not (Lehner & Schuster, 2023; Deci & Ryan, 2000). Also, if internal motivation is decreasing while external motivation is increasing, a player could have performance-avoidance goals, which are associated with a decrease in performance (Pekrun et al., 2006; Elliot & Church, 1977).

Practical Implications

The present study is relevant for (Dutch) football clubs to enhance the self-efficacy, motivation, and performance of their players. The knowledge of the predictive value of self-efficacy on performance can encourage coaches, policymakers, and psychologists to help players with their self-efficacy. This can be individually tailored, meaning that players with low levels of self-efficacy can be helped with enhancing their self-efficacy. A tool to enhance self-efficacy is making use of specific, measurable, action-oriented, realistic, and timed goals, also known as SMART goals (Bamonti et al., 2022). Coaches or psychologists can help educate players to implement SMART goals during individual coaching sessions and then guide the players to set future goals in a SMART way themselves (Bamonti et al., 2022). Players with high levels of self-efficacy do not necessarily need this help. Coaches can also track the levels of self-efficacy over time. When players show decreased amounts of self-efficacy, a coach can take appropriate measures to increase self-efficacy in a player before the player shows lower levels of performance. Also, the knowledge of the significant negative mediating role of motivation in the relationship between self-efficacy and performance could have practical implications, but it should be evaluated with caution, as the effect was small. Interventions could tackle burnout since burnout is related to motivation, which also affects

the performance of the players negatively (Tahir et al., 2024; Liu & Hai, 2021). Mindfulness-based interventions could be considered to reduce the negative effects of burnout (Salvado et al., 2021). Mindfulness is a (trained) process where the player focuses on the here and now and has no further judgements (Salvado et al., 2021). The players could develop a mindfulness-based way of thinking with the help of a coach or psychologist, and incorporate it into their daily lives. The results could raise the question whether too much motivation is suboptimal for performance, or whether coaches, policymakers, and psychologists need information about intrinsic and extrinsic motivation to understand the dynamic between self-efficacy, motivation, and performance.

Conclusion

The results of this study showed that high levels of self-efficacy were associated with high levels of performance, and that motivation was, although the effect was small, a significant negative mediator in this relationship. This means that the first hypothesis was supported by data, while the second hypothesis was not. Coaches, policymakers, and psychologists can help talented football players improve their self-efficacy, which in turn can improve performance. Data can also be used to see that too much motivation harms the performance of football players. Future research should look into the distinction between intrinsic and extrinsic motivation in the relationship with self-efficacy and performance to make better predictions about the mediating effect of motivation.

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Appendix A

Table 1

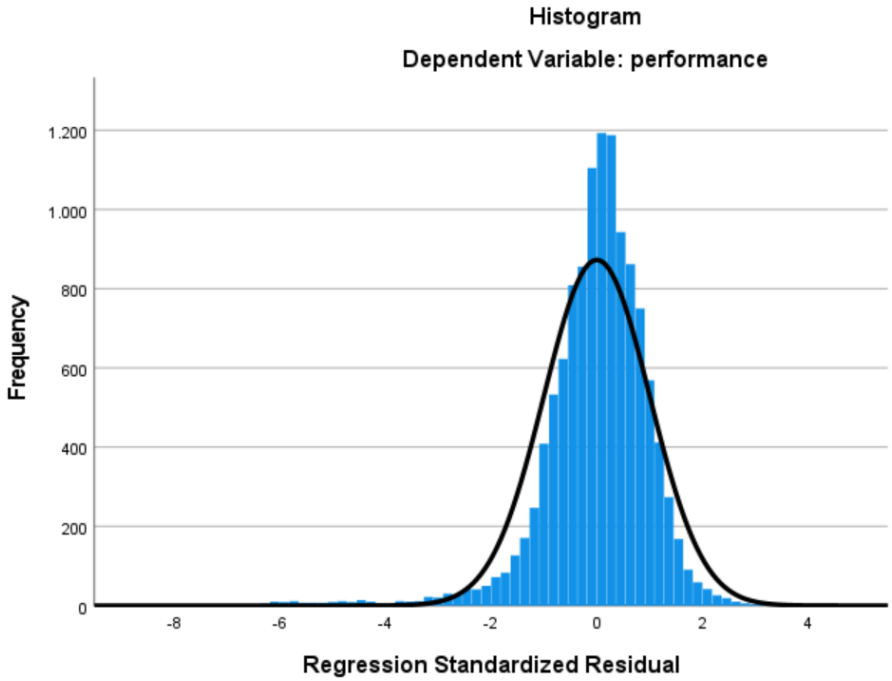
Correlation Matrix

Pearson Correlation	Performance	Self-efficacy	Motivation
Performance	1.00	0.20	0.06
Self-efficacy	0.18	1.00	0.45
Motivation	0.06	0.45	1.00

Note: the correlations are shown between the variables: performance, self-efficacy, and motivation.

