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The Relationship Between Anxiety, Confidence and Short-Passing Performance in Collegiate Soccer Players

Original Research

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Abstract

Introduction: Competitive soccer players are required to perform short passing under stressful conditions; their success may be related to their self-confidence and anxiety levels. The purpose of this study was to examine the relationship between short-passing ability and anxiety and self-confidence among collegiate soccer players.

Methods: Seventeen Division III collegiate soccer players (20.0 ± 1.0 years, 65% female) completed the Athletic Coping Skills Inventory (ACSI), Sport Competition Anxiety Test (SCAT), Trait Sport-Confidence Inventory (TSCI), and Competitive State Anxiety Inventory-2 (CSAI-2R) and the Loughborough Soccer Passing Test (LSPT). Spearman's rho (r_s) was used to identify if a relationship between these inventories and LSPT time existed.

Results: Mean LSPT total time was 55.7 ± 12.0 seconds. We observed positive relationships between SCAT and LSPT total time (r_s = .51, p = .04) and CSAI-2R and LSPT total time (r_s = .55, p =.03). Furthermore, a strong negative relationship was found between TSCI and LSPT total time (r_s = -.68, p = .004).

Conclusions: There is a relationship between anxiety, confidence and short-passing performance in collegiate soccer players. Coaches should consider interventions to decrease players' anxiety and improve self-confidence in preparation for soccer competition.

Key Words: passing, performance anxiety, self-confidence.

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Introduction

Psychological characteristics, such as self-confidence, plays an important role in how soccer players face game stress and play under pressure [1]. Contrarily, anxiety, which is an emotional reaction that exposes the feelings of tension, pressure, stress, or worry [2] can decrease an athletes' performance [3,4]. Indeed anxiety has been shown to negatively impact self-confidence in Korean soccer players [5], however further evidence about the relationship of anxiety and self-confidence in soccer is lacking.

Passing is one of the most important skills in soccer, with players on the best teams possessing more of the ball and completing more short passes [6]. Passing under pressure can be challenging for players, as they have limited time to respond or to make decisions. The Loughborough Soccer Passing Test was developed to assess soccer skill, including passing ability and decision making during match-play [7]. A recent meta-analysis indicates it is a valid test and has good applicability across playing levels [8].

While the physiological demands of soccer have been well documented [9] and demonstrate midfield players have the highest physiological demand on the pitch vs. defenders and forwards, the psychological demands are not as well described. The psychological skill set needed to be successful in the soccer exists at the elite level [10], but does not describe success in terms of athletic competition at the collegiate level. Psychological characteristics, such as anxiety and self-confidence may impact players' performance and passing ability, however this has not been directly investigated previously. Hence, the relationship between self-confidence and anxiety and short passing ability was analyzed in this study.

The purpose of this study was to examine the relationship between short-passing ability and anxiety and self-confidence among Division III collegiate male and female soccer players. Differences in player position was also analyzed and it was hypothesized that those in more physically demanding positions (i.e., midfielders) would have higher confidence and lower anxiety [9].

Scientific Methods

Participants

A cross-sectional correlation research design was used for this study where the players' self-confidence and anxiety levels were evaluated in relation to the number of successful passes in the Loughborough Soccer Passing Test (LSPT). Following institutional review board approval, participants (n = 17, age: 20 ± 1 years, height: 167.9 ± 8.0 cm, weight: 70.4 ± 12.6 kg) were recruited from the men's and women's Division III collegiate soccer teams, who gave written informed consent to participate. The sample population consisted of eleven females (64.7%) and 6 males (35.3%). All trials were conducted during the off season (spring semester).

Protocol

Participants completed a baseline familiarization trial and two experimental trials. During the baseline trial, participants completed a battery of surveys including the Athletic Coping Skills Inventory (ACSI-28; total score ranges from 0-84, with higher scores signifying greater coping skills), Sport Competition Anxiety Test (SCAT; scores range from 17-24, with higher scores indicating a higher level of anxiety), Trait Sport-Confidence Inventory (TSCI; scores range from 13-117, with higher scores indicating higher self-confidence), and Competitive State Anxiety Inventory-2R (CSAI-2R; three subscale scores range from 9-36 with higher scores indicating a higher level of anxiety). Following a 30 minute break, participants completed a familiarization with the LSPT. On the experimental trial day, participants arrived at the lab, conducted a warmup, and commenced two trials of the LSPT, but did not complete the survey battery.

The LSPT was used to evaluate the ability to perform soccer short distance passing under time pressure. Participants completed 5 minutes of warm-up including jogging and dynamic stretching. Instructions regarding the test were given to all participants before the trials. The test required participants to perform 16 short passes (3.5-4 m to target), 4 to each of the 4 colored targets (yellow, red, green, and blue) in random order. Trials started with one examiner calling out a color and a second examiner starting the stopwatch. The participant started to pass the ball toward the appropriate target, collected the rebound and passed to the next target, which was called out after each pass was completed. When the participant completed 16 passes, the second examiner recorded the trial time. Penalty time for errors and bonus time for hitting targets [7] were assessed by the first examiner and a final time was calculated with higher scores indicating poorer performance. Following a 5 minute break, the test was repeated and the average time of the 2 trials was used for analysis.

