Original Article

Evaluation of Uterine Temperament in Iranian Infertile Women using a Quantitative Instrument for Uterine Temperament Detection

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Abstract

Background: The temperament is a basic concept of maintaining health in Traditional Persian Medicine. The two main grouping of temperament is hot/cold and wet/dry. Many female disorders include infertilities are diagnosed and treated based on the dystemperament therapies. This report describes design of a questionnaire for uterine temperament detection and its use to evaluate the uterine temperament of a population of infertile women. **Methods:** The uterine temperament parameters derived from main textbooks were used to design a questionnaire which its validity and reliability was proven by statistical methods. The questionnaire was then used to detect the uterine temperament of 54 infertile females. Also full history and physical exam and vaginal sonography was performed in the 3rd day of the menstrual cycle for all study participants. **Results:** The mean age was 30.92 ± 5.53 years old. Mean uterine temperament score was 3.21 ± 0.53 for hotness and 4.28 ± 1 for wetness. Mean general body temperament was 138.88 ± 17.61. The general body temperament hotness/coldness was significantly correlated with the uterus hotness/coldness (r = 0.0842); while the wetness/dryness temperament of the body and uterus were not correlated. Moreover, uterus temperament was not correlated with the size of the uterus and ovaries in sonography, but pelvic width was correlated with hot uterine temperament (r = 0.354, P = 0.0145). **Conclusions:** In the present study, the most prevalent achieved temperament was cold and wet in patients with infertility complaint. Moreover, the hot/cold temperament of body and pelvic width were correlated with uterus temperament. This may propose new prevention and also treatment methods in the field of infertility, which needs to be further evaluated.

Keywords: *Iran, medicine, surveys and questionnaires, traditional, uterus*

Introduction

Traditional Persian Medicine (TPM) is one of the most ancient and rich complementary alternative medicine methods. This knowledge is the most used complementary method in Iran and many other countries such as Greece, India, and Middle East, and is derived from TPM, also called "Hikmat."[1,2] The World Health Organization respects of special position for traditional medicine include Chinese, Indian, and Iranian and emphasizes the presence of a national research network or center in traditional, complementary, and alternative medicine in every country.[3] A national survey in the United States in 1991 revealed that 11% of adults had referred to complementary medicine experts; these statistics grew up to 46.3% in 1997.[4]

TPM methods have been used for thousands of years and are based on the temperament meaning.[5] The temperament is determining the factor of prevention, treatment, and even prognosis of disease; it plays an important role in emotional and physical characteristics as well as all body's physiological functions.[6] According to this point of view, as body temperament is in the balance, the person is in total health[7] and when temperament of a body organ or the whole temperament of a person is abnormal, dystemperament occurs, in which the organ function is corrupted and the individual encounters diseases.[8] In TPM, in addition to the whole body's temperament, criteria are stated to diagnosing the temperament of each organ such as the uterus. The Persian medicine experts divide temperament diagnostic criteria into nine main groups. These nine groups are considered as parts of a two-dimensional spectrum with two axes of hotness/coldness and wetness/dryness and the balanced

How to cite this article: Tansaz M, Sohrabvand F, Adhami S, Keshavarz M, Dabaghian FH, Bioos S, *et al*. Evaluation of uterine temperament in Iranian infertile women using a quantitative instrument for uterine temperament detection. Int J Prev Med 2020;11:39.

Access this article online

Website: www.ijpvmjournal.net/www.ijpm.ir

DOI: 10.4103/ijpvm.IJPVM_64_17

Quick Response Code:

temperament in the center. These states consist of a central balance or mean region and eight subsidiary regions out of the balance region include four simple temperaments (warm, cold, wet, and dry) and four compound temperaments (warm and wet; warm and dry; cold and wet; cold and dry).[9,10] Traditional medicine experts have explained the signs and symptoms used for temperament diagnosis in their textbooks; however, most of these signs and symptoms are qualitative, so it is difficult to determine the temperament; and its diagnosis is usually not consistent from one expert to another. Conducting epidemiologic researches based on temperament, depends on having a valid scientific instrument, but as the standard instrument was not available to determine the temperament, therapists could not use the same diagnostic and therapeutic approach and this lack of unity in practice, resulted in confusion of both patient and therapist. Therefore, it is of paramount importance to evaluate temperament criteria using scientific methods and to define this concept with quantitative reliable criteria.