Figure 1

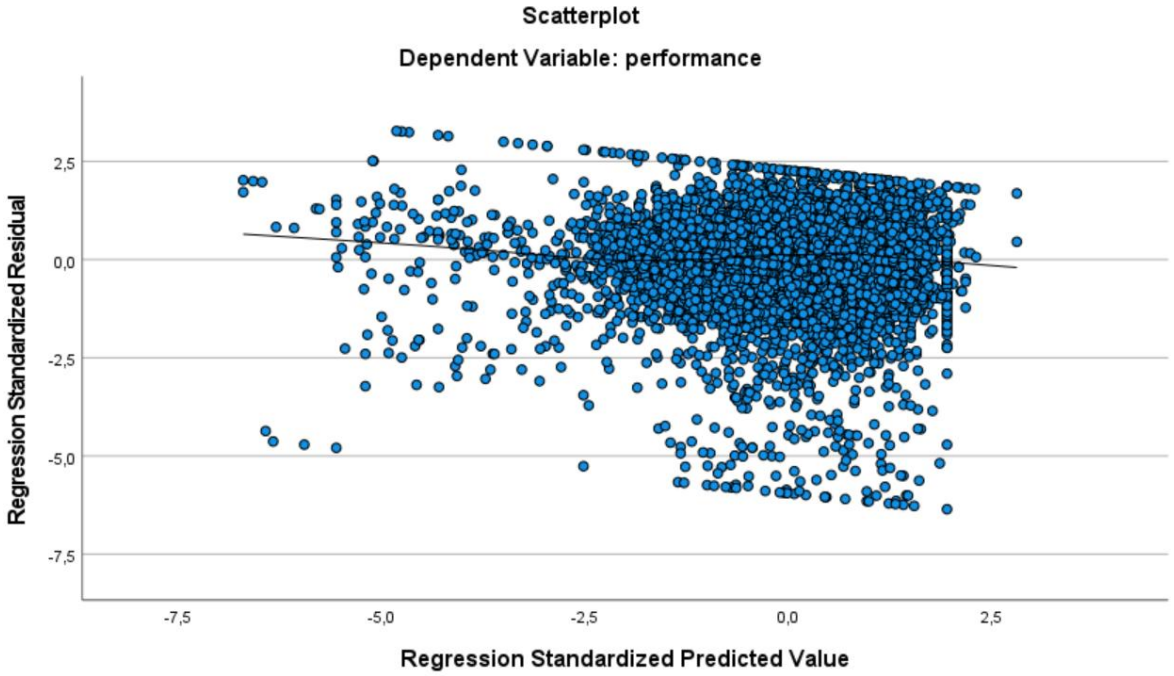
Histogram of Standardized Residuals



Note: the X-axis (regression standardized residual) shows the values of the standardized residuals. The Y-axis (Frequency) indicates how often these values are indicated.

Figure 2

Scatterplot of standardized residuals versus the predicted values



Note: the X-axis (regression standardized predicted value) is the standardized predicted value of the dependent variable, performance, in the regression model. The Y-axis (regression standardized residual) is the standardized residuals, indicating how much the actual values differ from the predicted values.

Table 2

Coefficients Table

	B	t	Sig.	VIF
Self-efficacy	0.23	21.81	<0.001	1.26
Motivation	-0.04	-3.79	<0.001	1.26

Note: the coefficients are shown in this table.

Table 3

Model Summary of the Assumption Check

Model	R Square	Adjusted R Square	F Change	Durbin-Watson
1	0.04	0.04	261.29	1.52

Note: the model summary is shown in this table.

Appendix B

Table 4

Multiple Linear Regression and Mediation Analysis

Direct effect of X on Mediator

Effect	se	t	Sig.
0.49	0.01	55.84	0.000

Direct effect Mediator on Y

Effect	se	t	Sig.
-0.04	0.01	-3.79	0.000

Direct effect of X on Y

Effect	se	t	Sig.
0.23	0.01	21.81	0.000

Indirect effect of X on Y

Effect	Bootse	BootLLCI	BootULCI
-0.02	0.01	-0.03	-0,01

Total Effect of X on Y

Effect	se	t	Sig.
0.21	0.01	22.53	0.000

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Use of IA

No content generated by AI technologies has been presented as my own work. ChatGPT has been used in searching for literature and provided structural information for the present paper.