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Predicting the Premenstrual Syndrome Based on Alexithymia and Self-Efficacy in Women with Migraine: A Cross-Sectional Study

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Abstract

Background: Premenstrual Syndrome (PMS) is a common problem in women with migraines. Due to the importance of recognizing aspects of this issue, this study was conducted to investigate the role of alexithymia and self-efficacy factors in predicting PMS.

Methods: This analytical cross-sectional study was performed on the statistical population of women with migraine referred to medical centers in Rasht in 2021. 160 women with migraines participated in convenience sampling methods from medical centers and responded to the Demographic Information Questionnaire, Premenstrual Symptoms Screening Tool (PSST), Toronto Alexithymia Scale (TAS-20) and General Self-Efficacy Scale (GSE). Data analysis was performed using IBM SPSS21 (IBM Inc, New York, USA) statistical software.

Results: The results showed that 59.6% of the women had PMS. Pearson correlation coefficient showed that PMS was negatively associated with self-efficacy (r=-0.28; p=0.001) and positively associated with alexithymia (r=0.22; P=0.001). Multiple linear regression analysis indicated that the self-efficacy variable (β=-0.27) negatively predicts 11% of the changes in the PMS variable.

Conclusion: Self-efficacy and alexithymia are PMS-related factors; thus it is suggested that health care providers pay attention to the importance of these psychological factors in developing treatment plans.

Keywords: Alexithymia, Female, Migraine disorders, Premenstrual syndrome, Self-Efficacy

Introduction

Migraines are more common in men than women in the pre-adolescent years, but become more common in women as puberty begins, and in late adolescence, women suffer from migraines approximately twice as often as men. The prevalence of migraine is also between 25 and 55 years (1). Epidemiological studies show that approximately 33 to 64% of women with migraine suffer from Premenstrual Syndrome (PMS), the difference between this statistic is in controlling or not controlling Menstrual Migraine (MM) in women with migraine (2). PMS is characterized by a wide range of mood, physical, and behavioral symptoms that occur in the luteal phase of the menstrual cycle and disappear after the onset of the menstrual bleeding. As a physical disease, this syndrome is in the tenth edition of the International Classification of Diseases (ICD-10) (3).

Although the role of biological factors and hormones is prominent in the etiology of PMS, studies have shown that psychological and social factors are also effective. In fact, it can be stated that the etiology of PMS can be explained based on the biopsychosocial model (2). Recent studies have also indicated that psychological factors such as stress (4), difficulties in emotion regulation (5) and personality traits (6) are among the factors affecting PMS. Alexithymia has been reported in some studies as an effective factor in PMS (7,8). Some studies also indicate a high frequency of alexithymia in women with migraines (9); but there is also contradictory research (10). Alexithymia can be defined as difficulty in identifying and describing emotions and externally-oriented thinking (11).

Self-efficacy is another psychological factor whose role on PMS is unclear, as one study showed that women with PMS have high self-efficacy (12). A negative relationship between PMS and coping self-efficacy was reported in another study (13). However, there is strong evidence in the history that self-efficacy in women with migraines is lower than in the normal population (14).

Studies have shown that psychological factors can play an important role in PMS, but studies on the role of self-efficacy and alexithymia have conflicting results; accordingly, it is necessary to obtain stronger evidence through repeated studies. Understanding the psychological factors affecting PMS can play a significant role in developing treatment plans for people with PMS. Therefore, the aim of this study was to predict PMS based on alexithymia and self-efficacy in women with migraine.

Materials and Methods
Study participants and setting

This analytical cross-sectional study was conducted in the statistical population of women with migraine referred to medical centers in Rasht in 2021. Based on the dispersion of Premenstrual Symptoms Screening Tool (PSST) in the study of Maddineshat *et al* (15) (σ = 4.55, 1-α = 0.05; 1-β =0.90; d = 1.27) and the formula of Chow *et al* (16), at least the sample size was 135 people. The sample size was increased to 160 people to prevent possible falls. Women with migraine in a convenient sampling method participated in this study from medical centers in Rasht (*e.g.* Guilan Pain Clinic, Dr. Kashiri Clinic, Imam Reza Clinic and Poursina Hospital) from February 23 to August 6, 2021. Inclusion criteria were as follows: diagnosis of migraine headache by a neurologist, age range 18 to 50 years and having at least a diploma. Exclusion criteria included: head trauma experience, lack of informed consent, alcohol or drug addiction and having physical and psychiatric disorders (based on the participants' statements).

The following tools were utilized to collect data: demographic information questionnaire, Premenstrual Symptoms Screening Tool (PSST) (17), Toronto Alexithymia Scale (TAS-20) (18) and General Self-Efficacy Scale (GSE) (19) which had standard validity and reliability. Data were collected from the mentioned medical centers and after explaining the objectives of the research and receiving the informed consent, the research tools were provided to the patients and they were asked to respond in 20 minutes. Participation in this study was voluntary and participants responded to the tools with full knowledge of the research objectives. This study was approved by the Ethics Committee of Islamic Azad University, Rasht branch (Ethics code: IR.IAU. RASHT.REC.1400.005).