Infertility is a prevalent condition with physiological, personal, economical, and medicinal complications. Infertility is observed in 10%–15% of couples.[11] In Nojumi *et al*. study at west of Tehran, the prevalence of infertility was estimated about 12%.[12] Thirty percent of infertility causes are in relationship with men problems (infertility due to male factors), 45% due to women problems (infertility with female factors) and 25% without any clear cause.[11] In TPM, infertility has been named as "oghr," and uterus dystemperament is introduced as an important cause of infertility.[8]

Since no questionnaire has been designed to investigate uterus temperament and female diseases yet, this study was planned to design an instrument for detection of uterus temperament and to determine the relationship between uterus temperament and infertility. The provided instrument can help to homogenize the diagnosis of gynecologic diseases based on Persian medicine viewpoint and to evaluate the relationship between uterus dystemperament and infertility.

Methods

This project was a cross-sectional study, conducted at Imam Hospital women's clinic in Tehran that primarily treat patients with obstetrics and gynecological disorders, based on TPM concepts. All individuals were Persian-speaking and aged between 20 and 40 years old and were not pregnant or menopause.

Ethical considerations

All patients provided written informed consent. The research protocol was in accordance with the Helsinki declaration of 1975, as revised in 2000 and the committee of PhD thesis evaluation of Tehran University of Medical Sciences approved the protocol.

Step 1: Designing questionnaire to estimate uterus temperament

First, information related to uterus temperament was extracted from TPM books by qualitative research method. TPM reliable texts such as Cannon, Zakhire Kharazmshahi, Moalejale Aghili, and Exir azam were investigated, and uterus temperament and dystemperament definitions and symptoms/signs were extracted. Searching the scientific databases such as PubMed, Scopus, Google Scholar no related information or instrument was found. Then according to traditional medicine expert opinions, questions were prepared to determine uterus temperament using Likert spectrum in seven sections to assess the face validity. In the next stage, questionnaire was sent to five experts in the field of Persian medicine to confirm content validity. The final questionnaire was then completed for 20 females. After interpretation of the pilot sample answers, questions with alpha coefficient <0.6 were eliminated, and Cronbach alpha coefficient was determined. The Cronbach alpha coefficient was 0.73 for hot/cold and 0.69 for wet/dry temperament. Furthermore, reliability of the questionnaire was examined by test-retest method on 20 patients in two interviews within 2 weeks' period. After proofing the validation and reliability of the questionnaire, the questions were filled out by an expert practitioner with more than 15 years' experience in the field of fertility and the correlation coefficient was 0.87 and 0.82 for hot/cold and wet/dry sections respectively.

The questionnaire consists of three sections. Section 1 includes two parts: part 1 consists of demographic information such as age, residence location, marriage date and occupation. Part 2 is related to fertility information consists of questions about menstruation (menstrual cycle), fertility status, previous abortion, and sexual activity.

Section 2 of the uterus temperament questionnaire consists of 12 questions with a scale from 1 to 7 for each question. Nine of the questions (number 1–9) evaluates the hotness/coldness which includes assessment of menstrual blood odor, menstrual blood hotness, amount of hair, hair growing speed, touch heat, color of the vaginal discharge, libido, vaginal discharge viscosity, and vaginal feeling during coitus. The last three questions (number 10 to 12) evaluates the wetness/dryness which includes amount of vaginal discharge, wetness, and texture of the cervix. The left side option in questions 1–9 indicates characteristic related to uterus warm temperament, and in questions 10–12 indicate uterus dry temperament. The total achieved point varieties between 9 and 63 for the first part (hotness and coldness) and 3–21 for the second part of questionnaire (wetness and dryness). In the first part, numbers between 9 and 35 indicates coldness and 37–63 warmness. Number 36 is considered as balanced temperament between warm and cold. In the second part, numbers 3–11 indicate dryness and numbers 13–36 indicate

Table 1: Uterine temperament questionnaire: Questions from number 1-9 evaluate the hot/cold and number 10-12 evaluates the wet/dry temperament

