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Investigating the association between achievement motive and performance in elite-level football goalkeepers

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Abstract

The goalkeeper position in football is highly specific. Investigating the achievement motive of elite-level goalkeepers might help football coaches in general, goalkeeping coaches, and sports psychologists to gain insight into and knowledge of the approaches needed for enhancing the performance of this unique position within the football team. This study aimed to examine the achievement motive for male goalkeepers playing at the elite level in Denmark ($n = 34$) and Iceland ($n = 20$) and to investigate the relationship between the achievement motive, age and performance. In addition to biographical questions, the study employed the Achievement Motives Scale – Sport. The findings from the present study suggest that goalkeepers are characterized by higher hope for success than fear of failure values, like other elite athletes, while younger goalkeepers had significantly higher fear of failure. There were no differences between starting and non-starting goalkeepers, but we found that performance level was associated with fear of failure when controlling for the goalkeeper's status (starters versus non-starters) and playing country. Finally, goalkeepers playing in Denmark showed lower fear of failure than goalkeepers playing in Iceland. Implications for practice and future research are discussed.

Keywords: Soccer, Sport psychology, Football, Goalkeepers, Coaching, Training

Top-level athletes are characterized by their ability to utilize and optimize a range of psychological skills to reach peak performance, but also to withstand the pressure they experience (Fletcher & Sarkar, 2012). Athletes, therefore, need a wide array of psychological skills and characteristics to develop their full potential. Amongst these skills and characteristics, motivation seems to be one of many important factors (Elbe & Wikman, 2017). An important component of motivation that has been researched in elite sports and is considered to be relevant for achieving peak performance (Elbe & Wikman, 2017) is the achievement motive. This is a stable factor that develops with age, experience, and throughout interaction between a person and situation (Elbe et al., 2003; Villemain & Haw, 2014). Studies in football have investigated the importance of the achievement motive for peak performance (Höner & Feichtinger, 2016), however, none have specifically examined aspects of the position of goalkeeper. Investigating the achievement motive in elite-level goalkeepers in relation to performance would close a

research gap on the limited research in football goalkeepers and provide insight into and knowledge of the approaches needed to enhance performance for this unique position within the football team. Accordingly, this study aimed to investigate the achievement motive and its association with status (starters versus non-starters) and performance level as judged by experts, in elite-level male goalkeepers playing in Denmark and Iceland.

The achievement motive

Heckhausen's (1989) motivation and action theory is a comprehensive framework that explains how individuals are motivated to pursue their goals and take actions towards achieving them. The theory emphasizes the importance of both internal and external factors in shaping human motivation and behaviour. Heckhausen (1989) proposed that individuals are motivated by their own personal goals and the incentives and constraints of

their environment. Further, he suggested that individuals engage in a series of goal setting and planning processes that help them to overcome obstacles and achieve their desired outcomes. Overall, Heckhausen's (1989) motivation and action theory provides a valuable understanding of the complex interplay between motivation and behavior in human psychology. The theoretical point of departure in the present study can, therefore, be determined by the interaction of personality (i.e., abilities, individual motives, knowledge, abilities and conceptions) and situational factors (i.e., various situational incentives such as player status and playing country residing in the activity and its outcome) (Heckhausen, 1989) and is considered important for achieving peak performance in many areas. The role of sport achievement motivation can be described as the search for a motive through which an athlete can achieve success, improve performance and perform in their best condition (Mouloud & Nawal, 2020). The need achievement theory (Atkinson, 1974) can be used to explain why athletes are different in their predisposition to accomplish related tasks. The need achievement theory is based upon Atkinson's (1957) risk-taking model, which suggests that the athletes' willingness to take risks is influenced by their level of achievement motivation and the perceived value of the reward at stake. This model suggests that athletes who are highly motivated to achieve success are more likely to take risks if the potential reward is perceived to be high, while those with low motivation or a low perceived reward value may avoid risky behaviour. According to this model, tasks are chosen based on incentive and probability of success, which are inversely proportionally related to each other (Elbe & Wenhold, 2005). The achievement motive, one of the personality factors determining motivation, is comprised of two components, namely hope for success and fear of failure (Atkinson, 1957). With regard to athletic success, research indicates that it is considered important that athletes show high hope for success and low fear of failure (Elbe & Beckmann, 2006). An athlete with a predominance of fear of failure over hope for success may choose achievement goals that are either too easy or too hard (Elbe & Wenhold, 2005), and may be more likely to lose motivation, stagnate in their overall development, and be less satisfied with their sport (Elliot & Harackiewicz, 1996). If an athlete is high in hope for success, he is motivated by the prospect of achieving success, while if he is high in fear of failure, he is motivated by avoiding failure in the performance situation (Madsen et al., 2020). However, personality and situational factors are not inversely proportionally related to each other, which is why an athlete with a favourable personality such as high hope for success and low fear of failure might be likely to lose motivation due to situational factors such as pressure and/or unrealistic expectations from the coach, club and/or other stakeholders.

