

# Premenstrual Syndrome and Childbirth Fear Prior to Pregnancy in Young Women: An Association and Cross-Sectional Study

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## SUMMARY

**OBJECTIVE:** The aim of the study was to determine the association between premenstrual syndrome and the childbirth fear prior to pregnancy.

**METHODS:** This was an association and cross-sectional study conducted on 327 university students. Data were collected using "Participant Information Form," "Premenstrual Syndrome Scale," and "Childbirth Fear-Prior to Pregnancy Scale."

**RESULTS:** It was found that the childbirth fear had increased in students with premenstrual syndrome. The Women Childbirth Fear-Prior to Pregnancy Scale score was statistically significantly higher among students who preferred caesarean section than those who preferred vaginal delivery. There was a weak, positive, and statistically significant correlation between the students' depressive sensation, anxiety, fatigue, nervousness, depressive thoughts, pain, appetite changes, sleep pattern changes, and bloating subscales of Premenstrual Syndrome Scale and Women Childbirth Fear-Prior to Pregnancy Scale.

**CONCLUSION:** The score of the Women Childbirth Fear-Prior to Pregnancy Scale increases with an increase in the score of the Premenstrual Syndrome subscale. It should be evaluated whether or not women experiencing premenstrual syndrome have the childbirth fear prior to pregnancy.

**KEYWORDS:** Premenstrual syndrome. Childbirth. Fear. Pregnancy.

## INTRODUCTION

Premenstrual syndrome (PMS) includes somatic, cognitive, emotional, and behavioral symptoms that occur in the luteal phase of the menstrual cycle in women, disappears with the onset of menstruation, and is frequently experienced during reproductive age<sup>1-3</sup>. In PMS, emotional symptoms such as depression, anger outbursts, irritability, crying spells, anxiety, confusion, social withdrawal, poor concentration, insomnia, increased nap taking, and changes in sexual desire as well as physical symptoms such as thirst and appetite changes, breast tenderness, bloating and weight gain, headache, swelling of the hands or feet, aches and pains, fatigue, skin problems, gastrointestinal symptoms, and abdominal pain develop<sup>4</sup>.

Childbirth fear is an important factor threatening psychosocial health during pregnancy<sup>5</sup>. The childbirth fear may develop due to reasons such as the fear of hurting herself or baby, inability to cope with pain at birth, loss of control, and distrust to the health care professional<sup>6</sup>. In the adolescence or early adulthood period, the women may avoid pregnancy due to childbirth fear<sup>7</sup>. Young women who plan to become pregnant in the future and who report high levels of childbirth fear tend to prefer obstetric interventions, such as cesarean birth,

because they offer the promise to control/avoid pain and bodily damage perceived to be associated with vaginal birth<sup>8</sup>.

Determining the factors that cause the childbirth fear before pregnancy makes it possible to enable the fear in early period<sup>6</sup>. Stoll and Hall stated that students with high childbirth fear defined the birth as a frightening and painful distress<sup>9</sup>. In a study conducted in Canada, students with the highest childbirth fear stated that the media shaped their attitudes toward pregnancy and childbirth<sup>10</sup>. Thomson et al. found that 33.3% of the students reported negative birth impressions through direct or indirect resources<sup>11</sup>. Güleç Şatır found that students' fear of birth was high<sup>12</sup>.

There are many studies in the literature on PMS and childbirth fear conducted separately. The electronic databases such as PubMed, Google Scholar, Scopus, and EBSCO were searched with appropriate Medical Subject Headings (MeSH) terms (premenstrual syndrome, fear of childbirth). Although there are limited number of studies on the childbirth fear prior to pregnancy, no study was found investigating the association between PMS and the childbirth fear prior to pregnancy. This study was conducted to determine the association between PMS and the childbirth fear prior to pregnancy.

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This study aimed to investigate the following questions:

- What is the PMS prevalence among university students?
- What is the level of the childbirth fear prior to pregnancy among university students?
- Is there an association between PMS and the childbirth fear prior to pregnancy?

## METHODS

### Study design

This was an association and cross-sectional study.

### Population and sample of the study

The population of the study was female students who were continuing their education in the department of nursing and the nursing faculty of two universities located in Istanbul between September 2019 and February 2020.

