

# The Relationship Between Menstrual Patterns and Menstrual Attitude Dimensions among Women of Reproductive Age

## Cross-sectional survey

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**ABSTRACT: Objectives:** Women's attitudes towards menstruation play a critical role in shaping their bodies and psychosocial integrity. Menstruation is affected by certain bio-psychosocial factors, necessitating an in-depth understanding of the phenomenon to cope better with the consequent difficulties. This study aimed to investigate the relationship between menstrual patterns and menstrual attitude dimensions in women of reproductive-age.

**Methods:** An observational cross-sectional study was conducted between January and December 2019 on women referred to various urban health centres of Torbat Heydariyeh, Iran. The Menstrual Attitudes Questionnaire and Verbal Multidimensional Scoring systems were used to collect the required data. The features of the menstrual cycle were also recorded. **Results:** A total of 164 women (response rate: 96.74%) were included in this study. Women with dysmenorrhea perceived menstruation as a more debilitating, bothersome and predictable event and they were less likely to deny any menstrual effect ( $P = 0.001$ ). The results also revealed that subjective menstrual blood loss was associated with higher levels of perceiving menstruation as a natural ( $P = 0.008$ ), bothersome ( $P = 0.026$ ) and anticipatory event ( $P = 0.021$ ) and reporting less denial of any menstrual effect ( $P = 0.001$ ). Moreover, women rated menstruation as a more bothersome event with an increase in the duration of menstrual bleeding ( $P = 0.014$ ). There was no significant relationship between the other features of the menstrual cycle and menstrual dimensions ( $P > 0.05$ ).

**Conclusion:** The findings of this study suggest that women's attitudes towards menstruation were associated with menstrual pain, duration of the menstrual cycle and subjective volume of menstrual flow. These factors could be used to modify women's attitudes towards the natural phenomenon of menstruation.

**Keywords:** Attitude; Menstruation; Dysmenorrhea; Menarche; Menorrhagia.

### ADVANCES IN KNOWLEDGE

- This study identified the biomedical factors related to women's attitudes towards menstruation, including the features of the menstrual cycle.
- Women who experienced menstrual pain and had a longer duration of and heavier menstrual flow perceived menstruation as a more negative event.

### APPLICATION TO PATIENT CARE

- Health policy-makers should be aware of the potential factors that influence menstrual attitudes so as to promote more favourable attitudes towards this phenomenon across different populations.
- Given that negative attitudes and beliefs about menstruation can affect women's health, it is necessary for specialists to design and implement effective biomedical and behavioural interventions for girls and women at risk.
- Women suffering from dysmenorrhea and women with a longer duration of and heavier menstrual flow should be the focus of intervention strategies such as menstrual education to promote positive attitudes towards menstruation.

**M**ENSTRUATION, AS AN INEVITABLE BIOLOGICAL event, is a significant sign of puberty and the onset of reproductive capability.<sup>1–3</sup> This phenomenon, especially its first occurrence, is one of the unique experiences faced by women during their reproductive period.<sup>4</sup>

Challenges encountered during menstruation affect women and their role in the community.<sup>3</sup> In addition, several studies have indicated that women's attitudes towards menstruation have a critical effect

on how they perceive their bodies.<sup>5</sup> Attitude towards menstruation (ATM) is a complex concept influenced by the cultural environment in which it is formed. This psychosocial event has significant effects on women's physical and psychological health and well-being.<sup>6</sup> Several factors may be involved in the formation of ATM, including menstrual characteristics, personal awareness and experiences, cultural values, religious beliefs and community environment.<sup>7–8</sup> While some women exhibit positive behaviours and

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feelings towards menstruation, others may perceive menstruation as a negative, shameful, debilitating and destructive event.<sup>19</sup>

Studying awareness about menstrual beliefs and their cultural origins is essential for understanding how women respond to this phenomenon.<sup>10</sup> A few studies have reported the relationship between ATM and the emergence of menstrual symptoms. A survey among female students documented a negative correlation between ATM and the severity of premenstrual symptoms.<sup>11</sup> In contrast, another study on adolescent girls revealed no significant correlation between the severity of menstrual symptoms and ATM.<sup>12</sup> Given that the women's ATM implicitly reflects their life experiences and since few studies have been conducted in Iran to address this issue, further research in this field is imperative.<sup>13</sup> Thus, this study aimed to detect the relationship between menstrual patterns and menstrual attitude dimensions among women of reproductive-age.

