Research Article

EFFECT OF STRESS ON MENSTRUAL CYCLE IN WORKING WOMEN IN JAIPUR - A CROSS-SECTIONAL STUDY

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Abstract

Background:

Psychological stress has been recognized as a potential disruptor of the menstrual cycle in working women. However, the extent and nature of this relationship remain unclear, especially when examining specific flow patterns and menstrual symptoms.

Objective:

To evaluate the association between perceived stress levels and menstrual health patterns—specifically, flooding episodes and daily flow characteristics—among working women in Jaipur.

Methods:

A cross-sectional study was conducted on 67 working women aged 20–35 years. The Perceived Stress Scale (PSS) was used to assess stress levels, while menstrual health was evaluated using the Pictorial Blood Assessment Chart (PBAC) and a menstrual history questionnaire. Participants were categorized into low, moderate, and high stress groups based on PSS scores. Chi-square tests were applied to determine associations between stress levels and menstrual variables such as flooding episodes and flow patterns across five days.

Results:

No statistically significant association was found between perceived stress levels and menstrual flow on any of the five days (p-values > 0.05), with Day 3 showing the closest trend (p = 0.160). Similarly, flooding episodes were not significantly correlated with stress levels (Chi-square = 13.78, p = 0.315). The overall distribution of stress levels across different menstrual flow patterns on Day 1 also lacked significance (Chi-square = 2.50, p = 0.961).

Conclusion:

The findings suggest no significant correlation between perceived stress and menstrual flow characteristics or flooding episodes. While stress is an important factor in overall health, its direct impact on menstrual flow patterns in this cohort appears minimal. Further research with larger samples and controlled variables is recommended to explore this relationship more comprehensively.

Keywords: Working women, Menstrual irregularities, Occupational stress, Women's health, Lifestyle factors, Psychological stress.

1. Introduction

Pharmaceutical chemicals, including antibiotics, are essential to contemporary treatment; nonetheless, their environmental persistence presents considerable ecological and health hazards. Norfloxacin, a commonly utilised fluoroquinolone

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Menstrual cycle irregularities may be linked to emotional strain [5-8] and exertion [5,10,11] at work. A normal menstrual pattern is a key determinant of women's general wellness as a female-specific well-being marker [16,17,18]. An important measure of overall health is a regular period, and inconsistent menstrual indicators have been linked to a greater likelihood of poor health [9]. There tends to be a relationship between the percentage of women who have menstruation problems and the type and intensity of stress, even though it is hard, if not impossible, to predict when stress would interfere with the regular cycle.[19,20,21]..

Similar vocational categories and labor patterns have been assessed in other studies [5, 10, 12-15] However, because of the inclusion of a diverse study group or the lack of information regarding job traits and wellness status, their findings regarding conditions at work were not consistent [5]. The purpose of the research was to determine whether ratings of stress and their impact on the cycle of menstruation were linked.

2. METHODOLOGY

This transverse study was performed on 67 working women in Jaipur. The population being investigated comprised one hundred working women between the ages of twenty and thirty-five. The study excluded women who were currently dealing with psychological, medical, or gynecological issues, such as amenorrhea or pregnancy.

After the women had filled out the authorization form, a questionnaire, the PSS (which is accessible for free on the internet), and the PBAC were given to the participants. They also received both extensive verbal and written explanation regarding the objective of the study along with consent to participate [19].

Perceived Stress Scale (PSS) was utilized to assess the stress levels of the participants.

The perceived stress scale is where

0 = Never, 1 = Almost Never, 2 = Sometimes, 3 = Fairly Often, 4 = Very Often

PSS scores are calculated by flipping answers to the four positively stated items (items 4, 5, 7, & 8) (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1, & 4 = 0), and then adding up all of the scale items.

The patients who scored <20 on PSS have low stress levels, while the patients who scored >20 on PSS have high-stress levels.

PSS Scoring system
- **Low stress:** 0-13
- **Moderate stress:** 14-26
- **High stress:** 27-40

A pictorial Blood Assessment Chart is used to assess the menstrual cycle.

