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The Evaluation of Relationship between Oral Contraceptive Usages with Psychiatry Symptoms of Premenstrual Syndrome

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Abstract

Background: *Premenstrual syndrome (PMS) refers to a set of physical, psychological or behavioral symptoms occurring in ovulation cycles, which in some ways disturbs a person's activities. The aim of study was to investigate the relationship between previous use of contraceptive pills and psychological symptoms of PMS.*
Methods: *This cross-sectional study was conducted among all female students of Shahroud university of medical sciences. Samples were selected by simple census and were provided a standard questionnaire for measuring the PMS. Significant level was set at 0.05.*
Results: *65.5% of the participants had some degree of PMS. The use of OCP significantly reduced some PMS related symptoms such as depression (Pvalue = 0.039), sadness (Pvalue = 0.012), sobering up (Pvalue = 0.003) and anger (Pvalue = 0.032).*
Conclusions: *The results of this study showed the use of OCP can clearly and significantly reduce some of the symptoms associated with PMS, such as depression, sadness and sobering up and anger.*

Keywords: PMS, OCP, Psychiatry symptoms.
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Introduction

Premenstrual syndrome (PMS), a persistent pattern is limited to physical and emotional symptoms which occur only during the luteal phase of the menstrual cycle, which are of sufficient intensity to interfere with some aspects of life and happen at least 2 consecutive cycles.[1] Symptoms begin after ovulation and intensify one week before menstruation and then gradually decreases.[2] Only a small percentage of women (2 to 5%) have PMS syndrome which can be separated from the normal discomfort associated with menstruation in healthy women. Although the syndrome is one of the most common diseases in the world, the actual prevalence is difficult to calculate and the main reason for this is the wide discrepancy in definitions and diagnostic criteria.[3] However, it is estimated that 80% of women in reproductive age experience some of the symptoms of this syndrome before menstruation and in 5% of people, the symptoms are severe, which causes a widespread dysfunction.[3-5] At least 5 marks should be available to prove mood changes that including very depressed mood; impressive anxiety; intense mood swings; intense or persistent anger; indifference to everyday activities; drowsiness; severe loss of appetite; sweaty or sleeplessness; feeling broken and frustrated and physical symptoms.[6] Reducing exposure to estrogen is associated with mood disorders which are due to the decrease in serotonin activity. Thus, one of the PMS therapies is a combination of oral contraceptive pills (OCP). These pills contain estrogen and progesterone that dosage in the monophasic tablets is constant, but the dosage of multiphasic tablets varies over a cycle. These pills also affect dysmenorrhea and menorrhagia. Symptoms of this syndrome are divided into two parts: physical symptoms and mood symptoms, each of them is different in different people.[7] Some research has the positive impact of OCP in reducing and controlling the symptoms of PMS has been mentioned and some research has also ruled out this effect. Regarding physical symptoms, OCP has had many successes in controlling these symptoms and in a large number of articles this positive impact is mentioned but regarding the control of mood and psychological symptoms, the studies performed are not very transparent and there are many contradictions in their results.[8-10] Because the prevalence of OCP in the community is high and the complications of PMS for many women, especially female workers or students have been intolerable and they have been distracting them for a long time and considering the controversy about the effect of OCP on the reduction of mood symptoms in PMS, this research is aimed at the evaluation of relationship between OCP usages with psychiatry symptoms of PMS among female students of Shahroud university of medical sciences during the year 2017.

Materials and Methods

This cross-sectional study was conducted among all female students of Shahroud university of medical sciences who were volunteering to participate in the project between January and December 2017. Samples were selected as a simple census (and completed to sample size) and after fully justifying them and expressing the purpose and syntax of execution, the standard questionnaire for measuring the PMS was provided to them and after it was completed, it was collected. The questionnaire included two parts: the first part contains demographic information (age, marital status), the use or non-use of OCP, and the second part included 30 questions that measured the frequency and severity of symptoms of PMS. 25 questions about PMS physical and mental symptoms and 5 questions about PMS effect on occupational, social and family relationships that designed according to DSMIV1 criteria. For study the symptoms and abnormalities of premenstrual syndrome was used than PMS symptoms questionnaire according to PSST (premenstrual screening tool) which included 25 questions, designed and people were asked to rate the severity of symptoms and disorders according to a 4-degree

