Soccer & Society

ISSN: 1466-0970 (Print) 1743-9590 (Online) Journal homepage: www.tandfonline.com/journals/fsas20

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To cite this article: Carly Perry, Maria Luisa F. Pereira Vargas, Ali Bowes, Alex Culvin, Jessica L. Macbeth & Hel Spandler (04 Apr 2026): Mental health and professional women footballers: a scoping review, Soccer & Society, DOI: 10.1080/14660970.2026.2653926

To link to this article: https://doi.org/10.1080/14660970.2026.2653926

Published online: 04 Apr 2026.

SOCCER & SOCIETY
https://doi.org/10.1080/14660970.2026.2653926

Routledge
Taylor & Francis Group

Mental health and professional women footballers: a scoping review

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ABSTRACT

This scoping review aimed to synthesize literature on mental health and professional women footballers and provide recommendations for future research. Four databases were searched for studies meeting the inclusion criteria. After screening over 1,100 articles, 10 met the inclusion criteria. All studies used quantitative methods and self-report measures to examine mental ill-health symptoms, mainly depression, anxiety, and eating disorder symptoms. Most studies focused on depression (80%) and competition-related risk factors, such as playing position, competition level, injury status, and starting status. Few studies examined social, cultural, or contextual issues specific to elite women footballers, including contract instability, social media exposure, body image, motherhood, sexism, and discrimination. The exclusive use of quantitative methods has hindered our understanding of players' lived experiences. As the game continues to grow and professionalize, research should incorporate qualitative approaches and more targeted questions to better capture the changing socio-cultural context surrounding professional women footballers.

Introduction

Over the last 10 years, women's football has substantially increased in popularity and has recently been coined as the fastest growing women's sport globally with over 13 million girls and women playing organized football around the world.[1] According to FIFA, these numbers are rising, and they estimate 60 million women participants worldwide by 2026.[2] Viewership rates of women's football are rising as rapidly as participation rates. For example, the average live match audience of the FIFA Women's World Cup increased by 106% from 2015 to 2019 with over 17 million viewers.[3] In March 2022, the world record for match attendance at

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professional women's football game was broken as 91,000 fans attended Camp Nou to see Barcelona vs. Real Madrid, and the European Championship Final between England and Germany had the largest recorded attendance of any men's or women's international final.[4] Most recently, the women's World Cup in 2023 saw 25.7 million streams across BBC platforms, a 75% increase from the World Cup in 2019.[5]

There has also been a significant increase in the number of opportunities for women footballers to play professionally due to the rapid professionalization of women's football around the world.[6] While the growth of the professional women's game is encouraging, player accounts in the mainstream media and academic research have highlighted women footballers encounter inconsistent workplace conditions, financial instability, a lack of mental and physical health support and limited post-career playing options – such challenges sit alongside personal, performance and organizational stressors that all elite athletes will likely encounter throughout their career (e.g. injury, de-selection, coach-athlete conflicts and moving away from loved ones).[7] For example, research concerning professional footballers in England has highlighted that football as a new career for women is complex and has resulted in increased performance demands, heightened media attention, limited mental and physical health support and increased performance demands – all of which can negatively impact mental health.[8] Researchers have – in-turn – called for more attention to this topic.[9]

To date, there is a disproportionate focus on male footballers' mental health compared to women footballers within the literature. In a review by Woods et al.[10] on mental health difficulties among professional footballers, women footballers made up only 7.7% ($n = 879$) of the total participants in the review compared to male participants (93.3%; $n = 10{,}508$) within the population. More specifically, only three studies (23%) focused on professional women footballers and mental health. Although disappointing, this is not surprising given the dearth of research into mental health and elite women athletes across sports more generally,[11] and the relatively recent professionalization of women's football globally.

Therefore, it is important that further research concerning the mental health of elite and professional women footballers is conducted so that the mental health experiences of this population can be better understood. Additionally, further research can help inform those looking to better support this population with their mental health in the future. Given that there has yet to be a focused review on the mental health of professional women footballers, before further research is conducted, it is important to understand what has been explored on the topic of women footballers' mental health thus far and *how* this research has been conducted. Reviews are vital to practitioners and sports organizations, as well as researchers, who rely on the synthesis of the literature to inform practices, create policy and conduct future appropriate research, respectively. Therefore, the aim of this review was to synthesize the research that has been conducted with this population. Specifically, the review is guided by the following research aims: (1) identify the methodology used in research concerning mental health or mental ill-health and professional women footballers; (2) provide an overview and critique of the research and offer recommendations for future research.

Methods

We followed the methodological framework suggested by Arksey and O'Malley,[12] which includes the following stages: (1) identifying the research question, (2) identifying relevant studies, (3) selecting studies, (4) charting the data and (5) summarizing and collating the data and reporting the results. Additionally, this scoping review adhered to all items on the PRISMA checklist for scoping reviews by Tricco et al.[13] The following section outlines the stages used.

Identification of the research aims

As already noted, this review is guided by the following research aims: (1) identify the methodology used in research concerning mental health or mental ill-health and professional women footballers and (2) provide an overview of the research purposes and findings with the goal of identifying gaps in the literature and making recommendations for future research. These study aims were informed by pragmatism in that they sought to highlight what Creswell and Poth[14] note are the 'actions, situations and consequences' of professional women's football on the mental health of footballers, with the goal of developing practical solutions for research and practice. The approach and research aims were further informed by the authors' position in relation to elite women's football – for example, all authors have researched professional women's football or mental health within elite sporting populations in recent years.

Identifying relevant studies

To begin, key databases (PubMed, SPORTDiscus, PsycINFO, Scopus) were searched by the first and second authors. Search terms included mental health-related terms (e.g. 'mental illness' or 'depression'), competition-level (e.g. 'elite' or 'professional'), sport-type (e.g. 'soccer' or 'football') and population (e.g. 'female*' or 'women*') (see Appendix for the full search).

Studies were included to see if they met the following criteria: (a) involved female or women footballers or individuals competing in women's football. Studies involving men and women were included to see if findings for the women footballers were distinguishable from the men; (b) involved footballers competing at the professional level. We defined 'professional' using the same criteria as Bilgoe et al.[15] that is as follows: 1) competes in the highest or second highest division within the country they are competing in or for their respective national team and 2) has football training and competition as a major activity (way of living); (c) involves a focus on mental health, mental ill-health or mental wellbeing in the study's research aims; e.g. studies that aimed to explore a specific mental illness (e.g. anxiety or depression) from an established criterion such as the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition[16] or International Classification of Diseases, 10th Revision;[17] (d) were published between 1996 and 2024. The year 1996 was selected as it was the year women's football became an Olympic sport for the first time, reflecting advances in global development; (e) were qualitative, quantitative or mixed-method studies generating empirical data; (f) published in English; (g) were peer-

reviewed articles. Systematic and scoping reviews, meta-analyses, commentaries, grey literature and dissertations were excluded from data analysis as the focus was to include published peer reviewed article. Reference lists of relevant published literature reviews were also scanned to ensure other relevant articles were not missed.

Study selection

Titles and abstracts of identified articles were screened by the first and second authors independently with the aim of eliminating those studies that did not meet the predefined eligibility criteria. The search resulted in a total of 1,574 records (see Figure 1. PRISMA for a visual representation of the inclusion and exclusion process). After removing the duplicates, 1,301 articles were screened for eligibility by title and abstract. Further 1,182 studies were excluded during title and abstract screening, leaving 119 articles to be reviewed in full by the first two authors. After completion of the screening, the first two authors came together to critically discuss articles before sending them to the third author. The first and second authors agreed on 92% of the articles to be excluded or included; discrepancies were due to different interpretations of the meaning of professional, therefore further clarification was added to the definition in the inclusion criteria. Following this meeting and the full-text review, 19 articles remained. The third author completed a full-text screening of the articles then the three authors came together to discuss and agree on the final studies to be included in the review. Following the final review of articles' full-text, nine studies were excluded, leaving 10 to be included in this review (Table 1). All three authors agreed on the included studies with no discrepancies. Five studies were excluded as they did not include sufficient data on women footballers specifically (i.e. data was combined among other sports or genders), and four studies were eliminated because as they did not include a professional football population (i.e. they focused on semi-professional or junior level). Defining professional women's football is challenging due to relatively recent professionalization of the game, and thus varying levels of development across different countries, which cannot be compared to the men's game.[18] Thus, as noted above, and for the purpose of this review, professional was defined as someone who competes in the highest or second highest division in the country they are competing or compete for their respective national team at the senior level and has football as a major activity and way of living.[19] Therefore, papers that used 'professional' or 'elite' to describe their populations that did not meet the above criteria were excluded for consistency. We excluded these to keep the review focused on a professional population due to the unique personal and performance demands of professional women's football at the highest levels.

Charting the data

Following study selection, the research team charted the data, mapped key findings and identified gaps in existing literature. Data charting involved recommendations from Arksey and O'Malley[20] and included: year of publication, study aim(s), study design, measurements used and key findings (Table 1).

