

# Association of premenstrual syndrome with temperaments and ethnicities; an evidence-based traditional medicine study in west of Iran

Razieh Shirzadegan<sup>1,2</sup>, Seyed Amir Yasin Ahmadi<sup>3</sup>, Fatemeh Yari<sup>4</sup>, Parastoo Baharvand<sup>1</sup>, Afshin Hasanvand<sup>5\*</sup>

<sup>1</sup>Social Determinants of Health Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran

<sup>2</sup>Scientific Society of Evidence-Based Knowledge, Research Office for the History of Persian Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran

<sup>3</sup>Pediatric Growth and Development Research Center, Institute of Endocrinology and Metabolism, Iran University of Medical Sciences, Tehran, Iran

<sup>4</sup>Department of Reproductive Health, Lorestan University of Medical Sciences, Khorramabad, Iran

<sup>5</sup>Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran

## Correspondence to:

Afshin Hasanvand, Email:  
afshinhasanvand@yahoo.com

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## Abstract

**Introduction:** Iranian traditional medicine is based on the quadruplet temperaments.

**Objectives:** In the present study we aimed to evaluate the association of premenstrual syndrome (PMS) and temperaments and ethnicities of female medical students of the west of Iran.

**Patients and Methods:** To conduct this study, we selected 100 female college students of Lorestan University of Medical Sciences. To diagnose their temperaments (natures), we used a 10-item questionnaire. For the ethnicities, we applied the neighbor-joining tree of western Iran ethnicities previously reported based on human leukocyte antigen (HLA) genes. A researcher-designed questionnaire was used for the detection of PMS.

**Results:** Among 100 enrolled students, 45 students were healthy, and 55 students had different stages of PMS. Female students with typical warm nature were more susceptible to PMS ( $P=0.036$ ). The role of ethnicity was not statistically significant.

**Conclusion:** In medical plant related studies, patients should be categorized based on their temperaments. Iranian traditional medicine should be reinvestigated based on evidence-based medicine.

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## Introduction

Premenstrual syndrome (PMS) is a complex of psychological, emotional and behavioral symptoms happening before menstruation. Symptom of this syndrome is extensive and can disorder the activity and function of women. There are different definitions for premenstrual symptom and premenstrual dysphoric disorder (PMDD) like definition of American College of Obstetrics and Gynecology (ACOG). Based on such definitions, these symptoms may happen before menstruation. After starting the menstruation period its symptoms reduce without any medicinal interference. The exact prevalence of PMS is indefinite. In different questionnaires, up to 30 items are evaluated with Likert scale (1-5).

Iranian traditional medicine is based on the quadruplet temperaments (6,7). This traditional medicine has been described by

## Core tip

Iranian traditional medicine is based on the quadruplet temperaments. Among 100 included students, 45 students were healthy, and 55 students had different stages of PMS. Female students with typical warm nature were more susceptible to PMS. In medical plant related studies, patients should be categorized based on their temperaments. Iranian traditional medicine should be reinvestigated based on evidence-based medicine.

Iranian scientists and philosophers like Jorjani and Avicenna (8). These four temperaments are sanguine (blood) (warm and moist), bilious (warm and dry), melancholic (cold and dry), and phlegmatic (cold and moist) (8,9). Different diseases can be associated with different mal-temperaments (10,11). From the viewpoint of medical anthropology, individuals of different ethnicities have different temperaments and genetic content



(12). A good way to differentiate the ethnicities is human leukocyte antigen (HLA)-typing (13). Such results are usually shown with a neighbor-joining tree (dendrogram). The neighbor-joining tree of western Iran population has been previously published by Varzi et al (14).

Female medical students have a lot of educational and working stress. Hence some descriptive studies showed that they have a lot of sexual and reproductive problems (15,16)

## Objectives

In the present study we attempt to evaluate the association of PMS and temperaments and ethnicities of female medical students of the west of Iran.

## Materials and Methods

### Subjects

To conduct this descriptive-analytic case study, we selected 100 female college students of Lorestan University of Medical Sciences through convenient sampling, from those who gave us the informed consent. Their ethnicities were mostly Lur and Lak.

