Research article
ISSN (Print): 0971-913X
ISSN (Online): 2455-1244
J Endocrinol Reprod. *Vol 29(1), 23-30, March 2025, DOI: 10.18311/jer/2025/48237*

Impact of Menstrual Symptoms on Work Productivity in Clinical Physiotherapists: A Correlational Study

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Abstract

Background: Menstruation is a natural physiological process experienced by women of reproductive age and is often accompanied by symptoms such as dysmenorrhea, fatigue, mood disturbances, and musculoskeletal discomfort. These symptoms can significantly impact daily activities, including occupational performance. Clinical physiotherapists, who engage in physically demanding tasks such as patient handling, prolonged standing, and repetitive movements, may experience a decline in work efficiency due to menstrual symptoms. Understanding this relationship is crucial to developing supportive workplace policies and interventions that can enhance productivity and well-being. This study aimed to assess the extent to which menstrual symptoms affect the work productivity of clinical physiotherapists, identifying key symptoms that contribute to reduced efficiency and exploring potential strategies for workplace accommodations. **Methods:** This study included 100 clinical physiotherapists aged 25–36 years. The Menstrual Symptom Questionnaire (MSQ) assessed symptom severity, and the iMTA Productivity Cost Questionnaire (iPCQ) measured work productivity. **Results:** Participants reported a wide range of menstrual symptoms; however, no statistically significant correlation was found between symptom severity and work productivity. **Conclusion:** Menstrual symptoms were not significantly associated with work productivity among clinical physiotherapists.

Keywords: Clinical Physiotherapists, Dysmenorrhea, Menstrual Symptoms, Occupational Health, Work Productivity

1. Introduction

The menstrual cycle is a natural, recurring physiological process that prepares the female reproductive system for potential conception. It involves cyclical changes regulated by hormones produced by the hypothalamus, pituitary gland, and ovaries. There are variations in the duration of the menstrual cycle, with a typical length of 28 days, comprising four phases: menstruation, follicular phase, ovulation, and luteal phase[1,2].

Menstrual symptoms are a common experience among women of reproductive age, with approximately 75–85% reporting at least one symptom during the menstrual cycle, such as cramps, fatigue, mood swings, and headaches[3]. These symptoms, encompassing a wide spectrum of physical and emotional manifestations, are a significant concern for many women. Dysmenorrhea, premenstrual syndrome (PMS), and other menstrual irregularities can lead to pain, fatigue, irritability, and diminished concentration, all of which have the potential to impair work productivity and productivity[4,5]. For clinical physiotherapists, whose profession involves high physical and cognitive demands, the correlation between menstrual symptoms and work productivity is particularly relevant[6]. Despite the prevalence of menstrual symptoms, limited attention has been directed toward their impact on healthcare professionals, including physiotherapists.

Clinical physiotherapists often engage in activities such as patient handling, manual therapy, prolonged

*Author for correspondence
Article Received: 20.01.2025 Revised on: 19.01.2026 Accepted on: 19.01.2026

standing, and decision-making, which require optimal physical and mental well-being[7]. Menstrual symptoms such as cramps, fatigue, and mood disturbances may pose challenges in fulfilling these professional roles, potentially compromising patient care and the therapist's well-being. Studies indicate that dysmenorrhea affects nearly 70% of menstruating women, with significant disruption reported in work productivity[8].

Menstrual discomfort has been shown to contribute significantly to job absenteeism, being associated with more than a threefold increase in missed work. Additional factors such as the availability of emotional support (e.g., being able to talk to someone) and workplace flexibility (e.g., being allowed to stay at home when menstruating) may help women better manage their discomfort or symptoms during this period[9]. These influences extend beyond personal coping strategies to include professional responsibilities, such as interactions with patients, the physical demands of the job, and overall job satisfaction. Furthermore, the stigma and normalization of menstrual discomfort may deter physiotherapists from seeking support or accommodations in their workplace[10,11]. This cultural silence around menstruation further complicates the assessment of its impact on work productivity.