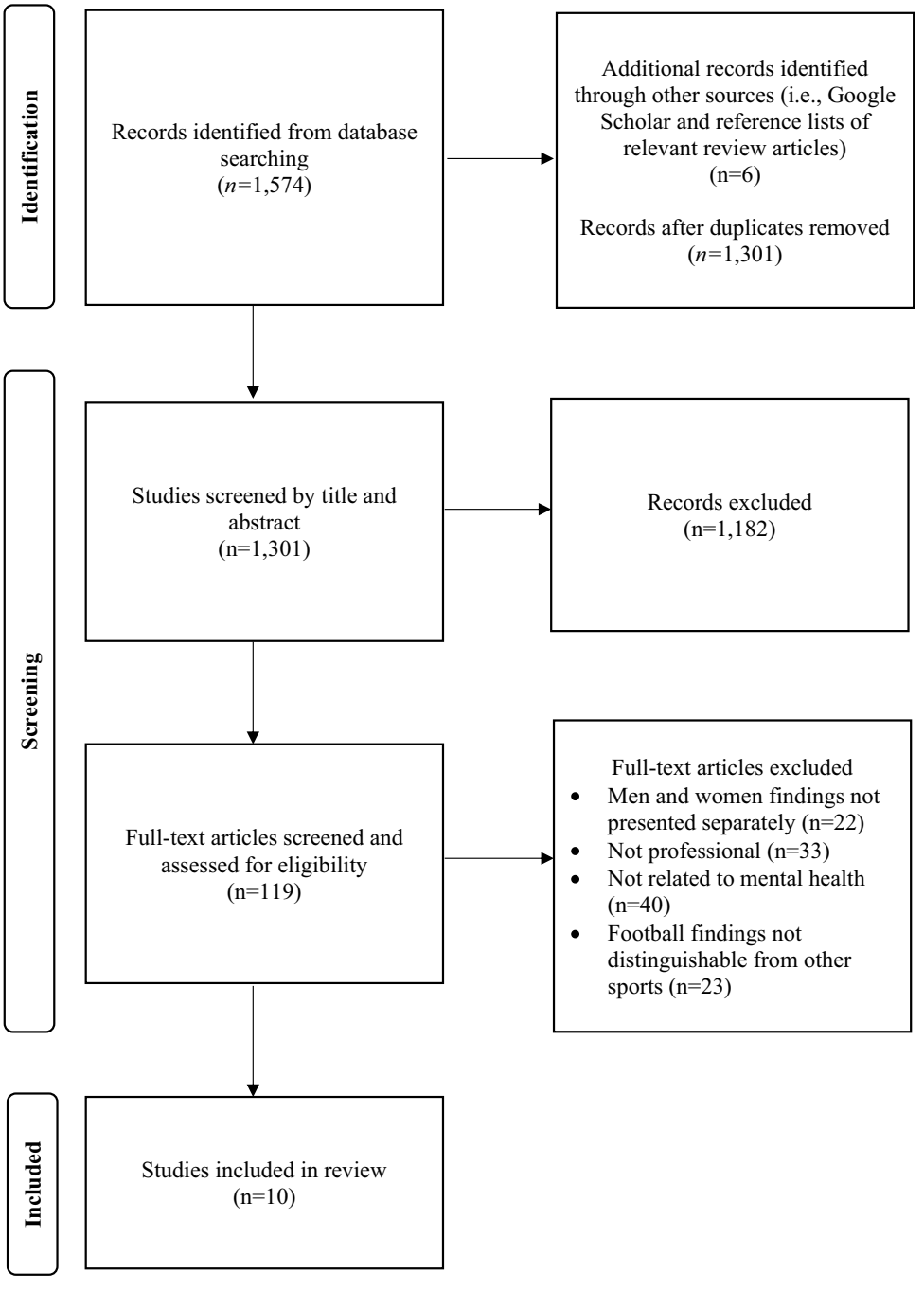

Figure 1. PRISMA.

Table 1. Characteristics of included studies.

Author & year[a]	Aim[b]	Participants (total [male, female], mean age[c], competition level, country)	Methods (study design, data collection, measurements[d])	Key findings
1. Bilgoe et al., 'Unmasking mental health symptoms in female professional football Players'	Gather the prevalence rates of mental health symptoms among female professional football players over a 12-month period and to explore the associations of severe injury and related surgery with mental health symptoms.	0,74 *Mage* = 25 ± 2.7Professional footballers recruited by Football Players Worldwide (FIFPRO) and affiliated national unions, countries not specified	Quantitative Longitudinal, observational prospective cohort study over a follow-up period of 12 months Athlete psychological strain (APSQ), anxiety (GAD-7), depression (PHQ-9), athlete sleep screening (ASSQ), alcohol use (AUDIT-C), substance misuse (CAGE-AID), disordered eating (BEDAQ), injury was examined through 12 questions with severe injury defined as an injury that led to either training or match absence for more than 28 days, and personal and player characteristics—i.e. height, body weight, level of education, parallel activity (e.g. study, work), field position, level of football, number of seasons as professional footballer, exposure to training and matches, history of mental health disorders, smoking status and use of medications (sleeping tablets, antidepressants)	Sport-related psychological distress [64.9% (time point zero, T0) 52.9% (time point one, T1) 55.4% (time point two, T2)], anxiety [6.8% (T0) 5.7 (T1) 9.2 (T2)], Depression [5.4% (T0), 10.0% (T1) 9.2% (T2)], sleep disturbance 24.3% (T0), 31.4% (T1), 32.3% (T2), alcohol misuse 45.9% (T0), 48.6% (T1), 41.5% (T2), substance misuse 1.4% (T0), 0.0% (T1), 3.1% (T2), disordered eating 17.6% (T0), 18.9% (T1) 15.4% (T2). Players were nearly twice as likely to report sport-related psychological distress following every surgery. No other associations explored were statistically significant.
2. Foster et al., 'Relationship between Anxiety and Interleukin 10 in Female Soccer Players with and without Premenstrual Syndrome (PMS)'	Examine the level of anxiety and its relationship with interleukin (IL)-10 (anti-inflammatory cytokine that modulates mood swings) amongst elite female footballers	0, 52 *Mage* = 19.8 ± 4.7 Footballers played Professional in São Paulo, Brazil Brazil	QuantitativeLongitudinal case-control study Anxiety symptoms (BAI), PMS (DS), urine samples and demographics (age, height, BMI)	Footballers with PMS (59.6%) had higher levels of anxiety than the group without PMS. The PMS group showed no significant differences in IL-10 level in different phases of their menstrual cycle nor before or after the game.

(*Continued*)

Table 1. (Continued).

Author & year[a]	Aim[b]	Participants (total [male, female], mean age[c], competition level, country)	Methods (study design, data collection, measurements[d])	Key findings
3. Ivarsson et al., 'Mental health and well-being during COVID-19 lockdown'	Explore high-level footballers' levels and changes in mental health and well-being throughout an 8-week period of lockdown during the COVID-19 pandemic	47, 54 Men's first team and u19 team = 47: Women's first team and u19 team = 54, 26 from women's first team *Mage* = 22.4 ± 5.2 Italian Serie A Club Italy	Quantitative Cross-sectional Player's perceived well-being and depression (WHO-5, positive and negative affect (PANAS-short version), and demographics (age, body mass, height)	36% of all footballers showed clinical levels of depressive symptoms during the five measurement points (8 weeks). The men's first, women's first and female U-19 players reported lower clinical levels of depressive symptoms at the end of the study period. As restrictions lifted the level of negative affect decreased.
4. Junge & Feddermann-Demont, 'Prevalence of depression and anxiety in top-level male and female football players'	Determine the prevalence of depression and anxiety in top-level football players in comparison to the general population, and to analyse potential risk factors	289,182 *Mage* = 20.95 ± 3.76 First team football league in Switzerland and u21 players Switzerland	Quantitative Cross-sectional Depression symptoms (CES-D), generalized anxiety disorder (GAD- 7) and personal and player characteristics (playing position, number of matches and training sessions, number of injuries and frequency of intake of medication (for pain, sleep, relaxation, depression, anxiety and others) in the previous 12 months and current injury (yes/no)	8.5% of female footballers reported moderate levels of depression and 4.5% reported severe depression symptoms. 1.1% reported moderate anxiety and 0% reported severe. Injured players had higher scores for depression and anxiety than uninjured players and attackers and players playing in more than one playing position had the highest, and midfielder the lowest, average depression score. The average depression score decreased with a higher level of was lower in male FL players than in U-21 players.
5. Junge & Prinz, 'Depression and anxiety symptoms in 17 teams of female football'	Determine prevalence and risk factors of depression and anxiety symptoms in across 17 elite teams of female footballers in Germany	0, 290 first league = 184, lower league = 106 *Mage* = 21.5 ± 4.2 Professional and semi-professional Germany	Quantitative Cross-sectional Depression symptoms (CES-D), generalized anxiety disorder (GAD- 7), support availability (e.g. current need and use of psychotherapeutic support), and personal and player characteristics (e.g. match experience, level of play, starting status, injury status)	First league footballers had similar depression prevalence rates to general population. Second league players had higher depression prevalence rates than first league players and then a female general population of similar age. Across both leagues, 45 players reported currently wanting or needing psychotherapeutic support yet only16% of them who reported this received it.

(*Continued*)

Table 1. (Continued).

Author & year[a]	Aim[b]	Participants (total [male, female], mean age[c], competition level, country)	Methods (study design, data collection, measurements[d])	Key findings
6. Kilic et al., 'Prevalence of mental health symptoms among male and female Australian professional footballers'	Determine the prevalence of mental health symptoms among Australian professional footballers compared with former players and assess whether mental health symptoms were associated with recent injury and psychological resilience	149, 132 81 former male footballers (control group for analysis). Male *Mage* = 24 Female *Mage* = 23 Control group *Mage* = 39 Australian A-League and W-League Australia	Quantitative Observational comparative cross-sectional survey Sport-related psychological distress (APSQ), psychological distress (K-10), generalized anxiety symptoms (GAD-7), depression symptoms (PHQ-9), sleep disturbance (Athlete Sleep Screening Questionnaire), alcohol misuse (Alcohol Use Disorders Identification Test Consumption), substance misuse (Cutting Down, Annoyance by Criticism, Guilty Feeling and Eye-openers Adapted to Include Drugs that relies on four items), disordered eating (BEDAQ), gambling (NORC Diagnostic Screen for Gambling Disorders for Control, Lying and Preoccupation). Independent variables included psychological resilience (CD-RISC) and injury in the previous 6 months. Descriptive variables included age, weight, height, duration in football career, field position, duration of retirement, forced retirement.	62.9% women footballers reported sport related psychological distress. Female footballers: 8.3% demonstrated anxiety symptoms, 10.6% depression symptoms, 32.6% sleep disturbance, 43.8% alcohol misuse (male 50.7%, retired male 68.8%), substance misuse 1.5% (male 2.05, retired 10.0%), problem gambling 2.3% (male 23.6%, retired 32.5%), disordered eating 43.8% (male 35.1%, retired 40.0%). For female footballers, injury in the previous 6 months was associated with sleep disturbance while a unit increase in psychological resilience was associated with a 10% decrease in symptoms of depression.
7. Perry, Chauntry, & Champ, 'Elite female footballers in England'	Explore the prevalence of anxiety, depression, and disordered eating symptoms of elite female footballers and examine potential associations between possible risk factors for mental ill-health and symptoms of depression, anxiety, and eating disorders	0,115 top divisi*on* = 63 second Divisi*on* = 52 *Mage* = N/A <20 9 (9) 20–25 45 (46) 26–29 29(29) 30–34 16(16%) Women's Super League and Women's Championship England	Quantitative Cross-sectional Anxiety symptoms (GAD-7), depression symptoms (PHQ-9), disordered eating symptoms (BEDA-Q), help-seeking intentions (GHSQ), and personal and player characteristics (playing level, international experience, born in UK, age, injury status, match-starting status, current self-reported needed for psychological support, full-time status, paid-contract status)	The prevalence of moderate and severe depression symptoms combined was 11.2% and 11% for anxiety symptoms. Rates for eating disorder symptoms in this study showed 36% had scores 'above threshold'. 90% of participants believed that receiving psychological support would have helped them during their football career and 86% indicated they wanted or needed psychotherapeutic support at some point during their career.