PBAC scoring system
PADS
- Single lightly stained pad – 1 point
- Single moderately stained pad- 5 point
- Single completely saturated pad – 20 point

TAMPONS
- Each lightly stained tampon – 1 point
- Each moderately stained tampon – 5 point
- Each completely saturated tampon- 10 point

CLOTS/FLOODING
- For each small clot (Australian 5-cent coin)- 1 point
- For each large clot (Australian 50-cent coin) – 5 points
- For each episode of flooding – 5 points
-

The menstrual history questionnaire asked about the quality of periods in terms of regularity, length of cycles, amount of blood lost per cycle, occurrence of clot passage, missed periods, and pre-menstrual symptoms. A typical cycle was described as happening every 21–35 days, with a blood flow averaging between 30–80 ml and lasting 2–7 days. If there was a gap of more than 3 months between two cycles, it was classified as a missed cycle.

3. RESULTS

1. **Contingency Table-1** showing the distribution of stress responses across different menstrual flow patterns:

2. **Statistical Results**:
- Chi-Square
- Statistic: 2.500361803713527
- P-Value: 0.9617140720733529
- Degrees of Freedom: 8

4 INTERPRETATION:
- The high p-value (0.96) indicates no statistically significant correlation between menstrual flow patterns and stress levels
- The expected frequencies are relatively close to the observed frequencies, supporting the lack of correlation
- This suggests that the menstrual flow pattern on the first day is not significantly associated with reported stress levels

The Chi-Square test was successfully performed to evaluate the relationship between flooding episodes, menstrual flow patterns across days, and stress levels. The results and visualizations will help determine if there are significant correlations. Below are the outputs:

1. **Flooding Episodes vs Stress**:
Chi-Square Statistic:
13.777998866213151
P-Value:
0.31510903010601354
Contingency Table-2

2. **Table 1:** showing the distribution of stress responses across different menstrual flow patterns:

	Almost Never	Fairly often	Never	Sometimes	Very often
Completely saturated pad or tampon	3	6	2	12	6
Lightly stained pad or tampon	1	4	1	4	3
Moderately stained pad or tampon	4	6	3	9	3

