ORIGINAL RESEARCH ARTICLE

Premenstrual and menstrual symptom relief-seeking behaviours among employed women

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Abstract

Many women experience premenstrual symptoms and menstrual pain that can adversely affect their work performance and productivity. This study explores employed women's behavior in seeking relief for these symptoms in a large electronics manufacturing company in Taiwan. Questionnaires collected data on demographics, menstrual status, pain scores, and self-reported symptoms, with 7,193 participants. Among them, 49.3% had a gynecological examination in the past two years. Moderate or severe premenstrual symptoms were associated with seeking relief behavior. Women experiencing work-impacting menstrual pain and higher pain scores were more likely to use hot compress bags and analgesics. Those with menstrual disruption for three or more days were more likely to have undergone a recent gynecological examination and use hot compress bags and analgesics for relief. Participants included two major groups of workers: office staff and clean room workers. Significant differences in relief-seeking behaviors were observed between them. Clean room workers were less likely to have gynecological examinations but more likely to take analgesics to manage menstrual discomfort. This information can assist environmental health nurses in understanding seeking relief patterns and guiding effective interventions to enhance the quality of life for employed women with menstrual discomfort. *(Afr J Reprod Health 2025; 29 [7]: 59-69).*

Keywords: Dysmenorrhea; Painful menstruation; Female workers; Seeking relief behavior

Résumé

De nombreuses femmes éprouvent des symptômes prémenstruels et des douleurs menstruelles pouvant nuire à leur performance au travail et à leur productivité. Cette étude explore le comportement des femmes employées dans la recherche de soulagement face à ces symptômes dans une grande entreprise de fabrication électronique à Taïwan. Des questionnaires ont été utilisés pour recueillir des données sur les caractéristiques démographiques, le statut menstruel, les scores de douleur et les symptômes autodéclarés, auprès de 7 193 participantes. Parmi elles, 49,3 % avaient subi un examen gynécologique au cours des deux dernières années. Des symptômes prémenstruels modérés à sévères étaient associés à un comportement de recherche de soulagement. Les femmes éprouvant des douleurs menstruelles affectant leur travail et des scores de douleur plus élevés étaient plus susceptibles d'utiliser des coussins chauffants et des analgésiques. Celles dont les menstruations étaient perturbées pendant trois jours ou plus étaient plus susceptibles d'avoir récemment passé un examen gynécologique et d'utiliser des coussins chauffants ainsi que des analgésiques pour se soulager. Les participantes comprenaient deux grands groupes de travailleuses : le personnel de bureau et les opératrices de salles blanches. Des différences significatives dans les comportements de recherche de soulagement ont été observées entre ces groupes. Les opératrices de salles blanches étaient moins enclines à passer des examens gynécologiques, mais plus susceptibles de prendre des analgésiques pour gérer l'inconfort menstruel. Ces informations peuvent aider les infirmières en santé environnementale à mieux comprendre les schémas de recherche de soulagement et à guider des interventions efficaces afin d'améliorer la qualité de vie des femmes employées souffrant d'inconfort menstruel. *(Afr J Reprod Health 2025; 29 [7]: 59-69).*

Mots-clés: Dysménorrhée ; Menstruations douloureuses ; Travailleuses ; Comportement de recherche de soulagement

Introduction

Menstrual syndrome encompasses symptoms like dysmenorrhea, premenstrual syndrome (PMS), and premenstrual dysphoric disorder (PMDD) [1]. About 80-90% of women experience at least one premenstrual symptom, with dysmenorrhea prevalence ranging from 16.8% to 81%[2-5]. Severe pain affects 3-33%, causing incapacitation and necessitating time off from school or work[6,7]. PMDD, impacting 5-18% of reproductive-age women, can lead to significant impairment and distress[8]. Some may experience premenstrual depression, affecting 5.6%[9]. Menstrual discomfort

significantly influences women's lives, affecting daily activities, academic or professional performance, relationships, sleep, and mood[10-17].