The Menstrual Symptom Questionnaire (MSQ) is a validated tool used to assess the frequency and severity of menstrual-related symptoms, including physical, psychological, and behavioral changes. It is widely used in research and clinical practice to evaluate menstrual health and its impact on daily activities[12]. The iMTA Productivity Cost Questionnaire (iPCQ), developed by the Institute for Medical Technology Assessment, is a standardised tool designed to measure productivity losses due to health-related work limitations. It quantifies absenteeism, presenteeism, and unpaid productivity losses, thereby helping to assess the economic burden of health conditions[13].

Understanding the relationship between menstrual symptoms and the professional functionality of physiotherapists is crucial for fostering supportive workplace environments and improving occupational health. This study aims to bridge the gap in existing literature by assessing the severity of menstrual symptoms among clinical physiotherapists and correlating these symptoms with work productivity metrics.

2. Objectives

1. To assess the severity and impact of menstrual symptoms on the work productivity of clinical physiotherapists.
2. To analyze the correlation between menstrual symptoms and work productivity.

3. Materials and Methods

3.1 Procedure

A total of 100 clinical physiotherapists aged 25-41 years from hospitals, clinics, and fitness centers in South Bangalore were recruited through convenience sampling. Ethical clearance was obtained from the Institutional Ethics Committee of the College of Physiotherapy, Dayananda Sagar University, Bengaluru, in accordance with the Ethical Guidelines for Biomedical Research on Human Subjects[14] and the updated National Ethical Guidelines for Biomedical and Health Research Involving Human Participants[15]. In addition, the study was registered with the Clinical Trials Registry of India (CTRI) under the number CTRI/2023/06/054462.

The questionnaire was distributed in printed form to physiotherapists working in different hospitals/clinics. Participants were recruited using convenience sampling across multiple institutions and those who provided consent. Baseline data such as age, years of experience, hours of work, menstrual history, and associated symptoms (including headache, cramps, constipation, mood swings, body aches, back pain, hot flashes, chills, diarrhoea, and others) were recorded.

Participants meeting the inclusion criteria (female clinical physiotherapists aged 25-41 years, with at least two years of clinical experience and a minimum of five working hours per day, who reported symptomatic menstrual cycles) were included in the study. Exclusion criteria comprised diagnosed menstrual disorders such as PCOS and other coexisting medical conditions interfering with the menstrual cycle (such

as endometriosis or fibroids); a history of gynecological surgeries like hysterectomy; and unwillingness to participate.

All eligible participants were provided with detailed information regarding the purpose and procedure of the study, and written informed consent was obtained. They were then administered two standardised tools: the Menstrual Symptom Questionnaire (MSQ) to assess the severity of menstrual symptoms and the Institute for Medical Technology Assessment Productivity Cost Questionnaire (iPCQ) to assess work-related productivity losses.

3.2 Outcome Measures

3.2.1. Menstrual Symptom Questionnaire (MSQ)

The Menstrual Symptom Questionnaire (MSQ) is a validated, self-reported tool designed to assess the nature, frequency, and severity of menstrual-related symptoms. It covers physical, psychological, and behavioral symptoms that women commonly experience during menstruation. The tool uses a Likert scale, where participants indicate the intensity or frequency of symptoms, with higher scores reflecting greater severity. This structured scoring system enables researchers to quantify menstrual symptom burden and its potential effects on daily activities and professional responsibilities.

3.2.2 iMTA Productivity Cost Questionnaire (iPCQ)

This metric captures productivity losses related to health issues, including absenteeism, presenteeism, and unpaid work. The Institute for Medical Technology Assessment Productivity Cost Questionnaire (iPCQ) is a standardised instrument developed to capture productivity losses due to health-related issues. It measures productivity by capturing absenteeism and presenteeism. Scoring involves calculating productivity costs based on missed work hours and reduced efficiency reported by participants. The iPCQ has been widely applied in health economics and occupational health research, making it a suitable tool to assess the impact of menstrual symptoms on the work productivity of clinical physiotherapists.

