



The Relationship Between Attitudes Toward Menstruation and Perimenstrual Symptoms Among Female Students of Shahroud University of Medical Sciences, Northeast Iran

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Abstract

Background: Despite the fact that menstruation is a normal physiological process, perimenstrual symptoms influence a significant proportion of women. There is little agreement among researchers on factors predicting perimenstrual symptoms. Therefore, this study aimed to determine the relationship between attitudes toward menstruation and perimenstrual symptoms among female students of Shahroud University of Medical Sciences, Northeast Iran.

Methods: The current descriptive study was conducted on 300 female university students selected by the stratified random sampling method. The data were collected through an individual characteristics form (ICF), a menstruation attitude questionnaire (MAQ), and a menstrual distress questionnaire (MDQ). Data analysis was conducted using SPSS version 18. Descriptive statistics and Spearman correlation coefficient were used for data analysis.

Results: 76.6% of the female students agreed menstruation is a debilitating event, 49.6% agreed menstruation is a bothersome event, and 92% of participants perceived menstruation as a natural event. 89.7% of them agreed the onset of menstruation could be predicted and only 35.3% of them believed that menstruation has no negative effect on woman's performance. Mood swings, cramps, and feeling sad or blue were the three most common symptoms during the premenstrual phase. Cramps, fatigue, and backache were the three most frequent symptoms during the menstrual phase. Fatigue, backache, and feeling sad or blue were the three most common symptoms during the reminder cycle phase. There were positive correlations between perimenstrual symptoms and all subscales of MAQ (except for the subscale "menstruation as a natural event").

Conclusions: According to the results of this study, menstrual attitudes in female university students are associated with their perimenstrual symptoms.

Keywords: Attitudes, Iran, Menstruation, Symptoms

1. Background

Menstruation, starting with menarche and continuing until menopause, is a natural biological phenomenon for females indicating her capability for procreation (1). It is the cyclical shedding of the inner lining of the uterus, the endometrium, which is controlled by the hormones produced by the hypothalamus and pituitary glands located in the brain (2). Most women experience 400 menstrual cycles within their reproductive lifespan (3). Between one-seventh and one-fifth of a woman's adult life is accompanied with menstruation. Despite the fact that menstruation is a normal physiological process, premenstrual symptoms influence a significant proportion of women (4, 5). Perimenstrual symptoms are defined as physical, emo-

tional, and/or behavioral symptoms, which may be experienced during the period immediately before, during, or immediately after the menstrual process. The common symptoms associated with menstruation are irritability, mood swings, anxiety, depression, tension, weight gain, breast tenderness, fatigue, cramps, backache, and skin disorders (6). Due to the large number of women affected by perimenstrual symptoms and the possibly devastating impact of these symptoms on woman's quality of life, economic, and social performance, perimenstrual symptoms are the focus of many research studies (7, 8). However, there is little agreement among researchers on the cause and treatment of these symptoms. Therefore, in order to manage perimenstrual symptoms most effectively, it is important to gain a clear understanding of the fac-

tors associated with these symptoms. The current literature suggests that factors such as menstrual attitudes have a major effect on the reporting of perimenstrual symptoms (9, 10). Attitudes toward menstruation are shaped by personal knowledge and experience, social learning, and cultural beliefs (11). A limited number of studies have examined the relationship between menstrual attitudes and perimenstrual symptoms. A previous study among postmenarcheal female students showed a significant negative correlation between menstrual attitudes and perimenstrual symptoms (12). Another study on adolescent girls showed no significant association between the severity of menstrual symptoms and attitudes (13). Hence, the present study was conducted to determine the relationship between perimenstrual symptoms and attitudes toward menstruation among female students of Shahrood University of Medical Sciences in Iran.

2. Methods

2.1. Participants

This research was a descriptive correlational study among female students from different fields of study at Shahrood University of Medical Sciences during the academic year 2015 - 2016. The sample size was determined as 269 female students according to Krejcie and Morgan table. To account for refusal to participate, a total of 300 female students were included in the final sample. The participants were selected using the stratified random sampling technique. This process was done in two stages. In the first stage, from each school (medicine, nursing and midwifery, public health, and Paramedicine), sample sizes were selected using the proportionate stratified random sampling technique. Then female students were selected by simple random sampling technique from each field study.

