

Multidimensional sport competitive anxiety among women football players according to playing position

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Abstract:

Our study looked at the levels of multidimensional anxiety among female football players based on their playing positions in an effort to help fill the empirical evidence gap for anxiety in women's football. The research involved 52 female football players (N = 52), including goalkeepers, defenders, strikers and midfielders, aged between 10 and 29 years (Mean = 14.25). To assess the psychological characteristics of the participants, the sport competition anxiety test (SCAT) and the competitive state anxiety inventory-2 (CSAI-2) were used to gather sport-specific data on trait anxiety, cognitive anxiety, somatic anxiety and self-confidence. Data revealed that the midfielders showed the lowest level of competitive trait anxiety, better than defenders and strikers, while the goalkeepers recorded the highest score. On the cognitive anxiety scale, strikers had the lowest score, while defenders had the highest score. Goalkeepers scored highest on the somatic anxiety scale, while defenders scored lowest, better than forwards and midfielders. On the self-confidence scale, midfielders had better scores than defenders and attackers, while goalkeepers showed the lowest scores in self-confidence. The results revealed psychological variations associated with different playing positions, highlighting the need for position-specific psychological support, as each position in football presents unique mental challenges that can significantly impact performance and overall well-being. This study demonstrates that both practical and psychological significance are crucial concepts that extend beyond mere statistical significance, emphasizing the importance of applying these insights to improve overall development, resilience and performance of the player. These findings provide a foundation for further investigation into the factors contributing to excellence in women's football, encouraging more comprehensive research that considers both mental and tactical dimensions of the playing positions.

Key words: female football, positional profile, sport psychology, performance, player development

Introduction

Football, at its inception, was a luxuriant emotional and social gift designed to be a man's game, a glorious distraction that created an unbelievably strong emotional attachment for the public. From the perspective of social perception, the king of sports was associated with masculinity, reflecting norms that viewed physicality and competitiveness as male traits. Women were often excluded from such activities to uphold traditional gender roles that emphasized domesticity and gentleness. The long-time resistance shown by the world of football towards women playing this sport meant that it only became a viable option for many female players in the 1960s, with the rise of the women's emancipation movement (Collins, 2018). Nowadays, it is a sport loved by millions of people, with universal appeal. Despite the progress in the professionalization of women's football, mental health challenges such as anxiety are often neglected.

Research on anxiety in women's football is scarce compared to men's football. An integrative review of women's football studies highlighted a rising trend in journal publications since 1998, primarily focused on historical and sociological studies that employ qualitative methods (Valenti, Scelles & Morrow, 2018). Also, a recent citation analysis reveals that the top 100 most cited articles in the domain of sport anxiety have an average publication age of 15.54 years. Specifically, 50% of these articles were published between 12 and 47 years ago, while the other 50% were published within the last 1 to 11 years (Trandafirescu et al., 2024). Several key factors contribute to this scientific gap, including social, cultural and structural barriers that hinder comprehensive exploration of mental health issues in female athletes. In a review focused exclusively on women's football, it was found that the dominant aspects in the scientific field were sociology, sports medicine and physical training, with limited attention given to the relationship between psychological factors and performance (Okholm Kryger, Wang, Mehta, Impellizzeri, Massey, McCall, 2021, apud Pettersen, Adolfsen & Martinussen 2021). One answer to this problem could be that anxiety is often viewed as a typical response when skills of an athlete are evaluated.

Many coaches mistakenly attempt “to correct poor performance by having an athlete spend more time training”; however, the core issue may lie in mental skills rather than physical ones (Weinberg & Gould, 2015). Another key factor is the underrepresentation of women in football, which could make it challenging for researchers to recruit samples of sufficient size, particularly at the elite level, thereby limiting the scope of comprehensive studies on anxiety. Also, anxiety is less visible and harder to detect compared to physical injuries, which have more immediate, observable symptoms. Physical injuries often have clear, measurable impacts on performance, making them easier to study and address. In contrast, anxiety is internal and can be more difficult to identify or quantify, especially in athletes who may not openly express mental health challenges due to fear of stigma or career repercussions. As a result, researchers may prioritize more tangible physical health issues over mental health concerns like anxiety (Hancock, 2018).