Premenstrual syndrome (PMS) is a common health issue among women of reproductive age. These symptoms are typically considered a normal part of the menstrual cycle and are often underreported, with women frequently not seeking medical attention for them[18]. Medical care-seeking behavior refers to any action undertaken by individuals who perceive themselves to have a health problem and are inclined to seek appropriate remedies[19,20]. Several studies have revealed that while most women experience some degree of menstrual discomfort, only a few seek medical care, even those who experience menstrual discomfort every month[21-23]. Women tended to seek professional treatment and services only when their pain became more severe or unbearable[21,24,25].

All menstruating women of reproductive age are at risk for premenstrual syndrome (PMS) and menstrual pain. However, employed women may encounter additional challenges in managing these symptoms due to occupational demands, shift work, prolonged standing, limited access to rest during work hours, and reduced opportunities to seek medical care[26-28]. These factors may contribute to increased distress and hinder effective symptom relief. Employed women dealing with menstrual symptoms may seek medical care or adopt alternative methods for relief [25,29]. Studies indicate that women often hesitate to seek medical help, opting for advice from family, friends, or online resources. Self-medication, such as taking analgesics, is common[28,30].

Alternative therapies, like heating pads for cramps, are also sought; especially when concerns arise about the adverse effects of nonsteroidal anti-inflammatory drugs[31-33].

Existing research primarily focuses on women in the general population or specific subsets of young women, with limited studies on employed women's menstrual discomfort.

This study aims to explore employed women's seeking relief behavior for menstrual discomfort and assess its correlation with premenstrual symptoms and menstrual pain, contributing to strategies for promoting healthcare-seeking and improving dysmenorrhea management.

Methods

Research setting and subjects

This study focused on assessing the relationship between premenstrual symptoms, menstrual pain, and seeking relief behavior among female employees within a large electronics manufacturing company in Taiwan. The study received approval from the Institutional Review Board of E-Da Hospital in Taiwan, and written and signed informed consent was secured from each participant. The study was conducted from August 2014 to December 2014 and included employed women between the ages of 18 and 55 who participated in routine employee health check-ups.

In summary, the research took place at Company C, a prominent electronics manufacturing firm located in the Southern Taiwan region within the Tainan Science Park. In the year 2014, Company C boasted a workforce of around 19,000 individuals, with women constituting 41% of its employees. We opted for Company C as our research setting due to its significant size and stability.

Furthermore, the company had a substantial number of women employees within the reproductive age group, rendering it an ideal representative sample for collecting data regarding the prevalence of premenstrual symptoms in the workplace. Company C prioritized the well-being of its female workforce and recognized the potential adverse effects of premenstrual symptoms on productivity and attendance. As a result, the company readily cooperated in facilitating this study.

To secure the company's involvement, the research team initially dispatched an explanatory letter delineating the research project's objectives. Subsequently, they convened with the director of the employee health management department to provide further details on the study.

After gaining approval from the employee health management department, occupational and environmental health nurses oversaw the distribution and collection of questionnaires during regular employee health check-ups. Excluding employees on unpaid leave such as self-care, involving a serious health condition, and family emergency, all eligible employed women aged 18 to

55 who attended a regular employee health check (n=7299) were invited to participate. A total of 7219 subjects agreed to participate in this study and written and signed informed consent was obtained before their health check. 26 participants who reported being postmenopausal in the questionnaire were excluded from the analysis. A total of 7193 valid questionnaires were analyzed in this study.

Assessment instruments and definitions

Participants completed questionnaires covering personal information, work details, lifestyle, menstrual status, menstrual pain ratings, self-reported premenstrual symptoms, and relief methods. The survey took an average of 8 minutes.