2.2. Inclusion/Exclusion Criteria

The inclusion criteria were: (1) aged between 18 and 30 years; (2) signing an informed consent form to participate; (3) no history of polycystic ovary syndrome; and (4) no history of chronic physical or mental illnesses. There were no exclusion criteria.

2.3. Ethical Considerations

The study was approved by the ethics committee of Shahrood University of Medical Sciences (IR.SHMU.REC.1394.142). Informed consent was obtained from all participants prior to their inclusion in the study.

2.4. Instruments

Three instruments were used to collect data: an individual characteristics form, a short-form menstrual distress questionnaire (MDQ; MDQ-SF), and a menstrual attitude questionnaire (MAQ).

The individual characteristics form included age, body mass index (BMI), the field of study, marital status, and menstrual status (age at menarche, length of menstrual cycle, length of the menstrual period, and regulation of menstrual cycle).

The Moos menstrual distress questionnaire (MDQ) (14) is a standard tool for measuring cyclical perimenstrual symptoms. There are two forms of the MDQ. Form C (Cycle) enables a woman to report her experience during each of the three phases of her most recent menstrual cycle (4 days before the menstrual flow, during menstrual flow, and the remainder of the cycle). This questionnaire consists of 47 items, which are grouped into eight subscales: pain, water retention, autonomic reaction, negative effects, impaired concentration, behavior change, arousal, and control. The MDQ short form (MDQ-SF), used in our study, contains 22 items of the full scale to assess four subscales, including pain (muscle stiffness, headache, cramps, backache, fatigue, generalized aches and pains), water retention (weight gain, breast tenderness, swelling, skin disorder), autonomic reaction (dizziness, cold sweats, hot flashes, nausea and vomiting), and negative effects (loneliness, anxiety, mood swings, crying, irritability, tension, feeling sad or blue, restlessness), on a 5-point Likert scale (0 - 4) ranging from "no experience" to "severe symptoms". The items in each domain are summed to create the domain scores. The validity of this questionnaire was assessed using content validity, and its reliability was evaluated through internal consistency, Cronbach's alpha (0.88) and retest (0.91).

The menstrual attitude questionnaire (MAQ) (15) consists of 33 positive and negative items to measure participants' attitudes toward menstruation. The MAQ is divided into five subscales: menstruation as a deliberating event (12 items), menstruation as a bothersome event (6 items), menstruation as a natural event (4 items), anticipation and prediction of the onset of menstruation (4 items), and denial of any effect of menstruation (7 items). The items are scored on a 7-point Likert scale, ranging from 1 = strongly disagree to 7 = strongly agree. The ranges of the subscale scores are 12 to 84 for debilitating event, 6 to 42 for bothersome event, 4 to 28 for natural event, 4 to 28 for anticipation, and 7 to 49 for denial subscales. The reliability of this questionnaire has been confirmed by previous studies in Iran (16). In our research, Cronbach's alpha was calculated for each factor that ranged from 0.77 to 0.85.

2.5. Statistical Analysis

The demographic characteristics of participants were expressed as mean \pm standard deviation or n (%) of the total. The normal distribution of the MAQ and MDQ-SF subscale scores was tested using the One-Sample Kolmogorov-Smirnov test. Relationships between the MAQ and MDQ-SF subscale scores were analyzed using the Spearman correlation analysis. Statistical analyses were done using SPSS software (ver. 18.0 for Windows). A P value of < 0.05 was accepted as statistically significant.

3. Results

Out of the 300 questionnaires distributed, 18 questionnaires were completed partially and thus excluded from the study. The total number of the participants in the current study was therefore 282, which accounts for a response rate of 94 percent. The age of the participants ranged between 18 and 28 years (mean, 21.8 ± 2.2 years). The mean age at menarche was 12.81 ± 1.49 years (range, 9 - 18 years), the mean length of the menstrual period was 6.43 ± 1.39 days (range, 3 - 10 days), and the mean length of the menstrual cycle was 28.87 ± 4.4 days (range, 20 - 38 days). The mean body mass index of the students was 21.9 ± 3.2 kg/m² (range, 15.2 - 31.9 kg/m²). 71.6% (202/282) of the subjects mentioned having a regular menstrual pattern. 249 female students (88.3%) were single and 33 students (11.7%) were married. The proportional mean scores of the five subscales of the MAQ were anticipation and prediction of the onset of menstruation, 5.6 ± 1.3 ; menstruation as a natural event, 5.46 ± 1.07 ; menstruation as a debilitating event, 4.77 ± 1.3 ; menstruation as a bothersome event, 4.11 ± 1.53 ; and denial of any effect of menstruation, 3.77 ± 1.35 .