The sample of the study included the students who did not take any theoretical course about obstetrics and gynecology and did not perform clinical practice on this subject and met the inclusion criteria. The data were collected by the researchers with the face-to-face interview method from the students who were voluntary to participate in the study. The study was completed involving 327 students.

### Inclusion criteria of the study

The inclusion criteria were as follows: being over 18 years, being voluntary to participate in the study, having no communication problem, not taking the obstetrics and gynecology courses at both theoretical and practical levels, thinking about having children in the future, not being pregnant during the data collection period, not having a pregnancy experience exceeding 20 weeks, and not having children.

### Exclusion criteria of the study

The exclusion criteria were young women who refused to participate in the study and who were unable to complete the data collection instrument.

### Data collection tools

**Participant Information Form:** This form consists of 26 questions in total, which are prepared to determine the students' sociodemographic, menstrual, and childbirth fear-related characteristics.

**Premenstrual Syndrome Scale (PMSS):** This scale was developed by Gençdoğan<sup>13</sup> in 2006 to measure the severity of premenstrual symptoms. It consists of 44 items, which are

marked by the participant considering "the condition of being in the period 1 week before the menstruation." The five-point Likert-type PMSS is composed of nine subscales, namely, depressive sensation, anxiety, fatigue, nervousness, depressive thoughts, pain, appetite changes, sleep pattern changes, and bloating. The lowest score to be obtained is 44 and its highest score is 220. Those with PMSS total score of more than 50% are considered PMS positive. High PMSS score refers to more severe premenstrual symptoms. Cronbach's alpha of the original version of the scale was found as ( $\alpha$ )0.75<sup>13</sup>. In this study, the Cronbach's alpha value of the scale was calculated as 0.83.

**Childbirth Fear-Prior to Pregnancy Scale:** This scale was developed by Stoll et al. in 2016 in order to measure the childbirth fear prior to pregnancy in young men and women. The scale was adapted to Turkish by Uçar and Taşhan in 2018. This scale consists of 10 items, and the responses are measured in a six-point Likert type, ranging from 1 to 6. The minimum score is 10 and the maximum score is 60. High item total score refers to a high level of fear. In the study by Stoll et al., the Cronbach's alpha value is 0.86<sup>6,14</sup>. In the study by Uçar and Taşhan, the female and male forms of the scale were separated, and the validity and reliability analyses were performed separately as the Women Childbirth Fear-Prior to Pregnancy Scale (WCF-PPS) and Men Childbirth Fear-Prior to Pregnancy Scale (MCF-PPS). Cronbach's alpha internal consistency coefficient for WCF-PPS was found to be 0.89<sup>6</sup>. WCF-PPS was used in this study. In this study, the Cronbach's alpha value of the scale was determined as 0.86.

### Data analysis

Statistical analysis of the data was performed using the "SPSS" (Statistical Package for Social Sciences) for Windows 16.0 program. In the evaluation of categorical and ordinal variables, nonparametric (chi-square) was used; in the analysis of measurement data, parametric (Student's t-test) showed normal distribution, and in the correlation analysis of data obtained by measurement and normally distributed, data analysis was performed using Pearson's correlation. A  $p < 0.05$  was accepted as statistically significant.

### Ethical considerations

The participants were informed about the purpose of the study before the data collection. Since the data were collected before or after the lesson while the students were in the classroom environment, verbal consent was obtained by informing them about the study. In addition, written information about the

study was given in the data collection form. The data of the study were collected after getting permission from Istanbul Medeniyet University Social and Humanities Research and Publication Ethics Committee. To conduct the study, approval (dated May 8, 2019) and permission were obtained from the Ethics Committee.

## RESULTS

The mean age of students was  $19.75 \pm 1.55$  (17–34), their menarche age was  $13.20 \pm 1.14$  (10–16), duration of menstruation was  $6.23 \pm 1.52$  (2–15) days, and menstruation frequency was  $29.02 \pm 11.51$  (11–180) days. It was determined that the menstrual irregularity and pain complaint during menstrual period are more common in those with PMS compared to those who did not have PMS (Table 1).

