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MENSTRUAL SYMPTOMS IN DIVISION I FEMALE ATHLETES: A PROSPECTIVE OBSERVATIONAL STUDY

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ABSTRACT

Purpose: *To quantify the frequency of menstrual cycle (MC) symptoms experienced by Division I female lacrosse athletes and to discover if the symptoms were different among those who were taking a hormone contraceptive (HC) compared to those who were not (non-HC).*

Methods: *As part of a daily wellness survey, athletes (non-HC = 10, HC = 11) were asked if they were menstruating. If they were, they were asked to identify any symptoms they were experiencing. The symptoms were recorded for each day of menstruation during their four-month competitive season. Reported symptoms were categorized as frequently, sometimes, rarely, or never. The frequencies of symptoms were tabulated in total and per cycle for each group.*

Results: *The most frequently reported symptom was cramps with 90.4% of athletes reporting experiencing it at least once. Headaches (66%), back pain, and skin problems (57% each) were also frequently reported. HC users (0.7 ± 1.4 times/cycle) reported mood swings more frequently than non-HC users (0.03 ± 0.08, p = 0.029), but there were no other group differences for symptoms.*

Conclusions: *Tracking symptoms associated with MC can help athletes and coaches be aware of patterns and incorporate methods for mitigating or alleviating the symptoms. Symptom tracking can also help athletes mentally prepare for the effects of their*

MC on training and performance. More research is needed before recommending HC use as a management strategy for menstrual symptoms.

Keywords: *menstrual cycle, team sport, hormone contraceptive*

MENSTRUALNI SIMPTOMI PRI ŠPORTNICAH DIVIZIJE I: PROSPEKTIVNA OPAZOVALNA RAZISKAVA

IZVLEČEK

Namen: *Kvantificirati, kako pogosto doživljajo simptome menstrualnega cikla (MC) igralke lakrosa divizije I, in primerjati, ali se simptomi razlikujejo med športnicami, ki uporabljajo hormonsko kontracepcijo (HK), in tistimi, ki je ne (ne-HK).*

Metodologija: *V okviru dnevne ankete o počutju so morale športnice (ne-HK = 10, HK = 11) vsak dan odgovoriti, ali menstruirajo. Če so odgovorile pritrdilno, so bile pozvane k opisu simptomov. Simptome so zapisovale vsak dan menstruacije v štirimesečnem obdobju tekmovalne sezone. Poročani simptomi so bili razvrščeni v kategorije pogosto, občasno, redko ali nikoli. Pogostost simptomov je bila predstavljena v tabelarni obliki, in sicer skupno ter na cikel za vsako skupino posebej.*

Rezultati: *Najpogostejši simptom, o katerem so poročale športnice, so bili krči in kar 90,4 % športnic je navedlo, da so ta simptom doživele vsaj enkrat. Pogosto so poročale tudi o glavobolih (66 %), bolečinah v hrbtu in težavah s kožo (oboje 57 %). Uporabnice HK (0,7 ± 1,4-krat/cikel) so pogosteje opažale nihanje razpoloženja od tistih, ki ne uporabljajo HK (0,03 ± 0,08, p = 0,029), pri čemer ni bilo drugih razlik glede simptomov med skupinama.*

Zaključki: *Spremljanje simptomov, povezanih z MC, lahko športnicam in trenerjem pomaga prepoznati vzorce ter v delo vključiti načine za ublažitev ali lajšanje simptomov. Poleg tega se lahko športnice s spremljanjem simptomov psihično pripravijo na to, kako njihov MC vpliva na trening in zmogljivost. Potrebnih je več raziskav, preden bo mogoče HK priporočati kot strategijo za obvladovanje menstrualnih simptomov.*

Ključne besede*: menstrualni cikel, ekipni šport, hormonska kontracepcija*

INTRODUCTION

The menstrual cycle (MC) is broken down into three phases: 1) the follicular phase, 2) the ovulatory phase, and 3) the luteal phase. The follicular phase begins with the onset of menses and concludes when estrogen levels rise to begin the ovulatory phase. The ovulatory phase concludes when estrogen levels decline and progesterone levels increase to begin the luteal phase. The MC has been shown to affect thermoregulatory, respiratory, metabolic, and cardiovascular parameters with equivocal effects on endurance performance (Julian, Hecksteden, Fullagar, & Meyer, 2017). The MC is also accompanied by a variety of physiological, physical, and emotional symptoms. The proposed mechanisms for these symptoms include alterations in the central nervous system (Yonkers & Simoni, 2018), changes in the release of inflammatory markers (Puder et al., 2006), reactive oxygen species (Ma et al., 2013), and hormone sensitivities and fluctuations (Gaskins et al., 2012).