(*Continued*)

Table 1. (Continued).

Author & year[a]	Aim[b]	Participants (total [male, female], mean age[c], competition level, country)	Methods (study design, data collection, measurements[d])	Key findings
8. Prather et al., 'Are elite female soccer athletes at risk for disordered eating Attitudes, menstrual dysfunction, and stress fractures?'	Determine the prevalence of stress fractures, menstrual dysfunction and disordered eating in elite female soccer players	0, 220 middle school (0,75) High school (0, 81) College (0, 28) Professional (0, 36) *Mage* = 16.4 ± 4 United States	Quantitative Cross-sectional Eating disorder symptoms (EAT-26) and additional data (stress fracture history, age, height, weight, age at menarche, menstrual function, history of an eating disorder, and a detailed history of musculoskeletal injuries, including stress fractures	0% of middle school soccer players reported eating disorder symptoms, 1.9% of high school, 0% of college, 0% of professional. 19.0% of high schoolers reported menstrual dysfunction, 17.9% of college footballers and 19.4% of professional footballers. Stress fractures were present across all groups: 1 (.01) in middle schoolers, 13.6% in high school, 7.1% in college,13.8% in professional
9. Prinz, Dvořák, & Junge, 'Symptoms and risk factors of depression during and after the football career of elite female players'.	Symptoms and risk factors of depression during and after the football career of elite female players	0,157 *Mage* = 33 ± 6.25 Study population was all female football players who played between 2000 and 2013 at least five matches in the German First League or for the National Team Germany	Quantitative Retrospective Career-time depression symptoms (CES-D and PHQ-2), and personal and playing characteristics (e.g. playing position, number of matches, training sessions and injuries during the career, reasons for lows in mood and lows in performance, helpful conditions, reasons for ending the football career, concreteness of plans for the life after the football career, problems in the first 2 years after the end of the football career, and need and use of psychotherapeutic support during and after the football career).	The career–time prevalence of depression symptoms was 32.3%. Depression scores differed significantly between playing position and playing level with forwards and goalkeepers at the highest risk for depression. Players classified second highest or second lowest in level of play had higher depression scores than others. 38.7% ($n = 60$) players stated that they wanted or needed psychotherapeutic support during their career and 9.93% ($n = 15$) received counselling during their football career. 20.0% ($n = 30$) players had counselling or treatment by a psychologist or psychotherapist after their career, which is about 90% of all players who wanted or needed this.

(*Continued*)

Table 1. (Continued).

Author & year[a]	Aim[b]	Participants (total [male, female], mean age[c], competition level, country)	Methods (study design, data collection, measurements[d])	Key findings
10. Wilinski, 'Gender identity IN female football players'.	Explore the relationship between gender identity, the perception of the body, depressiveness, and aggression in female football players	0, 94 first league = 49 second league = 45 *Mage* = 20.77 (age range 16–31) Premier League and second league Poland	Quantitative Cross-sectional Body Image (Body Image Evaluation Questionnaire), gender identity (BSRI), depression symptoms (BDI), aggression (Buss-Durkee Inventory)	Higher levels of masculinity in female football players correlates positively with indirect, verbal and general aggression, however female footballers were not more aggressive (general aggression) than women who do not practice any sport. Increase of depressive symptoms in female footballers was associated with a higher level of indirect aggression irritation and general aggression.

Notes: [a]Reference numbers for the following tables; 1. Bilgoe et al., 'Unmasking mental health symptoms in female professional football Players'; 2. Foster et al., 'Relationship between Anxiety and Interleukin 10 in Female Soccer Players with and without Premenstrual Syndrome (PMS)'; 3. Ivarsson et al., 'Mental health and well-being during COVID-19 lockdown'; 4. Junge & Feddermann-Demont, 'Prevalence of depression and anxiety in top-level male and female football players'; 5. Junge & Prinz, 'Depression and anxiety symptoms in 17 teams of female football players including 10 German first league teams'; 6. Kilic et al., 'Prevalence of mental health symptoms among male and female Australian professional footballers'; 7. Perry, Chauntry, & Champ, 'Elite female footballers in England'; 8. Prather et al., 'Are elite female soccer athletes at risk for disordered eating Attitudes, menstrual dysfunction and stress fractures?'; 9. Prinz, Dvořák, & Junge, 'Symptoms and risk factors of depression during and after the football career of elite female players'; 10. Wilinski, 'Gender identity IN female football players'.

[b]Terminology in this table matches the language used by the author(s).

[c]Age range is offered where mean age is not available.

[d]Measurement name: APSQ, Athlete Psychological Strain Questionnaire; BAI, Beck Anxiety Inventory; BDI, Beck Depression Inventory; BEDA-Q, Brief Eating Disorder in Athletes Questionnaire; BSRI, Bem Sex-Role Inventory; CPQ-12, Clinical Perfectionism Questionnaire; CD-RISC, Connor-Davidson Resilience Scale; CES-D, Centre for Epidemiologic Studies Depression Scale; DSR, Daily Symptom Report; EAT-26, Eating Attitudes Test; GAD-7, Generalized Anxiety Disorder-7; GHQ-12, General Health Questionnaire-12; GHSQ; General Help-Seeking Questionnaire; K10, Kessler Psychological Distress Scale; NORC, National Opinion Research Centre DSM Screen for Gambling Problems PANAS; The Positive and Negative Affects Schedule- short version; PHQ-9, Patient Health Questionnaire-9; WHO-5, World Health Organisation Well-being Index.

Table 2. Mental health and professional women's football study characteristics.

Study characteristics	Reference number	N	%
Country of study			
Australia	6	1	10%
Brazil	2	1	10%
England	7	1	10%
Germany	5, 9	2	20%
Italy	3	1	10%
Poland	10	1	10%
Switzerland	4	1	10%
United States	8	1	10%
Not specified	1	1	10%
Playing status			
Active	1, 2, 3, 4, 5, 7, 8, 10	8	80%
Retired	9	1	10%
Active and retired	6	1	10%
Sample size (number of professional women footballers included per study only)			
<50	3, 8	2	20%
50 to 100	1, 2, 10	3	30%
101 to 150	6, 7	2	20%
>150	4, 5, 9	3	30%
Methods			
Quantitative	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	10	100%
Qualitative or other	0	0	0%
Study design			
Cross-sectional	3, 4, 5, 6, 7, 8, 9, 10	8	80%
Longitudinal	1, 2	2	20%
Mental health questionnaires used			
>3	2, 3, 5, 8, 9, 10	6	60%
3 to 5	4, 7	2	20%
<5	1, 6	2	20%
Sample gender			
Women only	1, 2, 5, 7, 8, 9, 10	7	70%
Men and women	3, 4, 6	3	30%
Date published			
Before 2010	0	0	0%
2010–2015	10	1	10%
2016–2020	2, 4, 5, 8, 9	5	50%
2021–2024	1, 3, 6, 7	4	40%

Summarizing and collating data and reporting the results

The charted data informed stage five which included collating, summarizing and reporting the data. During this stage, authors met at the beginning of the writing process as well as throughout to discuss and refine the key themes prominent among the 10 studies.

Results

Study characteristics

Publication dates across the 10 articles ranged from 2012 to 2024, with 90% conducted in the last 10 years. Across the 10 studies, eight different countries were represented, including: Australia, Brazil, England, Germany, Italy, Poland, Switzerland and United States (see Table 2). One study did not specify which countries the footballers were competing in.[21] Of the eight countries, Germany was the only country with two studies.

Seven studies focused exclusively on women footballers (70%), whereas three studies involved men and women footballers in the sample (30%). Two studies involved first division or national team women footballers only (20%), four studies involved women footballers from the top two leagues of women's football in that respective country (40%), and one study involved professional, collegiate, high school and middle school women footballers (10%). The number of professional women footballers included in each study varied greatly – for example, one study included 26 professional women footballers and another included 290. The mean number of professional women footballers per study was 115. Two studies involved retired footballers, one of which focused on retired professional women footballers. The other study to include retired footballers did not focus on the retired women population and only recruited current women footballers, current men players and retired men footballers.

Study methods

All 10 studies used quantitative methods and self-reported measures. Of the included studies, 80% ($n = 8$) involved a cross-sectional study design and the remaining two studies used a longitudinal study design (20%). One study used retrospective cross-sectional research design to examine depression symptoms and potential risk factors in 157 elite women footballers during and after their career.[22]

A total of 21 validated measurements were used across the 10 included studies (see Table 3). All 10 studies included a minimum of one validated questionnaire for mental ill-health symptoms. The number of questionnaires used per study ranged from 1 to 10 with 60% ($n = 6$) of studies using one to three mental ill-health questionnaires. Thirty percent ($n = 3$) of the studies used mental health questionnaires specifically made for athletes – for example, the Brief Eating Disorder in Athletes Questionnaire (BEDA-Q). Other athlete-specific mental health questionnaires used were the Athlete Sleep Screening Questionnaire (ASSQ) and the Athlete Psychological Strain Questionnaire (APSQ).