A significant impact is the stigma surrounding mental health in sports, which may discourage female athletes from discussing anxiety, as mental health challenges are sometimes perceived as a sign of weakness (Bramley, Healy & Sarkar, 2024; Petersen, Schinke, Coholic, Larivière & Giffin, 2024). The historical perception of women’s bodies as inferior to men’s, along with the belief in their lesser ability to compete, continues to influence contemporary attitudes (Giachino, Valenti, Bonadonna & Bollani, 2023; Comstock & Fields, 2020; Prinz, Bollacke, Bungler, Langen & Roesler, 2016). This issue is compounded by the relatively lower media attention given to women’s football (Ihle, 2022) and biases in sport organization messaging toward consumers (Whitburn, Taylor, Turner & Karg, 2022). Furthermore, financial and structural disparities between men’s and women’s football teams could limit access to mental health resources, such as sports psychologists, restricting both athlete support and data collection (Bjerksæter & Ligestad, 2022; Junge & Feddermann-Demont, 2016). By addressing both the mental and physical aspects of performance, female football players can thrive even under these pressures. Optimally managed anxiety can act as a motivating and supportive factor, but to achieve this outcome, it is necessary to destigmatize mental health issues in women’s football and educate club managers, coaches, doctors, and physiotherapists to recognize and prevent the mental health problems of their players (Prinz, Dvořák & Junge, 2016).

Anxiety evaluation should be considered essential, given the long-term impact it can have on sports performance, with direct implications for prevention, occurrence, rehabilitation and the process of returning to the playing field. “The human condition of the sports performer is characterized by a constant demand at the limits of the physical and mental capacity of an ordinary individual” (Epuran, Holdevici & Tonița, 2001). Stress results from unmet needs, continuous stress creates anxieties, and anxiety leads to tension and eventually psychosomatic disorders (Bali, 2015). Symptoms may include restlessness or a feeling of being on edge, agitation, mental emptiness, sleep disturbances, easy fatigue, concentration difficulties, mental blockages, irritability, or muscle tension (American Psychiatric Association, 2013). Anxiety symptoms arise when the athletes consciously or unconsciously evaluate their situation, leading to an emotional imbalance that can result in decreased cognitive flexibility, confusion, hesitation in decision-making, predominantly negative thoughts, overthinking, reduced self-confidence, and decreased concentration (APA Dictionary of Psychology, 2018-a; Golu, 2007). Negative thinking, the need for perfection, inability to cope with the unknown and adversity, and concentration problems can be triggers for anxiety. With high cognitive anxiety, increased physiological arousal can lead to dramatic performance fluctuations and even sudden collapse, a situation known as “catastrophic performance” (Zhang, Woodman & Roberts, 2018).

The scarcity of experimental and quantitative research in women’s football could limit the understanding of effective training methods, injury prevention strategies, player performance analysis and psychological profiling. This gap may lead to reliance on unverified beliefs among players, coaches and health staff, hindering the development of tailored approaches. For female football players and coaches worldwide, the focus on anxiety is centering around managing anxiety levels and mitigating the effects that can interfere with performance. By addressing anxiety as a significant psychological challenge, this study aims to gather valuable data to help develop targeted mental programs that strengthen the resilience of women footballers, enhancing their overall well-being both on and off the field. Additionally, it seeks to outline a psychological profile tailored to the specific needs of women football players based on their playing positions. These considerations shaped the approach of the present study.

Material & methods

Participants / Consent

A group of 52 female football players (N=52) participated in this study (age mean = 14.25 years, height = 160.75 cm, weight = 52.13 kg, and BMI = 20.02 kg/m²). The participants were selected from the women’s football teams of the ACS Champions Football Club FC Argeș, Argeș County, Romania. Parental consent was required and obtained before starting the research, in accordance with the Declaration of Helsinki. Additionally, consent from the coaches and club management was obtained prior to beginning the study. The research was approved by the Ethics Committee of the Doctoral School of Physical Education and Sport Science (ID: 14/21.06.2024), National University of Science and Technology *Politehnica* Bucharest, University Center Pitești, Pitești, 110254 Romania.