The positive connection between hope for success and performance in sports has been empirically supported in both cross-sectional (Coetzee et al., 2006; Madsen et al., 2020) and longitudinal studies (Elbe & Beckmann, 2006; Unierzyski, 2003). As examples, Elbe and Beckmann (2006) showed that high hope for success correlated with future athletic success in young elite athletes competing in an individual sport. Fear of failure, on the other hand, has been positively associated with burnout in high-level sports (Gustafsson et al., 2017) and is regarded as a threat to performance in a variety of sports domains (Conroy et al., 2001).

The achievement motive in football players

There are several studies investigating the achievement motive in footballers, yet mixed findings have been found primarily within youth players. One longitudinal study of talented German U12 male players investigated the relationship of the players' psychological characteristics with current and future performance (speed, agility and dribbling, ball control, and shooting) and found, among others, that the sport-specific achievement motive predicted a proportion of the players' future successes (i.e., players with high hope for success and low fear of failure were more likely to attain the youth academy level at age 16) (Höner & Feichtinger, 2016). A cross-sectional study in elite-level women football players investigated whether psychological characteristics (i.e., the achievement motive and trait anxiety), football experience (i.e., senior and youth national team experience) / player status (i.e., always, frequently, and seldom starters) could predict players state anxiety before important matches. The authors found that starting players had significantly lower trait anxiety and that somatic state anxiety was positively associated with fear of failure before important matches (Madsen et al., 2020). Another study investigated which psychological factors distinguish a successful team from a less successful team in male football. The findings indicated that only one psychological factor obtained large, practically significant values in the successful group compared to the less successful group, namely the achievement motive, and here in particular high hope for success (Coetzee et al., 2006). Another combined cross-sectional and qualitative study examined the dimensions and levels of fear of failure among 81 male adolescent football players (16–18 years old) in English football academies and interviewed four players who reported fear of failure. They found that fear of failure negatively affected the players' sporting performance and interpersonal behaviour (i.e., receiving recognition from others, pleasing others, and enhancing social status and interaction) (Sagar et al., 2010). Contrary to the expectation from the above-mentioned studies, Zuber, Zibung, and Conzelmann (2015) conducted a longitudinal study and investigated patterns for talent development using achievement motive, achievement goal orientation, and self-determination theory in 97 young male football talents who were selected and members of six regional teams of the Swiss Football Association. The study identified four clusters (win-oriented failure-fearing players, average motivated players, highly intrinsically achievement-oriented players, and non-achievement-oriented failure-fearing players) when mapping the motivational subsystem of young football players and investigated how this subsystem was related to sport success. The authors found that the highly intrinsically achievement-motivated players were significantly more likely to move up into the U15 national team (Zuber et al., 2015). In summary, high hope for success and low fear of failure seems to be important personality characteristics for successful footballers and may also influence the performance of elite-level goalkeepers.

Psychological demands on goalkeepers

Within elite-level football, the position of goalkeeper is considered different from the other players as the goalkeeper generally has more time to ruminate about mistakes than the outfield players during games due to less frequent involvement. Goalkeepers with a predominance of fear of failure over hope for success may perform worse as

