

Gender-specific psychosocial stressors influencing mental health among women elite and semielite athletes: a narrative review

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ABSTRACT

Elite and semielite athletes commonly experience mental health concerns and disorders. Compared with men athletes, women athletes are at greater risk of a range of psychological stressors that contribute to health concerns and mental health disorders, which can impact their career satisfaction and longevity. In order to address and improve the mental health of women athletes, it is necessary to simultaneously tackle the gender specific psychosocial stressors that contribute to mental health outcomes. This narrative review examines the gender-specific stressors that affect mental health and well-being in women athletes, some of which are modifiable. Psychosocial stressors identified include exposure to violence, be it psychological, physical or sexual in nature, which can result in a myriad of acute and long-lasting symptoms; and inequities as reflected in pay disparities, under-representation in the media, fewer opportunities in leadership positions and implications associated with family planning and motherhood. Strategies to promote mental health in women athletes should be considered, and where possible, should proactively address gender-specific stressors likely to influence mental health in order to maximise positive outcomes in women athletes.

INTRODUCTION

Elite and semielite athletes are susceptible to a range of psychological stressors throughout their careers and commonly experience poor mental health and mental illness.¹ The WHO conceptualises mental health as a 'state of well-being in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community'.² Mental illnesses, on the other hand, are diagnosable health conditions involving changes in emotion, thinking or behaviour (or a combination of these) and are associated with distress and/or problems functioning in social, work or family activities.³ The prevalence rates of mental illness in elite Australian athletes are high: particularly, in depression (27%), eating disorders (23%) and general psychological distress (17%).^{4,5} As many as 15% of elite athletes experience social anxiety, 7% experience generalised anxiety disorder and 5% experience panic disorder.⁴ Moreover, injured athletes have higher symptoms of depression and anxiety disorders.⁵ A recent study of the prevalence of mental health issues in the elite athlete population in the UK found that nearly 48% of the sample met the threshold

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Athletes commonly experience mental health concerns and disorders.
- ⇒ Women athletes are at greater risk of a range of psychological stressors that contribute to health concerns and disorders.
- ⇒ Sports should address gender inequalities including pay disparities and under-representation in leadership positions.
- ⇒ The inequality that women athletes experience results from individual, interpersonal, organisational and social processes.

WHAT THIS STUDY ADDS

- ⇒ It is necessary to tackle the gender-specific psychosocial stressors that contribute to mental health outcomes.
- ⇒ Women athletes experience many psychological stressors, including motherhood/caretaker responsibilities, sexual abuse, media sexualisation, a lack of representation and coverage in media, disparity in wages, the possibility of sex verification procedures and access to fewer opportunities in leadership positions. While these have been previously reported, this review demonstrates the scope, intersectionality and diversity of the stressors experienced by women athletes.
- ⇒ There is a paucity of research examining athlete experiences during transition/retirement from elite sport; future research should explore the mental health of women athletes in life after sport.
- ⇒ Women athletes are not supported enough with regards to family planning and motherhood.
- ⇒ Sports governing bodies should consider strategies to promote mental health in women athletes.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ Policies and practices to promote mental health in women athletes populations should consider the myriad of psychosocial stressors that impact athlete wellbeing including at the individual, interpersonal, organisational, socio-cultural environmental systems levels.
- ⇒ Policies should aim to address gender-specific stressors likely to influence mental health, including exposure to violence, inequality and motherhood, in order to maximise outcomes



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score for signs of anxiety/depression, while nearly 27% met the threshold for signs of distress. The study also found a significant association between gender and signs of distress.⁶ Women athletes experience lower mental well-being than men athletes.⁷ Even in the absence of a diagnosable mental illness, sub-clinical mental health symptoms that do not meet the threshold for a disorder in standard diagnostic systems, can have a significant impact on well-being.

Women elite and semielite athletes (hereafter referred to as 'women athletes') are particularly at risk of experiencing mental health concerns and disorders. A recent cross-sectional observational study of adult athletes within a national elite sporting system showed that women athletes report higher rates of mental health symptoms, and lower rates of mental well-being. This work also shows that women report experiencing interpersonal conflict, financial hardship and adverse discrimination at higher rates than men athletes.⁸ Women athletes are twice as likely as men athletes to experience depressive symptoms,⁹ have higher rates of anxiety (including generalised anxiety disorder),⁵ and higher rates of eating disorders.⁹ The estimated prevalence of eating disorders and/or symptoms of disordered eating among athletes in general ranges from 6%–45% in women,¹⁰ which is considerably higher than in men (0%–19%).¹¹ As many as 60% of elite women athletes report experiencing body shaming pressure from coaches.¹² Women and men athletes have less positive attitudes towards seeking help than non-athletes, due to perceived stigma and embarrassment, poor mental health literacy, and concerns over protection of their privacy.¹³

Stressors are any stimuli that cause stress or a state of psychological tension,³ where an environmental demand exceeds an individual's natural coping capacity.¹⁴ Considering that women athletes are susceptible to a range of psychological stressors and mental illnesses, the International Olympic Committee (IOC) consensus statement (2019) recommends the development of strategies to overcome mental health stigma in all athlete populations.¹⁵ Moreover, the statement presents research showing that initiatives to promote mental health and treat mental disorders among women athletes are urgently required as they may face being marginalised and stereotyped and experience unequal training opportunities and resources.¹⁵ These initiatives need to consider the range of gender specific psychosocial stressors that women athletes face, as well as the evidence that women and men athletes cope differently with performance-related stress in sport. That is, women athletes are more likely to seek social support for emotional reasons and increase their efforts to manage goal frustration, whereas men athletes experience higher levels of positive affect in response to performance-related stress.¹⁶

To address and improve the mental health of women athletes, this narrative review examines the gender-specific psychosocial stressors, defined as something that causes a state of strain or tension, impacting women athletes' mental health and well-being. Although the focus of this review is specifically on gender, we recognise and make reference to other intersectional social factors that can augment the risks for reduced mental health for women athletes, for example, sexuality,¹⁷ race ethnicity,¹⁸ disability¹⁹ and socioeconomic status.

With the aim of providing an inclusive and representative summary of the literature, we employ Bronfenbrenner's ecological systems theory,²⁰ with modifications by Sallis *et al*²¹ to improve utility and application of the model in physical activity/sporting contexts. This model specifies that human development and experience is influenced by a variety of proximally located individual, interpersonal, organisational and sociocultural

environmental systems, however, all levels are not mutually exclusive and intersect in multiple and dynamic ways. In the current narrative review, identified gender-specific psychosocial stressors that have been shown to impact mental health among women elite and semielite athletes, are summarised according to systems. To best capture the current state and quality of research in this field, papers were not excluded based on quality assessment, and thus, all identified relevant articles were included.