## Methods

For this cross-sectional study conducted between January and December 2019, 170 women of reproductive-age referred to the urban health centres in Torbat Heydariyeh, Khorasan Razavi, Iran were selected using the convenience sampling method. Given that the ideal sample size in correlational studies is 5–10 persons per studied variable, the minimum expected sample size was set as 130. After considering a 30% non-response rate, the final sample size was found to be 170 women.

Healthy reproductive women aged 18–35 years were included in this study. Pregnant or breastfeeding women, those with a history of diseases such as gynaecological cancers and definitive psychiatric disorders such as bipolar disorder or depression and those undergoing hormonal therapy were excluded.

Socio-demographic and menstrual questionnaires were used to collect the required data, including age, level of education, employment status, monthly household income, age at menarche, the duration and volume of bleeding, dysmenorrhea, type of dysmenorrhea, the regularity of the current menstrual cycle and pain management.

The Menstrual Attitudes Questionnaire (MAQ) contains 33 items addressing five distinct attitudinal dimensions: menstruation as a debilitating (the most negative item), bothersome (less harmful) or natural (the most positive item) event, the denial of any menstrual effect and the prediction of the onset of menstruation. The items were scored based on a seven-point Likert scale (strongly disagree = 1 to

strongly agree = 7), with a higher score indicating a higher level of the concerned dimension. This scale was developed and validated by Brooks-Gunn and Ruble who reported a Cronbach's alpha coefficient of 0.95–0.97 for the subscales.<sup>14</sup> The reliability and validity of the Farsi version of the MAQ have been confirmed in several previous studies.<sup>8,13</sup> The internal consistency of the questionnaire was also confirmed in the present study using the Cronbach's alpha coefficient (ranging from 0.75–0.94 for the five subscales). Permission was obtained for the use of this questionnaire from the authors prior to the study.

The Verbal Multidimensional Scoring (VMS) system, previously developed and validated by Andersch and Milsom, was also used to assess women's perception of the severity of menstrual pain and its effect on their daily activities.<sup>15</sup> The items were scored using a four-point Likert scale ranging from no symptoms to severe symptoms (i.e. none = 1, mild = 2, moderate = 3 and severe = 4). In this study, the content validity of this questionnaire was confirmed by an expert panel, while the internal consistency was supported by the test-retest procedure. The findings were in agreement with those of other studies conducted in Iran.<sup>16,17</sup>

In this study, a pictorial blood loss assessment chart was used to assess the respondents' menstrual blood volume over the three months preceding the administration of the questionnaire. This chart is considered one of the most useful and reliable measures to assess menstrual bleeding. It was

**Table 1:** Socio-demographic data of women referred to various urban health centres of Torbat Heydariyeh, Iran (N = 164)

Variables	n (%) or Mean ± SD
Age in years	27.78 ± 6.59
Parity	1.13 ± 1.16
Menarche age in years	12.71 ± 1.63
<b>Education</b>	
Primary school	21 (12.8%)
High school	85 (51.8%)
College or university	58 (35.4%)
<b>Employment</b>	
Housewives	125 (76.2%)
Employed	39 (23.8%)
<b>Monthly household income</b>	
Less than average	14 (8.5%)
Average*	136 (82.9%)
More than average	14 (8.5%)

SD = standard deviation.

\*Average income = 30,000,000–40,000,000 Iranian rials.