they are less willing to take risk in their game and hence be judged worse by general and goalkeeper coaches, regardless of actual goalkeeping skills, so coaches and sports psychologists need to gain insight into, and knowledge of the approaches needed for enhancing the performance of this unique position. There are a few studies investigating the position of goalkeeper in general. This lack of research is surprising since it can be expected that the goalkeeper position has very specific psychological demands given that goalkeepers are often less involved in the game than outfield players and thus have more time to ruminate over mistakes, bad decisions, conceding goals, etc. One study exploratively investigated how modern football goalkeepers train, and identified mental skills as one of four sets of skills essential to goalkeeper coaches in developing goalkeepers (Otte et al., 2020). Identifying essential skills to train for goalkeepers by goalkeeper coaches is an important aspect of performance since learning from experienced practitioners is a valid way to gain an understanding of the field (Fifer et al., 2008). Other studies outlined the unique requirements of the goalkeeping position, which entails that the goalkeeper needs to be reactive instead of proactive (Konter & Toros, 2012). In our understanding, this could imply that the goalkeeper has to wait for the game to come to them (i.e., waiting to come for a cross and/or being patient instead of rushing out and potentially conceding a goal), and are more match-decisive than outfield players because mistakes often lead to conceding goals. Similarly, a study described the protection towards a potential failure among youth goalkeepers of losing or expecting to lose the ball as a potential concern (Villemain & Hauw, 2014), which again might indicate the importance of low fear of failure. Despite being professional and thereby being selected to play at elite level, another factor important for goalkeepers is that the average age of their peak age is higher than that of outfield players (Kalén et al., 2019), only one goalkeeper can play at a time, and goalkeepers are rarely substituted during a game. This is highlighted in a study analyzing the pattern of player substitutions during football matches, which found that non-starting goalkeepers are seldom given playing time (Del Corral et al., 2008). This seems important, as the role of a non-starting player is often connected with negative feelings for the individual player (Lorentzen, 2017; Reinboth & Duda, 2006; Ryall, 2008). However, an earlier mentioned study in elite-level women's football found no differences regarding the achievement motive, both for status (starters versus non-starters) and differences between goalkeepers, defenders, midfielders, and strikers (Madsen et al., 2020).

As no previous study has investigated the achievement motive in elite-level goalkeepers, the first aim of this study was to describe the achievement motive specifically for male goalkeepers playing at elite level in Denmark and Iceland, compare them to other elite-athletes (Wenhold et al., 2009), and investigate the association between the achievement motive and age. The second aim was to investigate whether differences in the goalkeepers' status (starters versus non-starters) are associated with the achievement motive. The third aim was to investigate the association between the performance level as judged by experts and the achievement motive when accounting for situational factors such as the goalkeeper's status (starters versus non-starters) and playing country.

Material and methods

Participants

A cross-sectional study was conducted to investigate the achievement motive and whether the psychological characteristics of the goalkeepers differed between starters and non-starters. An English language instrument was used in this study because gatekeepers confirmed that both national and international goalkeepers at the clubs exhibited a good command of the English language. Additionally, in many of the clubs the head coach used English to communicate with the players. The study sample consisted of 54 male goalkeepers playing in 26 elite-level teams (i.e., the best leagues in the countries) in Denmark (14 teams) and Iceland (12 teams). Of the eligible 72 goalkeepers, 54 responded to the survey, which is a response rate of 75.0%.

Measurements

Besides biographical information regarding age, whether the goalkeepers had children, their living situation, years on the team with the current head coach, and whether they were starters or non-starters, the measurements consisted of the 30-item Achievement Motive Scale – Sport (AMS-S) (Elbe & Wenhold, 2005).

The achievement motive

AMS-S measures sport-specific hope for success (HS) (items 1–15) and fear of failure (FF) (items 16–30). The scale has a Likert-scale answering format ranging from 0 (not true for me at all) to 3 (exactly true for me). An example of an item from the hope for success scale is "I like being confronted with a difficult athletic task", while an example from the fear of failure scale is "I find it unsettling to do something in sport, when I am not sure I can accomplish it". To calculate the values for the hope for success scale and the fear of failure scale, the scores from the items in each scale are added together, resulting in a range from 0 (very low) to 45 (very high). The English version of this questionnaire used in the current study has shown good internal consistency and retest reliability (Elbe & Wenhold, 2005).

Performance level

The guidelines used for the expert rating of the goalkeepers' performance level were based on an analysis of the expert assessment of young basketball players and the role of anthropometric and physiological attributes (Erčulj & Štrumbelj, 2015). The performance level was quantitatively assessed by six domestic-based expert goalkeeper coaches who coached or were experienced in coaching this level and held at least a UEFA National Goalkeeping B Licence, three Icelandic-based goalkeeper coaches, and three Danish-based goalkeeper coaches. The expert goalkeeper coaches were asked to rate the goalkeepers' performance level based on their knowledge of and familiarity with the goalkeepers' current ability in their respective countries. The expert coaches did not rate goalkeepers from their club and only goalkeepers with whom they felt familiar. The goalkeeper coaches were not familiar with the goalkeepers' scores for achievement motive and were only asked to rate goalkeepers who played in their country at the time of the study. The answers for rating current performance level were provided on a Likert scale from 1 to 5, and rough guidelines were provided (i.e., please assess the goalkeepers in the league Superliga / Úrvalsdeild from 1 (worst in the league) to 5 (best in the

league)) to ensure that the experts' ratings were approximately on the same scale. Subsequently, an average score was calculated for each goalkeeper based on the three expert ratings in each country.