METHODS

We conducted a narrative review as we aimed to provide a general overview of the existing stressors impacting the mental health and well-being of women athletes, rather than to answer a focused research question or conduct an exhaustive literature review, as appropriate for a systematic or scoping review. The literature search in this narrative review focused on peer-reviewed research up until April 2022, published in books, journals and reports. Four databases were searched (PubMed, Web of Science, Scopus, Google Scholar). Search keywords included: 'sport*', 'athlete*', AND 'gender,' 'women,' 'female,' AND 'leadership,' 'violence,' 'abuse,' 'sexual*,' 'media,' 'mother*,' 'fertility,' 'salary,' 'mental health,' 'wellbeing,' 'stress'. All adult age groups were covered. Only literature that examined elite and semielite women athletes was included in the review. Searches only included studies published in English. Primary intervention studies, reviews and meta-analyses were included if they examined stressors experienced by elite and semielite women athletes. Quality assessment of included studies was not conducted and thus all eligible articles were included. There was no required age limit or location. Data were coded according to the specific stressor explored.

RESULTS

We identified several gender specific psychosocial stressors that affect women athletes' mental health and well-being as shown in figure 1. For example, women athletes are more likely to experience violence, which can be classified according to the nature of the violence: psychological harassment and abuse, physical harassment and abuse, sexual harassment and abuse and neglect. Women athletes experience motherhood/carer responsibilities, sexual abuse,²² media sexualisation²³ and a lack of representation and coverage in media,^{23–26} as well disparity in wages,²⁷ are subject to sex verification procedures, and have access to fewer opportunities in leadership positions.²⁸ These psychosocial stressors, as identified through the review process, have been grouped according to individual, interpersonal, organisational and sociocultural environmental systems, as per Bronfenbrenner's and Sallis *et al*'s ecological systems approach.

Individual-level psychosocial stressors

Individual-level psychosocial stressors are those most proximal to women athletes and include personal, biological and psychological factors such as cognition, emotions, beliefs, values, expertise and personality of the individual. Women athletes experience a range of individual level stressors related to family planning, motherhood and caring responsibilities.

Family planning, motherhood and caring responsibilities

Women athletes can face a compounding effect of physical and psychological stress relating to their fertility and family planning decision-making, particularly as it has been shown that women athletes end their career more often due to family-related reasons than men athletes.²⁹

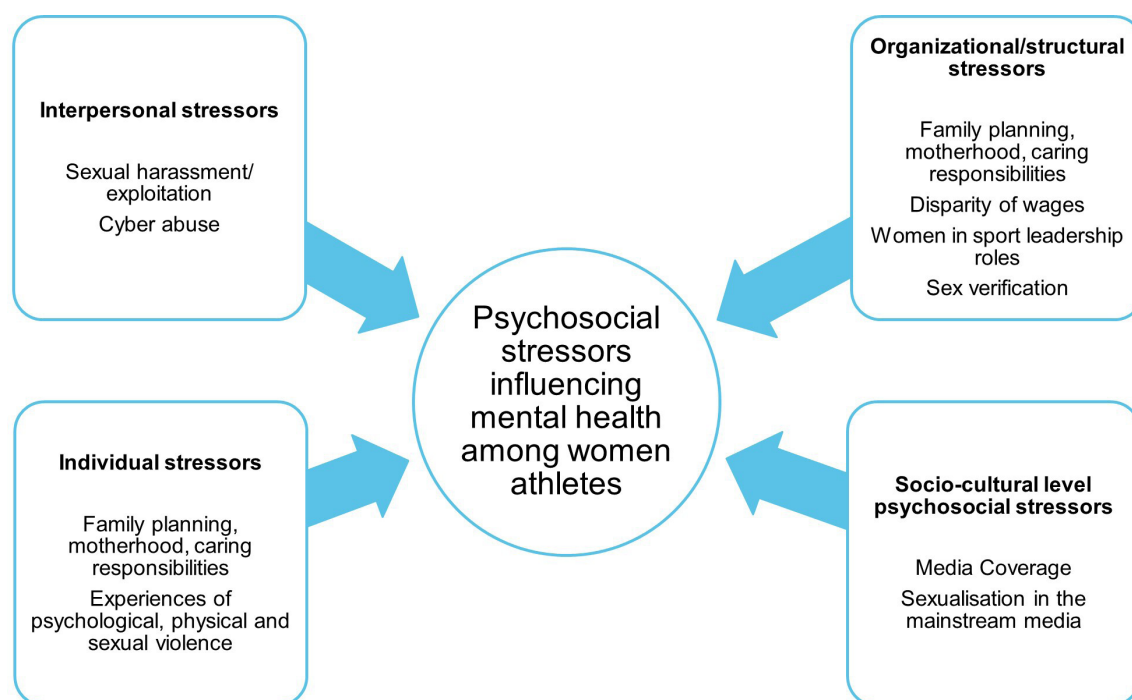


Figure 1 Psychosocial stressors that affect women athletes' mental health and well-being these psychosocial stressors influencing mental health among women athletes and identified through the review process, have been grouped according to individual, interpersonal, organisational and sociocultural environmental systems, as per Bronfenbrenner's and Sallis *et al*'s ecological systems approach.^{20 21}

The desire to have children while still wanting to succeed in their sporting career can be a source of significant stress.³⁰ Concerns about not wanting to 'let the team down' by taking time away to have a baby, decisions regarding freezing eggs, issues associated with irregular menstrual cycles, as well as fertility drugs and World Anti-Doping Agency compliance, represent a collective psychosocial stress for a growing number of women athletes that can impact their mental health as well as their fertility.³⁰

Despite improvements being made towards gender equity in the workforce, women still undertake the majority of caring responsibilities for children. Combining motherhood and an elite sporting career is another potential stressor that women athletes may experience. There has been a near-total absence of research regarding the physiological, psychological and social aspects of athletes' postpartum return to sport.³¹ Some research shows however that the social expectations of motherhood can impede the re-entry of women elite athletes into their sport after having children, with many having to balance and juggle expectations of motherhood with training and competing.³² Some have compared the re-entry process after childbirth to the re-entry after an injury, with both requiring a high level of 'mental strength'.³³ Women athletes can also experience guilt when they return to sport after having children.³⁴

There remains a level of conflict in the literature, however, with studies suggesting that an athletic identity may be incompatible with motherhood, and often results in women athletes' withdrawal from sport.³⁴ Others have reported that becoming a mother improved well-being as the athletes had something to find worth in beyond their athletic identity or that motherhood helped to expand and re-define their athletic identity.³³