**Table 2:** Differences in menstrual attitude dimensions based on the Menstrual Attitudes Questionnaire among women with different menstrual pattern characteristics referred to various urban health centres of Torbat Heydariyeh, Iran (N = 164)

Menstrual variables	Menstruation as a debilitating event		Menstruation as a bothersome event		Menstruation as a natural event		Anticipation and prediction of the onset of menstruation		Denial of any effect of menstruation	
	Mean rank	P value	Mean rank	P value	Mean rank	P value	Mean rank	P value	Mean rank	P value
<b>Dysmenorrhea</b>										
Yes	115.18	0.001*	114.32	0.001*	79.06	0.176	114.01	0.001*	42.51	0.001*
No	67.33		67.73		89.84		67.87		101.07	
<b>Dysmenorrhea type</b>										
Primary	27.00	0.664	26.49	0.991	29.04	0.027*	23.83	0.018*	26.00	0.664
Secondary	24.83		26.54		18.04		35.42		28.17	
<b>Menstrual pain severity based on VMS</b>										
Absent	67.63	0.001*	67.23	0.001*	78.63	0.260	69.13	0.001*	100.59	0.001*
Mild	106.83		104.33		88.27		108.42		50.15	
Moderate	125.23		129.29		94.15		117.21		33.04	
<b>Heavy menstrual bleeding†</b>										
Yes	83.57	0.607	81.73	0.954	89.11	0.057	77.76	0.266	81.76	0.948
No	79.76		81.31		75.10		85.95		81.28	
<b>Perceived severity of menstrual bleeding amount</b>										
Scant	67.10	0.082	61.87	0.026*	69.82	0.008*	72.43	0.021*	113.95	0.001*
Normal	82.52		85.21		76.90		76.87		81.82	
Heavy	91.52		90.23		99.07		97.58		65.11	
<b>Pain medication during menstruation</b>										
Yes	29.31	0.164	27.83	0.507	28.26	0.383	25.57	0.641	23.37	0.121
No	23.46		25.06		24.60		27.50		29.88	
<b>Menstrual cycle regularity</b>										
Yes	78.26	0.379	80.93	0.744	83.59	0.820	81.89	0.899	89.14	0.168
No	85.01		83.43		81.85		82.86		78.57	

VMS = verbal multidimensional scoring.

\*Correlation is significant at  $P < 0.05$ . †Based on the Higham chart.<sup>18</sup>

**Table 3:** The relationship between menstrual attitude dimensions (based on the Menstrual Attitudes Questionnaire) and menstrual pattern characteristics among women referred to various urban health centres of Torbat Heydariyeh, Iran (N = 164)

Menstrual variables	Menstruation as a debilitating event	Menstruation as a bothersome event	Menstruation as a natural event	Anticipation and prediction of the onset of menstruation	Denial of any effect of menstruation
Menarche age in years	$r = -0.054$ $P = 0.494$	$r = 0.047$ $P = 0.552$	$r = 0.067$ $P = 0.396$	$r = -0.084$ $P = 0.286$	$r = -0.025$ $P = 0.752$
The number of days with associated pain	$r = 0.234$ $P = 0.095$	$r = 0.187$ $P = 0.184$	$r = 0.241$ $P = 0.086$	$r = -0.078$ $P = 0.583$	$r = -0.190$ $P = 0.176$
Days of blood loss per cycle	$r = -0.122$ $P = 0.120$	$r = 0.192$ $P = 0.014^*$	$r = -0.104$ $P = 0.185$	$r = -0.083$ $P = 0.291$	$r = 0.036$ $P = 0.648$
Duration of menstrual cycle in days	$r = -0.012$ $P = 0.876$	$r = -0.062$ $P = 0.428$	$r = 0.048$ $P = 0.541$	$r = -0.118$ $P = 0.132$	$r = 0.037$ $P = 0.640$

\*Correlation is significant at  $P < 0.05$ .

developed and validated by Higham *et al.*<sup>18</sup> This chart measures the volume of menstrual bleeding based on the number of pads or tampons used and the degree to which they are stained. Loss of blood exceeding 80 cc was considered as heavy menstrual bleeding (HMB). The validity and reliability of the Farsi version of the chart have already been confirmed in Iran.<sup>19</sup>

The required data were collected by two researchers. All women referred to the concerned healthcare centres were invited to participate in the study. The self-administered questionnaires were distributed when the women were waiting for their health consultation. On average it took them 20 minutes to complete the questionnaires.