Demographics, personal lifestyle, and work characteristics

We analyzed the demographics, lifestyles, and work-related traits of participants. According to primary care physicians, who encourage their patients to engage in adequate physical activity[34], adults should perform muscle-strengthening activities of moderate intensity or higher that involve all major muscle groups for 2 or more days per week. Sparse exercise was defined as occurring between 1–2 times per week. In this study, participants were asked about their physical activity status, and those who performed ≥2 times/week were considered to have a regular exercise habit. Female participants were office or clean-room workers. Clean-room workers were production-line employees working in highly controlled environments for precision electronics manufacturing. A clean room is a specialized workspace designed to maintain extremely low levels of airborne particles, dust, microbes, and chemical vapors. These rooms are typically equipped with systems that strictly regulate temperature and humidity to ensure the quality of sensitive electronic components. Workers in clean rooms are usually required to wear protective garments and follow rigorous protocols to avoid contamination. Their job tasks often involve standing for long hours, repetitive manual operations, and maintaining fixed postures, all of which can contribute to physical fatigue and may exacerbate menstrual discomfort. Employment details included workplace (office or clean room) and shift work status (yes/no).

Menstrual pain scores, premenstrual symptoms, and the behavior in seeking relief from menstrual pain

The study included questionnaires that assessed the impact of menstrual pain on work. Participants were asked to rate the severity of their menstrual pain on a visual analog scale (rated from 0 to 100), with higher scores indicating more pain. They were also asked how many days menstrual pain interfered with their normal life and activities in the past month. In addition, the questionnaires included screening questions related to premenstrual symptoms over a 6-month period, including 19 physical symptoms and 5 psychological symptoms. Participants rated the severity of these symptoms as 'not at all,' 'mild,' 'moderate,' or 'severe.' Based on their responses, subjects were divided into two groups: those with moderate to severe premenstrual symptoms and those with no/mild premenstrual symptoms. Subjects were also asked about their behaviors in seeking relief from menstrual pain, including (1) have you had an examination with a gynecologist in the last two years (yes/no)? (2) have you used hot compresses bags, such as hot water bottles, to alleviate menstrual discomfort within the last six months (none/occasionally/every time)? (3) have you taken analgesics to relieve menstrual discomfort within the last 6 months (none/occasionally/every time)? When a respondent indicated using hot compresses bags or analgesics to relieve menstrual discomfort every time, she was categorized as a regular user in this study and considered to exhibit a specific seeking behavior. Prior to the main study, a pilot test with 30 participants was conducted. The questionnaire was administered twice, two weeks apart, to assess test-retest reliability. Internal consistency was also examined for the premenstrual symptom items. Cronbach's alpha was 0.89 for physical symptoms and 0.84 for psychological symptoms, indicating good reliability.

Statistical analysis

This study aimed to explore the relationship between self-reported premenstrual symptoms and

menstrual pain and the behavior in seeking relief among female employees. Descriptive characteristics of the subjects were presented as percentages. We employed chi-square analysis to assess potential correlations between demographic and personal lifestyle factors, work characteristics, menstrual pain and interference, and the three behaviors for seeking relief from menstrual pain: having a gynecological examination, using a hot compress bag, and taking analgesics. A chi-square test was used to investigate the relationship between self-reported physical and mental premenstrual symptoms and three relief behaviors. Statistical significance was determined with a significance level (alpha) set at 0.05.To examine whether the impact of menstrual pain on work, menstrual pain scores, and the duration of menstrual pain affecting daily life and activities were independently associated with three relief behaviors used to alleviate menstrual pain, we calculated estimated odds ratios (ORs) and 95% confidence intervals through multivariate logistic regression analysis.

The dependent variables included the three relief-seeking behaviors for menstrual pain (gynecological examination, use of a menstrual hot compress bag, and taking analgesics), while the independent variables were menstrual pain at work, menstrual pain scores, and the number of days menstrual pain disrupted daily life and activities. Each regression was adjusted for factors such as age, shift work, clean room worksite, and exercise habits. The goodness of fit for the logistic regression models was evaluated using the Hosmer-Lemeshow test, and the results indicated a good fit for the models ($P > 0.05$). Statistical analysis was conducted using Statistical Analysis System software

Results

Out of 7,193 participants, 49.3% (3543) had a gynecologist check-up in the last two years. Additionally, 192 (2.6%) subjects used hot compress bags every time to relieve menstrual discomfort within the last six months, and 419 (5.8%) subjects reported taking analgesics during menstruation within the same period (Table 1).

Table 2 presents the characteristics of the study participants regarding their relief-seeking behaviors for menstrual discomfort.