3.3 Statistical Analysis

Statistical analysis was performed using SPSS software (SPSS Inc., Chicago, IL, USA), version 26.0.

Sample Size Calculation:

The sample size was calculated to detect a minimum correlation coefficient of $r = 0.28$ between the Menstrual Symptom Questionnaire (MSQ) and the iMTA Productivity Cost Questionnaire (iPCQ), with 80% power and a two-sided α of 0.05, using Fisher's z transformation. The estimated sample size was 98 participants; therefore, a total of 100 participants were included to ensure adequate power.

Categorical variables were expressed as frequency and percentage. Continuous variables were summarized using mean and standard deviation. The association between menstrual symptom severity and work productivity was assessed using Spearman's rank correlation coefficient. A p-value of less than 0.05 was considered statistically significant.

4. Results

4.1 Participant Characteristics

A total of 100 clinical physiotherapists participated in the study. The mean age of participants was 27.7 ± 3.1 years, with a mean BMI of 23.0 ± 2.5 kg/m². On average, participants reported 7.5 ± 1.0 working hours per day and 3.4 ± 2.1 years of clinical experience (Table 1).

Table 1. Baseline characteristics of participants

Variable	Range	Mean ± SD
Age (Years)	24–41	27.7 ± 3.1
Height (m)	1.4–1.8	1.6 ± 0.1
Weight (kg)	45–70	59.5 ± 6.1
BMI (kg/m²)	16.5–29.8	23.0 ± 2.5
Work hours per day	6–10	7.5 ± 1.0
Work experience (Years)	2–12	3.4 ± 2.1

Table 2. Frequency and severity of menstrual symptoms (Grouped MSQ)

Symptom category	Never	Rarely	Sometimes	Often	Always
Psychological symptoms	21	96	87	28	68
Pain symptoms	40	141	248	237	234
Systemic symptoms	54	247	163	79	57
Breast symptoms	4	4	24	29	39
Coping strategies	18	47	101	58	76
Awareness	31	40	12	10	7

4.2 Menstrual Symptoms

Analysis of the Menstrual Symptom Questionnaire (MSQ) revealed a wide range of symptoms, including irritability, cramps, fatigue, abdominal discomfort, and mood changes. The most frequently reported symptoms were abdominal bloating (83%), back pain (73%), mood swings (72%), and cramps (60%). The distribution of menstrual symptoms is presented in Figure 1.

4.3 Cumulative Symptom Burden

The cumulative MSQ score ranged from 50 to 92, with a mean score of 77.4 ± 8.9, indicating a moderate to high symptom burden among participants (Table 3).

To further illustrate the combined burden of symptoms and productivity, Figure 2 compares the total MSQ and iPCQ scores.

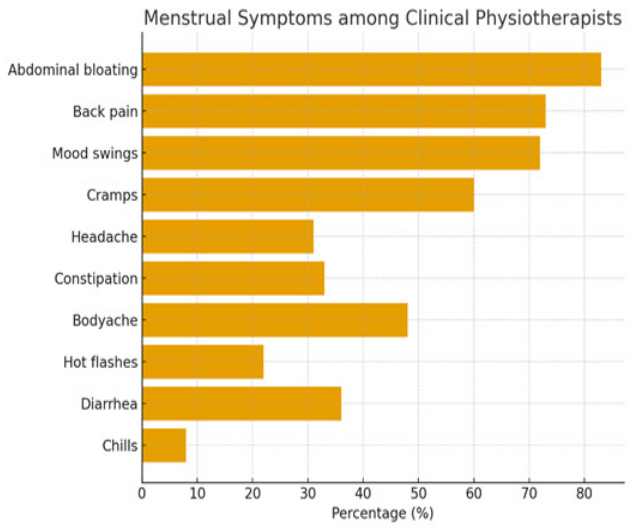


Figure 1. Percentage of menstrual symptoms among clinical physiotherapists.