Question stem	Response 8-points scales							
1) Smell of menstrual blood								
History: Bad odor	7	6	5	4	3	2	1	No odor
2) Sensation from menstrual blood								
History: Burning	7	6	5	4	3	2	1	Not burning
3) Amount of hair in the reproductive area								
History: Very much	7	6	5	4	3	2	1	Very little
Physical examination: Very much	7	6	5	4	3	2	1	Very little
4) Hair growth speed in the reproductive area								
History: Very much	7	6	5	4	3	2	1	Very little
5) Skin Temperature in the buttocks and thighs								
History: Very hot	7	6	5	4	3	2	1	Very cold
Physical examination: Very hot	7	6	5	4	3	2	1	Very cold
6) Vaginal discharge color								
History: Little bit of redness	7	6	5	Transparent	3	2	1	White
Physical examination: Little bit of redness	7	6	5	Transparent	3	2	1	White
7) Libido								
History: Very much	7	6	5	4	3	2	1	Very little
8) Vaginal discharge consolidation								
History: Very thick	7	6	5	4	3	2	1	Very watery
Physical examination: Very thick	7	6	5	4	3	2	1	Very watery
9) Temperature of cervix during coitus								
History: Very hot	7	6	5	4	3	2	1	Very cold
10) Amount of vaginal discharge								
History: Very much	7	6	5	4	3	2	1	Very little
Physical examination: Very much	7	6	5	4	3	2	1	Very little
11) Wetness of cervix								
History: Wet	7	6	5	Normal	3	2	1	Dry
Physical examination: Wet	7	6	5	Normal	3	2	1	Dry
12) Cervix formidability								
History: Very smooth	7	6	5	Normal	3	2	1	Very dense

uterus wet temperament (considering number 12 as balanced temperament). The calculated score in hotness and wetness sections were divided into 9 and 3 respectively to achieve the final scores which ranges from 1 to 7 for each section. Thus, this questionnaire converts uterus temperament (qualitative factor) into a number (quantitative factor). Designed questionnaire is shown in Table 1.

The 3rd section of questionnaire is aimed to determine the whole body's temperament derived from whole body temperament questionnaire of Yosefifard study.[13] This questionnaire is designed to determine warm/cold temperaments but does not investigate wetness/dryness.[13] The numbers from 38 to 151 indicate coldness spectrum and numbers 153–266 indicate warmth spectrum. The number 152 is the balanced score.[13]

Step 2: Evaluation of uterus temperament in infertile women

This study was performed on 54 infertile women referred to infertility clinic of Imam Hospital during summer 2013. All participants were 20–40 years old and resident of Tehran and had no history of severe illness or malignancy. Infertile couples with male cause of infertility or individuals taking chemical drugs or hormonal treatments were not enrolled. Informed consent was filled out by all participants. In paraclinical investigation, to estimate the uterus and ovary size, vaginal sonography was performed in the 3rd day of the menstrual cycle. The size of ovary and uterus were recorded in three-dimensions (length, width, and height) and then was multiplied in 0.523.[14-16] Patients were visited by an expert TPM physician. Interview and physical gynecological examination was done to fill out the questionnaires. An expert statistician, who was blind to the study data, evaluated the results of the questionnaire.

Statistical analysis

The questionnaire data were evaluated using SPSS software version 17 (SPSS 17, IBM corporation, NY, US). The prevalence was reported using mean and standard deviation. The correlation test was also performed, and the result was reported. $P = 0.05$ was set as the level of statistical significance.

Results

Analysis of the questionnaire data revealed the Cronbach alpha of 0.73 for hot/cold and 0.69 for wet/dry temperament. The coefficient was 0.87 for hotness and 0.82 for wetness respectively. The questionnaire was used as a basic tool to assess patients' temperament. The mean age of 54 patients who enrolled the study was 30.92 ± 5.53 years. Thirty-six (66.7%) of the patients were homemaker. Nineteen (35.2%) of the patients had not used any kind of pregnancy contraceptive method, while 17 (31.4%), 10 (18.5%), 6 (11.11%), and 2 (3.7%) were using natural method, oral pills, condom, and intrauterine device, respectively. The infertility cause was classified as polycystic.