Procedure / Instruments

The research was conducted in March 2024, for highlighting the level of multidimensional anxiety and self-confidence upon different playing positions in women's football. The SCAT and CSAI-2 (Martens, Vealey & Burton, 1990-a) questionnaires were used as data collection tools to evaluate multidimensional anxiety. The SCAT and CSAI-2 questionnaires are recognized as valuable research tools that continue to be used in research concerning sport anxiety (Dunn & Dunn, 2001 apud Thomassen, Bauger & Pensgaard, 2013; Hanton, Mellalieu & Hall, 2002; Kang & Jang, 2018; Ismayilova & Sultanov, 2023; Sopa, 2021; Dupley, Hossain, & Ghosh, 2020; Biswas, 2024). The language adaptation was carried out using typical translation-back translation processes in the field of psychology (APA Dictionary of Psychology, 2018-b; Klotz, Swider & Kwon, 2023). In short, a bilingual translator who knows both Romanian and English translated the SCAT and CSAI-2 into Romanian, and another bilingual translator, also proficient in both languages, completed the back translation. The original questionnaires and the back-translated versions were then compared to ensure that the connotations of each item were preserved. The SCAT questionnaire measures anxiety levels in athletes in a competition or performance situation, which is known as competitive trait anxiety. SCAT consists of 15 items using a 3-point Likert scale (1 = "Hardly ever", 2 = "Sometimes", and 3 = "Often"). Martens et al. (1990-b) extensively examined the validation process involved in developing the SCAT, demonstrating evidence of its high internal consistency with KR-20 values ranging from .95 to .97. Additionally, they reported high test-retest reliability, with a mean retest reliability of .77. The CSAI-2, an instrument that demonstrated good internal consistency, alpha = .79 -.90 (Martens et al., 1990-c), consists of 27 items measuring cognitive state anxiety, somatic anxiety, and self-confidence on a 4-point Likert scale (1 = "Not at all", 2 = "Somewhat", 3 = "Moderately so", and 4 = "Very much so").

Test protocol

The questionnaires were distributed to the subjects. Instructions were provided before subjects filled in the questionnaires. All 52 female football players (N=52) were asked to give their opinion in a strictly independent manner. CSAI-2 was given before SCAT, as the questionnaires manual request, in order not to influence SCAT answers and results.

Statistical analysis

Descriptive statistics, the Levene test, analysis of variance (ANOVA) with Tukey's HSD test, the one-sample Kolmogorov-Smirnov and Phi Coefficient and Cramer's V Correlation were conducted using PSPPIRE statistical software (PSPP - GNU Project - Free Software Foundation, 2018).

Results

The tests were scored, administered, and interpreted by a clinical psychologist.

Table 1. Comparison of anxiety score dimensions among different football positions

Anxiety Scale	Playing position	N	Mean
SCAT Trait Anxiety	Goalkeeper	3	21.33
	Defender	22	18.13
	Midfielder	20	16.55
	Striker	7	17.14
	Total	52	17.57
CSAI-2 Cognitive anxiety	Goalkeeper	3	20
	Defender	22	20.81
	Midfielder	20	17.8
	Striker	7	17.57
	Total	52	19.17
CSAI-2 Somatic anxiety	Goalkeeper	3	18.33
	Defender	22	14.81
	Midfielder	20	15.7
	Striker	7	15
	Total	52	15.38
CSAI-2 Self-confidence	Goalkeeper	3	22.66
	Defender	22	25.22
	Midfielder	20	27.85
	Striker	7	25.85
	Total	52	26.17

Results were structured and the collected data (Table 1) revealed that the Midfielders showed the lowest score on competitive trait anxiety scale (SCAT-ta Mean=16.55), outperforming Defenders (SCAT-ta Mean=18.14) and Strikers (SCAT-ta Mean=17.14), while the Goalkeepers recorded the highest score (SCAT-ta Mean=21.33). On the cognitive anxiety scale, Strikers have the lowest score (CSAI-cog Mean=17.57), a better score than Midfielders (CSAI-cog Mean=17.18) and Goalkeepers (CSAI-cog Mean=20), while Defenders had the highest score (CSAI-cog Mean=20.82). On the somatic anxiety scale, Defenders had the lowest score (CSAI-som Mean=14.82), a better score than strikers (CSAI-som Mean=15.00) and Midfielders (CSAI-som Mean=15.70), while Goalkeepers had the highest score (CSAI-som Mean=18.33). On the self-confidence scale, Midfielders (CSAI-sc Mean=27.85) showed a better score than Defenders (CSAI-sc Mean=25.23) and Strikers (CSAI-sc Mean=25.86), while Goalkeepers showed the lowest scores in self-confidence scale (CSAI-sc Mean=22.67). The Levene test data revealed that there is no significant difference in variances of trait anxiety (sig=0.250), cognitive state anxiety (sig=0.597) and self-confidence (sig=0.728) across different playing positions.