### Temperament questionnaire

To diagnose temperaments, we used a 10-item questionnaire designed and validated by Mojahedi et al (17). We assessed this questionnaire from their self-archive while the published version of it had more than 30 questions. Based on the brief version of the questionnaire, some individuals would have moderate temperament. However, they are not really moderate, and in fact their temperaments are not typical while they should pass the long version of the questionnaire. The reliability and validity of both short and long version of this questionnaire had been evaluated by them. These questions were 1) warmth or coldness of hand during hand shaking, 2) size of hand, 3) being effected by a cold or warm weather, 4) speaking velocity, 5) velocity of being angered, 6) being affected by known warm or cold nature foods, 7) power of voice in comparison to others, 8) velocity of body movements in comparison to others, 9) being thin or fat in comparison to others, and 10) whether the skin is moist or dry.

### Ethnicity evaluation

For the ethnicities, we used the neighbor-joining tree of Varzi et al in which the ethnicities were Lur of Khorramabad, Lak, Kurd, Lur of Shahrekord (Chahar-lang Lur in local language), and Lur of Kohkiluyeh Buyerahmad (14). This neighbor-joining tree was based on HLA-typing, however we did not perform genetic analysis.

### PMS questionnaire

A researcher-designed questionnaire was used. This questionnaire has been previously evaluated in a Persian short communication by us with Chronbach's alpha 0.91 (5).

Briefly we had evaluated 27 common signs and symptoms. Among them, 23 items were significantly associated with pre-menstruation based on paired comparisons using paired t test (pre- and post- menstruation period). Since this action was a kind of multiple comparisons, Bonferroni's correction had been adjusted. Then, 14 items enrolled in the final questionnaire. The scoring method was Likert from 1 to 5 negative scores. A mean score of the items would be reported for each participant. The interpretation was as following; 0-1 healthy, 1-2 mild, 2-3 moderate, 3-4 severe, and 4-5 disabling. These 14 items were 1) depression, 2) anxiety, 3) mood changes, 4) crying periods, 5) rapid anger, 6) agitation, 7) lack of interest to usual activities, 8) difficult concentration and notice, 9) lack of energy, 10) disappointment, 11) sleepless or sleeping a lot, 12) breast pain, 13) body dryness, and 14) fatigue.

### Ethical issues

The research followed the Tenets of the Declaration of Helsinki. The present study was approved by the ethics committee of Lorestan University of Medical Sciences (No. IR.LUMS.REC.1397.044). The informed consent is obtained.

### Statistical analysis

A suitable normal distribution test was adjusted for each group of analysis. Groups of analysis with more than 30 samples would be considered as normally distributed groups based on central tendency. For parametrical analysis regression analysis and independent *t* test was applied. For non-parametric analysis chi-squared test (or Fisher's exact test if necessary) was applied. Accordingly, *P* value = 0.05 considered as significance cut-off. Stata version 13 software (Stata Corp LLC, US) was used.

## Results

### Descriptive data

#### PMS questionnaire

Among 100 participated students, 45 students were healthy and 55 students had different stages of the disease (50 individuals were mild, 4 individuals were moderate, and 1 individual was severe).

#### Temperament questionnaire

Based on a 10-item questionnaire, 44 individuals had atypical temperaments, 40 individuals were cold and moist, 9 individuals were cold and dry, 4 individuals were warm and moist, and 3 individuals were warm and dry.

#### Ethnicities

Among the participants 48 individuals were Lak, 16 individuals were Lur of Khorramabad, 16 individuals were Kurd, 10 individuals were Fars, 4 individuals were Lur of Shahrekord, 3 individuals were Lur of Kohkiluyeh

Buyerahmad, and 3 individuals were Turk.

**Analytical (inferential) data**

**Contingency tables**

In this analysis, Fisher’s exact test was used. In all of them, the rows of tables were “healthy” and “PMS positive”. The findings were as following;

- PMS versus ethnicity; non-significant ( $P = 0.607$ )
- PMS versus temperament; non-significant ( $P = 0.180$ )
- PMS versus temperament (excluding atypical); non-significant ( $P = 0.210$ )
- PMS versus warm/cold; Significant ( $P = 0.036$ ) (warm temperament [whether dry or moist] as a risk factor) (Table 1)
- PMS versus moist/Dry; non-significant ( $P = 0.215$ )
- Ethnicity versus temperament; non-significant ( $P = 0.057$ )
- Ethnicity versus temperament (excluding atypical); non-significant ( $P = 0.178$ ).

**Parametrical analysis**

No significant relation was found for the associations of warmth, moisture and PMS points. As an example, the regression of “warmth point” versus “PMS point” was shown ( $P = 0.071$ ) (Figure 1). As well we had some normality rejections.