As shown, 76.6% of the female students agreed that menstruation is a debilitating event, whereas 49.6% agreed that menstruation is a bothersome event. 92% of the participants perceived menstruation as a natural event (Table 1). 89.7% of them agreed that the onset of menstruation can be predicted and only 35.3% believed that menstruation has no negative effect on woman's performance. Table 2 shows the prevalence and severity of the perimenstrual symptoms in the participants according to the cycle phase. Mood swings, cramps, and feeling sad or blue were the three most common symptoms during the premenstrual phase. Cramps, fatigue, and backache were the three most frequent symptoms during the menstrual phase. Fatigue, backache, and feeling sad or blue were the three most common symptoms during the reminder cycle phase. Mood swing was the most strong/severe symptom during the premenstrual phase, followed by irritability

while cramp was the most strong/severe symptom during the menstrual phase, followed by backache. 80.2%, 94.4%, and 30.6% of the participants experienced one or more pain symptoms during the premenstrual, menstrual, and the remainder cycle phases, respectively. 77.4%, 84.1%, and 19% experienced one or more water retention symptoms during the premenstrual, menstrual, and the remainder cycle phases, respectively. 51.6%, 81%, and 22.6% experienced one or more autonomic reaction symptoms during the premenstrual, menstrual, and the remainder cycle phases, respectively, and 81.3%, 86.1%, and 28.2% experienced one or more negative effects symptoms during the premenstrual, menstrual, and the remainder cycle phases, respectively.

Considering the results of the Spearman correlation analysis between the subscale scores of MAQ and the total and subscale scores of MDQ (Table 3), there were positive significant correlations between the total and all the subscale mean scores of MDQ and the mean score of the subscale "menstruation as a debilitating event" of MAQ during the premenstrual, menstrual, and reminder phases (except for the subscale "water retention" in the reminder phase and the subscale "autonomic reaction" in the premenstrual phase). Positive significant correlations were determined between the mean scores of total and all subscales of MDQ and the mean score of the subscale "anticipation and prediction of the onset of menstruation" of MAQ during the premenstrual and menstrual phases. Positive significant correlations were determined between the total and mean scores of the subscales "pain" and "negative effects" of MDQ and the mean score of the subscale "menstruation as a bothersome event" of MAQ during the premenstrual and menstrual phases. Negative significant correlations were determined between the mean scores of total and "pain" subscale of MDQ and the mean score of the subscale "denial of any effect of menstruation" of MAQ. Furthermore, there were no significant correlations between the total and subscales scores of MDQ and the subscale "menstruation as a natural event" of MAQ during the premenstrual, menstrual, and reminder phases.

4. Discussion

In this study, we found that about 77% and 50% of the female students agreed that menstruation is a "debilitating" and "bothersome" event, respectively. 92% of the students perceived menstruation as a natural event. About 90% believed that the onset of menstruation could be predicted and only 35.3% of them believed that menstruation has no negative effect on the woman's performance. In a study conducted among adolescent slum dwelling girls of Siliguri city, India, it was reported that 55% of the participants attributed menstruation to a debilitating event,

Table 1. Attitudes Toward Menstruation Among Participants^a

Subscales	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Menstruation as a debilitating event	0	1.6	4.4	17.4	47.2	26.2	3.2
Menstruation as a bothersome event	0.4	6.3	12.7	31	31	15	3.6
Menstruation as a natural event	0.4	1.2	1.2	5.2	37.3	31	23.7
Anticipation and prediction of the onset of menstruation	0	0.4	2.8	7.1	21.8	39.7	28.2
Denial of any effect of menstruation	0.4	1.2	21.4	41.7	28.2	7.1	0

^aValues are expressed as %.**Table 3.** Results of the Spearman Correlation Analysis between MAQ and MDQ