Relationship between Menstrual Flow and Stress
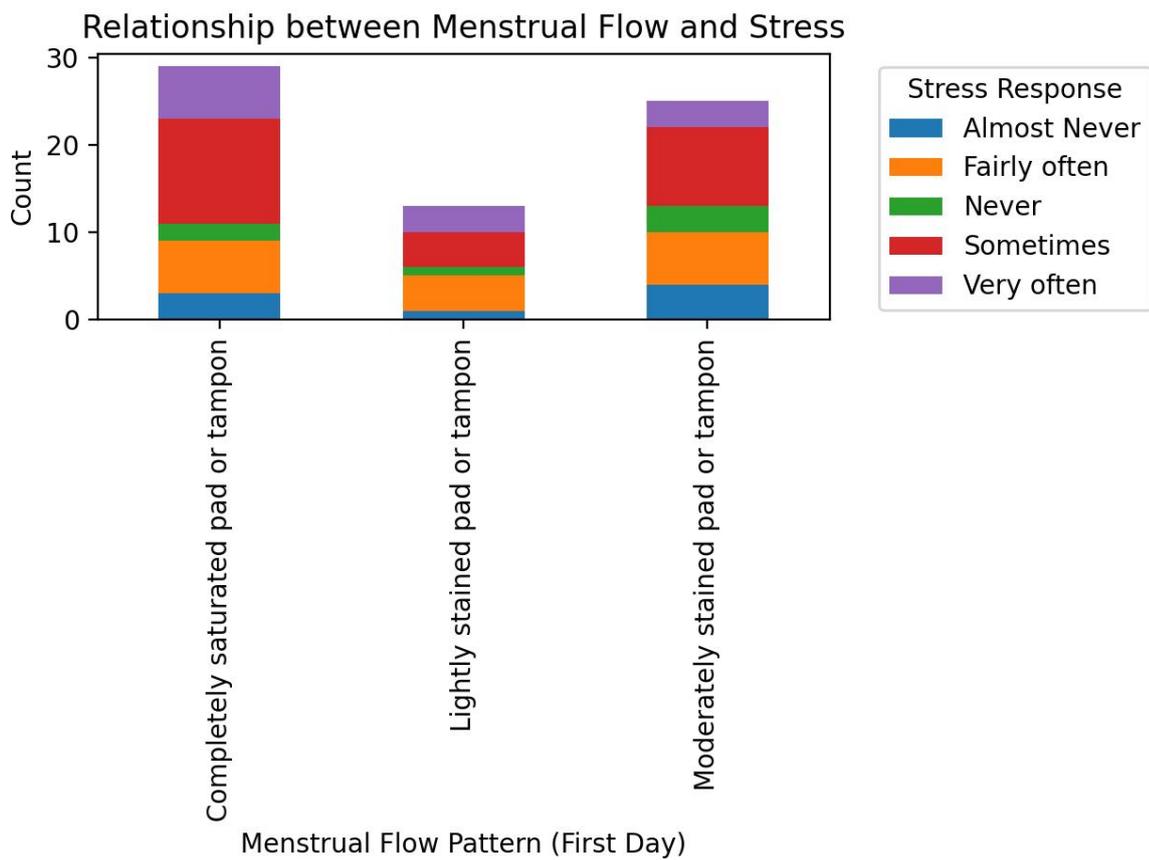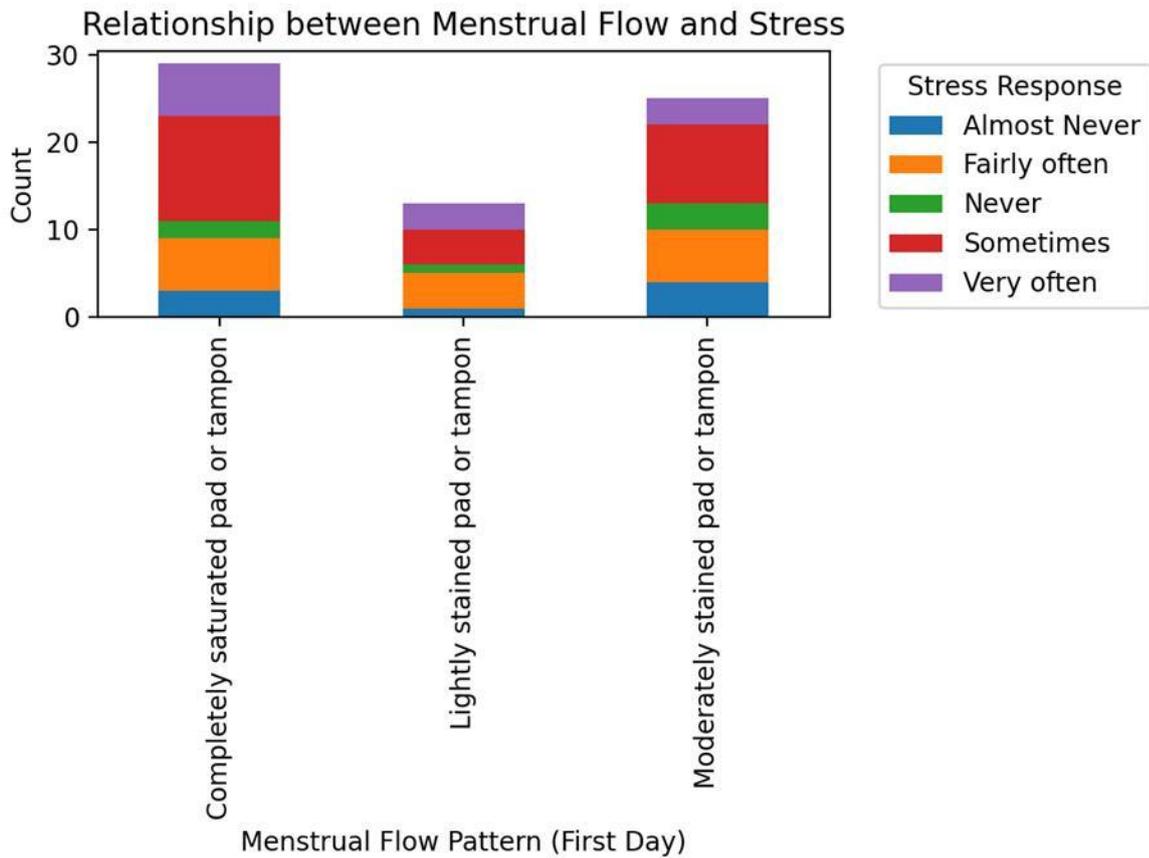
	Almost Never	Fairly often	Never	Sometimes	Very often
1-2 days	3	3	1	4	6
2-3 days	1	5	2	9	4
More than 3 days	1	5	3	9	0
No flooding	3	3	1	3	2