Therefore, the assumption of homogeneity of variances is met for trait anxiety, cognitive state anxiety and self-confidence. However, the value for somatic state anxiety is sig=0.007, indicating a significant difference in the variances across different playing positions. In practical terms, this may imply that certain player roles are associated with higher or lower levels of somatic state anxiety compared to others. The results of the ANOVA and subsequent Tukey HSD tests suggest that there are no significant differences in the levels of trait anxiety, cognitive state anxiety, somatic state anxiety, or self-confidence among female football players in different playing positions (Midfielder, Defender, Striker, Goalkeeper). As the data reveal, even though the Levene test indicates that there is a statistically significant difference in the variances of somatic state anxiety across playing positions, this difference in variance is not large enough to make changes in the ANOVA model. While the mean levels of anxiety and self-confidence do not differ significantly between positions (as per ANOVA), there is still a notable association between playing positions and the psychological traits. This means that the distribution of anxiety and self-confidence levels might be associated with specific positions even though the average levels are similar. To address any concerns about the validity of the conclusions, we had a follow-up and use a non-parametric test. Kolmogorov-Smirnov test was performed and the results indicated no significant difference between the observed data and the normal distribution for trait anxiety, cognitive state anxiety, somatic state anxiety, or self-confidence. At this point in the study, we had another question that needed an answer: if the results of this study are not statistically significant, the findings can still be considered practical or psychological significant? To establish evidence for practical significance (Table 2), we measured Phi Coefficient and Cramer's V Correlation and compared the effect sizes to standard interpretation guidelines (Akoglu, 2018, Peeters, 2016; Rea & Parker, 1997).

Table 2. Statistical measures of association between playing positions and anxiety scales

Variables	Value
SCAT A Trait × Player Position	
Phi	1.09
Cramer's V	0.63
CSAI cog × Player Position	
Phi	1.08
Cramer's V	0.62
CSAI som × Player Position	
Phi	1.04
Cramer's V	0.6
CSAI sc × Player Position	
Phi	1
Cramer's V	0.58

The Phi Coefficient results suggest a potential complete dependence (association) between the variables (player position and trait anxiety, cognitive state anxiety, somatic state anxiety, and self-confidence). Cramer's V appears to indicate a strong association between player position and trait anxiety, cognitive state anxiety, and somatic state anxiety, while it seems to show a relatively strong association between player position and self-confidence. The effect size may help quantify the magnitude of mean differences or the strength of associations, which could provide some insight into the research questions. High values of these measures suggest that players are significantly associated with the psychological traits assessed.

Discussion

Even though the results of this study are not statistically significant, they can still be considered both psychologically and practically significant. While the data suggest no statistically significant differences in competitive anxiety and self-confidence among female football players across different positions, the mean values of the data set reveal observable differences. This discrepancy highlights the importance of considering both statistical and practical significance. The data collected indicate varying individual scores for anxiety and self-confidence, which can be psychologically interpreted in terms of role-specific stressors that are not reflected in the general averages. For instance, midfielders exhibited the lowest competitive trait anxiety and the highest self-confidence, likely due to their balanced playing position on the field (Clemente, Sarmento, Praça, Nikolaidis, Rosemann & Knechtle, 2019; Andrade, Machado, Gonçalves & Teoldo, 2021; Soylyu, 2021). Strikers showed the lowest cognitive anxiety and a low somatic anxiety score, which might have been attributed to their focus on specific tasks involving high-intensity activity and frequent contact situations (Bloomfield, Polman & O'Donoghue, 2007; Alabbad & Altaweel, 2019). Defenders exhibited the highest cognitive anxiety, which could have been linked to their constant need to anticipate and respond to opponents' moves, often in high-stakes situations (Verardi, Nagamine, Neiva, Pessôa Filho, Domingos, Ciolac & Miyazaki, 2014; Gabrys & Wontorczyk, 2023). Goalkeepers had the highest somatic anxiety score and the lowest self-confidence scores, indicating the physical manifestations of stress associated with their critical role in preventing goals (Csáki, Szakály, Fózer-Selmec, Kiss & Bognár, 2017; Madsen, Hansen, Rafnsson, Krustrup, Larsen & Elbe, 2024).