Violence against women in sport

Violence against women is common in sport. Studies show that athletes belonging to any minority (in terms of gender, ethnicity,

sexuality or disability), as well as those athletes at higher levels of competition, experience greater incidence of violence in sport.^{22 35 36} Violence can be perpetuated by the athletes themselves (self-harming behaviours); by other people, such as those in positions of authority (eg, coaches), peers, fans and spectators (interpersonal violence, discussed below); or violence can arise from the 'socioorganisational context of certain sport environments' (page 228) (institutional violence, discussed below).³⁵

Women athletes with certain profiles may also be at a higher risk, including those with low-self-esteem, eating disorders, and/or an extreme dependence on a coach.^{22 35} While research into violence in sport remains in its infancy, early studies suggest similar trends in sport to those seen in other institutions (organisational, family units, etc), namely that women experience higher instances of violence relative to their men counterparts.²² While gender is a risk factor for experiencing violence in sport, there are trends in the prevalence of the type of violence experienced by each gender, with boys experiencing more physical violence and girls experiencing more sexual violence.³⁶

Interpersonal-level psychosocial stressors

Women athletes also experience a number of interpersonal-level psychosocial stressors. Socialrelational psychosocial stressors can be categorised at the interpersonal level. They often include a general perceived lack of support from social agents or negative interactions with colleagues, a significant other, friends or coaches and includes home, school or workplace/training settings.

Sexual harassment and exploitation

It is not uncommon that women athletes experience sexual harassment and exploitation.³⁷ Cumulatively, the prevalence rates of sexual violence in sport fall somewhere between 1% and 64%.³⁸ However, most studies have used purposeful samples of

athletes from specific clubs, rather than the less powerful representative samples. One study using a representative sample of adults from Belgium and Netherlands who had previously participated in sport, indicated that 44% had experienced some form of violence in sport and 14% had specifically experienced sexual abuse. Sexual violence rates were higher in women.³⁶ Other studies from individual countries have shown similar trends. Research with elite Swedish athletes revealed higher proportion of women experiencing sexual abuse in sport (16%) compared with men (4%).³⁹

The mental health impacts of sexual violence, particularly when experienced as a child, are profound. Sexual harassment and abuse are well documented to result in serious and often ongoing mental disorders including clinical depression, post-traumatic stress disorder, obsessive-compulsive behaviours or disorder,⁴⁰ eating disorders and higher rates of suicidal ideation, suicide attempts and completed suicides.⁴¹ Currently, there is not enough being done to protect women athletes from sexual violence. A recent socioecological review study found a lack of multilevel prevention practices within sport, including sexual violence prevention practices to protect children, and minimal programming aimed at preventing perpetration, and noted the need for policy level action, as well as the need for sport organisations to prioritise sexual violence prevention in collaboration with national organisations.⁴²

Cyber abuse against individual athletes

Cyber abuse against individual athletes is not uncommon among women athletes. Iterations of violence can also be perpetuated through the internet. In cyber abuse, comments are written by people directly to athletes on their social media platforms or similar. Cyber abuse (harassment and bullying) has proliferated most prominently at the time when mobile phones were readily connected to the Internet.⁴³ Despite many studies demonstrating the extensive impacts of cyber bullying and harassment on mental health in children and non-athletes, there has been little research into the prevalence of cyber harassment and abuse specifically in sport.⁴⁴ One prevalent form of cyber abuse towards women athletes is the sexualisation of their bodies. A recent analysis of social media commentary found that more than a quarter of all Facebook posts directed towards sportswomen were sexist (20%), blatantly sexualised women athletes (14%), were belittling of women's sports (20%), or were otherwise negative in nature with women athletes experiencing three times as many negative comments compared with men athletes (27% vs 9%).⁴⁵ A notable recent example of the sexualisation of women athletes' bodies is demonstrated by the derogatory and sexualised comments received by Australian Football League Women's star, Tayla Harris, following the publication of a photograph of her kicking a football during a game. Harris told RSN radio, 'The comments I saw were sexual abuse, if you can call it that, because it was repulsive and it made me uncomfortable.' 'That is what I would consider sexual abuse on social media.'⁴⁶ While there are no data available regarding the wider impact of online harassment on mental health outcomes among women athletes, athletes such as Tayla Harris did report that the harassment resulted in fears about safety.⁴⁶

Overall, the resulting litany of mental health impacts from violence, coupled with the fact that elite and semielite women athletes are more at risk of violence, suggests that there is a need for a greater understanding of the psychosocial stressors associated with instances of violence as well as the development of interventions to address the issue directly.

Organisational/structural-level psychosocial stressors

While historically there has been a focus on understanding and addressing individual or inter-personal stressors that negatively impact women's mental health, there is a need to explore stressors associated with the gendered environmental or structural practices within an organisation. Organisational/structural-level psychosocial stressors are those defined by organisational policies, job descriptions, professional practices, use of space and opportunities (or lack thereof) and comprise a great deal of the psychosocial stressors identified in the current review.

Family planning, motherhood and caring responsibilities

Family planning, motherhood and caring responsibilities can impact the mental health of women athletes. There is limited family support available for women elite and semielite athletes.³³ A recent study of analysis of interviews with 27 UK sports-women reports that women athletes delay life plans due to a lack of financial well-being and do not feel supported to have children by their club or sports body.⁴⁷ Women athletes with childcare responsibilities from the National Rugby League Women's Premiership (Australia and New Zealand) report that they face distinct barriers and organisational policies are yet to account for the distinct needs of this cohort.⁴⁸ Currently, there is a lack of structured support for elite pregnant athletes in terms of governmental funding/corporate sponsorship, resulting in uncertainty surrounding pregnancy.⁴⁹ Some sports such as netball and rugby now have pregnancy policies which give players employment certainty throughout pregnancy, as well as a guaranteed opportunity to claim back their spots and some financial support for tours or training. Cricket Australia guarantees a paid carer until the child is 4 years old,³¹ however, initiatives such as these to support women athletes in managing motherhood and a sporting career are lacking in many sports, and constitute another gender-specific stressor experienced by women elite and semielite athletes. Indeed, recent work has identified the critical importance of organisational culture in women athletes' experience of motherhood in sport. Athletes have identified a need for role models who became pregnant and returned to elite sport, supportive networks including teammates and coaches. In the absence of a supportive organisational culture, women athletes report worry about disclosing pregnancy due to fear of being viewed as not dedicated to their sport, and therefore, delay disclosing this information until late in pregnancy. In contrast, this work reported that organisations with clear policies and regulations about the financial support for women athletes including eligibility requirements enabled athletes to make informed family planning decisions.⁵⁰