ovary (22 [40.7%]), tubal factors (13 [24.07%]), endometriosis (4 [7.4%]), premature ovarian failure (3 [5.55%]), fibroma (2 [3.70%]), high prolactin (1 [1.85%]), and uncategorized (9 [16.66%]). Forty-four (81.4%) and 10 (18.6%) patients were cases of primary and secondary infertility, respectively. Seven (13%) patients had a history of term birth, and 11 (18.7%) patients had a history of abortion. Twenty-three (42.3%) of the patients had regular menstrual bleeding episodes (vs. 31 [57.4%] with irregular menstruation). The mean uterine temperament score was 3.21 ± 0.53 for hotness and 4.28 ± 1 for wetness. Therefore, as shown in Figure 1, the most prevalent uterus dystemperament was wet and cold. Analysis of the whole body temperament showed the mean general body temperament was 138.88 ± 17.61. The general body temperament hotness/coldness was significantly correlated with the uterus hotness/coldness (r = 0.0842); while the wetness/dryness temperament of the body and uterine was not significantly correlated. Based on the sonographic evaluation data, there was no statistically significant correlation between the temperament (hotness/coldness and wetness/dryness) of uterus and uterus/ovaries size. In contrast, the pelvic width was correlated with hot uterus temperament (r = 0.354, P = 0.0145).

Discussion

Avicenna believes that considering temperament is the foundation of prevention, diagnosis, and treatment.[10] Based on TPM, dystemperament is one of the main causes of diseases and diagnosing the dystemperament is the baseline that leads to design an effective treatment protocol.[8]

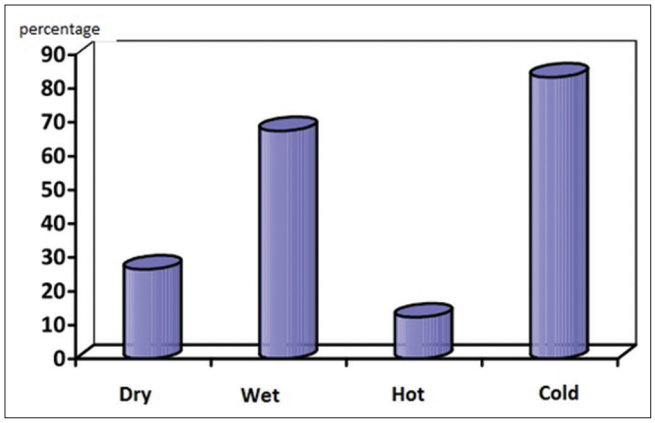

Figure 1: The prevalence of the uterus dystemperaments

Unfortunately, indexes of determining the temperaments are mostly qualitative; so there is a need to quantitate these indexes to perform studies to evaluate temperament theory and TPM bases. This study assessed the validity and reliability of an instrument for uterine temperament assessment considering a trained physician opinion as the gold standard for diagnosis in a population of outpatient infertile women.

Review of literature shows that designing a measurable instrument for diagnostic criteria and follow-up improvement, is one of the most important challenges in all complementary and traditional treatment methods. Ryu *et al*. examined the reliability and validity of a cold – heat pattern questionnaire for Traditional Chinese Medicine (TCM) diagnosis purposes.[17] Mist *et al*. evaluated the agreement among ten TCM practitioners using a questionnaire. They concluded that training on questionnaire-based diagnosis process improves the inter-rater reliability of diagnosis.[18]

In this study, the design of questionnaire on uterine temperament assessment was an important development to quantify uterine temperament based on TPM concepts which would hopefully homogenize TPM physicians' diagnosis. Before Dr. Mojahedi *et al*. designated and standardized a questionnaire to determine whole body temperament based on TPM,[9] but this study is the first to quantify a special organ temperament based on TPM. However, this is important to consider that the designed questionnaire is a basic tool as all steps of questionnaire standardization were not performed in this study.