Table 1: The behavior in seeking relief from menstrual discomfort among study subjects

Variable	N (%)
Have you had an examination with a gynecologist in the last two years?	
Yes	3543 (49.3)
No	3650 (50.7)
Have you used hot compresses, such as hot water bottles, to alleviate menstrual discomfort within the last six months?	
None	5508 (76.6%)
Occasionally	1493 (20.8)
Every time	192 (2.6)
Have you taken analgesics to relieve menstrual discomfort within the last six months?	
None	5241 (72.9)
Occasionally	1533 (21.3)
Every time	419 (5.8)

Among the subjects, three behaviors for seeking relief from menstrual discomfort, including having a gynecological examination, using a menstrual hot compress bag, and taking analgesics, were significantly associated with age ($p < 0.0001$). Subjects with shift work were less likely to report having a gynecological examination (64.9% vs. 74.4%, $p < 0.0001$). However, subjects with shift work were more likely to take analgesics during menstruation (78.8% vs. 68.7%, $p < 0.0001$). Similar results were observed in subjects working in the clean room (gynecological examination: 56.8% vs. 63.5%, $p < 0.0001$; taking analgesics during menstruation: 68.9% vs. 59.6%, $p < 0.0001$). There was no significant association between exercise habits and seeking relief from menstrual discomfort. Subjects reporting a moderate or significant impact of menstrual pain on work were significantly associated with using a hot compress bag ($p < 0.0001$) and taking analgesics ($p < 0.0001$) during every menstruation. Furthermore, subjects with menstrual pain scores above 80, as assessed by a visual analogue scale, were more likely to have had a gynecological examination (5.4% vs. 4.0%, $p = 0.0098$), use a hot compress bag (33.9% vs. 3.9%, $p < 0.0001$), and take analgesics (40.3% vs. 2.5%, $p < 0.0001$). Similar results were observed in subjects reporting that menstruation interfered with their normal life activities for 3 or more days (three relief-seeking behaviors for menstrual discomfort, $p < 0.0001$).

Table 2: The characteristics of the study participants regarding their behavior in seeking relief from menstrual discomfort (n=7193)

Variables		Total (%)	Having a gynecological exam in the past two years (%) Yes (N= 3543)	No (N=3650)	P-value	Using a hot compress bag during menstruation* (%) Yes (N=192)	No (N=7001)	P-value	Taking analgesics during menstruation* (%) Yes (N=419)	No (N=6774)	P-value
Age group, years	≤30	2051 (28.5)	724 (20.4)	1327 (36.4)	<0.0001	86 (44.8)	1965 (28.1)	<0.0001	171 (40.8)	1880 (27.8)	<0.0001
	31-40	4500 (62.5)	2454 (69.3)	2046 (56.0)		99 (51.6)	4401 (62.9)		229 (54.7)	4271(63.0)	
	41+	642 (9.0)	365 (10.3)	277 (7.6)		7 (3.6)	635 (9.0)		19 (4.5)	623 (9.2)	
Shift work	Yes	4981 (69.3)	2267 (64.0)	2714 (74.4)	<0.0001	125 (65.1)	4856 (69.4)	0.2072	330 (78.8)	4651 (68.7)	<0.0001
Worksite	Clean room	4329 (60.2)	2012 (56.8)	2317 (63.5)	<0.0001	106 (55.2)	4223 (60.3)	0.1534	289 (68.9)	4040 (59.6)	0.0002
	Office	2864 (39.8)	1531 (43.2)	1333 (36.5)		86 (44.8)	2778 (39.7)		130 (31.1)	2734 (40.4)	
Exercise habit	Yes	1524 (21.2)	770 (21.3)	754 (21.1)	0.8474	39 (20.3)	1485 (21.2)	0.7637	76 (18.1)	1448 (21.4)	0.1155
Moderate or great impact of menstrual pain on work	Yes	1336 (18.6)	675 (19.1)	661 (18.1)	0.3044	144 (75.0)	1192 (17.0)	<0.0001	341 (81.4)	995 (14.7)	<0.0001
Menstrual pain scores (0-100 score)	High: 80-100	337 (4.7)	190 (5.4)	147 (4.0)	0.0098[a]	65 (33.9)	272 (3.9)	<0.0001[a]	169 (40.3)	168 (2.5)	<0.0001[a]
	Median: 50-79	2765 (38.4)	1323 (37.3)	1442 (39.5)		107 (55.7)	2658 (37.9)		210 (50.1)	2555(37.7)	
	Low: <50	4091 (56.8)	2030 (57.3)	2061 (56.5)		20 (10.4)	4071 (58.1)		40 (9.6)	4051 (59.8)	
During the past 1 month, how many days did menstrual pain interfere with your normal life and activity?	0 days	5836 (81.1)	2822 (79.7)	3014 (82.6)	<0.0001[a]	76 (39.6)	5760 (82.3)	<0.0001[a]	2822 (79.7)	3014 (82.6)	<0.0001[a]
	1-2 days	1217 (16.9)	626 (17.7)	591 (16.2)		96 (50.0)	1121 (10.0)		626 (17.7)	591 (16.2)	
	3 or more days	140 (2.0)	95 (2.6)	45 (1.2)		20 (10.4)	120 (1.7)		95 (2.6)	45 (1.2)	

