

A Study on Premenstrual Symptoms, Perceived Stress and Coping Style Among Female Athletes.

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Abstract

Premenstrual symptoms (PMS) are common physiological and psychological experiences occurring during the luteal phase of the menstrual cycle and affect a large proportion of women of reproductive age. Among female athletes, hormonal fluctuations combined with training stress, competition pressure, and lifestyle demands may intensify the experience of premenstrual symptoms. Perceived stress and coping styles play a significant role in determining how athletes interpret and manage these symptoms. The present conceptual review synthesizes research published after 2016 examining the relationship between premenstrual symptoms, perceived stress, and coping styles among female athletes. Evidence suggests that higher levels of perceived stress are associated with increased severity of premenstrual symptoms, while adaptive coping strategies such as problem-focused coping, emotional regulation, and social support can mitigate symptom severity and improve athletic performance. Understanding the interaction between physiological and psychological factors is essential for developing effective interventions that support the well-being and performance of female athletes.

Keywords: Premenstrual symptoms, perceived stress, coping style, female athletes, menstrual cycle.

Introduction

Participation of Women in competitive sports has increased substantially over the past two decades. While athletic participation offers numerous physical and psychological benefits, female athletes also experience unique physiological challenges related to the menstrual cycle. Premenstrual symptoms (PMS) refer to a cluster of physical, emotional, and behavioral symptoms that occur during the late luteal phase of the menstrual cycle and typically resolve with the onset of menstruation. These symptoms may include mood swings, irritability, fatigue, abdominal pain, headaches, and decreased concentration (Direkvand-Moghadam et al., 2017).

Research indicates that approximately 70–90% of women experience at least one premenstrual symptom, while a smaller proportion experience severe symptoms that interfere with daily functioning (Raval et al., 2018). Among female athletes, PMS may influence training intensity, performance consistency, and psychological stability. Athletes often face additional stressors such as competitive pressure, rigorous training schedules, and expectations of high performance, which may exacerbate premenstrual symptoms (Armour et al., 2020).

One important psychological factor associated with PMS is perceived stress, defined as the degree to which individuals evaluate life situations as unpredictable, overwhelming, or uncontrollable (Cohen et al., 1983). Research suggests that women with higher perceived stress levels tend to report more severe premenstrual symptoms. Stress can influence hormonal regulation and emotional responses, thereby intensifying PMS experiences (Li et al., 2019).

Another key factor influencing the relationship between stress and PMS is coping style. Coping refers to the cognitive and behavioral strategies individuals use to manage stressful situations. Coping strategies can be broadly categorized into problem-focused coping, emotion-focused coping, and avoidance coping (Lazarus & Folkman, 1984). Among athletes, adaptive coping strategies such as goal setting, relaxation techniques, and social support may help reduce stress and improve symptom management during the menstrual cycle.

Recent research highlights the importance of examining the interaction between biological processes, psychological stress, and coping mechanisms in understanding the experience of PMS among female athletes. Therefore, the present conceptual review aims to synthesize recent literature (2016–2024) exploring the relationship between premenstrual symptoms, perceived stress, and coping styles among female athletes.

Methodology

Study Design

The present study adopted a narrative conceptual review design to integrate existing research findings related to premenstrual symptoms, perceived stress, and coping styles among female athletes.

Relevant literature was searched using electronic databases including, Google Scholar, PubMed, Scopus, ScienceDirect, ResearchGate.

The search included combinations of the following keywords, Premenstrual symptoms, Premenstrual syndrome, Female athletes, Perceived stress, Coping strategies.

Menstrual cycle and sports performance

Boolean operators such as AND and OR were used to refine the search results.

Inclusion Criteria

Studies were included if they:

2016–2024, female athletes or physically active women, premenstrual symptoms, stress, coping mechanisms, empirical research articles, review papers, theoretical studies.