Statistical Analysis

Correlations between the surveys and LSPT were completed with Spearman's rank correlation coefficient (r_s). Total time for the LSPT and total scores for each survey were compared by ANOVA between self-identified playing position (forward (n=5), midfield (n=4) and defender (n=7)). Where significant differences were found, post hoc comparisons were made using Tukey HSD. Statistical analysis was completed with Statistics Package for Social Sciences (ver. 25; IBM Corporation, New York, NY, USA). Data are presented as mean ± SD. Data are available for request here: https://dx.doi.org/10.7303/syn23519378

Results

LPST Performance

Total time on the LPST was 55.7 ± 12.0 seconds (95% CI: 49.3-62.1 seconds) with total penalty time of 6.8 ± 7.1 seconds (95% CI: 3.0-10.7 seconds). Midfielders performing the best (51.7 ± 12.0 seconds), followed by defenders (53.9 ± 14.7 seconds) and forwards (61.5 ± 14.7 seconds). However, there was no significant difference between positions ($F = 0.91$, $p = 0.43$, $\eta^2 = .12$; Figure 1).

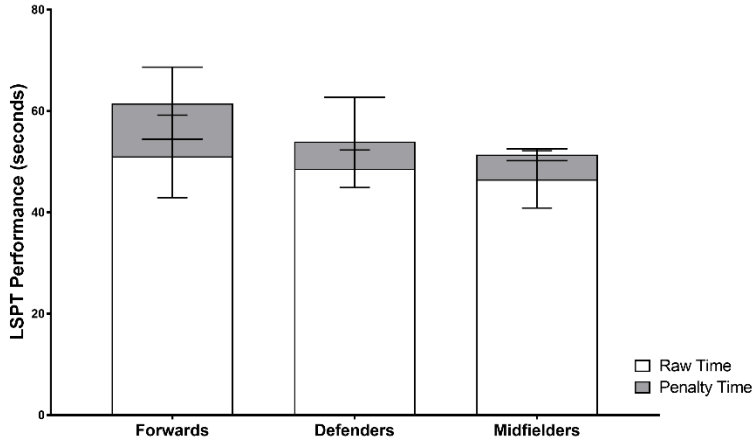

Figure 1. Loughborough Soccer Passing Test (LSPT) performance time in seconds including raw time (white bars, narrow error bars) and penalty time (grey bars, wide error bars). There was no significant difference in passing time between positions.

Anxiety and Confidence

Average SCAT scores for DIII soccer player were 11.1 ± 5.0 (95% CI: 0.91-10.1). There was a significant different in SCAT scores between positions ($F = 4.90$, $p = 0.03$, $\eta^2 = 0.41$; Figure 2) with midfielders (5.5 ± 2.9) having a lower level of anxiety compared to forwards (13.0 ± 4.3) and defenders (12.6 ± 4.3). Average ASCI scores for DIII soccer player were 49.4 ± 11.8 (95% CI: 43.3-55.5). However, total ASCI scores were not different between groups ($F = 1.90$, $p = 0.19$, $\eta^2 = 0.21$).

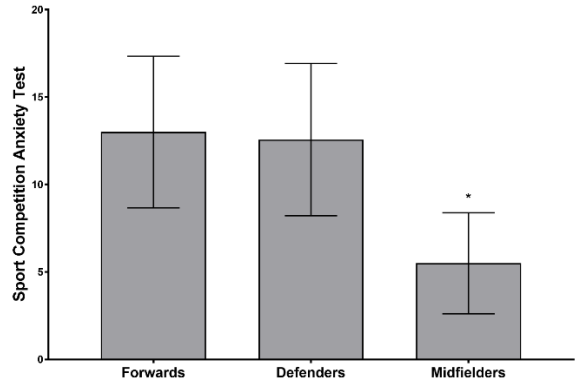

Figure 2. Sport Competition Anxiety Test (SCAT) scores between positions. Midfielders had significantly less anxiety vs. forwards and defenders (*).

Average TSCI scores for DIII soccer player were 84.0 ± 15.2 (95% CI: 76.2-91.8). While there was no significant difference between positions for the TSCI ($F = 3.20$, $p = .07$, $\eta^2 = .32$) there was a significant difference between positions for the self-confidence portion of the CSAI-2R ($F = 4.1$, $p = 0.04$, $\eta^2 = 0.37$) with midfielders (16.3 ± 2.4) scoring significantly higher than defenders (11.4 ± 2.6), however there was no difference between midfield and forwards (12.7 ± 3.0) or between defenders and forwards (Figure 3). There was no difference between groups for cognitive anxiety ($F = 0.42$, $p = 0.66$, $\eta^2 = 0.06$) or somatic anxiety ($F = 0.64$, $p = 0.54$, $\eta^2 = 0.08$).