Procedure

The study was conducted as part of the first author's UEFA Goalkeeper Advanced Licence course run by the Danish Football Association (DBU) (DBU, 2021). Goalkeeper coaches from the Danish teams were contacted by phone, e-mail, or Facebook and asked to pass on information about the study to their team's goalkeepers. Since each team only has two or three goalkeepers in their squad, it was difficult to recruit a large enough sample of goalkeepers for research purposes. To overcome this challenge, elite-level goalkeepers were recruited from two countries, namely Denmark and Iceland.

The questionnaire was administered electronically using The Analyzer electronic questionnaire tool (Enalyzer, 2021). The study followed APA ethical standards. The goalkeepers were asked to first answer questions related to biographical information and then complete the AMS-S when they found it convenient.

Data analysis

The data analysis was conducted with SPSS Statistics 22 (IBM) and Microsoft Excel (2016). Initially, data were screened for missing values, and revealed that all 54 goalkeepers had completed the AMS-S. The Shapiro-Wilk test was used to test whether the data were normally distributed and revealed that one scale value was normally distributed (HS: $P = .404$) and one was not (FF: $P = .040$). The skewness of the hope for success was found to be .039,

indicating a normal distribution, while the fear of failure was found to be .332, indicating that the distribution was more heavy-tailed compared to the normal distribution and reflected a low level of fear of failure in the present sample. Cronbach's alpha, mean and standard deviations for the two subscales were calculated before proceeding with further statistical analysis. Norm values exist for the German version of this scale and were based on performance level, gender, and type of sport in an elite athlete population (Hope for success: $N = 737$; $Mean = 34.31$; $SD = 6.6$, Fear of failure: $N = 736$; $SD = 7.86$) (Wenhold et al., 2009). To compare the goalkeeper's scores in HS and FF to other elite athletes, the norm values by Wenhold, Elbe & Beckmann (2009) were used as reference points when considering the goalkeeper's scores in the achievement motive. To investigate the association between age and the achievement motive, two linear regression analyses were conducted between the achievement motive (hope for success and fear of failure) as the dependent variable and the goalkeeper's age as the independent variable. Next, to investigate whether differences in the goalkeepers' status (starters versus non-starters) were associated with the achievement motive, a Mann-Whitney U Test was used. To investigate the association between the performance level and the achievement motive, standard multiple regression analyses were performed. Since hope for success and fear of failure were highly correlated, two independent analyses for each variable were undertaken. In the two analyses performance level was used as the dependent variable and the achievement motive (hope for success and fear of failure) as the independent variable, while controlling for situational factors such as status (starter versus non-starter) and playing country.

Table 1: Descriptive statistics of major study variables (n = 54).

Variable	Items	α	n	Mean (SD)
Age			54	24.4 (4.97)
HS	15	.82	54	34.1 (5.23)
FF	15	.91	54	14.4 (7.88)
Performance level			54	2.4 (1.01)

Note: HS = hope for success; FF = fear of failure; Performance level as judged by experts

Results

The percentage distribution of goalkeepers across the included countries was 63.0% playing in Denmark ($n = 34$) and 37.0% in Iceland ($n = 20$).

The goalkeepers' age ranged from 16 to 37 years, with an average of 24.4 ($SD = 4.97$) years of age. The goalkeepers playing in Denmark ($n = 34$) averaged 24.8 years of age ($SD = 5.19$), while the goalkeepers playing in Iceland ($n = 20$) averaged 24.2 years of age ($SD = 4.91$).

Starters ($n = 23$) were older than non-starters ($n = 31$), with starters averaging 26.7 ($SD = 4.23$) years of age and non-starters averaging 22.7 ($SD = 4.84$) years of age. The internal consistency of the AMS-S can be classified as good for the subscale HS ($\alpha = .82$) and excellent for the subscale FF ($\alpha = .91$). The average score of the performance level as judged by experts was 2.38 (1.01) on a Likert scale ranging from 1 to 5.