2. **Flow Patterns vs Stress Across Days**:

	Day	Chi-Square	P-Value	DoF
0	2	2.5003618037	0.9617140721	8
1	3	8.6907242063	0.3690539749	8
2	4	11.8065149137	0.1600477362	8
3	5	9.904008658	0.2718280267	8
4	6	8.6888001253	0.3692245902	8

3. **Visual representation**

Flooding episode vs stress
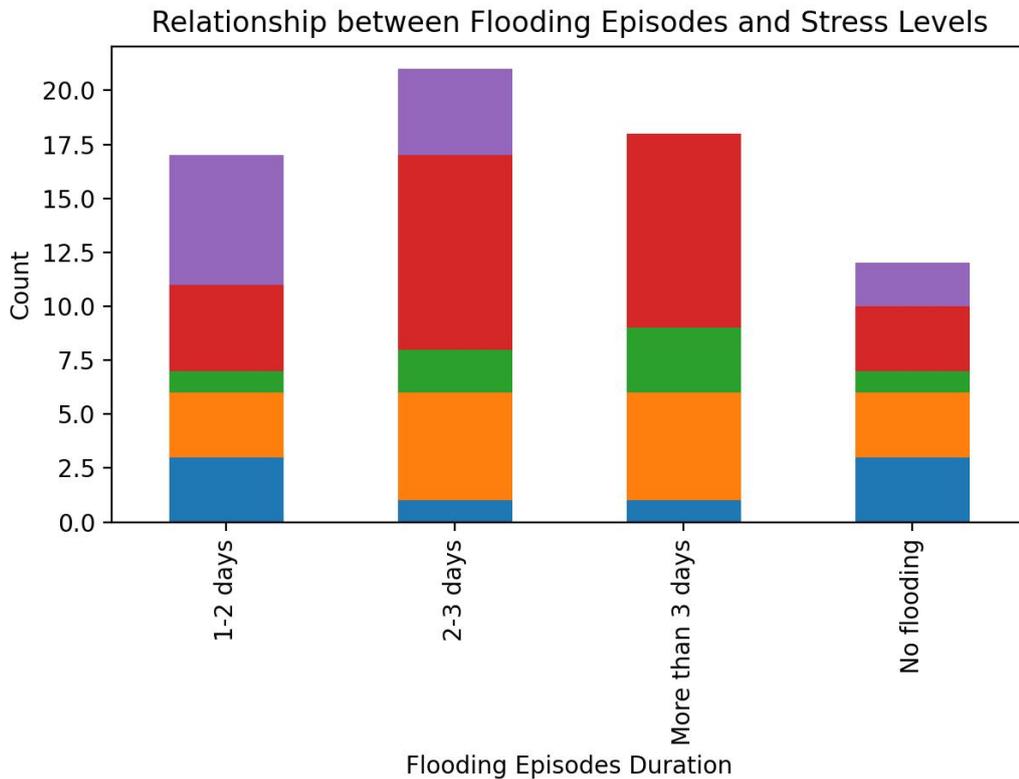
- Statistical Significance of Menstrual Flow vs Stress Across Days:
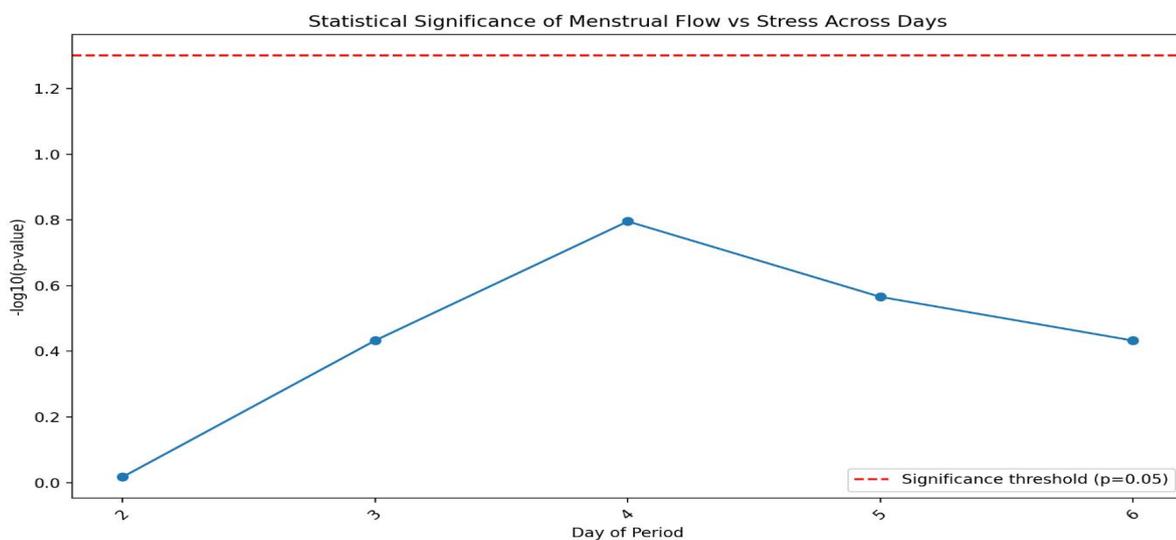
The p-values indicate no significant correlation between flooding episodes or flow patterns across days and stress levels.