In the present study, the most prevalent achieved temperament was cold and wet in patients with infertility complaint. In the book, Cannon of Medicine, the most important signs of uterus cold dystemperament are oligomenorrhea and amenorrhea;[8,11] Alizadeh in his study showed that in patients with oligomenorrhea, the most prevalent dystemperament is cold.[19] The other signs and symptoms of cold and wet uterus dystemperament noticed in TPM books, include pale and thin menstrual blood, cold temperature of menstrual blood, and little amount of hair in the pubic area.[8] Moreover, it has stated that amount of menstrual bleeding, vaginal discharge in orgasm and vaginal discharge in ovulation phase is increased in wet temperament of the uterus. This type of maltemperament may also cause infertility and abortion.[8]

In this study, the whole body temperament in infertile women was cold. Based on TPM theories, the whole body cold temperament is related with cold temperament in uterus that may result in infertility.[8] On the other hand,

uterine dystemperament could also diffuse to the whole body and cause body's dystemperament.[20]

Ziomkiewicz *et al*. in their study showed that warm women with high extrovert characteristics have twice more estradiol compared to another woman;[21] so it seems that individual characteristic and temperament is in close relationship with sexual hormones level. Fassino *et al*. reported in his study that risk precautionary temperament could predict infertility.[22] According to Cheung study, this expression in psychology is a manner type which the person is pessimistic, shy, timid, and hesitated.[23] Four main characteristics for this manner are stressed predictions, fear of not success, shame in relationship with strangers, and high fatigue.[24] These signs are in accordance with cold dystemperament in TPM.[25] Furthermore, in some studies, it has been shown that serotonin and cortisol changes are seen in patients with risk precautionary temperament.[24,26,27] According to Choopani, depression signs are in accordance with cold and dry dystemperament defined in TPM.[28] Therefore, probably risk precautionary temperament (cold temperament) is in accordance with depression and serotonin disorder and could be a type of predictive factor for infertility. It is possible that serotonin could play a role in infertility with its effects on sexual hormones which needs to be investigated in future studies.

Another studies have demonstrated the relationship between characteristic type and 5-HTT gene polymorphism (serotonin carrier gene) and 5-HT2a receptor.[29,30] Frokjaer has indicated a positive relationship between extroversion behavior and 5-HT2a in limbic region of the brain.[30] In Lasiuk and Hegadoren study, the positive relationship between serotonergic receptors and sexual hormones have been shown.[31] Other studies have also shown positive relationship between serotonergic receptors and sexual hormones, as the estradiol may cause an increase in synthesis and decrease in metabolism of serotonin in the brain.[32] These findings can describe the relationship between uterine temperament and personal temperament from the TPM viewpoint with hormonal physiological mechanisms. Moreover, Tansaz *et al*. reported the possible mechanisms of a correlation between the premature ovarian failure and cold, dry dystemperament.[33]

Another finding of the present study was the relationship between the pelvic width and hot temperament of the uterus. Avicenna in the Cannon of Medicine describes some anthropometric parameters with predictive value for fertility.[8] He states that a balanced uterus temperament and a large pelvic bone are predictor of good fertility in women. In the book Kamel Al-Sanae, it is described that the hot temperament of uterus may lead to enlargement of pelvic bone.[25] In Jasieńska *et al*. study, it was shown that low waist-hip ratio is correlated with higher estrogen and progesterone blood level in women; they explained that women with normal height, weight, and anthropometric parameters have higher levels of estrogen.[34,35] These findings are in accordance with Avicenna opinions that the female with good fertility power is the one who is not thin or fat but has large pelvic bone.[8]

Conclusion

This study is the first scientific research performed in the field of organ dystemperament determination in TPM. As the uterine temperament diagnostic criteria are qualitative and there is not much uniformity between the TPM practitioners on its diagnosis, so designing this questionnaire was a hard project to do; however, the results revealed high accordance between the questionnaire and the practitioners' diagnosing results. In future studies, adding a control group and using larger sample size is proposed to increase the accuracy of the study. In addition, extensive studies need to be conducted to evaluate the relation between uterus dystemperament and obstetrics gynecologic disease. It is also proposed to consider the relationship between hormonal profile and uterine temperament. If approved with stronger studies, the uterine dystemperament can be considered as a predictive criterion for infertility.

Financial support and sponsorship

This paper is a part of a PhD thesis and was financially supported by Tehran University of Medical Sciences.

Conflicts of interest

There are no conflicts of interest.

Received: 14 Mar 17 **Accepted:** 09 Jan 18
Published: 16 Mar 20

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