All studies involved a questionnaire for at least one of the three mental health challenges: depression, anxiety or eating disorders. The majority of studies (80%, $n = 8$) included a questionnaire to explore depression symptoms. Across these eight studies, five different validated questionnaires were used to measure depression symptoms. The most frequently used were the Centre for Epidemiologic Studies Depression Scale (CES-D) and the Patient Health Questionnaire-9 (PHQ-9) – both were used across three different studies. Sixty percent of the studies ($n = 6$) included a questionnaire to explore anxiety symptoms. Out of the six studies, 83% ($n = 5$) used the General Anxiety Disorder 7-item scale (GAD-7). Slightly less than half of the studies (40%, $n = 4$) included an eating disorder symptoms questionnaire. Two questionnaires were used-one study used the Eating Attitudes Test (EAT-26), and three studies used the Brief Eating Disorder in Athlete Questionnaire (BEDA-Q). Notably, studies that used the same validated questionnaires used the same cut-off scores. For example, all five studies that included the GAD-7 also used the same cut-off score of 14 to report moderate anxiety and over 14 for severe anxiety.

Table 3. Data collected and screening tools.

Screening purpose & name of screening tool	Reference Number	N=	%
Aggression		1	10%
Buss-Durkee Hostility Inventory; Buss & Durkee, 1957)	10		
Alcohol Misuse		2	20%
Alcohol Use Disorders Identification Test Consumption (AUDIT-C; the World Health Organisation, 1998)	1, 6		
Anxiety		6	60%
Generalized Anxiety Disorder Assessment (GAD-7; Spitzer et al., 2006)	1, 4, 5, 6, 7		
Beck Anxiety Inventory (BAI; Beck et al. 1988)	2		
Body Image		1	10%
Body Image Evaluation Questionnaire (Mandal, 2004)	10		
Depression		8	80%
Centre for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977)	4, 5, 9		
Patient Health Questionnaire-9 (PHQ-9; Spitzer et al. 2001)	1, 6, 7		
Patient Health Questionnaire-2 (PHQ-2; Kroenke et al. 2003)	9		
Beck Depression Inventory (BDI; Beck et al. 1961)	10		
The 5-item World Health Organization Well-Being Index [depression measure used] (WHO-5; 2015)	3		
Eating Disorders		4	40%
Eating Attitudes Test (EAT-26; Garner, 1982)	8		
Brief Eating Disorder in Athlete Questionnaire (BEDA-Q; Martinsen et al., 2014)	1, 6, 7		
Gambling		1	10%
NORC Diagnostic Screen for Gambling Disorders for Control (Toce-Gerstein et al. 2009)	6		
Help-Seeking		1	10%
The General Help-Seeking Questionnaire (GHSQ; Wilson et al. 2005)	7		
Positive and Negative affect		1	10%
Positive and Negative Affect Schedule (PANAS-X; Watson & Clark, 1994)	3		
Psychological Resilience		1	10%
Connor-Davidson Resilience Scale (CD-RISC; 2003)	6		
Psychological Distress (sport and global)		2	20%
Athlete Psychological Strain Questionnaire (APSQ; Rice et al. 2020)—sport specific	1, 6		
Kessler Psychological Distress Scale (K-10; Kessler et al. 2002)—global	6		
Sex Role Inventory		1	10%
Bem Sex Role Inventory (BSRI; Bem, 1974)	10		
Sleep Disturbance		2	20%
The Athlete Sleep Screening Questionnaire (ASSQ; Samuels et al. 2016)	1, 6		
Substance Misuse		2	20%
Cutting Down, Annoyance by Criticism, Guilty Feeling and Eye-openers Adapted to Include Drugs (Brown et al. 1995)	1, 6		
Additional data collected			
PMS (DSR)[1]	2	1	10%
Age at menarche[1]	8	1	10%
Menstrual function[1]	8	1	10%
Urine samples[1]	2	1	10%
General health	5	1	10%
Frequency and use of intake of medication (for pain, sleep, relaxation, depression, anxiety and others)	1, 4	2	20%
History of mental health disorder/mental health diagnosis (if comfortable sharing)	1, 7	2	20%
Smoking status	1	1	10%
Eating disorder history	8	1	10%
Injury status	1, 4, 5, 6, 7, 9	6	60%
Stress fracture history	8	1	10%
Playing position	1, 4, 6, 9	4	40%
Starting status	5, 7,	2	20%
Playing level	1, 5,7,9	4	40%
Match experience	1, 5, 9	3	30%
Number of matches and training sessions	4, 9	3	30%
Paid contract status[2]	7	1	10%
Full-time/part-time status[2]	7	1	10%
Dual-career status (work alongside football career)[2]	1, 7	2	20%
Student athlete status[2*]	1, 7	2	20%

(*Continued*)

Table 3. (Continued).

Screening purpose & name of screening tool	Reference Number	N=	%
Need and use of psychotherapeutic support during and after the football career	5, 7, 9	3	30%
Reasons for lows in mood and lows in performance and helpful conditions	9	1	10%
Reasons for ending football career	9	1	10%
Forced retirement	6	1	10%
Concreteness of plans for the life after the football career	9	1	10%
Problems in the first 2 years after the end of the football career	9	1	10%

Notes: [1] Sex-specific (female) data collection, [2] professional women football specific.

Research purpose

All studies included in this review sought to quantitatively gather mental ill-health prevalence rates and examine potential risk factors which are outlined below. Alongside this, studies in this review additionally aimed to: (a) compare prevalence rates between professional women and men footballers'[23] (b) explore 'gender-specific' or 'female specific' variables, such as PMS, menstrual dysfunction and gender identity in relation to mental health[24] (c) gather insight into footballers' psychotherapeutic support needs and help seeking intentions[25] and (d) gather descriptive information surrounding women footballers' reasons for low mood, retirement and coping mechanisms.[26]

All studies explored one or, a combination of, the following factors in relation to mental health symptoms: interleukin (IL)-10, well-being during COVID-19, playing position, injury status currently, in the past 6 months, or in the past 12 months, number of matches and training sessions, frequency of intake of medication for pain, sleep, relaxation, depression, anxiety and others, level of play such as first division vs. second division, starting status, match experience, paid contract, student-athlete status, football as full-time occupation, want and need for psychotherapeutic support (currently and/or in the past), psychological resilience, help-seeking intentions, stress fractures and menstrual dysfunction and gender identity. One study explicitly included factors specifically relevant to the women's professional games, such as 'paid contract status' or 'football as full-time occupation or part-time'.[27]

Study findings

As noted above, all studies included in this review gathered prevalence rates of mental ill-health and explored potential risk factors. Additionally, several studies gathered self-reported data surrounding areas such as reasons for low mood, support needs and reasons for retirement which provide important insight and offer areas for future research to explore. Findings from the 10 studies are synthesized and presented below under two main headings: (1) prevalence rates and risk factors and (2) descriptive findings.

Prevalence rates and risk factors

Depression. The majority of studies (80%, $n = 8$) included a validated depression questionnaire. Of the three studies that used the PHQ-9, women footballers from multiple countries combined (not specified in the study) had the lowest prevalence

rates (8.2%, the average of the three time points collected) compared with footballers playing in Australia (10.6%) and professional women footballers in the top two leagues in England (11.2%).[28] Three studies used the CES-D and found 13% first-team players competing in Switzerland presented with moderate-to-severe depression scores, which is lower than professional women footballers competing in Germany (37.1% and 32.3%).[29]

The following factors were explored across eight studies in relation to depression scores: level of play, match experience, playing position, injury, want and need for psychotherapeutic support, help-seeking intention scores, post-career plans, COVID-19 and gender identity. Notably, several other factors were explored across the studies in relation to depression symptoms – such as, paid-contract, student-status, dual-career status, or full-time vs. part-time status – yet no associations were found to be significant and are not discussed in any further detail below.

Two studies examined depression scores and match experience[30] - match experience was based on matches played for the first league, second league, national team and internationally. Junge and Prinz[31] found match experience to be a significant predictor of depression symptoms, independent of level of play (first division vs. second division) such that footballers with the highest match experience in the German first division and second division had lower average depression rates than footballers with lower match experience. Similarly, Prinz, Dvořák, & Junge[32] found significant differences in average depression scores between footballers based on match experience.

Two studies – Junge & Prinz[33] and Perry et al.[34] explored depression symptoms and levels of play, i.e. first division and second division. Junge and Prinz[35] reported that twice as many footballers in the second division in Germany had moderate-to-severe depression symptom scores compared to first league players. Despite this, they did not find the level of play to be a statistically significant predictor of depression scores. Perry et al.[36] found no significant association between depression scores and level of play – i.e. first division (Women's Super League) and second division (Women's Championship) – among women footballers in England.

Depression scores and starting status were explored in two studies – Junge & Prinz, and Perry et al.[37] In a sample of footballers in the top two divisions of women's football in England, starting status was significantly associated with depression scores. For example, Perry et al.[38] found that women footballers competing in England who reported starting 'every game' and 'most games' had lower risk of reporting depressive symptomology. Junge & Prinz reported similar findings with footballers competing in Germany such that those who indicated that being 'rarely' or 'never' a starter in their team, reported an increased risk for depression symptoms compared to those who started every or most games.[39]

Three studies in this review explored the playing position (e.g. goalkeeper, defender, midfielder or forward) in relation to depression scores.[40] Junge & Feddermann-Demont[41] found attackers and those who played in more than one position had the highest depression scores, while midfielders had the lowest average scores. Prinz, Dvořák and Junge[42] also discovered that average depression scores differed significantly between playing positions – they found forwards and goalkeepers had the highest depression symptom scores. Junge and Prinz[43] also explored the playing position yet found this had no effect on depression scores.