The prevalence of PMS was 67.6%. The PMSS total mean score of the students was  $125.66 \pm 35.39$  and the highest mean

score ( $21.79 \pm 6.77$ ) was determined in depressive sensation subscale among the subscales of the scale. WCF-PPS total mean score was  $39.89 \pm 10.12$ .

No difference was found between the students with and without PMS in terms of their characteristics, except for smoking, history of PMS in the family, controlling anger, being diagnosed with anemia, and fear of pregnancy/labour processes. Besides, students experiencing PMS had higher scores in the Childbirth Fear-Prior to Pregnancy Scale compared to those without PMS and the childbirth fear increased in students with PMS (Table 2). Additionally, when the WCF-PPS scores were compared in terms of the delivery method, it was determined that the students who preferred cesarean delivery ( $43.18 \pm 10.93$ ) received statistically significantly higher scores than those who preferred vaginal delivery ( $39.47 \pm 9.95$ ) ( $t = -2.113$ ;  $p = 0.035$ ).

The students' depressive sensation, anxiety, fatigue, nervousness, depressive thoughts, pain, appetite changes, sleep

**Table 1.** Comparison of sociodemographic and menstrual characteristics of the students with premenstrual syndrome

	Premenstrual syndrome (-) (n=106)		Premenstrual syndrome (+) (n=221)		t	p
	Mean±SD		Mean±SD			
Age (years)	19.66±1.53		19.79±1.56		-0.735	0.460
Menarche age (years)	13.33±1.05		13.14±1.17		1.449	0.149
Duration of menstruation (day)	5.54±1.23		5.57±1.38		-0.274	0.784
Menstruation frequency (day)	28.35±5.58		29.23±12.50		-0.976	0.330
	n	%	n	%	χ <sup>2</sup>	p
Class						
1	38	35.9	72	32.6	2.615	0.271
2	24	22.6	69	31.2		
3	44	41.5	80	36.2		
Family type						
Nuclear family	92	86.8	191	86.4	0.008	0.927
Extended family	14	13.2	30	13.6		
Income level						
Income less than expense	18	17.0	21	9.5	4.683	0.096
Income equals the expense	80	75.5	174	78.7		
Income more than expense	8	7.5	26	11.8		
Menstrual scheme						
Regular	94	88.7	157	71.0	12.493	0.000
Irregular	12	11.3	64	29.0		
Pain complaints during menstrual period						
Yes	77	72.6	189	85.5	7.830	0.005
No	29	27.4	32	14.5		

Bold denotes significant p-value.

**Table 2.** Comparison of some risk factors in terms of the students' status of experiencing premenstrual syndrome.

	Premenstrual syndrome (-) (n=106)		Premenstrual syndrome (+) (n=221)		t	p
	Mean±SD		Mean±SD			
Women Childbirth Fear-Prior to Pregnancy Scale	35.74±10.02		41.88±9.58		-5.049	0.000
	n	%	n	%	χ <sup>2</sup>	p
Exercising state						
Yes	51	48.1	116	52.5	0.549	0.499
No	55	51.9	105	47.4		
Smoking status						
Yes	3	2.8	25	14.4	6.583	0.010
No	103	97.2	196	88.7		
Sugary food consumption status						
Yes	98	92.5	204	92.3	0.002	0.963
No	8	7.5	17	7.7		
More than a daily cup of coffee consumption						
Yes	19	17.9	59	26.5	3.035	0.080
No	87	82.1	162	73.3		
Using too much salt						
Yes	14	13.2	49	22.2	3.147	0.076
No	92	86.8	172	77.8		
PMS status in mother or sister						
Yes	48	45.3	149	67.4	14.656	0.000
No	58	54.7	72	32.6		
Difficulty controlling anger						
Yes	72	67.9	193	87.3	17.558	0.000
No	34	32.1	28	12.7		
Being diagnosed with anemia						
Yes	20	18.9	72	33.6	6.661	0.010
No	86	81.1	149	67.4		
Fear of pregnancy/labor processes						
Yes	58	54.7	170	76.9	16.735	0.000
No	48	45.3	51	23.1		
Delivery method preference						
Vaginal delivery	93	87.7	197	89.1	0.141	0.707
Cesarean delivery	13	12.3	24	10.9		

Bold denotes significant p-value.

pattern changes, and bloating subscales of PMSS had a weak, positive, and statistically significant correlation with WCF-PPS (Table 3). Therefore, it was determined that the students WCF-PPS scores increased as their PMSS subscale scores increased.