From a psychological perspective, the narrative overview of all female football players who participated in this research reveals a balanced psychological profile. The 52 female football players exhibit a moderate level of general anxiety, with an average score of 17.57. Cognitive anxiety is somewhat higher at 19.17, indicating a significant degree of worry and mental stress related to their performance. In contrast, somatic anxiety is lower, with an average score of 15.38, suggesting that physical symptoms of anxiety are less pronounced. Their self-confidence is considerably high, averaging 26.17. This strong self-confidence serves as a crucial factor that helps mitigate the potential negative impacts of anxiety. Overall, this combination of moderate cognitive anxiety, lower somatic anxiety and high self-confidence indicates a group of athletes who, despite facing typical competitive pressures, effectively use their self-belief to support their performance and resilience. It is essential to acknowledge the limitations of this research, particularly the small sample size, which restricts the generalizability of the results to a larger population. Regular psychological evaluations should be conducted to assess the mental abilities of female footballers, set mental goals for individuals and teams, and develop players' mental skills and full potential.

Conclusions

In Romania, women's football began to receive significant attention after 2014, when it became a strategic priority for the Romanian Football Federation (FRF) and the Professional Football League (LPF). Notable reforms included the requirement for men's League 1 clubs to establish women's teams, mirroring practices in other European nations. Research on women's football predominantly uses qualitative methods, such as interviews and document analysis, resulting in a scarcity of quantitative data. On the contrary, men's football benefits from an abundance of statistical information (Truşcă & Teodorescu, 2023). This lack of quantitative data may explain the absence of player profiling for Romanian women football players. However, newer studies are emerging that aim to provide data for a more comprehensive understanding, including psychological aspects of women football players (Trandafirescu & Potop, 2024).

This paper also emphasizes the importance of the psychological aspects of football players, particularly the relationship between anxiety and playing positions in women's football. The findings underscore the necessity of considering both psychological and practical factors when assessing athletes' performance, confirming the widely held assumption that psychological and physical demands vary among female football players (Ruiz-Esteban, Olmedilla, Méndez & Tobal, 2020; Sánchez-Abselam, González-Fernández, Figueiredo, Castillo-Rodríguez, Onetti-Onetti, 2024). Our approach advocates for moving beyond mere statistical significance and supports Schmidt's (1996) assertion that researchers must challenge the erroneous belief that non-significant results imply no effect, as this misconception can obscure the meaningful insights. Instead, a focus on practical and psychological significance should be prioritized, extending beyond statistical significance to offer a more comprehensive understanding of the psychological factors influencing women's football performance. This practical significance bridges the gap between statistical findings and their real-world applications, ensuring that research results lead to tangible improvements and benefits.

Our results underscore the necessity of considering both psychological and practical significance when assessing athletes' performance, confirming the widely held assumption that psychological and physical requirements may vary among female soccer players (Ruiz-Esteban et al., 2020; Sánchez-Abselam et al., 2024). Moreover, this article could serve as a foundational step toward understanding the mental characteristics associated with different playing positions in female football and be used for structuring training sessions with new perspectives, helping coaches to prevent monotony by emphasizing both the mental and physical aspects of the game (Vargas Idarraga & Valencia-Sanchez, 2024). These findings also suggest practical implications for

football club management. Regular psychological evaluations may provide valuable insights into football players' mental states, potentially influencing decisions on their loans, transfers and retaining. Furthermore, it is advisable for clubs to monitor individual mental states and provide resources for personal development, which can further enhance team cohesion. Evaluating surplus players through a psychological lens may inform decisions about loans or sales, ensuring alignment with both the club's and players' long-term objectives (Jagielski, 2024). Finally, the implications extend to the broader context of women's football. The study advocates for a sustained pace of research and development to support the global growth of the sport. By fostering a fair play strategy that benefits all stakeholders, the long-term success and sustainability of women's football can be further ensured (Horan et al., 2023; Islam, 2023; Kristjánsdóttir, Jóhannsdóttir, Pic & Saavedra, 2019).

Future research should focus on understanding the mental and physical challenges encountered by women in professional soccer. Prioritizing diversity in participant samples will provide useful information on how cultural factors influence these challenges. Furthermore, it is crucial to investigate how football clubs can optimize player development by integrating sports psychologists and mental health professionals into their frameworks, given that "there is no health without mental health" (Prince et al., 2007), and there is no sport without sport psychology.

Conflicts of interest: The authors do not have any conflicts of interest to declare.

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