a. Fisher's exact test

* When a respondent indicated using hot compress bags or analgesics to relieve menstrual discomfort every time, she was categorized as a regular user in this study and considered to exhibit a specific seeking behavior (Yes). While a respondent indicated using hot compress bags or analgesics to relieve menstrual discomfort none or occasionally, she was categorized as not a regular user in this study and considered to not exhibit a specific seeking behavior (No).

Table 3: Self-reported moderate or severe premenstrual symptoms and the behavior of seeking relief from menstrual discomfort

Self-reported moderate or severe premenstrual symptoms	Total %	Having a gynecological examination in the past two years		P-value	Using a hot compress bag during menstruation		P-value	Taking analgesics during menstruation		P-value
		Yes (%)	No (%)		Yes (%)	No (%)		Yes (%)	No (%)	
Physical symptoms										
Muscle stiffness	5.0	5.6	4.4	0.0142	14.6	4.7	<0.0001	16.2	4.3	<0.0001
Faintness	1.1	1.3	0.7	0.0094 [a]	3.7	0.9	0.0002 [a]	5.7	0.7	<0.0001 [a]
Abdominal swelling	17.4	19.4	15.7	<0.0001	55.7	16.5	<0.0001	53.7	15.3	<0.0001
Dizziness, fuzzy version	6.0	6.8	5.3	0.0052	25.0	5.5	<0.0001	21.2	5.1	<0.0001
Breast tensions	9.7	10.6	8.8	0.0102	28.1	9.1	<0.0001	23.9	8.8	<0.0001
Easy to fatigue	24.0	25.9	22.2	0.0003	60.4	23.0	<0.0001	52.0	22.3	<0.0001
Abdominal cramps	12.4	13.4	11.5	0.0132	53.7	11.3	<0.0001	55.4	9.7	<0.0001
Leg swelling	8.2	9.2	7.2	0.0027	26.0	7.7	<0.0001	19.1	7.5	<0.0001
Backache	21.2	22.9	19.5	0.0004	52.0	20.3	<0.0001	44.6	19.7	<0.0001
Somatic discomforts	9.9	11.2	8.7	0.0003	30.7	9.3	<0.0001	27.5	8.8	<0.0001
Headache	13.9	15.7	12.1	<0.0001	34.9	13.3	<0.0001	40.3	12.2	<0.0001
Palpitation	3.0	3.7	2.3	0.0004	14.1	2.7	<0.0001	11.0	2.5	<0.0001
Skin allergies, itch	8.6	8.2	8.8	0.3568	18.2	8.3	<0.0001	19.8	7.9	<0.0001
Cold sweats	3.5	3.9	2.9	0.0295	22.4	2.9	<0.0001	19.6	2.5	<0.0001
Nausea, vomiting	3.2	3.6	2.8	0.0556	16.7	2.8	<0.0001	19.8	2.1	<0.0001
Hot flashes	2.0	2.2	1.7	0.1698	6.8	1.8	<0.0001	9.3	1.5	<0.0001
Diarrhea	7.8	8.4	7.2	0.0622	21.9	7.4	<0.0001	23.2	6.8	<0.0001
Constipation	6.0	6.4	5.5	0.0863	13.0	5.7	<0.0001	12.9	5.5	<0.0001
Weight gain	6.6	7.3	5.9	0.0223	14.1	6.4	<0.0001	16.2	6.0	<0.0001
Psychologic symptoms										
Irritability	12.2	13.6	10.9	0.0005	28.1	11.8	<0.0001	28.6	11.2	<0.0001
Feeling depressed	7.2	8.2	6.3	0.0017	20.3	6.9	<0.0001	21.5	6.3	<0.0001
Crying	1.6	1.9	1.2	0.0145	5.2	1.5	<0.0001 [a]	6.9	1.2	<0.0001
Tension	3.6	4.4	2.8	0.0001	10.9	3.4	<0.0001	11.0	3.1	<0.0001
Emotional lability	8.5	9.5	7.5	0.0035	24.0	8.1	<0.0001	21.5	7.7	<0.0001