Two recent reviews showed that the effects of the MC on exercise performance were equivocal across several performance characteristics, including: aerobic capacity, anaerobic power, muscular strength, speed, and muscular power (Carmichael, Thomson, Moran, & Wycherley, 2021; Vogel, Larsen, McLellan, & Bird, 2024). However, most of the studies focused on controlled laboratory exercise tests instead of training or game performance. How an athlete performs on a laboratory test may not directly carry over to game day performance. Gasperi, Sansone, Gómez-Ruano, Lukonaitienė, and Conte (2023) showed evidence that basketball players experienced improved shooting and rebounding during the follicular phase, further suggesting that exercise performance and game performance are not the same. The use of microtechnology allows for evaluation of performance during training and games, and evidence shows no overall difference in college athletes when menstruating (Humphries, Marchelli, & Bunn, 2024). However, there is some concern about the reduced performance of hormone contraceptive (HC) users. Bozzini, McFadden, Elliott-Sale, Swinton, and Arent (2021) assessed Division I soccer players weekly throughout their 15-week competitive season and found that HC users consistently had a lower external load and energy expenditure compared to non-HC users. Humphries et al. (2024) also showed that HC users had a 1-5% decline in game day performance during their withdrawal bleed. This was not a statistical difference, but it would likely still be impactful in relation to game performance (Thornton, Figueroa, Davis, & Bunn, 2023).

The MC is also believed to have a psychological effect on athletes, which may subsequently affect performance. Athletes across competitive levels

believe that their MC has impacted their training or performance (Bruinvels et al., 2021; Findlay, Macrae, Whyte, Easton, & Forrest, 2020; Martin, Sale, Cooper, & Elliott-Sale, 2018; Oester et al., 2024). Symptoms include a perceived negative effect on performance, fatigue, mood disturbances, poor coordination, reduced motivation, feeling tearful and emotional, feelings of agitation, and poor concentration (Brown, Knight, & Forrest, 2021; Findlay et al., 2020; Marchelli, Humphries, & Bunn, 2025; O'Brien, Rapkin, Dennerstein, & Nevatte, 2011). Professional rugby players have perceived a loss of strength, appetite, and focus, as well as heightened emotions and fatigue (Hayward, Akam, Hunter, & Mastana, 2024), and nutritional strategies may be useful in mitigating these symptoms (Brown et al., 2024). Qualitative studies have also shown that athletes feel worry and fear in relation to experiencing menstrual flooding during competition and training (Findlay et al., 2020). Athletes also feel increased anxiety with standardized uniforms that may be revealing or include white shorts or pants (Findlay et al., 2020). Avoiding harm, adjusting energy, awareness and acceptance, and self-care were identified as coping strategies to mitigate the effects of MC (Modena, Bisagno, Schena, Carazzato, & Vitali, 2022). To date, longitudinal studies have shown no differences in sleep quality, sleep duration, muscle soreness, nutrition, and health across MC phases in collegiate and elite-level athletes (Marchelli et al., 2025; Scott, Bruinvels, Norris, & Lovell, 2024).