Over half of the studies in this review (60%, $n = 6$) explored depression and injury.[44] The majority (83%, $n = 5$) found no significant correlation or association between injury status and depression scores. One study – Junge & Feddermann-Demont[45] – did, however, find that injured professional women footballers competing in Switzerland had higher depression scores than uninjured players. Further, while no statistically significant correlation was found between depression scores and number of injuries, Prinz, Dvorâk and Junge[46] found footballers with more injuries and high depression scores during their career, had higher scores for depression symptoms during the first two years after their career than footballers who had fewer injuries and lower depression scores during their career.

One study – Prinz, Dvorâk & Junge[47] – explored concreteness of post-career plans and depression scores. Retired footballers who competed in the German first division or the national team were asked about the concreteness of their post-career plan – findings indicated 52.9% ($n = 82$) of footballers had a concrete plan for their life post football, 29% ($n = 45$) had some concrete ideas, 11.6% ($n = 18$) were vague and 3.87% ($n = 6$) had no ideas. They found that the average depression score for the first two years after a footballer's career decreased significantly with the concreteness of future plans at the end of their football career.

In two studies, depression scores and footballers' desire and need for psychotherapeutic support during their football career were explored.[48] Junge and Prinz[49] found that players who stated that they 'never needed any type of psychotherapeutic support' reported three to four times fewer symptoms of depression than players who reported that they needed psychotherapeutic support previously or currently. Perry et al.[50] found that players who indicated they 'currently' need psychological support had an elevated risk of reporting depressive symptomology compared to those who did not currently need support.

One study examined associations between help-seeking intentions (as continuous scores) and depression symptoms with women footballers in England's top two divisions.[51] To do this they used. The General Help-Seeking Questionnaire (GHSQ). The researchers found that a higher help-seeking intention score for 'personal or emotional problems' (question one on the GHSQ) was significantly associated with lower depression scores – i.e. women footballers in England, who were more likely to seek help for personal or emotional problems, were less likely to report symptoms of depression. Similar results were found for help-seeking intentions regarding 'suicidal thoughts' (question two on the GHSQ) such that higher help-seeking intention scores for 'suicidal thoughts' were significantly associated lower depression scores.

One study explored depression scores during COVID-19. Ivarsson et al.[52] longitudinally explored depression symptoms over an eight-week period during COVID-19 with four groups of footballers in one professional club in Italy – i.e. the men's first team and U19 team and women's first team and U19 team. They found three of the four groups – the men's first team and women's first team and women's U19 team – had higher prevalence of clinical levels of depressive symptoms during the first measurement points compared to the end of the study where training restrictions had lifted. There was a decrease in negative affect as restrictions were lifted across all four groups, but there was no significant change in positive affect over the eight-week period. The women's U19 had

a higher percentage of players 'at risk' for clinical levels of depressive symptoms compared to the women's first team at four of the five study assessment points.

One study explored the relationship between gender identity, body perception, depressiveness and aggression in women footballers who represent different playing levels in Poland (premier league vs. second league).[53] They found the increase in depressiveness in women footballers was accompanied by higher levels of indirect aggression, general aggression and irritation. Notably, they found footballers with higher level of play and longer seniority as players had significantly lower levels of aggression.

Anxiety. Sixty percent of studies explored the prevalence of anxiety symptoms using validated questionnaires. Five studies provided insight into prevalence rates for anxiety symptoms using the GAD-7 questionnaire, notably all that used the same cut-off scores to report mild, moderate or severe anxiety figures. Prevalence rates for moderate and severe anxiety symptoms (combined) across the five studies varied from 1.1% to 11%. Specifically, 1.1% of women footballers in the Swiss first division displayed anxiety symptoms, which is significantly lower than footballers from countries not specified (7.2%), footballers competing in Germany (8%), professional women footballers in Australia (8.3%) and footballers in the top two divisions in England (11%).[54]

Of the six studies, one study – Foster et al.[55] – specifically sought to explore the relationship between anxiety and interleukin 10 (IL-10); IL-10 is cytokine with anti-inflammatory properties that helps to maintain homoeostasis.[56] The remaining five studies explored anxiety and multiple potential risk factors, such as playing level, match experience, injury and age. Foster et al. focused on professional footballers in Brazil and found those with Premenstrual syndrome symptoms (PMS) – such as mood swings, food cravings, fatigue, irritability and depression – had higher levels of anxiety than the group without PMS.[57] The group of footballers with PMS (59.6%), however, showed no significant differences in IL-10 levels in different phases of their menstrual cycle nor before or after the game.

One study found match experience, level of play and age were all significant predictors of anxiety symptoms. Junge & Prinz[58] found that players with the highest match experience had lower average depression and anxiety rates and more specifically indicated that those footballers competing in the second division in Germany were four times more likely to be present with generalized anxiety symptoms than those in the top two divisions who had the highest match experience. They also found that levels of play impacted anxiety such that footballers in the second division were seven times more likely to show symptoms of anxiety than those competing in the first division. Additionally, they found younger age was associated with an increased likelihood of anxiety symptoms.

Three studies explored injury status and anxiety scores.[59] Junge & Feddermann-Demont[60] found that injured players had higher average anxiety scores than uninjured players in the three sub-groups – professional men footballers, professional women footballers and retired men footballers – but the result was statistically significant only for the entire group, not for the separate sub-groups. Collectively, no significant associations were found across the three studies between injury status and anxiety scores.

One study explored anxiety symptoms and footballers expressed the need for psychological support.[61] Similar to depression scores and psychological support, they found that

those who responded that they currently needed or wanted psychological support had an elevated risk of reporting anxiety symptoms compared to those who responded 'no' to needing psychological support.

Eating disorders. Four studies (40%, $n = 4$) involved a focus on eating disorders.[62] Prather et al.[63] indicated 8.3% professional female footballers in the US met the cut-off for at risk for a clinically eating disorder using the Eating Attitudes Test (EAT- 26; Garner, 1982). Three studies used the BEDA-Q to explore eating disorder symptoms, all using the same cut-off score of four; across these studies, prevalence rates ranged from 17.3% to 43.8%.[64] Professional women footballers in Australia had the highest percentage of players 'at-risk' for eating disorders (43.8%) compared to women footballers in the top two divisions in England (36%) and players from multiple countries (17.3%; average across the three collection points in their study). Across the four studies, several potential risk factors for eating disorders were such as menstrual dysfunction and stress fractures, injury, psychological resilience, paid-contract status and student-athlete status.

Prather et al.[65] looked at menstrual dysfunction, low extremity stress fracture occurrence and eating disorder symptoms in footballers in the US competing at various levels (i.e. middle school, high school, collegiate and professional). They found professional footballers in the US had the highest rate of menstrual dysfunction (19.4%, $n = 7$) and stress fractures (13.8%, $n = 5$) compared to middle school, high school and collegiate footballers. Further, they found those who had delayed menarche and scores of ≥ 10 on EAT-26 had a significantly higher prevalence of menstrual dysfunction in the past 12 months compared to those who had a score < 10. No other conclusions were drawn yet as the authors highlighted the need for further research with elite women footballers surrounding the Female Athlete Triad, which, at the time of their study, was defined as the combination of energy availability, menstrual function and bone health.

Injury status and eating disorder symptoms were looked at across three studies, yet no associations were found.[66] Although Kilic et al.[67] found no significant association between injury or psychological resilience and eating disorder symptoms, they did find professional women footballers in Australia had higher eating disorder prevalence rates (43.8%) than current professional male footballers (35.1%) and retired professional male footballers (40%).]

One study looked at multiple factors in relation to eating disorder prevalence rates, such as playing level, paid contract, full-time status, starting status, injury and student-athlete status, yet found only one significant association.[68] The researchers found that footballers who identified as 'part-time' student-athletes had an elevated risk of reporting eating disorder symptoms than those who reported no student-athlete status. They suggested one explanation could be that balancing the demands of being a part-time student while competing at the highest level could make elite athletes more vulnerable to experiencing mental ill-health, yet they highlighted the need for more research to explore this.

Additionally, Perry et al.[69] found that 35% of the footballers were 'currently trying to lose weight', and 45% reported attempting to lose weight in the previous four weeks. Importantly, this data was collected during the footballers' competitive season which means some footballers are potentially engaging in dieting, over-exercising or other means of weight-loss at times which could be problematic or dangerous. They also

highlighted in their study that higher depression and anxiety scores were associated with reporting a need for psychological support, whereas higher eating disorder scores were not. Perry et al.[70] suggested this could be the result of eating disorder behaviours such as excessive weight monitoring and strict dieting being normalized in the footballers' sporting environment.

Sleep disturbance, alcohol misuse, gambling and psychological distress. Two studies gathered prevalence rates for mental health challenges beyond depression, anxiety and eating disorders.[71] Other mental health challenges explored included sleep disturbance, alcohol misuse, substance misuse, gambling, global psychological distress and sport-related psychological distress. In addition to gathering prevalence rates, both studies examined risk factors such as injury, yet few associations were found.

Among professional women footballers in Australia, Kilic et al.[72] found 62.9% reported sport related psychological distress, 18.9% global psychological distress, 32.6% moderate-to-severe sleep disturbance, 43.8% reported alcohol misuse, 1.5% substance misuse and 2.3% problem gambling. Further, they found injuries in the previous six months were associated with sleep disturbance. Professional women footballers (country not specified) had similar prevalence rates to those in Australia, for example, Bilgoe et al.[73] found 57.7% reported sport-related psychological distress (average across the three time points), 29.3% sleep disturbance, 45.3% alcohol misuse and 1.5% substance misuse. Limited associations between mental health symptoms and risk factors were found, yet they did report players were nearly twice as likely to report sport-related psychological distress following surgery.

Descriptive findings

Support needs. Three studies explored footballers' expressed need for mental health support during their career as well as availability of support and utilization of support.[74] Footballers' expressed need for psychotherapeutic support during their football careers, ranging from 23.7% to 70% across the three studies. For the purposes of this section, 'n' represents the number of participants, opposed to the number of studies.