[a]Fisher's exact test

Table 4: The relationship between menstrual pain's impact on work, menstrual pain scores, the duration of menstrual pain affecting daily life, and three behaviors used to alleviate menstrual discomfort

Variables	Having a gynecological examination in the past two years (Yes) [a]	Using a hot compress bag during menstruation (Yes) [a]	Taking analgesics during menstruation (Yes) [a]
	Adjusted OR (95%CI)	Adjusted OR (95%CI)	Adjusted OR (95%CI)
Impact of menstrual pain on work (Moderate or great)	1.17 (0.99-1.35)	6.95 (4.77-10.36)	13.22 (9.90-17.91)
Menstrual pain scores (>50 scores vs <50 scores)	1.04 (0.93-1.16)	3.98 (2.36-6.96)	3.67 (2.10-4.56)
Number of days menstrual pain interfered with normal life and activity during past month (3 or more days)	2.31 (1.61-3.36)	2.50 (1.44-4.16)	2.16 (1.39-3.31)

Adjusted for age, shift work, worksite, and exercise factors

Table 3 shows self-reported moderate or severe premenstrual symptoms and the relief-seeking behaviors for menstrual discomfort. All self-reported physical and mental moderate or severe premenstrual symptoms were associated with having had a gynecological examination in the past two years, except for skin allergies ($p = 0.3568$), nausea ($p = 0.0556$), hot flashes ($p = 0.1698$), diarrhea ($p = 0.0622$), and constipation ($p = 0.0863$). All physical and mental premenstrual symptoms that were moderate or severe were found to be associated with using a hot compress bag and taking analgesics ($p < 0.0001$ for all premenstrual symptoms).

Table 4 presents the associations between the impact of menstrual pain on work, menstrual pain scores, and the duration of menstrual pain affecting daily life and activities with three relief behaviors used to alleviate menstrual pain. Multivariate logistic regression was performed, adjusting for age, shift work, worksite, and exercise.

Women experiencing menstrual pain that affects their work are more inclined to utilize hot compress bags (OR=6.95, 95% CI=4.77-10.36) and analgesics (OR=13.22, 95% CI=9.90-17.91) for relief. Similarly, women with higher menstrual pain scores are more likely to use hot compress bags (OR=3.98, 95% CI=2.36-6.96) and analgesics (OR=3.67, 95% CI=2.10-4.56) for relief. Additionally, women facing menstrual disruption in their daily activities for three or more days are more inclined to have recently undergone a gynecological examination (OR=2.31, 95% CI=1.61-3.36) and to use hot compress bags (OR=2.50, 95% CI=1.44-4.16) and analgesics (OR=2.16, 95% CI=1.39-3.31) for relief.