These perceptions are often linked to the physical symptoms experienced by female athletes during their pre-menstrual phase and during menses. Physical symptoms typically include abdominal cramping/pain, skin changes, bloating, appetite changes, breast tenderness, low back pain, gastrointestinal disturbances, and headaches (Brown et al., 2021; Bruinvels et al., 2021; Findlay et al., 2020; Martin et al., 2018; McKay et al., 2024; Roffler, Fleddermann, de Haan, Krüger, & Zentgraf, 2024; Taim et al., 2023). Affective symptoms such as mood changes, sleep disturbances, fatigue, and difficulties concentrating have also been reported (Taim et al., 2023). Most of these symptoms are reported during the initial days of menstruation (Martin et al., 2018; Taim et al., 2023). The Menstrual Symptoms index (MSi) was created to help evaluate the frequency of these symptoms (Bruinvels et al., 2021). The MSi categorizes the symptoms by frequency of experience for non-HC users and the scores range from zero to 54. The mean MSi score in general female exercisers was 22.9, and a higher MSi was associated with missing/changing a training session or sporting event, missing work, and use of pain medication (Bruinvels et al., 2021). This aligns with research on elite athletes indicating a negative correlation between the perceived performance and the presence of menstrual

cycle symptoms (Antero et al., 2023). Helping athletes recognize and manage symptoms has been recognized as a prudent approach to ensuring the readiness of athletes to train and compete (McGawley et al., 2023; McNamara, Harris, & Minahan, 2022; Taim et al., 2023).

Approximately 40–50% of female athletes use HCs with varying hormone levels and types (Martin et al., 2018). There are two main types of oral contraceptives: the combined pill (which contains both estrogen and progestin) and the mini pill (which contains only progestin) (Powell, 2017). These are typically taken daily for three weeks, followed by a week off each month. Other contraceptive options include implants, hormonal intrauterine devices (IUDs), and injections, all of which contain only progestin (Powell, 2017). Contraceptive patches and vaginal rings release both estrogen and progesterone (Martin et al., 2018). Martin et al. (2018) reported that 77% of HC users experience negative symptoms associated with their MC, and the reported positive effects of HC use includes regular periods, less frequent periods, reduced bleeding, the ability to predict or change their cycle date, and improved skin (Martin et al., 2018). Common reported negative side effects of HC use include weight gain, irregular periods, poor skin, and mood changes (Martin et al., 2018). McKay et al. (2024) examined the difference in MC symptoms for non-HC and HC users during a high-performance camp. The results showed no difference in the symptoms reported in the groups, except that non-HC athletes had a higher prevalence of acne than the HC users. Roffler et al. (2024) tracked the menstrual symptoms of professional volleyball athletes and calculated the MSi, finding that the average number of symptoms reported per cycle was 11.8 ± 17.7 (Bruinvels et al., 2021; Roffler et al., 2024). Roffler calculated the MSi for both HC users and naturally cycling athletes, and the results showed a mean MSi of 12.5 ± 10.7 for non-HC users and 11.1 ± 4.7 for HC users.

With the recent focus on the MC and female athletes, research has provided equivocal evidence about exercise performance and that MC symptoms affect the athlete both physically and psychologically (McKay et al., 2024; Roffler et al., 2024). However, there is little evidence comparing these concepts between HC and non-HC users. This is especially important as there is a gap in addressing female-specific health issues in athlete preparticipation exams (Schulz, Pohlod, Myers, Chung, & Thornton, 2024), and because many athletes seek to use HCs to mitigate their MC symptoms or gain control over the timeliness of their menses (Martin et al., 2018). The purpose of this study was to quantify the frequency of MC symptoms experienced by Division I female lacrosse athletes and to see if the symptoms were different among those who were and were not taking a HC. We hypothesized that abdominal cramps would

be the most frequently reported symptom and that non-HC users would experience more symptoms than HC users.

MATERIALS AND METHODS

Study Design

This was a prospective observational study. Data were collected during the competitive season in Division I women's lacrosse for 3.5 months. All the data were self-reported by the participants. All the participants completed an informed consent prior to study participation. This study was approved by the institutional review board (CUIRB-705) and conducted in accordance with the Declaration of Helsinki.

Participants

Athletes were included in this study if they were members of the varsity women's lacrosse team at a given university and had been cleared for play. Athletes were excluded if they did not experience menses or a withdrawal bleed during the time of the study (n = 6) or missed significant time during the study due to injury or illness (n = 2). The athletes completed a shortened menstrual status questionnaire to indicate their status as an HC user or not (Bozzini et al., 2021; Humphries et al., 2024). There were 10 non-HC athletes and 11 HC users, with 10 taking an oral contraceptive and one using an intrauterine device. The mean age of the 21 athletes included in the study was 20.3 ± 1.4 years.