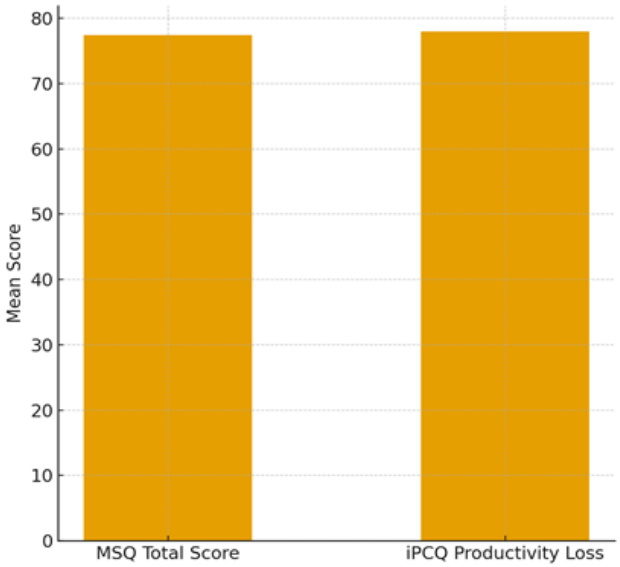


Figure 2. Total scores of menstrual symptoms (MSQ) and productivity loss (iPCQ).

Table 3. Cumulative scores of the Menstrual Symptom Questionnaire (MSQ)

Variable	Range	Mean ± SD
Menstrual Symptom Questionnaire (Total Score)	50–92	77.4 ± 8.9

4.4 Correlation Between Menstrual Symptoms and Work Productivity

Spearman's rank correlation analysis revealed no statistically significant association between total menstrual symptom scores and work productivity indicators. The correlation between MSQ scores and weekly working hours was weak and not significant ($\rho = -0.077$, $p = 0.447$). Similarly, no significant correlations were observed with the number of days with physical or psychological problems ($\rho = 0.167$, $p = 0.097$), work efficiency on affected days ($\rho = -0.056$, $p = 0.579$), number of affected days ($\rho = 0.154$, $p = 0.125$), or unpaid work support hours ($\rho = 0.051$, $p = 0.615$).

Table 4. Correlation between total MSQ scores and work productivity

Work productivity indicators	Spearman's rho	*p*-value
Hours of work in a week	-0.077	0.447
Number of days with physical/psychological problems	0.167	0.097
Work efficiency on affected days	-0.056	0.579
No. of affected days	0.154	0.125
Unpaid work support hours	0.051	0.615

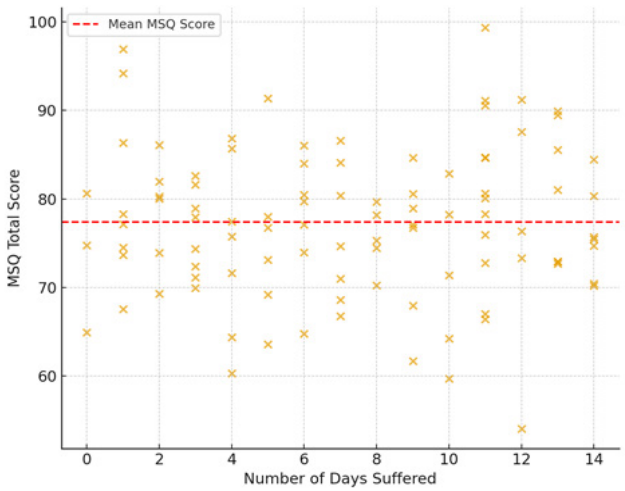


Figure 3. Relationship between the number of days suffered and MSQ total score.

These findings indicate that menstrual symptom severity was not significantly associated with work productivity among clinical physiotherapists (Table 4).

A scatter plot of the number of days with problems against total MSQ scores is shown in Figure 3.