Table 2: Descriptive statistics and major study variables for elite-level goalkeepers playing in Denmark and Iceland.

First layer; Age, Hope for success (HS) and fear of failure (FF) in mean (SD). Second layer; Starters and non-starters.

	Playing country:	Denmark	<i>n</i>	Iceland	<i>n</i>	Total:	<i>n</i>
Age:	Starters	27.7 (3.56)	10	26.0 (4.68)	13	26.7 (4.23)	23
	Non-starters	22.8 (4.70)	24	22.6 (5.68)	7	22.7 (4.84)	31
HS:	Starters	31.2 (7.33)	10	36.0 (6.63)	13	33.9 (7.20)	23
	Non-starters	34.2 (4.52)	24	34.7 (6.16)	7	34.3 (4.83)	31
FF:	Starters	11.5 (7.76)	10	12.9 (11.46)	13	12.3 (9.84)	23
	Non-starters	12.0 (6.49)	24	17.6 (10.16)	7	13.2 (7.66)	31

Regarding the first aim of the study, the goalkeepers' mean scores were characterized by higher hope for success than fear of failure in both countries. Compared to cut-off values from other elite athletes (Wenhold et al., 2009) the goalkeeper's scores in HS and FF lied in the middle of the normal area. We did not find an association between hope for success as the dependent variable and age as the independent variable ($P = .832$), but we did find a significant association between fear of failure and age ($P = .039$) indicating that younger

goalkeepers had higher fear of failure. As a sub-finding, goalkeepers playing in Denmark were shown to have a significantly lower fear of failure than goalkeepers playing in Iceland ($P = .008$).

Regarding the second aim of the study, we did not find any differences between the achievement motive and status of the goalkeepers (starters versus non-starters). Our analysis revealed that the mean differences between both hope for success ($P = .875$) and fear of failure ($P = .528$) were the same across starters and non-starters.

Table 3: The association between performance levels as judged by experts and the achievement motive (hope for success and fear of failure) when controlling for the goalkeeper's status and playing country using standard multiple regression analyses.

	Regression coefficient β (SE)	<i>P</i>
Hope for success	.12 (.02)	.394
Status (starter versus non-starter)	-.03 (.19)	.842
Playing country	.16 (.31)	.274
Fear of failure	-.28 (.02)	.047*
Status (starter versus non-starter)	.00 (.19)	.975
Playing country	.09 (.30)	.537

Note: Results are presented as the standardized regression coefficient β (SE)

* = significant at the .05-level.

Regarding the third aim of the study, we did not find an association between the performance level as judged by experts as the dependent variable and hope for success as the independent variable ($P = .394$), but we did find a significant association between performance

level as the dependent variable and fear of failure as the independent variable ($P = .047$) while controlling for situational factors (i.e., status and playing country).

Discussion

The study aimed to describe the achievement motive for male goalkeepers playing at the elite level in Denmark and Iceland and investigate the association between the achievement motive and the goalkeeper's age. The study also aimed to investigate whether differences in the goalkeepers' status (starters versus non-starters) and performance were associated with the achievement motive. To summarize our results, we found that the scores in the achievement motive were characterized by higher hope for success than fear of failure which indicates that the goalkeepers lied in the middle of the normal area when compared to other elite athletes. Our results also revealed that younger goalkeepers had significantly higher fear of failure, but we did not find differences between the goalkeepers' status and the achievement motive. Lastly, we found an association between performance as judged by experts and fear of failure when controlling for the goalkeeper's status and playing country.

The first aim of this study was to describe the achievement motive of goalkeepers playing at the elite level in Denmark and Iceland. The goalkeepers' hope for success scores can be viewed taking into consideration Madsen et al (2020) who also found higher levels of hope for success than fear of failure in elite-level women's football. Hence, the results from Madsen et al (2020) indicate that the achievement motive of elite-level goalkeepers is somewhat like that of outfield football players, emphasizing that the achievement motive is an important factor in term of maintaining motivation on the path for reaching elite-level football. Yet, the study by Madsen et al (2020) differs from our study as the authors investigated elite-level women football players who were considerably younger than the goalkeepers in our study (mean age: 21.14 versus 24.43) making our results challenging to compare. Wachsmuth et al. (2023) found that the achievement motive (hope for success and fear of failure) was associated with predicting professional status at the under-17 age level, but effect sizes were only found to be small to medium. These results are somewhat comparable to our results as the distribution between high hope for success and low fear of failure might serve as an explanatory factor in reaching elite professional level. When looking at other elite-level athletes' similar distribution between hope for success has been shown, but also here the age considerations should be taken into account. As an example of this, the elite-level athletes, who were included to develop the German norm values for the achievement motive, revealed to have an higher age span between 10 to 69 (Wenhold et al., 2009). On top of that both individual and team sport elite athletes were included in developing the German norm values. Individual athletes typically train and compete on their own, they have more control over their training and competition schedules, allowing them to tailor their routines to their own strengths and weaknesses. As being part of a team, goalkeepers compete as part of a larger group. They benefit from the support and camaraderie of their coaches and teammates, and often have a built-in support network during challenging times. These aspects make it somewhat challenging comparing our results directly to a sample of German elite athletes. Nonetheless, the distribution of the achievement motive