Exclusion Criteria

Studies were excluded if they:

Clinical populations unrelated to athletes, publications before 2016, studies not addressing stress or coping related to PMS, initial identification of approximately 90 studies, screening of titles, abstracts, and full texts, selection of relevant articles for synthesis.

Results and Discussion:

Premenstrual Symptoms among Female Athletes:

Premenstrual symptoms are widely reported among female athletes across different sports disciplines. These symptoms can influence physical performance, motivation, and emotional stability during training

and competitions. Research suggests that female athletes may experience symptoms such as fatigue, mood changes, bloating, and decreased concentration during the premenstrual phase (Armour et al., 2020). Hormonal fluctuations in estrogen and progesterone during the menstrual cycle affect neurotransmitter systems related to mood and stress regulation. These physiological changes may lead to emotional disturbances, reduced energy levels, and impaired concentration, which can influence athletic performance (Elliott-Sale et al., 2021). Studies also indicate that athletes who lack menstrual health awareness may misinterpret PMS symptoms as general fatigue or performance decline, potentially affecting their training outcomes.

Perceived Stress and Premenstrual Symptoms:

A significant body of research demonstrates a positive relationship between perceived stress and the severity of premenstrual symptoms. Women experiencing high levels of psychological stress tend to report greater emotional and physical discomfort during the premenstrual phase (Li et al., 2019).

Among athletes, sources of stress may include:

- Competition pressure
- Academic demands (for student athletes)
- Injury concerns
- Balancing training and personal life,

Chronic stress may disrupt hormonal balance, particularly cortisol levels, which can interact with reproductive hormones and worsen PMS symptoms. Research suggests that athletes with higher perceived stress levels report increased irritability, anxiety, and mood disturbances during the menstrual cycle (Gordon et al., 2018).

Coping Style and Premenstrual Symptom Management:

Coping strategies play a crucial role in determining how athletes respond to stress and premenstrual symptoms. Adaptive coping strategies can reduce the negative impact of PMS on psychological well-being and performance.

Common coping styles observed among female athletes include:

Problem-Focused Coping:

- Problem-focused coping involves actively addressing the source of stress through planning, time management, and seeking solutions. Athletes who adopt this coping style tend to experience lower stress levels and better emotional regulation (Nicholls & Polman, 2017).

Emotion-Focused Coping:

- Emotion-focused coping includes strategies such as relaxation, meditation, and emotional expression. These strategies help athletes manage emotional responses associated with PMS and competition stress.

Avoidance Coping:

- Avoidance coping involves ignoring or withdrawing from stressful situations. Research suggests that this coping style is associated with higher perceived stress and increased PMS severity.
- Studies indicate that athletes who utilize adaptive coping strategies and receive social support from coaches, teammates, and family members report lower levels of stress and better management of premenstrual symptoms (Didymus & Fletcher, 2017).

Relationship Between Premenstrual Symptoms, Stress, and Coping

Recent research suggests that the relationship between PMS and stress is bidirectional. Higher stress levels can intensify PMS symptoms, while severe PMS symptoms can further increase perceived stress.

Coping style functions as a moderating variable in this relationship. Athletes who adopt adaptive coping strategies are better able to regulate emotional responses and maintain consistent performance despite physiological changes associated with the menstrual cycle.

Psychological interventions such as stress management training, cognitive-behavioral techniques, and mindfulness practices have been shown to reduce perceived stress and improve coping skills among female athletes (Gordon et al., 2018).

Conclusion:

The present conceptual review highlights the complex interaction between premenstrual symptoms, perceived stress, and coping styles among female athletes. Evidence suggests that premenstrual symptoms are common among athletes and may influence physical performance and emotional well-being. Higher perceived stress levels are associated with increased severity of PMS symptoms, while adaptive coping strategies can reduce the negative impact of stress.

Understanding these relationships is important for coaches, sports psychologists, and healthcare professionals working with female athletes. Interventions focusing on stress management, menstrual health education, and effective coping strategies can help female athletes maintain both psychological well-being and optimal performance.

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