Disparity of wages

Research shows that in non-athletes, when women earn a lower income compared with their men counterparts, the odds of experiencing depression are 2.43 times higher, and the odds of experiencing anxiety are four times higher than men. Conversely, women earning equivalent or higher incomes compared with their men counterparts report much lower anxiety, even among higher income earners.⁵¹ This demonstrates that pay disparity contributes to the onset of mental health problems, however, this is yet to be explored in athletes specifically. Women athletes consistently receive lower wages compared with men athletes. Even in tennis, where the prize money is equal in prestigious tournaments such as Grand Slam events, annual prize money for the top earners in the Women's Tennis Association is roughly 80 cents to the dollar top male earners in the Association of

Tennis Professionals.⁵² At the FIFA (Fédération Internationale de Football Association) Women's World Cup in 2019, 24 nations competed for 7.5% of the total prize money awarded at the men's 2018 World Cup in Russia.⁵³ During the Women's 2019 World Cup, it was reported that the Australian national women soccer team, the Matildas, would receive \$A1 million for reaching the knockout stages and \$A4 million if they won the whole tournament. This is in stark contrast to the Australian national men's soccer team, the Socceroos, who received \$A8 million for reaching the knockout stages of their 2018 World Cup.⁵³ Data from women athletes from the National Rugby League Women's Premiership (Australia and New Zealand) shows that the introduction of player payments is accompanied by increased expectations of the employing clubs however athletes report that the level of remuneration is insufficient to cover training, travel, playing and community commitments.⁴⁸ A recent analysis of interviews with 27 UK sportswomen reports that women athletes face unique financial challenges resulting from sport practices which limit participation and representation and that financial well-being impacted overall well-being, particularly among women playing team sports.⁴⁷ This gender disparity in financial security is a global issue that has recently seen a number of Professional Players Associations lobby international sporting federations, such as FIFA, for equal pay. In late 2019, Football Australia forged a landmark deal to close the pay gap between the Matildas and the Socceroos.⁵⁴ In the USA, the national women's soccer team sued and recently settled with the country's soccer federation overpay equity and working conditions, filing a gender discrimination lawsuit to address gender disparities in pay, training and travel conditions, medical treatments and coaching received.⁵⁵ In acknowledgement of widespread disparity in wages between women and men athletes, Australian sporting chief executives of leading sports organisations have released a plan to advance equal pay for elite women athletes.⁵⁶

Women in sport leadership roles

The relationship between a lack of representative leadership and mental health in women athletes has not been well explored. It would be useful for future research to explore if the systematic barriers in career opportunities for women in sport influence the mental health and well-being of women athletes. Notwithstanding the growing number of women and girls participating in sport, women continue to be underrepresented in sport leadership positions.⁵⁷ A recent narrative review reports that women continue to be under-represented in leadership positions in sport across the world.⁵⁸ Even where gender equity policies do exist, tangible actions to pursue or create gender equity are more limited.⁵⁸ In a recent study assessing gender equality in 56 Canadian universities from 2010 to 2017, gender inequality was found in both employment in leadership positions and the opportunity for women athletes to participate as an athlete, resulting from a lack of implementation of gender equity policies.⁵⁹

In Canada, only 9 of the 54 national teams have women head coaches (16%); and at the 2016 Olympic Games there were only 6% women coaches, down from 19% at the London 2012 Olympics.⁶⁰ Likewise, the Australian national team at the 2016 Olympics was represented by 9% women coaches, down from 12% at the 2012 Olympic Games.⁶¹

In addition to coaching, the organisational demography of leadership positions within national Olympic governing bodies is also highly skewed to male leaders.⁵⁷ While there is limited research on the impediments to women athletes assuming leadership roles in sport, global business giants such as Ernst

& Young have recognised the unique potential of elite women athletes to become exceptional leaders after retirement from playing competitive sport.⁶² Sporting organisations such as the Australian Institute of Sport have recently launched intensive leadership development programmes to further address the under-representation of women in sport leadership positions.⁶¹ These programmes shine a light on systemic imbalances, promote new pathway opportunities into sport leadership and have the potential to create valuable new role models. In turn, this may have a positive impact on the mental health and well-being of women athletes.

Sex verification

Women are routinely subjected to sex verification testing in sport, which is not conducted on athletes competing in the men's category. Between 1968 and 1999, the IOC required all women competing in the Olympic games to undergo genetic testing as part of its sex verification policy, under the assumption that there was a need to prevent men from impersonating women and competing in women-only events.⁶³ In 2011, the IOC adopted a new policy on female hyperandrogenism, which established an upper hormonal limit of testosterone for athletes eligible to compete in women sporting events.⁶³ However, a study of post-competition hormonal levels between men and women elite athletes showed considerable overlap between the sexes, and that 16.5% of men athletes had low testosterone levels, whereas 13.7% of women athletes had high levels,⁶⁴ indicating no clear separation between the testosterone levels of men and women elite athletes.⁶⁴ Since this time, excluding women athletes on the basis of a serum testosterone levels has been considered unethical and ceased to occur during the 2016 Rio Olympics.⁶⁵ Presently, the IOC and the International Association of Athletics Federations have set upper limits on acceptable testosterone levels for women to compete, which some authors have argued is based on flawed scientific foundation, which is a complex issue and beyond the scope of the current review, for further information on the scientific debate, see Roger *et al.*¹ The recently released 'IOC Framework on Fairness, Inclusion and Non-discrimination on the Basis of Gender Identify and Sex Variations,' states that where sports organisations choose to establish eligibility criteria in order to determine the participation conditions for men's and women's categories for specific contests in high-level organised sports competitions, that the criteria should be established and applied in a manner that respects the principles included in the Framework. These principles are inclusion, prevention of harm, non-discrimination, fairness, no presumption of advantage, primacy of health and bodily autonomy (which states that Athletes should never be pressured by an International Federation, sports organisation, or any other party to undergo medically unnecessary procedures or treatment to meet eligibility criteria).⁶⁶

Research that has addressed sex testing from regulatory⁶⁷ and sociological⁶⁸ standpoints has highlighted the potential impact on athletes undergoing the testing or who are under suspicion of having high testosterone. Bekker and Kolanyane-Kesupile and Bekker and Posbergh highlight that sports organisational policy can be a mechanism for unintentional and intentional organisational violence that leads to poor mental health outcomes for athletes.^{69 70} These authors state that requiring women to unnecessarily take medications to lower their testosterone levels is problematic from an ethical and medical standpoint and if a form of institutional violence and systemic discrimination.⁷⁰

A recent Human Rights Watch report states that human rights violations related to sex verification in sport have taken place under the veneer of evidence-based policies of sport governing bodies, and these include violations of athlete privacy and dignity and coercion to undergo medical interventions. This report notes that the practices have significant mental health impacts on women athletes, including suicide attempts, feelings of shame, self-questioning, shame and withdrawal from sport.⁷¹

Sociocultural-level psychosocial stressors

Women athletes experience a number of sociocultural-level psychosocial stressors, which can include norms and cultural systems that indirectly affect women athletes, for example, gender stereotypes associated with traditional femininity and leadership. These are discussed below.