## DISCUSSION

In this study, it was found that 67.6% of the students experienced PMS. In the literature, there are many studies showing that the prevalence of PMS varies between 16.4 and 80.2%<sup>1,15,16</sup>. From the study results, we can conclude

**Table 3.** Correlation between the students' Premenstrual Syndrome Scale Subscale Scores and Women Childbirth Fear-Prior to Pregnancy Scale Scores (n=326).

	Depressive affect		Anxiety		Fatigue		Irritability		Depressive thoughts		Ache		Appetite changes		Sleep changes		Swelling	
	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p
WCF-PPS	0.366	<b>0.000*</b>	0.319	<b>0.000*</b>	0.256	<b>0.000*</b>	0.232	<b>0.000*</b>	0.356	<b>0.000*</b>	0.185	<b>0.001*</b>	0.131	<b>0.018*</b>	0.254	<b>0.000*</b>	0.191	<b>0.000*</b>

WCF-PPS: Women Childbirth Fear-Prior to Pregnancy Scale Scores. r: Pearson's correlation; p: p<0.05. \*p<0.05. Bold denotes significant p-value.

that PMS is a women's health problem with a wide prevalence range. It is important to identify premenstrual complaints. The health of women in the premenstrual period should be improved by organizing trainings and interventions to reduce/eliminate the complaints and their severity identified.

In this study, the rate of those who were fear of pregnancy and birth processes was higher than those who experienced PMS. The results showed that experiencing complaints specific to PMS may develop the childbirth fear prior to pregnancy in young people who were planning of having children in the future. It was found in the present study that knowing birth history of others, experiencing distress in premenstrual period, and the media were effective in the development of the childbirth fear prior to pregnancy. According to the study by Stoll and Hall, three factors decreasing the childbirth fear were having knowledge about pregnancy and birth, witnessing a delivery, and reporting friends as an information source. Stoll and Hall determined that young women who stated that their attitudes toward pregnancy and birth were affected by media had the highest fear of birth scores<sup>17</sup>. Thomson et al. found that witnessing a birth was associated with lower fear scores<sup>11</sup>. Conducting practices to alleviate/eliminate premenstrual complaints and receiving information about pregnancy and birth from health care professionals may prevent the childbirth fear prior to pregnancy.

In addition, high fear in childbirth prior to pregnancy was associated with the preference of cesarean section, which is similar to previous findings<sup>18-20</sup>. Fear of childbirth is a reason for requesting cesarean section.

Comparing the correlation between the PMSS subscale score and the WCF-PSS score, it was determined that the level of the students with childbirth fear prior to pregnancy increases with an increase in their complaints about PMS. With this result, it was determined that experiencing PMS had a role in the development of the childbirth fear prior to pregnancy. It should be

evaluated whether or not women experiencing PMS have the childbirth fear prior to pregnancy.

### Limitations of the study

This study may not be generalizable to all young women. Since the findings of the study can only be generalized to the research sample, it is recommended to conduct similar studies with larger groups and different samples. Other limitation was that the study was conducted based on questionnaires with closed-ended questions. Qualitative studies or open-ended questions can more deeply examine subject. Therefore, qualitative studies are recommended in this regard.

### Strengths and weaknesses of the study

The strength of the study is that it is not single-centered, and its weakness is that it was conducted only on nursing students.

## CONCLUSION

Young women who do not have children yet but are planning to have children in the future may be afraid of pregnancy and delivery processes due to premenstrual complaints. Therefore, the elimination of premenstrual complaints and childbirth fear of women who have such complaints should be focused in future studies.

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## AUTHORS' CONTRIBUTIONS

**HA:** Conceptualization, Data curation, Formal Analysis, Writing – original draft, Writing – review & editing.

**MD:** Conceptualization, Data curation, Formal Analysis, Writing – original draft, Writing – review & editing.

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