MAQ Subscales/Phases	Total and Subscale Scores of MDQ				
	Pain	Water Retention	Autonomic Reaction	Negative Effects	Total MDQ
Menstruation as a debilitating event					
1	0.291 ^a	0.158 ^b	0.115	0.353 ^a	0.339 ^a
2	0.434 ^a	0.156 ^b	0.272 ^a	0.402 ^a	0.411 ^a
3	0.149 ^b	0.079	0.127 ^b	0.178 ^b	0.168 ^c
Menstruation as a bothersome event					
1	0.203 ^a	0.068	0.054	0.160 ^b	0.206 ^a
2	0.173 ^c	0.008	0.091	0.23 ^a	0.207 ^a
3	0.091	-0.03	0.035	0.044	0.079
Menstruation as a natural event					
1	0.045	0.041	-0.032	0.05	0.062
2	0.059	0.103	0.085	0.06	0.086
3	-0.035	0.043	0.058	0.035	0.007
Anticipation and prediction of the onset of menstruation					
1	0.242 ^a	0.214 ^a	0.139 ^b	0.44 ^a	0.365 ^a
2	0.332 ^a	0.252 ^a	0.215 ^a	0.338 ^a	0.348 ^a
3	0.116	0.032	0.005	0.022	0.038
Denial of any effect of menstruation					
1	-0.092	-0.017	-0.007	-0.099	-0.089
2	-0.153 ^b	-0.055	-0.123	-0.114	-0.128 ^b
3	-0.061	-0.037	-0.06	-0.087	-0.08

^aP < 0.001.^bP < 0.05.^cP < 0.01.

Table 2. Prevalence and Severity of Menstrual-Related Symptoms According to Menstrual Cycle Phase

Symptoms	Degree of Severity, %									
	Prevalence, %					Menstrual Phase				
	Premenstrual phase	Menstrual phase	Remainder	Mild/Moderate	Strong/Severe	Premenstrual Phase	Mild/Moderate	Strong/Severe	Remainder	Strong/Severe
Pain subscale										
Muscle stiffness	38.1	45.2	9.9	34.1	4		33.3	11.9	9.4	0
Headache	26.2	41.3	9.2	23	3.2		33.3	8	8	1.2
Cramps	61.9	86.5	14.7	48	13.9		40.5	46	13.5	1.2
Backache	58.7	84.1	16.7	47.2	11.5		43.6	40.5	14.3	2.4
Fatigue	56.3	84.5	19.5	48.3	8		56.3	28.2	17.1	2.4
Generalized aches and pains	38.5	62.3	9.9	33.7	4.8		45.6	16.7	9.1	0.8
Water retention subscale										
Weight gain	29	33.7	4	24.6	4.4		29.7	4	3.2	0.8
Breast tenderness	54.4	50	6	37.7	16.7		40.1	9.9	5.6	0.4
Swelling	45.3	63.9	8.4	35.7	9.6		42.9	21	7.6	0.8
Skin disorder	36.6	33.8	9.6	28.2	8.4		26.6	7.2	8.8	0.8
Autonomic reaction subscale										
Dizziness	15.9	43.3	9.6	13.9	2		38.1	5.2	8.8	0.8
Cold sweats	13.1	36.1	5.2	12.3	0.8		27.4	8.7	4.8	0.4
Hot flashes	41.3	63.5	12.7	36.5	4.8		47.2	16.3	11.9	0.8
Nausea, vomiting	16.3	40.9	3.6	14.7	1.6		34.1	6.8	3.6	0
Negative effects subscale										
Loneliness	57	56.4	14.3	41.2	15.8		35.8	20.6	12.7	1.6
Anxiety	43.6	48	10.7	32.5	11.1		37.3	10.7	9.1	1.6
Mood swings	71.4	71.8	15.1	46	25.4		46.5	25.4	13.5	1.6
Crying	46.1	51.5	9.2	29.4	16.7		32.5	19	7.2	2
Irritability	50	59.9	11.9	32.2	17.8		40.1	19.8	9.5	2.4
Tension	41.3	46.4	10	29	12.3		33	13.5	7.6	2.4
Depression	59.9	62.7	16.3	44	15.9		44.8	17.8	13.9	2.4
Restlessness	50.4	60.7	12.3	38.9	11.5		45.2	15.5	9.9	2.4

44.6% agreed that menstruation is a bothersome event, and 73.3% of them thought of it as a natural event. 65.9% of girls agreed that the onset of menstruation could be predicted and only 37.6% of them believed that their periods resulted in no negative effect (17). Previous studies suggested cultural, social, religious background, family environment, and knowledge about menstruation can influence women's beliefs about and attitudes toward menstruation (18, 19).