Media coverage

The impact of the general portrayal of women in sport in mainstream media on the mental health of women athletes is undertermined and a valuable area for future research. What is known is that media and public relations are crucial elements that shape public knowledge about, and understanding of, sports and athletes. Those who write about sports are often those who shape public opinion about important issues in sport. A wide body of research demonstrates that mass media coverage of women in sport is greatly underrepresented.^{23–26} A recent systematic review of the coverage of women sport at the Olympic Games showed a lack of fairness in the amount of media coverage women's sports received, coupled with gender differentiation in the representation of women's sport.⁷² In fact, coverage for women in sport in the USA has declined over the last 30 years, in 2010 less than 5% of all broadcast sport media pertained to women athletes.⁷³ Similarly in Australia, coverage of men playing sport comprises 81% of television (TV) sports news coverage, compared with women playing sport at 8.7%, this percentage was a decline from a decade earlier of 11%.⁷⁴ More recently in Australia, however, overcoming barriers to engagement of women playing sport has become a priority. A free-to-air broadcasting strategy was developed and executed as public survey shows that 48% of people acknowledged they would watch more women playing sport if it was accessible on free-to-air TV or free online.⁷⁵ In North America, the total sport media coverage of women playing sport is 2%,⁷⁶ despite women making up 40% of all sport participants.⁷⁷ Furthermore, women athletes who participate in sports considered to be 'feminine-appropriate,' such as gymnastics, figure skating and tennis generally receive more media coverage than women athletes participating in traditionally 'masculine' team sports, such as ice hockey or rugby.^{25 78} There is however some research indicating a shift in coverage of women playing sport. One recent study reports that the 2015 FIFA Women's World Cup received a significant amount of English newspaper coverage that was largely positive, which may indicate moving towards a new age of media coverage of women playing sport in the UK towards greater gender equality.⁷⁹

When women athletes do receive media coverage, this can often be ambivalent coverage, of which the impact on mental health outcomes among women athletes is currently unknown. Ambivalent coverage is that which diminishes the sporting achievements of athletes by shifting focus away from their athletic success by pairing positive statements with statements focusing on faults or aspects unrelated to sport that undermine athleticism.⁸⁰ It is a well-documented sport media pattern which marginalises and trivialises women athletes.^{80 81} An analysis of

articles published by ESPN.com and ESPNW.com found that 59% of articles published about women athletes were ambivalently framed, while only 11% of articles published about men athletes were ambivalently framed.⁸² A recent example is the tennis player Eugenie Bouchard being asked to 'twirl' (to spin around in a circle) on court in 2015 by the male presenter conducting her on-court interview at the Australian Open.⁸³ These are overt examples of redirection away from the athlete's performance and, in this particular example, also an example of sexualisation of the athlete's physique and femininity, entirely unrelated to the sport (a form of violence). The impact of ambivalent coverage on mental health outcomes among women athletes has not been studied, however, it is reasonable to propose that published diminishment of sporting achievements is likely to result in psychological distress for women athletes.

Sexualisation in the mainstream media

When women are represented in sport, how the media chooses to portray athletes can have a profound effect on the collective response to them. For example, images which focus on depicting women athletes' athletic intensity and performance can legitimise them as role models for adolescent girls.⁸⁴ However, a plethora of research shows that women are more often portrayed in a sexualised manner by the media, with reports focusing on their physical characteristics, questioning their femininity, or even blatantly depicting them as sex objects.^{23 78}

Findings consistently indicate that although sexualised women athletes are often rated as more attractive, desirable or sexual, they are also seen as less capable, as having less athletic ability, having lower intelligence and as having less self-respect than non-sexualised women athletes.⁸⁵ The sexualised portrayal of women athletes can have substantial social and economic outcomes in terms of the general acceptance of women athletes in society and their marketability as elite athletes.⁸⁶

On a society level, after viewing sexualised images of women athletes, girls, women and men make objectified appraisals of the athletes and themselves, as well a critique of women's status in society.⁸⁴ In general, just the viewing of sexualised images results in higher levels of body dissatisfaction, greater self-objectification, greater support of sexist beliefs and of adversarial sexual beliefs, and greater tolerance of sexual violence towards women.⁸⁷ Thus, the sexualisation of women athletes can harm not only the athletes themselves but also have wide reaching detrimental effects within the community. As such, the sexualised portrayal of women in the media can be conceptualised as a form of institutional violence, as it provides a culture in which sexualisation of women's bodies is normalised and provides an environment in which sexual abuse can also be normalised.

LIMITATIONS

A limitation of the current study is that the topics covered, although important, are not exhaustive, as we took a narrative approach rather an exhaustive scoping review approach. In future work and in order to better understand the psychosocial stressors influencing mental health among elite and semielite women athletes, it would be valuable to conduct a more systematic exploration of the literature, such as through a scoping review following Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.⁸⁸

Gaps in research and future directions

Research demonstrates that psychosocial stressors such as violence and inequality can have detrimental effects on mental

health. However, insufficient research has been conducted to assess the impact of these psychosocial stressors on the mental health of women athletes. This is a key area of future inquiry, for which the learnings will be important for informing future policy and practice with regard to protecting and enhancing the well-being and careers of women in sport. In doing so, it is important to partner with survivors of abuse in sport when delivering safeguarding initiatives and this should be underpinned by a framework to support safe and effective survivor engagement in these initiatives.⁸⁹

The impact of the abovementioned psychosocial stressors on women's participation in sport is unknown. Women have overall lower participation rates in sports compared with men. Indeed, 27% of men engage in sport-related activities, which include, team sports, athletics, swimming, cycling, golf, etc, compared with 11% of women.⁹⁰ The Women's Sports Foundation 2011 report shows that girls are often faced with a lack of positive role models, fewer opportunities and a watered-down quality of sports available to them.⁹¹ The wider reaching impact of gender-specific stressors of sports participation in girls and women is a valuable area of future inquiry given that local governments are pushing initiatives to increase sports participation among girls and women.