Measurements

Athletes were asked each morning via a smartphone survey (Metrifit, Louth, Ireland) whether or not they were menstruating. If they were not menstruating, no further information was gathered. If they were menstruating, they were asked to identify any symptoms they were experiencing in relation to their MC. The athletes could select as many symptoms as they wanted from the following list: cramping, headache, skin problems, bloating, back pain, nausea, fatigue,

mood swings, stress, and tenderness. This survey accompanied their daily wellness survey (data not included in the present study), and compliance was tracked daily by the research personnel.

The Metrifit system tracked the menstruation cycles of each athlete for the duration of the season and calculated the average length of their cycle and the average number of days they menstruated per cycle.

Symptoms were tabulated as a total for each group and by average per MC of the athlete. The symptoms were also categorized as occurring "often" if they appeared in each MC (3 points), "sometimes" if the symptoms appeared every two cycles (2 points), "rare" if the symptom appeared fewer than two times (1 point), and "never" if the symptom never appeared (0 points) (Bruinvels et al., 2021). This method is similar to that used for calculating the MSi, but the MSi uses 18 symptoms, and the present study only included ten.

Data Analysis

The frequency of the symptoms reported by all the athletes and for each group were tabulated in total and per cycle. The mean length of the MC, the number of days menstruating, and the number of cycles observed were calculated per group. A Shapiro-Wilk test determined that the data were not normally distributed, so the group differences in the number of cycles, cycle length, number of days menstruating, and the symptoms reported per cycle were determined via Mann-Whitney U tests with an alpha level of 0.05. Cohen's d effect sizes were calculated to determine the magnitude of the differences and interpreted as small (0.2), moderate (0.5), and large (0.8) (Cohen, 1988). Comparing symptoms in HC and non-HC users is fairly new, thus we did not use a Bonferroni correction. Instead, groups were determined to be different if the p-value was below the alpha level and had at least a moderate effect size.

RESULTS

More cycles were observed from HC users (3.6 ± 0.5 cycles) than non-HC users (2.8 ± 0.8 cycles) during the observed time ($U = 26.0$, $p = 0.031$, $d = 0.527$, moderate). The cycle length for the HC users was 27.8 ± 4.0 days and 33.0 ± 10.2 days for the non-HC users ($U = 31.0$, $p = 0.098$, $d = 0.436$, moderate), and 80% of the non-HC users were eumenorrheic. The number of

menstruating days for the HC users was 5.7 ± 1.5 days and 6.2 ± 2.5 days for the non-HC users (U = 51.0, p = 0.805, d = 0.073, small). Table 1 shows the frequency of symptoms reported per athlete per cycle for each group. The HC users experienced mood swings more frequently than the non-HC users (U = 33.0, p = 0.029, d = 0.400, moderate), but there were no other group differences for the other symptoms reported.

Figure 1 shows the percentage of athletes who reported each symptom at least once. Cramps and headaches were the two most frequently reported symptoms for all the athletes at 90.4% and 66.6%, respectively. Nausea and tenderness were reported with the lowest frequency, with only 23.8% of athletes reporting them. Two athletes, one HC user and one non-HC user, did not report any symptoms related to menstruation during the study. Figure 2 shows the percentage of athletes, regardless of group, reporting each symptom and the frequency of the categories for "often", "sometimes", "rare", and "never". Cramps were experienced often by 42.9% of the athletes, followed by back pain for 33.3% of the athletes. Skin breakouts were experienced "sometimes" by 42.9% of the athletes, and headaches were experienced "rarely" by 28.6% of the athletes. Tenderness, nausea, mood swings, fatigue, and bloating were never experienced by two-thirds or more of the athletes.