within our study and our finding revealing that younger goalkeepers had higher fear of failure, the study by Madsen et al. (2020), and the German norm tables by Wenhold et al. (2009), is not surprising given that the achievement motive can be seen as a relatively stable personality trait developing with age (Elbe & Wikman, 2017).

As a sub-finding, our study revealed that goalkeepers playing in Denmark had a significantly lower fear of failure than goalkeepers playing in Iceland. This sub-finding is somewhat surprising and might be explained by a higher level of goalkeepers playing in Denmark and potentially more advanced psychological characteristics needed to cope with the different external pressure within the leagues in terms of media attention, the number of spectators, career diversity, etc. Specifically, the UEFA country coefficients may contribute as an explanation for this, as they outline the different levels of clubs in the investigated countries¹. The UEFA country coefficients for the 2019/20 season ranked Danish clubs 13th and Icelandic clubs 46th (UEFA, 2021). These differences should be considered when interpreting these sub-findings since everyday life and daily pressure might be experienced differently by the participating goalkeepers. These differences could partly explain our results, as specific psychological characteristics, such as low fear of failure, be an advantage in reaching elite-level football (Höner & Feichtinger, 2016). Nonetheless, the path to reaching elite-level football for goalkeepers playing in Iceland might be less competitive than for goalkeepers playing in Denmark. The second aim was to investigate whether differences in the goalkeepers' status (starters versus non-starters) were associated with the achievement motive. Since all participating goalkeepers are part of a team playing at the elite level in the chosen leagues, it is not surprising that no differences were found. Contrary to our findings Feichtinger and Höner (2015) revealed that a higher disposition in hope for success was a predictor for future success for young male German elite football players. Furthermore, Zuber, Zibung, and Conzelmann (2015) investigated the achievement motive in elite young football players before and after their selection for the Swiss U15 national team and found low scores for fear of failure for the selected players. Given these studies, we need to interpret our findings with caution, since non-starting goalkeepers in large clubs are often of better quality than starting goalkeepers in smaller clubs. Hence, it cannot fully be excluded that the achievement motive differs when looking solely at goalkeepers playing at a more similar level and investigating this psychological characteristic using longitudinal designs. Unfortunately, it is challenging to recruit large enough samples of goalkeepers to investigate this.

The third and final aim was to investigate the association between performance level as judged by experts and the achievement motive. We did not find an association between performance level and hope for success, but we did find an association between performance level and fear of failure when controlling for situational factors such as the goalkeepers' status (starters versus non-starters), and playing country. These findings are somewhat in line with the theoretical framework behind the achievement motive, as the achievement motive can provide information on how goalkeepers perceive and evaluate achievement situations (Atkinson, 1957).

1

The UEFA country coefficients are based on the results of each association's clubs in the five previous UEFA Champions League and UEFA Europa League seasons and determine the number of places allocated to an association (country) in forthcoming UEFA club competition (UEFA, 2020).

Therefore, these findings in elite-level goalkeepers are somewhat similar as earlier studies have found a relationship between fear of failure and performance in young talented British academy football players (Sagar et al., 2010). However, our results are not directly comparable with Sagar et al. (2010) as they investigated the achievement motive in a sample of 16-18-year-old academy players. We too find it difficult to compare our results to Höner and Feichtinger (2016) who also used a sample of younger players and further investigated the performance differently. As such, Höner and Feichtinger (2016) used a longitudinal design and measured performance differently, as it related to how likely players were to attain the youth academy level at age 16. Based on our limited study design relying exclusively on self-report in conjunction with a small sample size we are, therefore, not able to fully confirm that an association does exist between the achievement motive and performance in elite-level goalkeepers.