In the present study, 72.6% of the female students reported having a regular and predictable menstrual cycle while 89.7% believed that the onset of menstruation could be predicted and anticipated. In one of the previous studies conducted on adolescent and young females in India, 82.5% of the subjects reported having a regular and predictable menstrual cycle whereas 74.7% believed that the onset of menstruation could be predicted (20). A qualitative research is necessary in order to explain these discrepancies.

The results of our study also revealed that many participants experienced at least one perimenstrual symptom in both the premenstrual and menstrual phases. Mood swing was the most frequent symptom in the premenstrual phase, followed by cramps and feeling sad or blue. Wong LP and Khoo EM in a study on adolescent females found that mood swings, irritability, and fatigue were the most prevalent symptoms during the premenstrual phase (11).

In the present study, cramps, fatigue, and backache were the three most common symptoms during the menstrual phase. The result of our study supported the findings of Chen HM and Chen CH, reporting that cramps, fatigue, backache, swollen abdomen, and painful or tender breasts were the five most common symptoms of menstruation among female college students in the Tainan area, Taiwan (9). Another study on university students showed that girls had more negative affect symptoms and had fewer autonomic reactions and water retention symptoms during menstruation (21).

In our study, mood swing was the most strong/severe symptom during the premenstrual phase. We also found that irritability was the second most common symptom in the premenstrual phase. Our finding differed from the results of Wong and Khoo, who reported that irritability was the most strong/severe symptom during the premenstrual phase, followed by mood swings (11).

The present study found that cramp was the most strong/severe symptom during the menstrual phase. This result is consistent with the findings of Chen and Chen (9). However, Wong and Khoo found that fatigue was the most strong/severe symptom of menstruation (11). Differences in symptom severity and prevalence can be attributed to

the cultural discrepancies between samples in these studies.

The current study revealed positive significant correlations between total and all the subscale mean scores of MDQ and the mean score of the subscale "menstruation as a debilitating event" of MAQ during the premenstrual, menstrual, and reminder phases (except for the subscale "water retention" in the reminder phase and the subscale "autonomic reaction" in the premenstrual phase). Furthermore, positive significant correlations were determined between the total and mean scores of the subscales "pain" and "negative effects" of MDQ and the mean score of the subscale "menstruation as a bothersome event" of MAQ during the premenstrual and menstrual phases. The findings of our study are consistent with previous research, which concluded that negative attitudes toward menstruation were strongly associated with menstrual distress (12, 22). In India, a study conducted by Omidvar et al. revealed that women in a dysmenorrheic group perceived menstruation as a more debilitating and bothersome event than women in the non-dysmenorrheic group (20). We also found positive significant correlations between the mean scores of total and all subscales of MDQ and the mean score of the subscale "anticipation and prediction of the onset of menstruation" of MAQ during the premenstrual and menstrual phases. In parallel with the present study, Lu revealed that beliefs in anticipation and prediction of the onset of menstruation were correlated with premenstrual and menstrual symptoms among Taiwanese women (23). Another study on female students in vocational nursing schools showed that most participants in a dysmenorrheic group, compared to a non-dysmenorrheic group, agreed menstruation is a predictable event (24). We found significant negative correlations between the mean scores of total and "pain" subscale of MDQ and the mean score of the subscale "denial of any effect of menstruation" of MAQ. This result is consistent with the findings of previous studies (24, 25). In our study, there were no significant correlations between the total and all subscales of MDQ and the subscale "menstruation as a natural event" of MAQ during the premenstrual, menstrual, and reminder cycle phases. This result is supported by the findings of Guvenc et al. who found no significant correlation between PMS and the "natural event" subscale of MAQ (25).

4.1. Limitations

It is important to consider limitations of the present study when interpreting and generalizing its findings. The results of the present study are based on self-report questionnaires, which could lead to potential errors. Retrospective recording of perimenstrual symptoms is another lim-

itation. This limitation of our descriptive study could be well addressed by prospective longitudinal studies.

4.2. Conclusions

The present study showed that the majority of the participants perceived menstruation as a natural and predictable event; somewhat debilitating and bothersome event, and some of them believed that menstruation has no negative effect on woman's performance. Furthermore, we found that attitudes toward menstruation are associated with perimenstrual symptoms.

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Footnotes

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