5. Discussion

This study explored the association between menstrual symptoms and work productivity among clinical physiotherapists. Although participants reported a wide range of symptoms, including abdominal bloating, back pain, mood swings, and cramps, the analysis revealed no significant correlation between symptom severity and productivity losses as assessed by the iPCQ. Despite a moderate to high MSQ score (77.4 ± 8.9), occupational performance was not significantly impaired. One possible explanation for this finding is occupational resilience. Physiotherapists are trained in body mechanics, physical conditioning, and adaptive coping strategies, which may mitigate the functional limitations associated with menstrual discomfort. Comparable findings have been reported in healthcare settings, where professional resilience and occupational commitment buffered the impact of menstrual symptoms on productivity[16,17].

In contrast, evidence from general female populations demonstrates a stronger link between menstrual symptoms and reduced work efficiency. Among 3,555 working women, 44.2% reported moderate to severe dysmenorrhea, and these women were 50% more likely to report poorer work productivity and twice as likely to take

sick leave compared to women without such symptoms[18]. Armour *et al.* demonstrated that dysmenorrhea contributed substantially to global productivity losses[19]. Recent studies further highlight that severe premenstrual syndrome (PMS) significantly lowers work-related quality of life and presenteeism scores, particularly among nurses[20,21]. Similarly, Japanese workplace surveys have confirmed that symptom clusters such as pain, fatigue, and psychological distress are strongly associated with presenteeism[22].

The absence of a strong correlation in the present study may also reflect workplace adaptability. Physiotherapists often have professional autonomy, flexible scheduling, and supportive colleagues, which may help reduce the perceived burden of menstrual discomfort. Prior research has demonstrated that workplace support and flexibility play a critical role in minimising productivity losses during menstruation[23]. Conversely, inadequate organizational policies and menstrual stigma have been identified in large-scale surveys, including those by the Chartered Institute of Personnel and Development (CIPD), as significant contributors to presenteeism and adverse occupational outcomes in women[24].

Furthermore, symptom-specific burdens, particularly pain, have been shown to exert substantial consequences. Abdominal pain, headache, and heavy menstrual bleeding have been identified as significant factors reducing health-related quality of life[25]. Increased pain severity and menstrual flow have also been demonstrated to be associated with higher odds of presenteeism[26,27]. However, in this study, the exclusion of participants with clinically diagnosed dysmenorrhea and other menstrual disorders likely narrowed the range of symptom severity, thereby reducing observable correlations with work productivity.

Taken together, these findings suggest that while menstrual symptoms are highly prevalent among physiotherapists, their professional resilience, coping mechanisms, and supportive work environment may buffer productivity losses. However, the exclusion of individuals with diagnosed menstrual disorders and reliance on self-report measures may have limited the observed associations. Future research should consider broader occupational groups, longitudinal designs, and policy-level interventions to better understand how menstrual health intersects with workplace productivity.

This study has several limitations.

- Sample characteristics – Women with clinically diagnosed dysmenorrhea or other menstrual disorders were excluded, limiting generalizability. The non-availability of females with painful periods in the study group may have affected the correlations drawn.
- Self-reported data – Both MSQ and iPCQ relied on self-reports, which are subject to recall and reporting bias.
- Cross-sectional design – The study captures associations at a single point in time; causal relationships cannot be established.
- Regional sample – The study was limited to South Bangalore, which may not reflect the experiences of physiotherapists in other geographic or cultural contexts.

6. Conclusion

This study shows that although clinical physiotherapists commonly experience menstrual symptoms, these were not significantly associated with their work productivity. Occupational resilience, coping skills, and supportive work environments may help buffer productivity losses. The study adds novelty by focusing on physiotherapists, highlighting the need for further research in diverse healthcare groups and in those with diagnosed menstrual disorders.

7. Acknowledgment

The authors would like to thank the participants for their cooperation throughout the study.

8. Financial Support

None

9. References

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