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Comparison of primary dysmenorrhea in athletic and non-athletic women with hot and cold temperament

Sara Mohammadnia[1]
MS in exercise physiology, Department of exercise physiology, Zand Higher Education Institute, shiraz, Iran

Mehrzad Moghadasi[2]
Department of Physical Education and Sports Medicine, Sh.C., Islamic Azad University, Shiraz, Iran

Zahra Mosalanezhad[3]
Assistant professor in exercise physiology, Department of exercise physiology, Zand Higher Education Institute, shiraz, Iran

ABSTRACT

Introduction: Dysmenorrhea is known as the most common disorder in women of reproductive age. Primary dysmenorrhea refers to abdominal and pelvic pain that occurs in the early days of menstruation. The purpose of this study was to compare the rate of primary dysmenorrhea among athletic and non-athletic women with cold and hot temperaments.

Material & Methods: In this field study, 200 women aged 20 to 30 from Shiraz participated in groups of 50 athletes and non-athletes with cold and hot temperaments. Subjects completed three demographic, temperament, and menstrual questionnaires (MEDI-Q). Comparison of variables between different groups was evaluated using independent t-test and Mann-Whitney U test at a significance level of $p<0.05$ using SPSS22 software.

Results: The findings of this study showed that there was no significant difference between the rates of primary dysmenorrhea among athletic and non-athletic women with cold and hot temperaments.

Conclusion: According to the research findings, it can be concluded that temperament type and level of physical activity have no effect on the rate of primary dysmenorrhea in women aged 20 to 30.

Keywords: Primary dysmenorrhea, Cold temperament, Hot temperament, Athlete.

***Correspondence:** mehrzad.moghadasi@iau.ac.ir
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1. Introduction

Persian medicine (Iranian traditional medicine) is a holistic medical system, with a history of several thousand years. Prominent scholars from this tradition have played a major role in the advancement of medical knowledge, especially prior to the Renaissance (1).

The term “temperament” literally means intermingling (2). In the Iranian traditional medicine, there are nine types of temperaments (i.e., cold, hot, moist, and dry known as singular temperament, as well as cold-moist, cold-dry, hot-moist, and hot-dry called compound temperaments, and finally moderate). There is no human being with a truly moderate temperament, and one of such temperaments is more or less dominant in each individual. Accordingly, a fully moderate or singular temperament with a balanced mixture of two temperaments is rare (3). Among the factors determining the temperament, the hot and cold temperaments have been concerned and used more often as compared to the secondary ones. Accordingly, all individuals can generally be classified into two cold (i.e., cold, cold-moist, and cold-dry) and hot (i.e., hot, hot-moist, and hot-dry) groups (2). The deficiency of temperament balance is one of the main causes of various diseases. According to the traditional medicine, the balance of these four tempers determines an individual’s temperament. The dominance of each temper can determine the physical, psychological, and emotional attributes of a person (4).

Dysmenorrhea is defined as painful menstrual cramps of uterine origin, and considered as one of the most common gynecological disorders among females of childbearing age (5). Although it is a common condition, it is usually underdiagnosed, since most females do not seek medical attention (6,7). In accordance with its pathophysiology, it is classified as either primary or secondary dysmenorrhea. Primary dysmenorrhea - defined as spasmodic and painful cramps in the lower abdomen that begin shortly before or at the onset of menses in the absence of any pelvic pathology - is one of the most common complaints in both young and adult females (8). Its onset occurs mainly during adolescence, within 6 to 24 months after menarche. Dysmenorrheic pain has a clear and cyclic pattern, which is typically severe during the first day of menses and lasts up to 72 hours (9). Despite its high prevalence and impact on daily activities, it is often inadequately treated and even disregarded, given that, many young females prefer to suffer silently, without seeking medical advice. Females consider primary dysmenorrhea an embarrassment and a taboo, and also perceive the pain as an inevitable response to menstruation, that should be tolerated (10). Primary healthcare providers commonly encounter females with dysmenorrheic complaints (11) and thus play a substantial role in diagnosing, educating, reassuring, and providing them with the therapy required for optimizing the overall treatment outcomes of primary dysmenorrhea (12).