This review also highlights a paucity of research examining a single gender athletes' experiences of transition/retirement from elite sport, however the search terms used in the current study were not designed to highlight retirement related concerns and therefore future research should explore the mental health of women athletes in life after sport. One recent study involving athletes and coaches, and managers/executives from the Australia and New Zealand National Rugby League Women's Premiership reports that the policies and practices with the greatest positive impact for the women players include child-care provision, development of an inclusive team and club culture, and providing coaching, training and support specifically tailored to meet women's needs.⁴⁸ This current review does not evaluate the quality of the reviewed literature nor consider the volume of work supporting the impact of the reviewed psychosocial stressors on mental health and well-being.

Of note as well, sport is structured around the gender binary, and, as a consequence, much of the literature surrounding sport follows this same structure.⁹² The recent Swimming's world governing body, FINA rulings to restrict the participation of transgender athletes in elite women's competitions and create a working group to establish an 'open' category for transgender athletes in some events as part of its new policy, have further prescribed the gender binary nature of competitive sport, creating barriers for trans women and significant sex verification procedures for women competitive athletes as a whole.⁹³ While the present review highlights some of the challenges that women experience (cis women as well as non-cis women), such as sex verification, it is abundantly clear that issues impacting women athlete's health need to be understood beyond the current gender binary. We further acknowledge that many of the other psychosocial stressors exists across and beyond the gender binary, with those women who are trans, queer or even those who are non-binary often experiencing higher rates of interpersonal and sports related violence.^{36 94 95}

In the current work, we have not explored sexuality and how this may impact well-being among women athletes, including how sexuality intersects with inclusion.⁹⁶ We have not explored the impact of athlete age on the stressors women have, or currently experience. Further, we acknowledge that stressors may change over time as the structure and culture of women's

sports also changes. This is an important area for further investigation and an in-depth exploration of temporality, culture and women athletes' mental health is warranted. These are all important areas for further investigation and merit an in-depth exploration in future work.

Finally, recent research reports that even though women athletes report more specific mental health symptoms and adverse life events, that there are no gender differences in psychological distress, life satisfaction or mental illness. These authors reported that a range of other factors, such as self-esteem and gender-specific factors, are associated with mental health concerns in athletes, and therefore, future research should better explore these gender differences and aim to develop approaches to reduce exposure to potential risk factors among athletes.⁸ Our findings highlight the need to incorporate gender-specific responses and supports into mental health position statements.

CONCLUSION

The current review highlights that women elite and semielite athletes are exposed to a range of gender-specific psychosocial stressors that place them at particular risk of experiencing mental health concerns and developing mental disorders. For example, women athletes are particularly likely to experience some forms of violence, which can result in a myriad of acute and chronic mental ill health symptoms. Gender inequality is also prevalent within sports structure and culture at almost every level. The organisational and social climate in sport can impact women athletes' mental health as a result of disparity in wages, sex verification policies, decreased opportunities in leadership positions and media under-representation and lack of provision for caring responsibilities. The collective impact of these psychosocial stressors on mental health outcomes needs to be further explored. Strategies to promote mental health in women athlete populations at the individual, interpersonal, organisational and sociocultural environmental systems levels should be considered and where possible, should address gender-specific stressors likely to influence mental health, including exposure to violence, inequality and motherhood, in order to maximise outcomes.

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REFERENCES

- 1 Rogers MA, Appaneal RN, Hughes D, et al. Prevalence of impaired physiological function consistent with relative energy deficiency in sport (RED-S): an Australian elite and pre-elite cohort. *Br J Sports Med* 2021;55:38–45.
- 2 Organization WH. *Promoting mental health: concepts, emerging evidence, practice: summary report*. World Health organization, 2004.
- 3 Reber AS. *The penguin dictionary of psychology*: penguin press, 1995.
- 4 Australian Bureau of Statistics. *National survey of mental health and wellbeing: summary of results*, 2007.
- 5 Gulliver A, Griffiths KM, Mackinnon A, et al. The mental health of Australian elite athletes. *J Sci Med Sport* 2015;18:255–61.
- 6 Foskett RL, Longstaff F. The mental health of elite athletes in the United Kingdom. *J Sci Med Sport* 2018;21:765–70.