Discussion

Employment is rewarding but comes with challenges, as employed women must maintain efficiency while managing multiple responsibilities beyond their jobs. This makes it difficult for them to prioritize their health, potentially leading to the neglect of healthcare needs, such as regular medical check-ups[35,36]. Our study, involving female employees in a large electronics manufacturing company (average age 33.4 years), explored premenstrual symptoms, menstrual pain, coping methods, and their relation to seeking relief behaviors. Notably, only 21.2% had a regular exercise routine, and 49.3% had recent gynecological exams, suggesting lower awareness of healthy habits. Participants included two major groups of workers: office staff and clean room workers. Significant differences in relief-seeking behaviors were observed between them. Shift work and cleanroom roles were associated with lower gynecological exam rates ($p<0.0001$) and higher analgesic use ($p<0.0001$). Women with significant menstrual pain at work or higher pain scores preferred hot compress bags and analgesics. Shift workers often experience dysmenorrhea more frequently and face challenges related to poor sleep quality, physical burden, and time limitations[37-39]. Similarly, women working in cleanrooms may

endure prolonged standing or specific postures[40], exacerbating menstrual symptoms. Among our participants, 69.2% were on rotating work schedules and 60.2% worked in a clean room environment. The working conditions do not support menstrual health. Our shift-working or cleanroom-employed women often prefer fast methods, like taking analgesics, to manage menstrual discomfort. Those with moderate to severe menstrual pain impacting work are more likely to use hot compress bags and analgesics for relief. This finding is consistent with previous studies that show that women often self-medicate with analgesics or heating pads to manage menstrual discomfort, rather than seeking medical assistance[28-30].

A study in Lebanon found that only 36.9% of females suffering from primary dysmenorrhea sought formal medical advice, despite describing their menstrual pain as moderate to severe, significantly affecting their daily activities and studying abilities[25]. Dysmenorrhea is often inadequately treated and even disregarded since many young females suffer silently without seeking medical advice, females find dysmenorrhea embarrassing and taboo, and they perceive it as an inevitable response to menstruation where its pain should be tolerated[32,41]. Our study suggests that employed women with menstrual discomfort should seek medical advice and treatment to improve their quality of life, despite work demands and time constraints.

Our findings indicate that women whose menstruation interfered with daily activities for three or more days were more likely to report having undergone a gynecological examination in the past two years. Additionally, using menstrual hot compress bags and analgesics is more likely to occur as a means of relieving menstrual discomfort. It should be noted that most moderate or severe premenstrual symptoms, both physical and mental, were associated with seeking gynecological check-ups, using menstrual hot compress bags, and taking analgesics. Previous studies have shown that the intensity of pain is positively correlated with gynecological pathologies[23]. In our study, we found that the most common premenstrual symptoms in order of prevalence were "easy fatigue" (24%), "backache" (21.2%), "abdominal bloating" (17.4%), "headache" (13.9%), "abdominal cramps" (12.4%), and "irritability" (12.2%). Moderate or severe premenstrual symptoms can cause significant distress and impair day-to-day functioning[8,9]. Increased prostaglandin levels can trigger heightened myometrial contractions, potentially leading to uterine ischemia and the sensitization of pain receptors, ultimately causing discomfort[25,42,43]. The diagnosis of menstrual pain typically includes a medical history review and physical examination to exclude other pelvic conditions, based on the patient's reported symptoms[42,43]. The goal of treatment can involve nonsteroidal anti-inflammatory drugs, hormonal contraceptives, and non-pharmacological aids such as topical heat application and exercise[43]. Women with dysmenorrhea have lower physical activity and mood status, sleep quality, and quality of life during menstruation[10-16]. Seeking healthcare can reduce delays in diagnosing and treating underlying conditions that cause premenstrual symptoms, such as endometriosis, uterine fibroids, or pelvic inflammatory diseases, making it a beneficial action for women. Although complementary aids such as menstrual hot compress bags or analgesics may work to relieve menstrual discomfort, our study suggests that employed women should be aware that temporary relief may delay or worsen the condition and increase their risk for future chronic pain conditions, may creating a vicious cycle. Environmental health nurses and employers can develop adequate interventions to educate and increase their health awareness to alleviate and improve quality of life. Our most findings align with prior research[25,28-30,44,45], underscoring that despite dysmenorrhea being a prevalent and sometimes incapacitating condition among women of reproductive age, few proactively seek professional healthcare to address their symptoms. One identified some reasons for this trend: the perception that symptoms are intrinsic to the condition, a preference for self-management, limitations due to resources, skepticism regarding the efficacy of healthcare providers, a lack of awareness about available treatment options, a belief that symptoms are tolerable, reservations about existing treatments, embarrassment or fear related to seeking care, and a general tendency to avoid healthcare[44]. Study in Japan found that women avoid seeking healthcare for dysmenorrhea due to reluctance to undergo gynecological exams[19]. A study conducted in the UK revealed that there is a low level of disclosure of premenstrual symptoms and sickness absence due to premenstrual