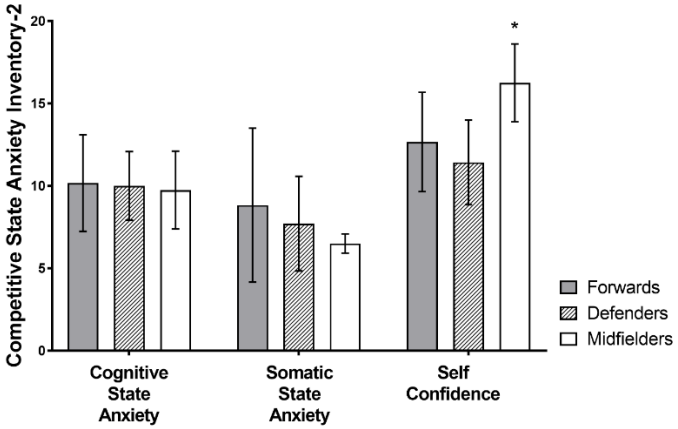

Figure 3. Competitive State Anxiety Inventory-2R (CSAI-2R) scores between forwards (■), defenders (▨), and midfielders (□). There was no significant difference between positions for the cognitive state anxiety or somatic state anxiety portions. However, self-confidence was higher in midfielders vs. defenders (*).

Total time on the LSPT was positively correlated with CSAI-2R Cognitive State Anxiety (r_s = 0.55, p = 0.03), SCAT score (r_s = 0.51, p = 0.04) and negatively correlated with TSCI score (r_s = -0.68, p = 0.004).

Discussion

This study indicates that there is a relationship between anxiety (cognitive: r_s = 0.55, competition: r_s = 0.51) and self-confidence (r_s = -0.68) and short passing performance in Division III male and female soccer players. Additionally, although there is no difference in performance between positions on the LSPT, likely due to large differences in penalty time, there are divergent levels of anxiety and confidence between playing positions, with midfielders having lower levels of anxiety vs. defenders and forwards, and higher levels of confidence vs. defenders.

Our study sample of Division III soccer players demonstrated a moderate positive relationship between sport (SCAT) and cognitive anxiety (CSAI-2R) and self-confidence (TSCI) with player performance on the LSPT. Furthermore, there was a significant difference between playing position and anxiety and self-confidence levels, with those playing midfield positions having lower anxiety and higher self-confidence. As self-confidence increased, performance on the LSPT increased, while those with lower self-confidence performed more poorly on the LSPT. These results are consistent with recent data in under-17 soccer players during a competitive game [3]. These authors found that a higher level of cognitive state anxiety and lower self-confidence led to poorer in-game passing decision-making. These results are also consistent with data suggesting that athletes with low anxiety levels have greater ability to remain calm and relaxed under pressure and may have greater success during athletic competition [11]. Indeed in-game goal scoring has also been demonstrated to be lower in those with higher levels of anxiety [4], which may in part be due to lower muscle coordination and control when anxiety levels are higher [12]. It is important to note that anxiety levels seem to affect athletes of lower skill level more than higher skilled athletes [13]; as our athletes were Division III soccer players, they would be considered moderately skilled and therefore likely to still be affected by anxiety. Our data shows anxiety reduces performance in short-passing ability; therefore, it is imperative these strategies are implemented to help decrease anxiety in players and thus increase performance. Using specific, individualized pre-performance routines can positively affect the players' performance by decreasing somatic anxiety [14].

Another way to improve performance is to increase self-confidence. Indeed high self-confidence enhances performance and has a positive effect on athletes' thoughts, feelings, and behaviors [15]. The present study indicates that there is a strong negative relationship between passing ability and self-confidence. Those with higher levels of self-confidence had lower total time on the short passing test (i.e., improved performance). This result is consistent with data demonstrating high levels of confidence in Olympic athletes [16], minor league baseball players [17] and collegiate athletes [11,18]. Specifically, total ACSI-28 scores in our study sample (49 ± 12) are similar to values in academy soccer players (44 ± 9), a large sample of multiple skill level soccer players (44 ± 2), and the original survey development sample of high school and collegiate athletes (49 ± 9). The possible explanation is that self-confidence has a positive effect on players' reaction and decision-making; therefore, it is important for athletes to consider psychological training when preparing for games.

The current study has limitations. First, the study is limited by a small sample size of participants from a Division III university who were self-selected. Thus, generalizability is somewhat limited, although our LSPT times are similar to professional youth soccer players. Additionally, the researchers were unable to control participants' lifestyles such as sleeping hours, fatigue, hydration, nutritional intake, and prior training which could affect the participants' concentration or reaction during the LSPT. Finally, participants may have responded to the survey battery questions based upon social desirability rather than their how they really felt.

Conclusions

The current study demonstrates that increased anxiety and decreased confidence is related to poorer short-passing performance in collegiate soccer players. Thus, self-confidence and anxiety are important factors that are associated with performance. Coaches should consider interventions to decrease athlete anxiety and improve self-confidence in preparation for soccer competition.

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