*Table 1: The frequency (mean ± standard deviation) of symptoms experienced per athlete per cycle. The results of the inference tests and effect sizes are also provided. * indicates a difference between the groups, $p < 0.05$.*

	HC User	Non-HC User	U (sig)	Effect size
Cramps	1.9 ± 1.5	2.4 ± 2.8	52.5 (0.444)	0.046 (small)
Headache	0.6 ± 0.8	1.1 ± 1.1	42.0 (0.834)	0.236 (small)
Skin breakouts	0.5 ± 1.1	1.1 ± 1.8	46.0 (0.758)	0.164 (small)
Bloating	0.7 ± 1.7	1.1 ± 1.7	47.0 (0.762)	0.146 (small)
Back pain	1.4 ± 1.5	1.2 ± 2.2	41.5 (0.170)	0.246 (small)
Nausea	0.5 ± 0.8	0.1 ± 0.2	40.0 (0.086)	0.273 (small)
Fatigue	0.4 ± 0.7	0.6 ± 1.2	53.5 (0.467)	0.027 (small)
Mood swings*	0.7 ± 1.4	0.03 ± 0.08	33.0 (0.029)	0.400 (moderate)
Stressed	0.6 ± 1.0	0.7 ± 1.5	50.0 (0.358)	0.091 (small)
Tenderness	0.6 ± 1.5	0.5 ± 1.2	52.0 (0.407)	0.055 (small)

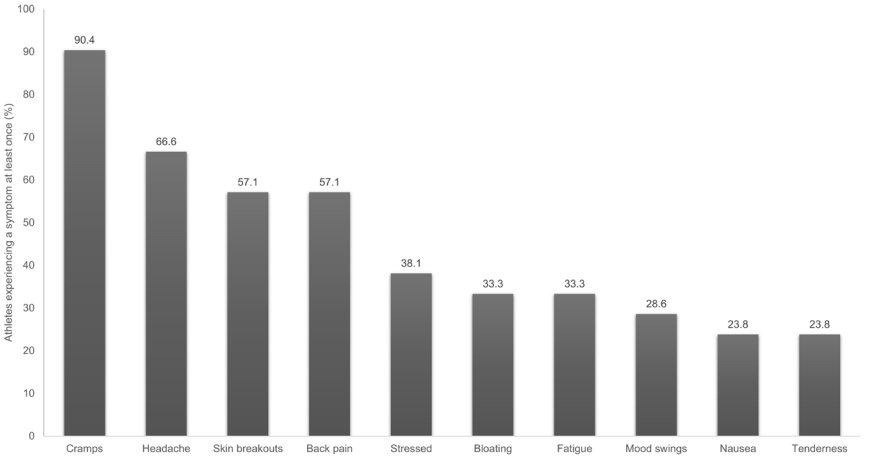

Figure 1: The prevalence of symptoms reported at least once by an athlete during the observed time period.

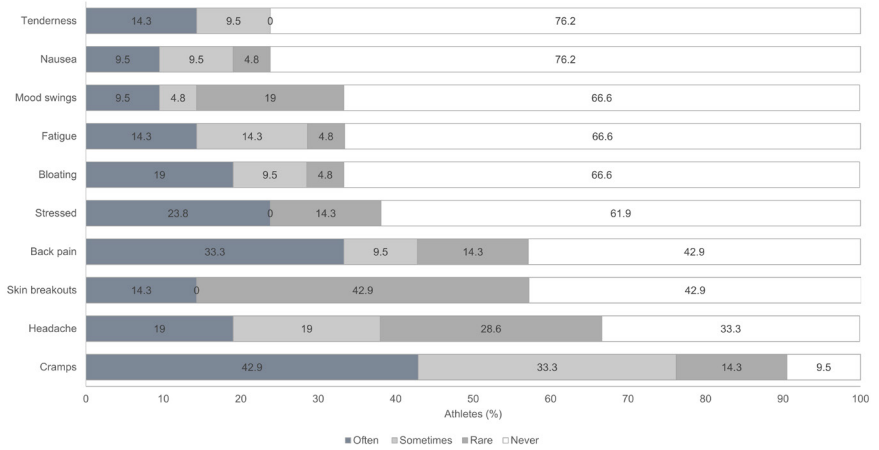

Figure 2: The percentage of athletes reporting symptoms in the frequency categories of often, sometimes, rarely, and never