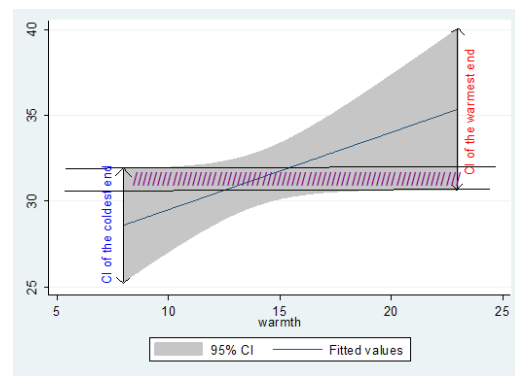
**Discussion**

In the present work, we aimed to have an evidence-based approach to traditional medicine (18). The exact prevalence of PMS is indefinite. In different questionnaires, up to 30 items are evaluated with 3, 4 or 5 choices Likert scale (with negative scores 1 to 5 for each question) (1-5). Female medical students have a lot of educational and working stress. Hence some descriptive studies showed that they had a lot of sexual and reproductive problems (15, 16). The present study was aimed to evaluate the association of PMS and temperaments and ethnicities of female medical students of the west of Iran. According to the results above, we significantly gained to our hypothesis only for the risk role of typical warm temperament (whether moist or dry) in PMS. As we mentioned in methods, based on this 10-item version of temperament questionnaire some individuals had moderate temperament. However, they are not really moderate, and in fact their temperaments

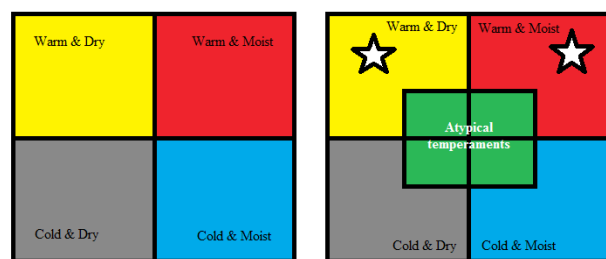
**Table 1.** Contingency table of PMS versus warm/Cold<sup>a</sup>

PMS	Temperament		Total
	Cold	Warm	
Healthy	33 (observed)	1	34
	29.6 (expected)	4.4	34
Positive	34	9	43
	37.4	5.6	43
Total	67	10	77
	67	10	77

<sup>a</sup>Some atypical patients had typical warmth (but not typical moisture).



**Figure 1.** Linear regression of warmth point (horizontal axis) vs PMS point (vertical axis). The purple area is the reason of significance rejection ( $P = 0.071$ ).



☆ → Typical warm nature is associated with PMS

**Figure 2.** The quadruples temperaments. Atypical temperaments (green) are related to the individuals those who are moderate based on our 10-item questionnaire.

are not typical. They should pass the long version of the questionnaire. Hence, our findings are valid for individuals those who are typically warm (Figure 2). Serotonergic treatments are common in management of PMS (4). For example, *Rosa Damascena* and *Valerian root* are serotonergic medical plants can be used for management of PMS. Both of them have warm and moist (near to moderate) nature (19, 20). Hence their warm nature is not enough to be harmful to PMS according to our significant result. Another research found that Saffron can be used for the treatment of PMS because of its serotonergic effect. Saffron was used for the treatment of PMS from hundred years ago in Iran as an expert opinion (evidence level 5 of evidence-based medicine). At present, it is imported in clinical trials (evidence level 1 of evidence-based medicine) (21). However, this finding is against our results (Figure 1). Saffron is typically warm and dry. To solve this controversy, we believe that saffron will have not to be good for warm and dry PMS patients. This should be investigated further.

**Conclusion**

Finally we found that female students with typical warm nature were more susceptible to PMS. The role of ethnicity

was not statistically significant which could be due to low sample size and statistical power of our study. In medical plant related studies, patients should be categorized based on their temperaments.

### Study limitations

The limitations of our study were low sample size and our temperament questionnaire. This questionnaire was 10-item. The complete 30-item version of this questionnaire was very time-consuming for our participants and therefore we did not use it.

### Authors' contribution

RS, SAYA and AH had equal contribution. FY was midwifery consultant. PB was questionnaire validating consultant.

### Conflicts of Interest

There is no conflict of interest, especially cultural and historical.

### Ethical considerations

Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

### Funding/support

None.

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