All three studies asked footballers about their *previous* want for support throughout their career and two studies asked specifically about footballer's *current* want and need for support. In terms of footballers' current want for support, Junge & Prinz[75] found 15.7% ($n = 45$) of footballers competing in the first two divisions in Germany wanted or needed psychotherapeutic support and Perry et al.[76] found16% ($n = 16$) of footballers competing in England's top two divisions reported currently wanting support.

Results differed between the three studies in terms of previous want and need for support. 23.7% ($n = 68$) of the footballers competing in Germany's top two divisions said they 'previously wanted support' which is less than what was reported by retired footballers who competed for Germany's national team or in the first division (38.7%, $n = 60$) and significantly less than footballers in England's top two divisions (70%, $n = 72$). Notably, women footballers in England had a higher current and previous want and need for support than other countries – i.e. 86% ($n = 88$) of footballers wanted or needed support currently or at some point in their career and 90% ($n = 91$) believed they would have benefitted from seeing a psychology professional at some point during their career. The researchers speculated this could be due to the rapid professionalization

of the women's game in England, meaning footballers may be at an increased need for support as they navigate the heightened performance and career stressors or potentially an increased comfortability with seeking support.

All three studies asked footballers if they had received psychological or mental health support during or after their playing career. Prinz, Dvořák, & Junge[77] reported that only 9.93% ($n = 15$) of professional footballers in Germany received psychotherapeutic support during their football career. Notably, 20% ($n = 30$) of footballers indicated they had counselling or treatment by a psychologist or psychotherapist after their football career. Similarly, Junge & Prinz[78] indicated only one-third of players competing in the top two divisions in Germany who wanted support received it. Similar to footballers competing in Germany, Perry et al.[79] found that only 27% ($n = 28$) of women footballers in the top two divisions in England indicated they had received mental health support from their club and 37% ($n = 38$) had sought support at some point during their career from an external mental health professional. Additionally, footballers in England were asked about support availability through their clubs and 34% responded that no support was available, 50% said 'yes', 14% 'unsure' and 2% 'other'.

Perry et al.[80] included an extra focus on help seeking with the inclusion of the GHSQ. Data from this questionnaire highlighted that for both problem types – (1) personal and emotional problems and (2) suicidal thoughts – the highest help-seeking intention score was for 'intimate partner (e.g. girlfriend, boyfriend partner)', meaning footballers indicated they are most likely to seek support from their partner. For 'personal and emotional problems' scores indicated the footballers are least likely to seek help from a phone helpline and for 'suicidal thoughts' they are least likely to seek support from their 'current manager or staff'.

Reasons for low mood and coping behaviours. Two studies included questions surrounding topics such as low mood or coping behaviours, or both.[81] Prinz, Dvořák, & Junge[82] asked retired footballers who competed in Germany's first division or for their national team to select the three most important reasons for their low moods during their football careers. The following were most frequently selected: 'conflicts with coach/management' (49.7%, $n = 77$), 'low performance/injury' (48.39%, $n = 75$) and 'too little support/acknowledgement by the coach' (40%, $n = 62$). These were followed by 'separation/divorce, illness or death of a close person' (14.8%, $n = 23$) and 'difficulties/trouble in their partnership/family' (14.2%, $n = 22$). They also asked for reasons for performance and footballers selected the following: 'injury' (56.8%, $n = 88$), 'psychological strain/stress' (46.5%, $n = 72$) and 'missing of inner drive' (28.4%, $n = 44$).

Two studies asked footballers about coping. Prinz, Dvořák and Junge (2016) asked footballers what helped them to cope with low moods during their football career, the following were most frequently selected: friends (71.6%, $n = 111$), family (68.4%, $n = 106$), teammates (38.1% $n = 59$) and relaxation/rest/retreat (29.0%, $n = 45$). Relatedly, Perry et al.[83] asked footballers about coping strategies for low mood (i.e. 'Have you ever engaged in any of the following coping strategies to deal with low mood or psychological challenges?') and were asked to 'check all that apply' – the most readily selected were none (42%), excessive exercise (39%), excessive focus on healthy eating (36%) and overeating (22%).

Retirement. One study focused solely on retired women footballers. Specifically, Prinz, Dvořák, & Junge[84] focused on retired footballers who had competed in at least five matches in the German First League or for the National Team between 2000 and 2013, a time period where the German First League was ranked one of the most competitive leagues in the world and the national team had won consecutive FIFA Women's World Cup's in 2003 and 2007. They asked footballers the most important reasons for ending their football career and to tick up to three responses – the following were most frequently selected: I wanted more of a private life (47.74%, $n = 74$), I did not want the physical strain anymore (31.00%, $n = 48$), good opportunity to change careers (27.10%, $n = 42$), serious injury (23.23%, $n = 36$) and I did not want the psychological strain (pressure, stress) anymore (20.00%, $n = 31$). In the first two years after their football career, players reported being bothered by the following: 44% no problems ($n = 66$), 27.3% ($n = 41$) by injuries or physical symptoms, 20.7% ($n = 31$) by feeling low, 17.3% ($n = 26$) by too much spare time and a few reported other problems, such as no tasks, family challenges or financial problems.

Discussion

To the best of our knowledge, this is the first review to explore and synthesize research concerning mental health and professional women footballers. In this section, we critically discuss the results and gaps identified in the research and provide future directions for research (see Table 4 for summary).

Sample characteristics

Nearly all research in this review (90%) was conducted in the last 10 years, with 50% of the research being conducted over the last five years – this finding highlights the recency of this research area. The first study identified was published in 2012 where mental health was loosely explored in relation to gender identity by Wilinski.[85] Following this study, it was four years until two further studies were published concerning mental health and elite women footballers – one with footballers in the US looking at eating disorders and menstrual dysfunction and the other with retired women footballers from the German first division and national team.

Eight countries were represented across the 10 studies in this review. Notably, all eight studies focused on women footballers who are competing in countries where women's football is established, rapidly professionalizing or has a relatively successful national team – i.e. all countries included have national teams ranked in the top 30 (out of 195) in FIFA's current World Cup 2027 rankings. While more in-depth research is still needed with these populations, future research is also needed to explore countries where women's football is not as established or where resources are limited. As noted by Castaldelli-Maia et al.,[86] limited resources and cultural factors such as women's sport being less accepted or encouraged can negatively impact women athletes' mental health.

Notably, only three studies in this review provided any contextual insight into the population they were exploring which hinders understanding as context can significantly impact mental health.[87] One example where context was provided is Perry et al.[88] who offered a rationale for exploring women footballers in the top two divisions in England.

Table 4. Summary of gaps in research and recommendations for future directions.

Discussion topic	Current research	Gaps in research	Recommendations for future research
Sample characteristics	• Insight into some sample characteristics (e.g. league information)	• Exploration of leagues in other countries (beyond Europe and North America) • Specific rationale for why professional women footballers are being researched	• Explore countries where women's football is not as established or where resources are limited • Develop thoughtful research questions and rationale for using professional women footballers
Professional women footballers are a unique population	• Nearly all studies with a narrow focus on competition factors being researched in relation to mental health • 30% studies focused on biological female factors (e.g. menstrual dysfunction)	• Specific factors related to women professional footballers • Deep dive into how specific psychosocial and culturally imbedded factors, and how these interact with mental health	• Exploration of the influence of social media and body image • A psychosocial exploration of ACL injury • Motherhood and identity • Exploration of other social contextual issues such as discrimination, bullying, stereotyping, sexism, racism and homophobia
Eating disorder research	• 40% studies focused on eating disorders • 8% to 44% of women footballers reported symptoms for eating disorders	• Insight into related body image experiences such as objectification, social pressure and peer-influence surrounding their bodies and food	• Exploration of the unique sub-culture of professional women's football (e.g. recent professionalisation, specific body ideals) and how it can perpetuate harmful eating practices.
Research lens, approach and design	• Studies are primarily approached from a biologically or psychologically focused lens • All studies used quantitative methods to almost exclusively establish prevalence rates	• A need to move beyond a psychological perspective to include an inter/transdisciplinary lens that can speak to the biological/psychological/sociocultural factors which can shape women's health and performance within elite contexts • Insight into deeply personal mental health experiences • Understanding of psychosocial and contextual factors which can be uncovered through qualitative inquiry	• More qualitative studies • Rich data collection and analysis methods that 'get at' the experience of mental health in this population • Utilise an inter/transdisciplinary lens; for example, see Scholfield et al. 2020

They highlighted the rapid changes to the professional setup and subsequent increased pressures and stressors placed on women footballers in England over the last five years. Similarly, Junge & Prinz[89] explained their focus on footballers competing in Germany and highlighted that women footballers in Germany had increased stressors due to their top international ranking at the time of the study. For future researchers looking to conduct research in this area, providing insight into the population being explored is critical and helpful for the reader. Such context is particularly important to understand given the professionalization of women's football globally is extremely fragmented even among the most established women's football countries.[90]

Research focus: moving beyond prevalence rates and competition-based risk factors

Nearly all studies included in this review focused on exploring (a) mental ill-health prevalence rates, specifically depression or (b) competition-based related risk factors (i.e. injury) or sex-specific risk factors (i.e. PMS) in relation to mental ill-health. While such studies provide important insight, researchers have the opportunity to expand beyond these two focus to further explore women footballers' unique challenges and needs (e.g. sexualization, contract instability and coach-athlete conflict).