DISCUSSION

This study aimed to quantify the frequency of MC symptoms experienced by Division I female lacrosse athletes and to discover whether the symptoms were different among those who were taking HCs versus those who were not. Approximately 95% of the athletes experienced symptoms of some form in relation to their menses or withdrawal bleed. This aligns with previous literature indicating that 90% of women from the general female population experience symptoms associated with menses (Mauvais-Jarvis, Clegg, & Hevener, 2013). Cramps, headaches, skin breakouts, and back pain were among the most frequently noted symptoms, and tenderness and nausea were seen least frequently. Cramps occurred in each cycle for 43% of the athletes, and only 9.5% of the athletes did not experience cramps during the four-month observation period. Mood swings were mostly experienced by HC users, with two athletes experiencing them often, one experiencing them sometimes, and four experiencing them rarely. The one non-HC user who experienced mood swings indicated it as a symptom that only occurred rarely. These findings support current research indicating that both HC users and non-users experience negative symptoms related to withdrawal bleeds and menstruation, respectively (McKay et al., 2024; Oxfeldt, Dalgaard, Jørgensen, & Hansen, 2020; Parker, Elliott-Sale, Hannon, Morton, & Close, 2022; Roffler et al., 2024). However, the specific differences in symptoms experienced by both groups vary across the studies (McKay et al., 2024; Oxfeldt et al., 2020; Parker et al., 2022).

Of the ten symptoms included in this study, only mood swings showed a difference between HC and non-HC users. The other nine symptoms were not different between groups, and all had small or trivial effect sizes. Estrogen has been shown to be neuroprotective and modulate neurotransmitters like serotonin and dopamine, while progesterone has a negative effect on mood through pathways that ultimately reduce serotonin (Mu & Kulkarni, 2022). The link between HC use and mood remains controversial, but it is believed that the amount and type of progesterone in the HC probably negatively affect the serotonin levels (Mu & Kulkarni, 2022). Previous literature has reported that non-HC users have a greater frequency of acne and skin-related issues with no other difference between the groups (McKay et al., 2024). McKay et al. (2024) reported that a higher percentage of non-HC users experienced mood swings (13.7%) compared to HC users (5.4%), but this was not statistically different. In a large cross-sectional study, Martin et al. (2018) showed that HC users and non-HC users experienced mood swings at approximately the same rate, 4.2% and 4.1%, respectively. Bruinvels et al. (2021) reported that mood changes

were the most frequently reported symptom (90.6%) of non-HC users. The participants included exercising women from seven countries, but they were not specifically athletes participating in competition. Furthermore, the study was conducted via a cross-sectional survey. Future studies should include both HC and non-HC users with prospective data collection, as there are very few in the current literature. Prospective studies also improve the accuracy of symptom reporting.

Overall, 100% of athletes studied have experienced negative symptoms associated with the MC (Oester et al., 2024), which may be useful information to incorporate into athlete preparticipation examinations (Schulz et al., 2024). Martin et al. (2018) surveyed participants about both negative and positive aspects of the MC and found that many HC users positively viewed having regular periods, the cessation of or less frequent periods, and reduced bleeding. The present study focused only on the negative side effects of menses and withdrawal bleeding. Cramps were the most frequently cited symptom in the present study, regardless of HC use, aligning with previous literature about various sports (Brown et al., 2021; Bruinvels et al., 2021; Martin et al., 2018; Roffler et al., 2024). The high frequency of headaches (Martin et al., 2018; McKay et al., 2024; Roffler et al., 2024), skin breakouts (Martin et al., 2018; McKay et al., 2024), and back pain (Martin et al., 2018; McKay et al., 2024) are also regularly reported in the literature. However, other symptoms such as fatigue/disturbed sleep and weight gain have also been reported with high frequency (Martin et al., 2018; Roffler et al., 2024). The present study did not inquire about either of these symptoms as a negative effect of the MC. However, Marchelli et al. (2025) found that athletes from a similar population reported no differences in sleep quality or duration during menses or by HC use.