scale (1 = at all, 2 = low, 3 = average, and 4 = high) mark in the table. Individuals who responded to the symptoms mentioned in the questionnaire responded to at least 5 questions (of course, one item should be from questions 1 through 4) was named PMS and people who answered at least 2 questions and 3 questions answered moderate or severe (of course, one answer should be from questions 1 through 4 and one responded to questions of functional impairment) hey were diagnosed as mild premenstrual dysfunction. Then, according to participants' response to the history of taking or not taking OCP, the subjects were divided into case and control groups, and according to the points obtained from the questionnaire questions above, the severity of the complications and symptoms of PMS is clear and the two groups were compared.

Descriptive statistics including mean and standard deviation, as well as relative frequency were used to describe the data. To examine the relationships and comparisons between the two groups was used the chi-square test and multivariate logistic regression were used to evaluate the odds of each of the variables. All analyses were performed using SPSS software version 16 and a significant level (Pvalue < 0.05). Sample size using Epi info 7.2 at a significant level of 5% and a power of 80%, equal to 190 people in the case group and 100 people in the control group with a total of 290 people.

This study was reviewed and approved with the ethics board of Shahroud university of medical sciences (code number: IR.SHMU.REC.1396.19). The essential information and the objectives of the study were explained to the patients and written informed consent was obtained for participation in the study.

Results

Of the 290 participants, 190 cases had a history of symptoms of PMS which of them, 190 cases had a history of using OCP (case group) and 100 subjects no history of using OCP (control group). Regarding the severity of PMS, 93 (48.8%) were mild, 66 (34.7%) were moderate and 31 (16.5%) had a severe type of syndrome that there was no significant difference between the two groups. The mean age of the participants was 22.83 ± 3.35 years. There was no significant difference between the mean ages of the two groups. The mean BMI of the girls was 24.28 ± 4.58 kg/m2 that there was no significant difference between the two groups. The results of the mental symptoms of contributors in both groups are shown in table 1. The average score of PMS mental syndrome is in the case group was 29.69 ± 14.11and in the control group was43.37 ± 21.52 which was a significant increase in the case group (Pvalue < 0.001). The average score of the PMS questionnaire is shown in table 2.

Table 1. Frequency distribution of the two groups in terms of psychological symptoms of premenstrual syndrome

psychological symptoms	Case group Number (%)	Control group Number (%)	Total Number (%)	Pvalue
Depression				
Positive	84(84)	82(91.1)	166(87.4)	0.039
Negative	16(16)	8(8.9)	24(12.6)	
Sad and crying				
Positive	87(87)	87(96.7)	174(91.6)	0.012
Negative	13(13)	3(3.3)	16(8.4)	
Fatigue				
Positive	91(91)	84(93.3)	175(92.1)	0.417
Negative	9(9)	6(6.7)	15(7.9)	
Disappointment				
Positive	85(85)	78(86.7)	163(85.8)	0.378
Negative	15(15)	12(13.3)	27(14.2)	
Worthless				
Positive	75(75)	69(76.7)	144(75.8)	0.109
Negative	25(25)	21(23.3)	46(24.2)	
Stress				
Positive	92(92)	83(92.2)	175(92.1)	0.762
Negative	8(8)	7(7.8)	15(7.9)	
Disquietude				
Positive	75(75)	78(86.7)	153(80.5)	0.010
Negative	25(25)	12(13.3)	37(19.5)	
Sobering up				
Positive	86(86)	85(94.4)	171(90)	0.003
Negative	14(14)	5(5.6)	19(10)	
Impatience				
Positive	96(96)	85(94.4)	181(95.3)	0.056
Negative	4(4)	5(5.6)	9(4.7)	
Decentralization				
Positive	93(93)	80(88.9)	173(91.1)	0.216
Negative	7(7)	10(11.1)	17(8.9)	
Changing appetite				
Positive	94(94)	83(92.2)	177(93.2)	0.080
Negative	6(6)	7(7.8)	13(6.8)	
Changing in sleep pattern				
Positive	82(82)	80(88.9)	162(85.3)	0.378
Negative	18(18)	10(11.1)	28(14.7)	
Anger				
Positive	78(78)	83(92.2)	161(84.7)	0.032
Negative	22(22)	7(7.8)	29(15.3)	