Limitations and future research perspectives

Some limitations emerged from our study. Firstly, it is worth stating that this study was designed as an online survey only and had a limited number of participants. This may lead to a selected sample bias, as not all goalkeepers would be A) comfortable doing online questionnaires on a somewhat sensitive subject revealing specific psychological characteristics to an outsider and, B) due to the limited sample size not addressing the achievement motive within a larger population of elite level goalkeepers. In the future, traditional paper-pencil questionnaires might be a preferred way of executing the data collection and a larger sample size should be reached. Furthermore, we acknowledge that there are two main ways of assessing motivation (self-attributed and implicit), which can lead to the different outcomes (McClelland et al., 1989), and for the self-attributed measures used in this study subjects have a tendency to answer in a way that portrays them in a positive light (Donaldson & Grant-Vallone, 2002). When addressing the limitation of using self-reported measures, it should also be noted that referring to German norm tables when comparing the scores from the goalkeepers to German elite athletes can be problematic as English-speaking athletes might reveal slightly different scores.

Although the achievement motive should be fully developed by the age of our study participants (Elbe & Wenhold, 2005), our results somewhat supports that the achievement motive is still developing for some of the younger goalkeepers in our study sample. Another potential limitation of the study is the subjective performance rating by expert goalkeeper coaches, which might be subjected to biases. The expert goalkeeper coaches were all coaching at the highest level or held the highest coaching license (UEFA goalkeeper advance license), and thus had a good experience in evaluating the performance of goalkeepers. The performance ratings were independent, but the assessment turned out to be almost identical for most goalkeepers, which could be due to consensus about goalkeepers' performance levels among the experts. However, some goalkeepers had limited match exposure at the time of the study, making performance ratings difficult in some cases potentially limiting the knowledge about their actual performance level among the experts.

Based on our limited study design and sample size, future longitudinal sport-psychological studies should seek to develop and apply on-pitch performance variables on talented youth goalkeepers to determine whether different

psychological characteristics, such as lower fear of failure, might be an advantage for some goalkeepers in reaching specific levels within football. Such knowledge is needed to qualify the talent development process and to further qualify the psychological aspect of goalkeeper coaching within elite-level football.

Practical implications

Our results have various practical implications for different stakeholders. General coaches and goalkeeper coaches must have specific knowledge about their goalkeepers so that they can support them in critical moments. A goalkeeper with a predominance of fear of failure over hope for success might be judged worse by coaches regardless of actual goalkeeping skills. Specific knowledge about the goalkeeping position is therefore warranted, since the position differs from outfield players, as some goalkeepers experience high pressure throughout the game (West, 2018). General coaches and goalkeeper coaches should, therefore, be encouraged to help athletes with high fear of failure by ensuring need satisfaction and encouraging positive self-talk (Conroy & Coatsworth, 2007).

The information could also be useful for sports psychologists when conducting interventions specifically for goalkeepers. For goalkeepers, interventions aimed at decreasing fear of failure, as described by Wikman et al. (2014), might be useful. In addition, sports psychologists could use the questionnaires to further qualify the talent development process, e.g., by identifying goalkeepers who would potentially benefit from reducing fear of failure. This could also be achieved together with the general coach and goalkeeper coach by creating new experiences in training in which failure is not associated with consequences (e.g., helping the goalkeeper to put the mistake in perspective, challenging the perception, etc.), such as those described by Sagar, Lavallee, and Spray (2007). This would help enhance personality development in talented goalkeepers. As the achievement motive is considered a stable personality factor that develops with age and experience (Elbe & Wikman, 2017), this could potentially be warranted to enhance personality development specifically in young talented goalkeepers. Finally, this knowledge should be implemented as part of the UEFA advanced goalkeeper courses in the investigated countries.

Conclusion

To conclude, this study aimed to investigate the achievement motive in male elite-level goalkeepers and found a general higher disposition in hope for success than fear of failure but revealed that younger goalkeepers had significantly higher fear of failure. The study did not find the goalkeepers' status (starters versus non-starters) to be associated with the achievement motive, but did reveal that performance level was associated with fear of failure when controlling for the goalkeeper's status (starters versus non-starters) and playing country.

Data availability statement

Raw data were generated at the University of Southern Denmark. Derived data supporting the findings of this study are available from the corresponding author [emadsen@health.sdu.dk] on request.

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Declaration of interest statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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