symptoms. This is typically because people perceive it as inappropriate to take time off work for such reasons, gender of line managers who are usually male, and the topic being personal or embarrassing[45]. Premenstrual symptoms and menstrual pain are common issues among females, but they are often overlooked in the workplace. To address this challenge, future studies should focus on understanding healthcare-seeking behaviors among employed women, including assessing the effectiveness of proactive and health-oriented approaches to menstrual health. Workplaces can develop interventions that educate employed women about their menstrual health and provide support to help them manage any discomfort they may experience.

In this study, we used a 0–100 visual analog scale (VAS) to assess menstrual pain. To ensure participant understanding, trained occupational health nurses provided both written and verbal instructions during routine health check-ups, clearly explaining that "0" indicated no pain and "100" represented the worst pain imaginable. A visual horizontal scale was also included in the questionnaire. However, we recognize that the 0–100 range may have been too broad for some participants, potentially making it difficult to distinguish between certain values (e.g., 35 vs. 55). This limitation may have contributed to the clustering of scores in the lower range—56.8% of participants (as shown in Table 1) reported pain scores below 50—suggesting possible central tendency bias or limited scale discrimination. Previous research from Spain[46] comparing the VAS and the numeric rating scale (NRS) found both tools to be valid and highly correlated, but the NRS (0–10) was easier to use, especially in large-scale surveys. Similarly, a systematic review by Özcan et al.[47] reported that although the VAS is reliable for clinical use, it presents more practical challenges than the verbal or numeric rating scales. The NRS (0–10), in contrast, has good sensitivity and produces data that are easier to analyze statistically. Based on these findings, we suggest that future studies consider using the 0–10 NRS as a more practical alternative for assessing menstrual pain in large population-based research.

Our study has limitations. Firstly, dichotomizing independent factors may oversimplify analysis. Secondly, reliance on self-reported data introduces social acceptability bias. Thirdly, this study developed a questionnaire addressing demographics, lifestyle, menstrual characteristics, and self-reported premenstrual symptoms within the past six months. However, the absence of standardized instruments might have resulted in misclassification of data, potentially impacting the questionnaire's validity, reliability, and comparability to studies utilizing such tools. Moreover, the data collection exclusively targeted menstrual history, pain scores, and self-reported premenstrual symptoms, overlooking crucial details such as gynecological diagnoses, parity, pregnancy, health behaviors, and psychological well-being. We recommend that future studies aim for comprehensive data collection to achieve a more thorough understanding of the subject matter. Finally, pain rating scales, such as the Visual Analog Scale (VAS), are inherently subjective and can be influenced by various factors, including individual pain perception, pain type, cultural background, psychological state, and previous pain experiences. While this subjectivity is a well-recognized limitation in pain research, these scales remain widely accepted and commonly used in both clinical practice and population-based studies. They enable individuals to quantify their personal experience of pain in a standardized way. We recommend that future research consider supplementing self-reported pain scales with other measures, such as behavioral indicators, physiological data, or qualitative interviews, to more effectively capture the multidimensional nature of pain. Despite these limitations, our findings demonstrate that women with significant menstrual pain, higher pain scores, and notable premenstrual symptoms tend to seek relief. This insight aids nurses in understanding relief-seeking patterns, enabling timely interventions to enhance the quality of life for employed women experiencing menstrual discomfort.

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