- 7 Kuettel A, Pedersen AK, Larsen CH. To Flourish or Languish, that is the question: exploring the mental health profiles of Danish elite athletes. *Psychol Sport Exerc* 2021;52:101837.
- 8 Walton CC, Rice S, Gao CX, et al. Gender differences in mental health symptoms and risk factors in Australian elite athletes. *BMJ Open Sport Exerc Med* 2021;7:e000984.
- 9 Gorczynski PF, Coyle M, Gibson K. Depressive symptoms in high-performance athletes and non-athletes: a comparative meta-analysis. *Br J Sports Med* 2017;51:1348–54.
- 10 Bratland-Sanda S, Sundgot-Borgen J. Eating disorders in athletes: overview of prevalence, risk factors and recommendations for prevention and treatment. *Eur J Sport Sci* 2013;13:499–508.
- 11 Joy E, Kussman A, Nattiv A. 2016 update on eating disorders in athletes: a comprehensive narrative review with a focus on clinical assessment and management. *Br J Sports Med* 2016;50:154–62.
- 12 Kong P, Harris LM. The sporting body: body image and eating disorder symptomatology among female athletes from leanness focused and nonleanness focused sports. *J Psychol* 2015;149:141–60.
- 13 Uphill M, Sly D, Swain J. From mental health to mental wealth in athletes: looking back and moving forward. *Front Psychol* 2016;7:935.
- 14 Koolhaas JM, Bartolomucci A, Buwalda B, et al. Stress revisited: a critical evaluation of the stress concept. *Neurosci Biobehav Rev* 2011;35:1291–301.
- 15 Reardon CL, Hainline B, Aron CM, et al. Mental health in elite athletes: international Olympic Committee consensus statement (2019). *Br J Sports Med* 2019;53:667–99.
- 16 Crocker PRE, Graham TR. Coping by competitive athletes with performance stress: gender differences and relationships with affect. *Sport Psychol* 1995;9:325–38.
- 17 Blinde EM, Taub DE. Homophobia and Women's Sport: The Disempowerment of Athletes. *Social Focus* 1992;25:151–66.
- 18 Adjepong LA, Carrington B. *Black female athletes as space invaders*. Routledge: Routledge handbook of sport, gender and sexuality, 2014: 189–98.
- 19 Swartz L, Hunt X, Bantjes J, et al. Mental health symptoms and disorders in Paralympic athletes: a narrative review. *Br J Sports Med* 2019;53:737–40.
- 20 Bronfenbrenner U. The ecology of cognitive development: Research models and fugitive findings. In: *College student development and academic life: psychological, intellectual, social and moral issues*, 1997.
- 21 Sallis JF, Owen N, Fisher E. Ecological models of health behavior. *Health behavior: Theory, research, and practice* 2015;5.
- 22 Fasting K, Brackenridge C, Sundgot-Borgen J. Prevalence of sexual harassment among Norwegian female elite athletes in relation to sport type. *Int Rev Social Sport* 2004;39:373–86.
- 23 Biscomb K, Matheson H. Are the times changing enough? print media trends across four decades. *Int Rev Social Sport* 2019;54:259–81.
- 24 Wensing EH, Bruce T. Bending the rules: media representations of gender during an international sporting event. *Int Rev Social Sport* 2003;38:387–96.
- 25 Hargreaves J. *Sporting females: Critical issues in the history and sociology of women's sport*. Routledge, 2002.
- 26 Schmidt HC. Women's sports coverage remains largely marginalized. *Newsp Res J* 2016;37:275–98.
- 27 Brennan A. Which sports have the largest and smallest pay gaps? 2016. Available: <https://www.forbes.com/sites/andrewbrennan/2016/05/05/the-pay-discrimination-in-sports-we-wish-didnt-exist-will-only-dissipate-with-womens-leadership/#4982cf37919>
- 28 Schreiner R, Thiel A. Die Rekrutierung von Trainern Im deutschen Spitzensport / the recruitment of coaches in German high-performance sports. *Sport und Gesellschaft* 2011;8:28–53.
- 29 Moesch K, Mayer C, Elbe A-M. Reasons for career termination in Danish elite athletes: investigating gender differences and the Time-point as potential correlates. *Sport Science Review* 2012;21:49–68.
- 30 Shalala A. Exercising too much could affect fertility in young, healthy women, expert warns: ABC news, 2020. Available: <https://www.abc.net.au/news/2020-08-30/fertility-family-exercise-fitness-pregnancy-babies-health/12553466?section=sport>
- 31 Robinson G. The mother load: why athletes are still playing blind after giving birth. *The Sydney Morning Herald* 2020.
- 32 Appleby KM. "Running In and Out of Pregnancy": Elite Distance Runners' Experiences of Returning to Competition After Pregnancy, 2004.
- 33 Tekavc J, Wylleman P, Cencić Erpič S. Becoming a mother-athlete: female athletes' transition to motherhood in Slovenia. *Sport Soc* 2020;23:734–50.
- 34 Ronkainen NJ, Watkins J, Ryba TV. What can gender tell us about the pre-retirement experiences of elite distance runners in Finland?: a thematic narrative analysis. *Psychol Sport Exerc* 2016;22:37–45.
- 35 Parent S, Fortier K. Comprehensive overview of the problem of violence against athletes in sport. *J Sport Soc Issues* 2018;42:227–46.
- 36 Vertommen T, Schipper-van Veldhoven N, Wouters K, et al. Interpersonal violence against children in sport in the Netherlands and Belgium. *Child Abuse Negl* 2016;51:223–36.
- 37 Gaedick S, Schäfer A, Hoffmann B, et al. Sexual violence and the Coach–Athlete Relationship—a scoping review from sport sociological and sport psychological perspectives. *Front Sports Act Living* 2021;3:117.
- 38 Lang M, Mergaert L, Arnaut C, et al. Gender-Based violence in sport: prevalence and problems. *European Journal for Sport and Society* 2021;7:1–22.
- 39 Timpka T, Janson S, Jacobsson J, et al. Lifetime history of sexual and physical abuse among competitive athletics (track and field) athletes: cross sectional study of associations with sports and non-sports injury. *Br J Sports Med* 2019;53:1412–7.
- 40 Neumann DA, Houskamp BM, Pollock VE, et al. The long-term sequelae of childhood sexual abuse in women: a meta-analytic review. *Child Maltreat* 1996;1:6–16.
- 41 Kirby S, Demers G. Sexual Harassment and Abuse in Sport... In: Roper EA, ed. *Gender relations in sport*. Rotterdam: Sense Publishers, 2013: 141–61.
- 42 Milroy JJ, Hanna K, VandeLinde T, et al. Prevention of sexual violence in sport: a Socioecological review. *J Interpers Violence* 2022;37:NP10618–41.
- 43 Donegan R. Bullying and cyberbullying: history, statistics, law, prevention and analysis. *The Elon Journal of Undergraduate Research in Communications* 2012;3:33–42.
- 44 Mountjoy M, Brackenridge C, Arrington M, et al. International Olympic Committee consensus statement: harassment and abuse (non-accidental violence) in sport. *Br J Sports Med* 2016;50:1019–29.
- 45 International P. *Snapshot analysis: social media commentary of women athletes and male athletes*, 2019.
- 46 Cowie T, Zhuang Y, S. F K. Tayla Harris worried for her safety, describes trolling as 'sexual abuse'. *The Age* 2019.
- 47 Mogaji E, Badejo FA, Charles S, et al. Financial well-being of sportswomen. *International Journal of Sport Policy and Politics* 2021;13:299–319.
- 48 Taylor T, Fujak H, Hanlon C. A balancing act: women players in a new semi-Professional team sport League. *European Sport Management Quarterly* 2020;1–21.
- 49 Darroch FE, Giles AR, Hillsburg H, et al. Running from responsibility: athletic governing bodies, corporate sponsors, and the failure to support pregnant and postpartum elite female distance runners. *Sport Soc* 2019;22:2141–60.
- 50 Davenport MH, Nesdoly A, Ray L, et al. Pushing for change: a qualitative study of the experiences of elite athletes during pregnancy. *Br J Sports Med* 2022;56:452–7.
- 51 Platt J, Prins S, Bates L, et al. Unequal depression for equal work? how the wage gap explains gendered disparities in mood disorders. *Soc Sci Med* 2016;149:1–8.
- 52 Hashemi D. *Examining the tennis pay gap*. Washington Square News, 2019.
- 53 O'Halloran K. Matildas V Socceros: the gender pay gap is real. *ABC News* 2019.
- 54 Harrington A. IN DETAIL: THE NEW MATILDAS AND SOCCEROOS PAY DEAL The Women's Game, 2019. Available: <https://thewomensgame.com/news/in-detail-the-new-matildas-and-socceroos-pay-deal-533514#winnr-info-top2020>
- 55 A. U.S D. Women's Soccer Team Sues U. S. Soccer for Gender Discrimination. *The New York Times* 2019.
- 56 MCC. *Pathway to pay equality*. Male Champions of Change: Elite Women Athletes, 2019.
- 57 Burton LJ. Underrepresentation of women in sport leadership: a review of research. *Sport Management Review* 2015;18:155–65.
- 58 Evans AB, Pfister GU. Women in sports leadership: a systematic narrative review. *Int Rev Social Sport* 2021;56:317–42.
- 59 Norman M, Donnelly P, Kidd B. Gender inequality in Canadian Interuniversity sport: participation opportunities and leadership positions from 2010–11 to 2016–17. *International Journal of Sport Policy and Politics* 2021;13:207–23.
- 60 Demers G, Thibault L, Brière S. Women in leadership positions within Canadian sport. *Routledge handbook of the business of women's sport* 2019:106–23.
- 61 SportsAus. Talent programs launched to challenge gender diversity: Australian sports Commission, 2019. Available: https://www.sportaus.gov.au/media-centre/news/talent_programs_launched_to_challenge_gender_diversity
- 62 Report EWABNWae. *Why female athletes make winning entrepreneurs*, 2017.
- 63 Ha NQ, Dworkin SL, Martínez-Patiño MJ, et al. Hurdling over sex? sport, science, and equity. *Arch Sex Behav* 2014;43:1035–42.
- 64 Healy ML, Gibney J, Pentecost C, et al. Endocrine profiles in 693 elite athletes in the postcompetition setting. *Clin Endocrinol* 2014;81:294–305.
- 65 Burki TK. Hyperandrogenism rule no longer in play at Rio Olympics. *Lancet Diabetes Endocrinol* 2016;4:820–20.
- 66 Committee IO. IOC framework on Fairness. *inclusion and non-discrimination on the basis of gender identity and sex variations* 2021.
- 67 Henne KE. *Testing for athlete citizenship: regulating doping and sex in sport*. Rutgers University Press, 2015.
- 68 Pape M. Regulating high testosterone in international women's sport. In: Sherry E, Rowe E, ed. *Developing sport for women and girls*. Routledge, 2020.
- 69 Bekker S, Kolanyane-Kesupile KK. *Fighting a system built to exclude Queer (ING) bodies: an imperative for athlete wellbeing*. Routledge: Developing and Supporting Athlete Wellbeing, 2021: 225–38.
- 70 Bekker S, Posbergh A. Safeguarding in sports settings: unpacking a conflicting identity. *Qual Res Sport Exerc Health* 2022;14:181–98.
- 71 Watch HR. "They're Chasing Us Away from Sport": Human Rights Violations in Sex Testing of Elite Women Athletes. Human Rights Watch, 2020.
- 72 Salido-Fernández J, Muñoz-Muñoz AM. Media representation of women athletes at the Olympic games: a systematic review. *Apunts Educacion Física y Deportes* 2021;146:32–41.
- 73 Bruce T. Reflections on communication and sport: on women and Femininities. *Commun Sport* 2013;1:125–37.
- 74 Greenwood K, Caple H, Lumby C. *Towards a level playing field : sport and gender in Australian media*. Australia: Australian Sports Commission,, 2010.