Based on the statistical analysis performed using Chi-Square tests, here are the detailed results:

1. Flooding Episodes vs Stress Correlation:

- Chi-Square Statistic: 13.78

- P-Value: 0.315 (> 0.05)

- Result: No statistically significant correlation between flooding episodes and stress levels

- The contingency table shows the distribution across different stress levels and flooding durations

2. Menstrual Flow Patterns vs Stress Across Days:

Day-wise p-values:

- Day 2 (First day): p = 0.962

- Day 3 (Second day): p = 0.369

- Day 4 (Third day): p = 0.160

- Day 5 (Fourth day): p = 0.272

- Day 6 (Fifth day): p = 0.369

Key Findings:

- None of the days showed a statistically significant correlation (all p-values > 0.05)

- The third day showed the strongest trend (p = 0.160), though still not statistically significant

- The relationship was weakest on the first day (p = 0.962)

4. CONCLUSION:

This study was a modest attempt to evaluate the reproductive cycle issues faced by working females. Our civilization is engulfed in a disease load brought on by psychological stress, worry, and depression as a result of its rapid expansion and advancement. It can cause infertility, endometrial hyperplasia, and other problems in addition to lowering quality of life. There may be a preventive benefit to early identification and improvement of the contributing factors.

The statistical analysis reveals that there is no significant correlation between:

- Menstrual flooding episodes and stress levels

- Daily menstrual flow patterns and stress levels

- The null hypothesis of independence cannot be rejected in any of the tested relationships

5. LIMITATIONS:

- The analysis is based on self-reported data

- Other confounding variables might influence both menstruation and stress

- The sample size might affect the statistical power of the tests

6. FUNDING:

Nil

7. CONFLICT OF INTEREST:

The authors had no conflict of interest with respect to conduct, authorship, or publication of this research work.

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