There was a narrow focus on exploring depression prevalence rates in the studies included in this review – i.e. 80% of studies included a depression symptom questionnaire. There are, however, other mental health challenges that women footballers face which warrant further attention. One example is eating disorders and body image concerns. In this review, findings highlighted high prevalence rates for eating disorders with studies reporting prevalence rates between 8% and 44% yet, only four studies included an eating disorder questionnaire. Notably, the limited focus on eating disorders sits in contrast to a recent scoping review concerning mental health and elite female athletes which found 90% of studies were focused on eating disorders.[91]

One reason for the overfocus on depression symptoms and lack of focus on other challenges, such as eating disorders, is that women's football is not traditionally understood as an 'at-risk' sport for eating disorders.[92] Eating disorder research in sport is primarily focused on women athletes competing in 'aesthetic/appearance-based' or 'lean-physique' sports (e.g. dance, figure skating and long-distance running) pressures they face around body, weight, eating and performance from coaches, teammates, judges and the media.[93] Those who compete in power-based sports, such as women footballers, have received far less research attention. However, researchers have noted that this population also will encounter objectification, social pressure and peer-influence surrounding their bodies and food.[94] Indeed, women footballers and other power-based athletes are required to develop muscular bodies in pursuit of sporting success which may result in a body-type that clashes with societal determinations of the 'feminine ideal'.[95] One example is that Culvin (2019) found elite women footballers in England have reported feeling that their bodies are under constant scrutiny and are tasked with promoting the women's game while also conforming to an image that emphasizes femininity.

Given the limited research specifically exploring eating disorders in women's football, there is a need to understand these populations' experiences. Specifically, the unique subculture of professional women's football (e.g. recent professionalization, specific body

ideals) and how it can perpetuate harmful eating practices warrants further investigation.[96] One potential research avenue for researchers could be around social media and body image. For example, researchers could look at how professionalization may pressure footballers to portray themselves and their bodies in certain ways online or how newfound exposure online may leave athletes at risk of receiving gendered critiques about their bodies. This is particularly important for women footballers who compete in a male dominated sport. Further, a psychosocial exploration of the impact of severe injuries such as anterior cruciate ligament (ACL) injury and how it relates to mental health remains unexplored in this population despite elite women footballers being at a heightened risk for severe lower limb injuries compared to women competing in non-cutting or non-contact sports.[97] Finally, motherhood and identity are other factors which potentially intersect with mental health in women athletes, especially given the issues with maternity and pay in contracts.[98]

The majority of articles included in this review were narrowly focused on competition-based related risk factors (i.e. injury) or sex-specific risk factors (i.e. PMS) in relation to mental ill-health. Most studies have explored competitive risk factors, such as injury, starting status, or playing position – such factors have been explored in the literature with men footballers or elite athletes more broadly.[99] While exploring competition-based risk factors can be important, it is well established that elite women athletes encounter unique risk factors which potentially negatively impact their mental health.[100] For example, researchers have highlighted numerous individual, environmental and systematic risk factors specific to elite women athletes and professional women footballers such as unequal training opportunities, limited financial support, lack of women-specific policies (e.g. maternity leave), gender discrimination in their workplace, sexualization in the media, interpersonal violence particularly between coaches and players (including, for example, sexual abuse and harassment), homophobia/biphobia and societal and personal pressures around traditional gender roles.[101] Further specifically, researchers have highlighted that professional women footballers face unique risk factors such as rapid professionalization, hand-me-down norms from the men's game and limited agency in their professional set-up – all which warrant future research attention.[102]

In addition to a focus on competition-based risk factors, several studies in this review overtly focused on sex or gender. For example, two studies exclusively focused on traditional biological factors often associated with sex (specifically female) such as PMS or menstrual dysfunction and stress fractures. Notably, one study focused more specifically on gender and explored gender identity and aggression. While biological factors, for example, can impact mental health, researchers have highlighted women athletes encounter a unique socioculture which can significantly impact mental health and warrant further attention – i.e. non-accidental violence, lack of policies tailored towards women, low pay, contract instability.[103] Without exploring these factors, we are likely to hinder our understanding and ability to support the mental health of elite women athletes, specifically women footballers.

Ultimately, very few social, cultural or other or contextually driven issues were explored, despite the challenges of women's football being a somewhat 'new' professional sport and the challenges women footballers have historically faced. While there is a handful of research exploring gendered experiences in relation to mental health and women's sport in the literature on other sports as well as dissertations exploring women's

football and mental health,[104] it is important that more peer-reviewed work explores women-specific risk factors so that players and their unique needs can be accounted for. Further, and finally, researchers should look to move beyond a psychology informed perspective and include an inter/transdisciplinary lens that can offer insight into the complex interactions between biological, psychological and sociocultural factors which shape women's health within elite sporting contexts.

Research design: the value of qualitative insight

All 10 studies in this review used quantitative methods and self-reported measures to explore mental ill-health. This almost exclusive focus on establishing prevalence rates for mental ill-health among women footballers is similar to research concerning mental health and elite athletes and, more specifically, elite female athletes. For example, Kuettel and Larsen[105] found 84% of studies concerning mental health and elite sport used quantitative methods, and Perry et al.[106] found 83.3% studies concerning mental health and elite female athletes used quantitative methods, mainly to explore mental ill-health prevalence rates.

Quantitative research and self-reporting measures can offer important insight into the presentation of mental ill-health symptoms – as evidenced by the studies in this review. However, using self-report measures often comes at the expense of understanding individuals' lived experiences.[107] As mental health is highly personal and impacted by numerous psychological, sociocultural and contextual factors, researchers continue to emphasize the need for more qualitative mental health research in elite sport so such experiences can be identified and explored.[108]

The merits of highlighting this deeply personal experience and how it intersects with sport is already exemplified within athlete accounts in other sports using rich methodologies and targeted research questions specific to a population. For example, Papathomas and Lavallee[109] used a life story method to highlight that achievement and weight-based performance pressures played a role in precipitating the onset of bulimia nervosa in a male football player. Another example is McMahon and Dinan-Thompson,[110] who used autoethnography to highlight how social practices and interactions within elite sport from those in positions of power can lead female swimmers to experience symptoms of disordered eating and mental illness. These rich qualitative methodologies were able to draw out the specific psychosocial influences in athletes' respective sports and lives (e.g. hierarchical positions and gendered, social and cultural narratives), and how these intersected with mental health.

Limitations

Despite the strengths of this review, there are some potential limitations. For example, studies were not included unless mental health was stated in the study's aims, meaning studies where mental health challenges are discussed in the results but not as a research aim were not included in this review. This decision was made due to one of the study focuses being *how* mental health research within this population is designed and conducted. One final limitation was the exclusion of non-peer review literature, which means dissertations and other sources with potentially relevant insight were not included.

Conclusion and future directions

This was the first review to focus on the mental health of professional women footballers. This review included 10 studies focused on mental health and professional women footballers, all of which used quantitative methods. Findings highlight that research to date has provided a foundation to understand this topic better, but much like the women's game has progressed exponentially in the last decade so must research. Future research must find ways to prioritize professional women footballers' own unique understandings of their lived experiences of mental health, rather than relying on explorations related to prevalence. Additionally, it is important that researchers move beyond competition-specific risk-factors, such as injury, playing position or starting status and instead consider broader elements which can negatively impact mental health. Further, researchers should consider an interdisciplinary approach which speaks to the complex interactions between biological (e.g. sex), sociological (e.g. peer and coach interactions, professionalization) and psychological (e.g. personality traits) factors which interact and shape women footballers' mental health and performance in elite contexts.

Without an overt focus on issues that specifically impact women footballers' mental health – such as contract instability, motherhood, stereotyping, sexism and homophobia – we limit our understanding of how these risk factors relate to mental health, which can contribute to the growth and development of the women's game. This can be done through more qualitative studies that are guided by specific research questions to allow for better understandings of this population's experiences and psychological support needs through players lived experiences. Importantly, it is from such considered research that practice and policy can be better informed.

Although the above examples highlight there are many opportunities for future research to explore, there are a number of challenges that need to be considered which include recruitment of participants, the time taken to use qualitative methods to explore such a sensitive area, the pace of the game changing so quickly and systemic buy-in from stakeholders. Although challenging, this warrants further time and investigation to better support professional women footballers.

Notes

1. FIFA report, 'The Football Landscape'.
2. Ibid.
3. Glass, 'FIFA Women's World Cup Breaks Viewership Records'.
4. Burhan, 'World-Record Crowd of 91553 Treated to Women's Champions League Spectacle at Camp Nou'.
5. BBC Sport, 'England Final Draws Peak BBC TV Audience of 12 Million'.
6. Allison, 'Privileging Difference; and Culvin and Bowes, *Women's Football in a Global, Professional Era*, 1–13.
7. Ibid.; and Culvin, 'Football as Work'.
8. Ibid.; and Perry, 'Mental Health and Elite Women Footballers in England'.
9. Perry, 'Mental Health and Elite Women Footballers in England'; Gouttebarge et al., 'Occurrence of Mental Health Symptoms and Disorders in Current and Former Elite Athletes: A Systematic Review and Meta-analysis'.
10. Woods et al., 'Mental Health Difficulties Among Professional Footballers'.