- 75 Perry M, Ramiscal K. GIRL POWER: MEASURING THE RISE OF WOMEN'S SPORT IN AUSTRALIA, 2019. Available: <https://www.nielsen.com/au/en/insights/article/2019/girl-power-measuring-the-rise-of-women-s-sport-in-australia/>
- 76 Cooky C, Messner MA, Musto M. "It's Dude Time!": A Quarter Century of Excluding Women's Sports in Televised News and Highlight Shows. *Commun Sport* 2015;3:261–87.
- 77 Kane MJ. The better Sportswomen get, the more the media ignore them. *Communication & Sport* 2013;1:231–6.
- 78 Kian EM, Vincent J, Mondello M. Masculine hegemonic hoops: an analysis of media coverage of March madness. *Social Sport J* 2008;25:223–42.
- 79 Petty K, Pope S. A New Age for Media Coverage of Women's Sport? An Analysis of English Media Coverage of the 2015 FIFA Women's World Cup. *Sociology* 2019;53:486–502.
- 80 Duncan MC, Hasbrook CA. Denial of Power in Televised Women's Sports 1988;5:1.
- 81 McDonald B, McLachlan F, Spaaij R. Old rules for new times: Sportswomen and media representation in the COVID-19 pandemic. *Am Behav Sci* 2022;15:000276422211182.
- 82 Caldwell R. *Leveling the Playing Field? A Content Analysis of ESPN.com and ESPNW.com's Online Coverage*. Fayetteville: University of Arkansas, 2016.
- 83 CBC. Eugenie Bouchard asked to 'twirl' by on-court presenter: The Associated Press; 2015. Available: <https://www.cbc.ca/sports/tennis/eugenie-bouchard-asked-to-twirl-by-on-court-presenter-1.2921644>
- 84 Daniels EA. Sexy versus strong: what girls and women think of female athletes. *J Appl Dev Psychol* 2012;33:79–90.
- 85 Nezelek JB, Krohn W, Wilson D, et al. Gender differences in reactions to the sexualization of athletes. *J Soc Psychol* 2015;155:1–11.
- 86 Kim E, Walkosz BJ, Iverson J. *USA Today's Coverage of the Top Women Golfers, 1998–2001*. *Howard J Commun* 2006;17:307–21.
- 87 Ward LM, Media WLM. Media and Sexualization: state of empirical research, 1995–2015. *J Sex Res* 2016;53:560–77.
- 88 Tricco AC, Lillie E, Zarin W, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med* 2018;169:467–73.
- 89 Mountjoy M, Vertommen T, Denhollander R, et al. Effective engagement of survivors of harassment and abuse in sport in athlete Safeguarding initiatives: a review and a conceptual framework. *Br J Sports Med* 2022;56:232–8.
- 90 AusPlay. *National results*, 2020.
- 91 FoundationWS. Factors influencing girls participation in sports., 2016. Available: <https://www.womenssportsfoundation.org/support-us/do-you-know-the-factors-influencing-girls-participation-in-sports/>
- 92 Phipps C. Thinking beyond the binary: barriers to trans* participation in University sport. *Int Rev Sociol Sport* 2021;56:81–96.
- 93 FINA votes to restrict transgender women's participation in elite swimming competitions, 2022. Available: <https://sportstar.thehindu.com/swimming/fina-votes-to-restrict-transgender-participation-in-elite-womens-competition-lia-thomas-transition-age/article38504254.ece>
- 94 Pankowiak A, Woessner MN, Parent S, et al. Psychological, physical, and sexual violence against children in Australian community sport: frequency, perpetrator, and victim characteristics. *J Interpers Violence* 2022;8862605221114155.
- 95 Taha-Thomure R, Milne AS, Kavanagh EJ, et al. Gender-Based violence against Trans* individuals: a Netnography of Mary GREGORY's experience in Powerlifting. *Front Psychol* 2022;13:854452.
- 96 Anderson AR, Stokowski S, Turk MR. Sexual minorities in intercollegiate athletics: religion, team culture and acceptance. *Sport Soc* 2021;12:1–20.