The data was analysed using the Statistical Package for Social Sciences (SPSS) software, Version 16.0 (IBM Corp., Armonk, New York, USA). The Kolmogorov-Smirnov test was used to verify the normality of the quantitative variables. The dependent variables were all menstrual attitude dimensions. The Mann-Whitney U test and the Wilcoxon rank test were used to compare the ATM of women with different characteristics. Moreover, correlations were calculated using the Spearman rank coefficient. In all the analyses,  $P < 0.05$  was set as the level of significance.

This research was approved by the ethics committee of Torbat Heydariyeh University of Medical Sciences (code: IR.THUMS.REC.1396.16). All the participants were informed about the research objectives and procedures and they participated in this study voluntarily. They were also assured about the confidentiality of their personal information. All the participants gave verbal and written consent before completing the questionnaires.

## Results

After the exclusion of six incomplete questionnaires, 164 women were included (response rate: 96.47%) in this study. The mean age of the participants was  $27.78 \pm 6.59$  years, almost half of whom ( $n = 85$ , 51.8%) had a high school education and 35.4% ( $n = 58$ ) had a college or university education. Furthermore, most participants ( $n = 125$ , 76.2%) were housewives, and their families' monthly incomes were within the average range ( $n = 136$ , 82.9%) [Table 1].

The participants reported that they had started menstruating at an average age of  $12.71 \pm 1.63$  years (range: 10–17 years). Furthermore, the mean duration of bleeding and length of the menstrual cycle were  $6.41 \pm 1.75$  days (range: 2–10 days) and  $28.10 \pm 4.05$  days (range: 20–40 days), respectively. Overall, 62.8% of women ( $n = 103$ ) reported a regular menstrual

pattern. Results showed that 31.7% of participants ( $n = 52$ ) had dysmenorrhoea, among which 76.92% ( $n = 40$ ) suffered from primary dysmenorrhoea and 23.07% ( $n = 12$ ) had secondary dysmenorrhoea. However, most of the participants ( $n = 134$ , 81.7%) reported taking no medicine for menstrual pain.

The proportional mean scores of all MAQ subscales were as follows: predictive =  $3.77 \pm 0.89$ , debilitating =  $4.07 \pm 1.25$ , bothersome =  $3.68 \pm 1.42$ , natural =  $5.24 \pm 1.01$  and the denial of menstrual effect =  $4.30 \pm 1.33$ .

Women with menstrual pain mostly perceived menstruation as a bothersome and debilitating event compared to women without dysmenorrhoea. These women described menstruation as significantly more predictable and they were also significantly less likely to deny the menstrual effects ( $P < 0.05$ ). Similar relationships were also observed between the menstrual attitude dimensions and severity of menstrual pain based on VMS.

Furthermore, women with primary dysmenorrhoea perceived menstruation as a more natural event compared to women with secondary dysmenorrhoea. Moreover, the women considered menstruation as a more natural, bothersome and anticipatory event with increased subjective menstrual volume. In this regard, women with lesser volumes of menstrual blood were found to be more likely to deny any effect of menstruation. In contrast, no significant difference was observed between the menstrual attitudes of women with and without HMB when considering the Higham chart as a more objective measurement criterion [Table 2].

According to the result of Spearman's test, the mean score of menstruation as a bothersome event was related to the number of bleeding days per cycle [Table 3].

## Discussion

The present study aimed to investigate the relationship between menstrual cycle patterns and menstrual attitude dimensions. According to the findings, women with cyclic menstrual pain perceived menstruation as a debilitating and bothersome event compared to women without such pain. Consistent results were reported using the VMS scale. It was noted that women's ATM became more negative with an increase in the intensity of pain reported.