11. Perry et al. 'Mental Health and Elite Female Athletes'.
12. Arksey and O'Malley, 'Scoping Studies'.
13. Tricco et al., 'PRISMA Extension For Scoping Reviews (PRISMA-ScR)'.
14. Creswell and Poth, *Qualitative Inquiry & Research Design*, 26.
15. Bilgoe et al., 'Unmasking Mental Health Symptoms'.
16. DSM-V; and American Psychiatric Association, 2000.
17. ICD-10; and World Health Organization, 1993.
18. Culvin and Bowes, *Women's Football In A Global, Professional Era*, 1–13.
19. Bilgoe et al., 'Unmasking Mental Health Symptoms In Female Professional Football Players: A 12-month Follow-up Study'.
20. See note 12 above.
21. Ibid.
22. Prinz et al., 'Symptoms and Risk Factors of Depression During and After The Football Career of Elite Female Players'.
23. Ivarsson et al., 'Mental Health and Well-being During COVID-19 Lockdown'; Junge and Feddermann-Demont, 'Prevalence of Depression and Anxiety in Top-level Male and female Football Players'; Kilic et al., 'Prevalence of mental health symptoms among male'.
24. Foster et al., 'Relationship between Anxiety and Interleukin 10'; Prather et al., 'Are Elite Female Soccer Athletes at Risk for Disordered Eating Attitudes'; Wilinski, 'Gender Identity IN Female Football Players'.
25. Junge and Prinz, 'Depression and anxiety symptoms in 17 teams Anxiety Symptoms in 17 Teams'; Perry et al., 'Elite Female Footballers in England'; Prinz et al., 'Symptoms and Risk Factors of Depression During and After the Football Career of Elite Female Players'.
26. Perry et al. 'Elite Female Footballers in England'; Prinz et al. 'Symptoms and Risk Factors During and After Career'.
27. Perry et al. 'Elite Female Footballers in England'.
28. Ibid; Bilgoe et al. 'Unmasking Mental Health Symptoms'; Kilic et al. 'Prevalence of Mental Health Among Australian Footballers'.
29. Junge and Prinz, 'Depression and Anxiety Symptoms in 17 Teams of Female Football Players'; Junge and Feddermann-Demont, 'Prevalence of Depression and Anxiety'; Prinz et al. 'Symptoms and Risk Factors During and After Career'.
30. Junge and Prinz, 'Depression and Anxiety Symptoms in 17 Teams'; Prinz et al. 'Symptoms and Risk Factors During and After Career'.
31. Junge and Prinz, 'Depression and Anxiety Symptoms in 17 Teams'.
32. See note 22 above.
33. See note 31 above.
34. See note 27 above.
35. See note 31 above.
36. Perry et al., 'Elite Female Footballers in England'.
37. Junge and Prinz, 'Depression and anxiety symptoms in 17 teams of female football Players'; Perry et al. 'Elite female footballers in England'.
38. See note 27 above.
39. See note 31 above.
40. Junge and Feddermann-Demont, 'Prevalence of Depression and Anxiety in Top-level Male and Female Football Players'; Junge and Prinz, 'Depression and Anxiety Symptoms in 17 Teams of female football Players'; Prinz et al. 'Symptoms and Risk Factors During and After Career'.
41. Junge and Feddermann-Demont, 'Prevalence of Depression and Anxiety in Top-level Male andFemale Football Players'.
42. See note 22 above.
43. Junge and Prinz, 'Depression and Anxiety Symptoms in 17 Teams of Female Football Players'.
44. Bilgoe et al., 'Unmasking Mental Health Symptoms'; Junge and Feddermann-Demont, 'Prevalence of Depression and Anxiety in Top-level Male and Female Football Players';

Junge and Prinz, 'Depression and Anxiety Symptoms in 17 Teams of Female Football'; Kilic et al. 'Prevalence of mental health among Australian footballers'; Perry et al. 'Elite female Female Footballers in England'; Prinz et al. 'Symptoms and Risk Factors During and After Career'.

45. Junge and Feddermann-Demont, 'Prevalence of Depression and Anxiety in Top-level Male and Female Football Players'.
46. See note 22 above.
47. Ibid.
48. Junge and Prinz, 'Depression and Anxiety Symptoms In 17 Teams Of Female Football Players'; Perry et al., 'Elite Female Footballers in England'.
49. Junge and Prinz, 'Depression and Anxiety Symptoms in 17 Teams of Female Football Players'.
50. See note 27 above.
51. Ibid.
52. Ivarsson et al., 'Mental Health and Well-being During COVID-19 Lockdown'.
53. Wilinksi, 'Gender Identity In Female Football Players'.
54. Bilgoe et al'.,Unmasking Mental Health Symptoms'; Junge and Feddermann-Demont, 'Prevalence of Depression and Anxiety in Top-level Male and Female Football Players'; Junge and Prinz, 'Depression and Anxiety Symptoms in 17 Teams of Female Football Players Players'; Kilic et al., 'Prevalence of Mental Health Among Australian Footballers'; Perry et al. 'Elite female footballers in England'.
55. Foster et al., 'Relationship between Anxiety and Interleukin 10.
56. Iyer and Cheng, 'Role of interleukin 10 transcriptional Regulation.
57. Ibid.
58. Junge and Prinz, 'Depression and Anxiety Symptoms in 17 Teams of female football Players'.
59. Bilgoe et al., 'Unmasking mental health symptoms'; Junge and Feddermann-Demont, 'Prevalence of depression and anxiety in top-level male and female football players'; Perry et al., 'Elite female footballers in England'.
60. Junge and Feddermann-Demont, 'Depression and Anxiety in Top-level Male and Female Football Players'.
61. See note 27 above.
62. Studies that focused on eating disorders: Bilgoe et al. 'Unmasking Mental Health Symptoms'; Kilic et al., 'Prevalence of Mental Health Among Australian Footballers'; Perry et al., 'Elite Female Footballers in England'; Prather et al., 'Are Elite Female Soccer Athletes at Risk for Disordered Eating Attitudes'.
63. Prather et al., 'Are Elite Female Soccer Athletes at risk'.
64. Three studies that used the BEDA-Q: Bilgoe et al., 'Unmasking Mental Health Symptoms'; Kilic et al., 'Prevalence of Mental Health Among Australian Footballers'; Perry et al'.,Elite Female Footballers in England'.
65. See note 63 above.
66. Injury status and eating disorder symptoms were looked at across three studies; and Ibid.
67. Kilic et al., 'Prevalence of Mental Health Symptoms Among Male and Female Australian Professional Footballers'.
68. See note 27 above.
69. Ibid.
70. Ibid.
71. Bilgoe et al., 'Unmasking Mental Health Symptoms in Female Professional Football Players'; and Kilic et al., 'Prevalence of Mental Health Symptoms Among Male and Female Australian Professional Footballers'.
72. Kilic et al., 'Prevalence of Mental Health Symptoms Among Male and Female Australian Professional Footballers'.
73. Bilgoe et al., 'Unmasking Mental Health Symptoms in Female Professional Football Players'.

74. Junge and Prinz, 'Depression and Anxiety Symptoms in 17 teams of female football Player'; Perry et al., 'Elite Female Footballers in England'; Prinz et al. 'Prinz et al. 'Symptoms and Risk Factors During and After Career'.
75. Junge and Prinz, 'Depression and Anxiety Symptoms in 17 Teams of Female Football Player'.
76. See note 27 above.
77. Prinz, Dvořák, and Junge, 'Symptoms and Risk Factors of Depression During and After the Football Career of Elite Female Players'.
78. Junge and Prinz, 'Depression and Anxiety Symptoms in 17 Teams of Female Football Player'.
79. Perry et al., 'Elite Female Footballers in England'.
80. Ibid.
81. Prinz et al., 'Symptoms and Risk Factors During and After Career'; Perry et al., 'Elite female footballers in England'.
82. Prinz, Dvořák, and Junge, 'Symptoms and Risk Factors of Depression During and After the Football Career of Elite Female Players'.
83. See note 27 above.
84. Prinz, Dvořák, and Junge, 'Symptoms and Risk Factors of Depression During And After The Football Career of Elite Female Players'.
85. Wilinski, 'Gender Identity IN Female Football Players'.
86. Castaldelli-Maia et al., 'Mental Health Symptoms And Disorders In Elite Athletes'.
87. Ibid.
88. See note 27 above.
89. Junge and Prinz, 'Depression and Anxiety Symptoms In 17 Teams Of Female Football Players Including 10 German First League Teams'.
90. See note 18 above.
91. See note 11 above.
92. Sundgot-Borgen and Torstveit, 'The Female Football Player, Disordered Eating, Menstrual Function And Bone Health'.
93. See note 11 above.
94. Ibid.
95. Pereira Vargas and Winter, 'Weight On The Bar Vs. Weight On The Scale: A Qualitative Exploration of Disordered Eating In Competitive Female Powerlifters'; and Perry et al., 'Eating Disorders and Elite Women's Football'.
96. Perry et al., 'Eating Disorders and Elite Women's Football'.
97. Crossley et al, 'Making Football Safer For Women"; and Horan et al. 'Injury Incidence Rates In Women's Football'.
98. Culvin and Bowes, 'Motherhood and Professional Women's Football"; Pascoe et al. 'Gender-specific Psychosocial Stressors Influencing Mental Health Among Women Elite And Semi Elite Athletes'.
99. Kuettel and Larsen, 'Risk and Protective Factors for Mental Health in Elite Athletes"; and Woods et al., 'Mental Health Difficulties Among Professional Footballers'.
100. Castaldelli-Maia et al., 'Mental Health Symptoms and Disorders in Elite Athletes"; Pascoe et al., 'Gender-specific Psychosocial Stressors'.
101. Ibid.; Culvin, 'Football As Work"; and 'Pregnant Athletes'.
102. Culvin, 'Football As Work"; Culvin and Bowes, 'Motherhood and Professional Women's Football"; and Perry, 'Mental Health and Elite Women Footballers in England'.
103. Pascoe et al., 'Gender-specific Psychosocial Stressors'.
104. Culvin, 'Football as Work"; and Perry, 'Mental Health and Elite Women Footballers in England'.
105. Kuettel and Larsen, 'Risk and Protective Factors'.
106. See note 11 above.
107. Pereira Vargas et al., 'Disordered Eating in Competitive Female Powerlifters'.

108. Kuettel and Larsen, 'Risk and Protective Factors"; Lundqvist and Andersson, 'Let's Talk About Mental Health and Mental Disorders in Elite Sports"; and Pereira Vargas et al., 'Disordered Eating in Competitive Female Powerlifters'.
109. Papathomas and Lavallee, 'A Life History Analysis of a Male Athlete With An Eating Disorder'.
110. McMahon and Dinan-Thompson, 'A Malleable Body'.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendix. Full search terms

clinical OR counsel* OR help- seeking OR help seeking OR mental health OR mental health care OR mental health disorder* OR mental health service* OR mental health stigma* OR mental health sympt* or mental* ill* OR mental* tough* OR mental well* OR psyc* assistance OR psych* help OR psych issue* OR psych* support* OR psych* service* OR psych* therap* OR psych* well* OR depression OR anxiety OR wellbeing OR disordered eating OR eating disorder OR substance abuse – ABSTRACT

AND

elite OR elite-level OR elite level OR high level OR high-level OR professional OR national OR international OR NCAA Division 1 — ABSTRACT

AND

soccer or football or soccer players or football players – FULL-TEXT

AND

female* OR woman OR women – SELECT A FIELD (OPTIONAL)