Previous literature has only used the MSi for non-HC users, and the traditional MSi includes 18 variables for a high score of 54 (Bruinvels et al., 2021; Roffler et al., 2024). The present study only included ten symptoms; thus, comparisons can only be made with frequencies and not with an overall MSi score. The present study reported that 90.5% of the participants experienced cramps compared to 100% of the participants in Roffler et al. (2024) and 80% of the participants in Bruinvels et al. (2021). Between the three studies, 30-47% of the participants report experiencing cramps often. Notably, Bruinvels et al. (2021) reported the low-end range from a large-scale cross-sectional analysis of older female exercisers (38.3 ± 8.7 years) who were not taking HCs. Whereas the present study and Roffler et al. (2024) showed a higher percentage experiencing cramps and collected data for each MC in their younger competitive athletes (18 to 27.7 years) and included some HC users. All three studies

indicated that approximately 20% of the participants experienced headaches often, but Bruinvels et al. (2021) indicated that 70% of their participants experienced them at any frequency, and both Roffler (2024) and the present study ranged from 60-67% of the athletes. Fatigue was the third and fourth most frequently reported symptom for Roffler et al. (2024) and Bruinvels et al. (2021), respectively, but ranked seventh in the present study. The percentage of athletes reporting fatigue often and sometimes was similar in the present study and Roffler et al. (2024) (13-14%), but 35% of the participants in the Bruinvels study (2021) cited fatigue as occurring often. It is difficult to ascertain the reason for these differences, but prospective studies evaluating each MC provide more reliable data than the cross-sectional information presented by Bruinvels (2021). Further, differences may exist between the studies due to the age differences noted and comparisons between competitive athletes and recreational exercisers. Future research should consider these components to provide more robust comparisons between groups.

Limitations of the present study include evaluating only one team, limited comparisons with the MSi, only collecting symptoms on the days of reported menstruation and withdrawal bleed, and variations of the HCs used in the participants. Women experience symptoms outside of menses and future research should consider collecting each day that women experience any MC-related symptoms (McKay et al., 2024). We also did not ask the athletes if they thought their performance was affected by their MC symptoms, and this would be a valid question to include as 51-93% of athletes indicate that they perceive a negative effect of their symptoms on their performance (Bruinvels et al., 2021; Findlay et al., 2020; Martin et al., 2018). The self-report survey used in the present study is an accepted athlete monitoring tool, but it has not been assessed for validity and reliability. The present study also did not inquire how training or performance affected their MC symptoms, positively or negatively. There is evidence that some exercise may reduce menstrual discomfort (Kannan, Chapple, Miller, Claydon, & Baxter, 2015; Vaghela, Mishra, Sheth, & Dani, 2019) and further investigation is warranted. We also did not control whether non-HC users had used HCs prior to the study. This study also had a small n-size for group comparisons. While the variation in HC use in this study reduces the internal validity of the work, the study does have strong external validity for many female teams. Teams typically consist of women using a variety of HCs, including those using none, and must still be expected to coordinate training and deliver high performance in games. The present study provides practical use for this information when collecting these data with team athletes.

CONCLUSIONS

There is wide variation in the frequency of MC-related symptoms that athletes experience. Tracking symptoms associated with MC can help athletes and coaches be aware of patterns and incorporate methods for mitigating or alleviating the symptoms. Symptom tracking can also help athletes mentally prepare for the effects of their MC on training and performance. Tracking may also assist with communication of discomfort and fatigue between athletes and coaches. Providing education to athletes and coaches about the physiological effects of the MC and the use of different HCs would also be beneficial. Understanding individual responses to the MC and HC use can help coaches plan training and workload. Further research is needed to help determine the most prudent strategies for tracking and pattern recognition, to determine appropriate intervention strategies, and to include a large and diverse population. These data indicate that athletes who experience menses or withdrawal bleeds are very likely to have symptoms associated with this event, regardless of HC use. HC users experiencing a high frequency of certain symptoms should speak with their healthcare provider and consider alternatives to their HC.

Author Contributions

JAB conceptualized the study, participated in the study design, data collection, data analysis, and manuscript writing. MG and HH conceptualized the study, participated in the study design, and edited the manuscript.

Competing Interests

The authors declare that they have no competing interests.

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