Table 2. The average score of the PMS questionnaire in two groups according to total score and the score of the psychological symptoms

score of the PMS questionnaire	Case group	Control group	Total girls	Pvalue
Average total rating	51.25 ± 14.09	67.64 ± 21.34	58.71 ± 18.62	0.001
Average rating for mental disorders	29.69 ± 14.11	43.37 ± 21.52	34.47 ± 18.43	0.001

Discussion

The results of this study showed that the use of contraceptive pills can significantly reduce some mental disorders and mood-related to PMS such as depression, sad and crying, sobering up and anger. These findings are consistent with the results of some studies such as Shahpoorian and Collins but with the Adiguzel and Kues studies, it is somewhat consistent that perhaps this difference concerns the instrument for measuring these mental states, the degree of accuracy of participants to answer questions and the sample size of the research.[11-14] In this study, it was found that the majority of girls participating in the program experienced a clear change in mood symptoms associated with PMS. The WHO, the prevalence of mood changes in the mood of PMS looking like irritability, sleepiness and, depression, it is related to ethnicity and race as in Indonesian women, 23% and 73% in Muslim women in Yugoslavia were reported that the reason for this contradiction in the findings can be attributed to this issue that in the present study, the research community did not have much diversity in terms of ethnicity and most of them were Fars.[15,16] The study also showed that 65.5% of the students had signs and symptoms of PMS. This finding was consistent with the results of some studies conducted in Iran. The study of Nurjah,[17] which reported a prevalence of PMS among female students of Tarbiat Modarres university, 67%. In the study of Talaei and et al.,[18] the prevalence of PMS among students of the Mashhad university of medical sciences was 48.4% and in the study of Alavi and et al.,[19] in southern Iran, the prevalence of PMS among medical students of Bandar Abbas medical university was 40.1%. Studies in neighboring countries have also reported a lower incidence of PMS compared with our study results. Among the studies in Balah et al., in Saudi Arabia, the prevalence of PMS among Malek Faisal university students was about 30.6%.[20] In the study of Neissar et al., in Pakistan, the prevalence of PMS in medical students was about 10%.[21] In the meantime, the results of some studies in other countries such as the study by Rapkin et al., in Brazil[22] and the study by Allen et al., in Nigeria[23] coincided with the results of this study. In the Farahani study, which was conducted to compare the prevalence and severity of PMS in both athletic and non-athlete women, the prevalence of PMS was 33.4% in female athletes and 32% in control group.[24] In this study, the severity of PMS was also studied, based on the findings, 48.8% of the units had mild PMS, 34.7% moderate and 16.5% severe PMS. In the study of Fotokian et al., in Tehran, the severity of PMS was 62% mild, 36% moderate and dysfunctional premenstrual dysfunction was only 2%.[25] The results of this study about the severity of PMS are similar to most previous studies. In the present study, there was no significant relationship between the prevalence of PMS and the mean BMI. Maharaj et al., in their study considered weight and body mass index to be effective in the prevalence of symptoms of PMS.[26] In the present study, there was no significant difference in the status of marital status with PMS, but in the Endicott and Kialashaki study, there was a significant correlation between the prevalence of PMS and marital status.[27,28] Different results in the present study may be attributed to different statistical populations and different evaluation and diagnostic tools for PMS.

Finally, the results of this study showed that although PMS prevalence among students is high, the use of contraceptive pills (in the present or the past) can clearly and meaningfully reduce some of the mood symptoms associated with PMS like depression, sadness, and crying, groaning and anger. This syndrome has a significant negative effect on women's emotions and function, prevalence and identification of predisposing factors of premenstrual syndrome and control of its effective factors can play a major role in preventing the severity of this disorder and improving the health of students.[29-30]

Limitations that the researchers encountered in this study were; 1) no tendency to complete the data form, 2) no clinical investigation was done for assessing the emotional and psychological symptoms of PMS, 3) no equals of cases and controls in two groups. Of course, researchers have tried to control this limitation with regular follow-up and detailed explanations on how to complete this form.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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