The results were consistent with the findings of previous studies.<sup>20–21</sup> In India, Omidvar *et al.* reported that women in the dysmenorrhoea group experienced menstruation as a debilitating and disturbing

phenomenon more frequently than women in the non-dysmenorrhoea group.<sup>21</sup> Dysmenorrhoea, as the most common menstrual complaint, tends to contribute to negative menstrual attitudes among girls.<sup>22</sup>

The present study indicated that women with primary dysmenorrhoea perceived menstruation as a natural event compared to women with secondary dysmenorrhoea. Unlike primary dysmenorrhoea, secondary dysmenorrhoea is caused by underlying pelvic diseases;<sup>23</sup> therefore, pathological factors may lead to the belief that menstruation is not a natural phenomenon among these women.

No difference was observed between the attitude dimensions among participants with and without HMB upon the measurement of menstrual blood volume using Higham's objective criteria. Nevertheless, when the menstrual volume was measured subjectively, the results showed that women with higher blood volumes considered menstruation more bothersome, natural and predictable. Moreover, the effects of menstruation on their lives were also denied less frequently.

This may be attributed to the differences in women's opinions about the volume of menstrual bleeding. In this regard, Morrison concluded that women with severe menstrual bleeding were more likely to consider menstruation as a curse, while those with lesser bleeding generally regarded menstruation as a natural phenomenon.<sup>7</sup> Many women have little or no information about normal and abnormal menstruation.<sup>24</sup> The differences in self-rated bleeding may be caused by the individual variability in perceiving bleeding and the lack of a universally-accepted method to describe HMB. Future research can examine population-specific patterns of menstruation to determine expected, acceptable and abnormal notions.<sup>25</sup>

The perception of menstruation as a bothersome event was also correlated with the number of bleeding days per cycle. The present study noted a non-significant correlation between the regularity of menstruation, the length of the menstrual cycle and the number of bleeding days and attitude dimensions. In contrast, a study reported that an irregular menstrual cycle was a factor that contributed to the increase in mental stress levels.<sup>26</sup> This difference in results may be caused by methodological differences and variations in the study population.

The current research revealed no significant association between menarche age and the menstrual attitude dimensions. Contrary to the findings of the present research, a survey conducted in China found that those who experienced menstruation at a younger age reported more menstrual pain and discomfort.<sup>27</sup> Tiwari *et al.* noted a correlation between the level

of preparedness and menarche age.<sup>28</sup> They reported a sense of guilt, shame, apprehension and anxiety if a girl was unprepared in the event of early-onset menstruation. Such inconsistency might have been observed because most of the females in the present study reported a normal menarche age.

The present study has several limitations. First, the cross-sectional method limits the conclusions that can be drawn; however, a longitudinal study may provide a clear understanding of the correlation between the variables. Second, the participants were selected from one city in Khorasan Razavi. More comprehensive studies that include women from the other regions of Iran are required. The data in this study were collected from self-report questionnaires, which may pose some potential errors. Another limitation pertains to the retrospective nature of the study.

Further qualitative studies should address the beliefs about menstruation among women with different menstrual patterns. This type of research can lead to the better identification of factors contributing to ATM. The detection of factors leading to negative and positive attitudes is necessary to design effective interventions that modify negative attitudes and foster positive attitudes towards menstruation, thereby enabling women to experience womanhood more positively.

## Conclusion

The present study's findings provide a preliminary exploratory ground to examine the factors contributing to ATM in Iran. It was concluded that menstrual pain and menstrual bleeding volume and duration are associated with women's ATM. Negative beliefs about menstruation may have a significantly negative effect on women and girls; hence, these factors could be used to modify their attitudes towards this natural phenomenon. This study highlighted the need to focus on creating strategies to help women and girls eradicate negative ATMs and exploring ways of improving attitudes when experiencing dysmenorrhea and long and heavy menstruation.

## CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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## AUTHORS' CONTRIBUTION

EA and ML conceptualised and designed the study. AS performed the data collection. EA and ML analysed

the data. ML and AS drafted the manuscript, while EA revised the manuscript. All authors approved the final version of the manuscript.

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