Data analysis was performed using IBM SPSS 21 (IBM Inc, New York, USA) statistical software. Qualitative data were reported utilizing frequency

and percentage indices, and quantitative data were reported using mean and standard deviation indices. The normality of data distribution was assessed with the help of the Kolmogorov-Smirnov test. In the analysis section, Pearson correlation coefficient and multiple regression tests with multiple enter method were used.

Results

160 questionnaires were administered but 156 questionnaires were complete and could be analyzed; demographic information of the participants is presented in table 1.

The mean and standard deviation of the participants' age was 33.23 ± 8.71 years. The results showed that 93 women (59.6%) had PMS. Also, the scores of the research variables were in the normal distribution (p<0.05). Pearson correlation coefficient indicated that PMS was negatively associated with self-efficacy (r=-0.28; p=0.001) and positively associated with alexithymia (r=0.22; p=0.001). To determine the role of self-efficacy and alexithymia variables in predicting PMS, a summary of multiple regression was utilized in a simultaneous enter method. The results showed that the Durbin Watson Test (1.98) is between 1.50 and 2.50, indicating a lack of autocorrelation, as well as the VIF for the predictor variables of 1.07.

A tolerance of 0.59 was calculated, indicating that there is no multicollinearity relationship between the variables. Regression results showed that the self-efficacy variable negatively with the path coefficient (β=-0.27) can predict PMS, but the role of alexithymia in the regression model was not significant. A total of 11% of the variables of PMS in migraine patients can be explained based on this regression model.

Discussion

The present study aimed to predict PMS based on alexithymia and self-efficacy in women with migraine in an analytical cross-sectional study. It was shown that 59.6% of women with migraine suffer from PMS. In this regard, the present result is consistent with the studies conducted by Vetvik *et al* (20) and Vetvik *et al* (21). The results of previous studies indicate that over 50% of women with migraines experience PMS. Other results showed that self-efficacy was negatively related to alexithymia and positively associated with

Table 1. Demographic information of the participants (n = 156)

Variables		M±SD (Range) / No.(%)
Age (years)		33.23±8.71 (18-50)
PSST		33.27±8.10 (7-57)
GSE		27.40±5.64 (15-40)
TAS-20		58.30±11.46 (29-88)
With PMS		93 (59.6)
Without PMS		63 (40.4)
Marital status	Single	64 (41.0)
	Married	83 (53.2)
	divorced	8 (5.1)
	Death	1 (0.6)
Education level	Diploma and	35 (22.4)
	Associate and Bachelor	84 (53.8)
	Postgraduate education	37 (23.7)
Employment status	Unemployed	22 (14.1)
	Student	41 (26.3)
	Government job	41 (26.3)
	Retired	5 (3.2)
	Freelancer	47 (30.1)
Number of children	Zero	83 (53.2)
	One	35 (22.4)
	Two	32 (20.5)
	Three	5 (3.2)
	Four	1 (0.6)

Note: M=Mean; SD= Std. Deviation; PSST=Premenstrual Symptoms Screening Tool; GSE= General Self-Efficacy Scale; TAS-20=Toronto Alexithymia Scale; PMS= Premenstrual Syndrome.

PMS, but only self-efficacy was able to predict PMS. Previous studies by Alpaslan *et al* (7) and De Berardis *et al* (8) also reported that alexithymia was higher in women with PMS. Studies show that alexithymia is present in a wide range of psychological and physical disorders (22); therefore, it is concluded that cognitive deficits in emotion processing play an effective role in predicting physical and psychological disorders, but more studies are required to be conducted to clarify the role of alexithymia in PMS pathogenesis. Self-efficacy plays an important role in regulating emotions. It also allows people to interpret potentially threatening expectations as manageable challenges and helps them perceive less stress in such situations. Thus, by reducing negative thoughts and potential

threats, individuals can regulate their emotional states. In fact, self-efficacy can be considered a protective factor against pressures and life threats (23). This study is important since it was performed in a large sample of women with migraine and considered the role of psychological factors (self-efficacy and alexithymia) in predicting PMS.

As previously mentioned in the etiology of PMS to the biopsychosocial model, it can be stated that PMS is a disorder with multifaceted etiology. It was shown in previous studies that hormonal changes, economic problems, urban growth, lack of menstrual education programs, increase stress and other psychological factors are involved in PMS (2,4). In this study, the role of two important psychological factors was specifically examined since there was conflicting evidence in this regard. Therefore, other aspects of etiology need to be considered in future studies. However, for this cross-sectional study, focus on migraine types, failure to collect data randomly, use of self-reported questionnaires and lack of causation were some of the limitations that should be interpreted in the results. This study was performed on women with migraines and due to the lack of a control group, the results could not be generalized to the general population. Also, the lack of precise control of confounding variables, using valid tools is another limitation of this research. Please note these limitations in generalizing the results.

Conclusion

The results of this study showed that over 50% of women with migraines suffer from PMS. Self-efficacy and alexithymia are two effective psychological factors of PMS, and more studies are required to better understand their relationship. However, in order to reduce bias in future studies, other psychological and biological factors should be considered in elucidating premenstrual syndrome which was not considered in this study. But it is suggested that attention should be paid in the therapeutic interventions of people with migraine to reduce PMS to improve self-efficacy and reduce alexithymia.

Conflict of Interest

The authors declared no conflicts of interest.

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