Dysmenorrhea is like a genetic disorder that is affected by the neurohormonal system. In this regard, studies have been conducted on the relationship between temperament and some gynecological diseases. In Kaviani et al. (2020) study showed that there is a significant relationship between personal temperament and uterine temperament. Cold temperament in infertile women and cold wet temperament in the infertile women's uterus are common (13). Since dysmenorrhea is one of the most common pelvic pain (13), and according to the Cloninger model, the experience of pain in individuals depends on biological interaction, individual differences, and specific personality traits, many studies using the same model have described the association between temperament and severity of pain. As an illustration, Fachin et al.'s (2016) study showed that there is a relationship between the severity of chronic pelvic pain due to endometriosis and the type of temper (14). According to the results of the studies, temperament is an influential factor in various physical conditions and diseases. On the other hand, menstrual cycles are one of the most important influential periods of women's life and in most cases, they disrupt their daily activities. By our knowledge, no study has compared the effect of temperament type on the rate of dysmenorrhea between athletic and non-athletic women. Therefore, the present study aimed to determine the rate of primary dysmenorrhea among athletic and non-athletic women with cold and hot temperaments.

2. Methodology

2.1. Materials and methods

This experimental study.

2.2. Participants

In this study, female aged 20 to 30 in Shiraz were studied, who were divided into two groups: athletes and non-athletes. Athletes were those who had been physically active for at least 60 minutes, 3 days a week, for at least 2 years. Also, non-athletic women did not engage in any specific, regular physical activity in the last six months. In this study, based on a temperament determination questionnaire and sports history, 200 women were selected and divided into four groups: female athletes with a cold temperament, female athletes with a warm temperament, non-athletes with a cold temperament, and non-athletes with a warm temperament. All female participating in this study had normal menstrual cycles, were free of chronic diseases such as high blood pressure, heart disease, kidney disease, diabetes, asthma, thyroid disease, and nervous system diseases, and had no history of taking medications that affect the menstrual cycle.

2.3. Measurements

Two questionnaires were used in this study. The first questionnaire (Menstrual Distress Questionnaire (MEDI-Q)) contained questions about the menstruation pattern.

2.4. Intervention

MEDI-Q is a new tool that assesses and evaluates the global distress experienced by women during their period. It consists of 25 items that cover different areas of menstruation-related distress, such as pain, discomfort, psychic or cognitive changes, gastrointestinal symptoms, and changes in physiological functions. The original Italian version of the MEDI-Q showed good internal consistency (Cronbach's = 0.85) and overall excellent validity (15). The second questionnaire was related to the type of temperament and included 10 objective items scored from one to three. A score greater than or equal to 19 was considered as a warm temperament and a score less than or equal to 14 was considered as a cold temperament, and a score between 15 and 18 suggests moderate temperament. The validity of this questionnaire was approved by Mohebbi et al., in 2013 (16).

2.5. Statistical Methods

Results were expressed as the mean ± SD and distributions of all variables were assessed for normality. Iindependent sample t-test and Mann-Whitney U test were used to change in variables. The level of significance in all statistical analyses was set at $P<0.05$. Data analyses were performed using SPSS software for windows (version 22, SPSS, Inc., Chicago, IL).

3. Results

In this study, the Mann-Whitney U test was used to compare the rate of changes in primary dysmenorrhea between athletic and non-athletic women with cold temperament. As shown in Table 1, the results of the Mann-Whitney U test showed that there was no significant difference in the rate of primary dysmenorrhea between athletic and non-athletic women with cold temperament. The results of the independent t-test showed that there was no significant difference in the rate of primary dysmenorrhea between athletic and non-athletic women with hot temperament. The results of the Mann-Whitney U test showed that there was no significant difference in the rate of primary dysmenorrhea between athletic and non-athletic women with a cold temperament. Finally, the results of the independent t-test showed that there was no significant difference in the rate of primary dysmenorrhea between athletic and non-athletic women with hot temperament.

Table 1. *Results related to the difference in the rate of primary dysmenorrhea between athletic and non-athletic female with cold and hot temperaments*

Primary dysmenorrhea		Mann-Whitney U test	Iindependent t-test	P value
Athletes with cold temperaments 37.4	Non-athletes with cold temperaments 43.8	-1.6		0.09
Athletes with hot temperaments 40.09	Non-athletes hot cold temperaments 38.2		-0.9	0.3
Non-athletes hot cold temperaments 38.2	Non-athletes hot cold temperaments 43.8	-1.5		0.1
Athletes with cold temperaments 37.4	Athletes with hot temperaments 40.9		1.09	0.2

4. Discussion

According to the results of the study, there is no statistically significant difference in the rate of primary dysmenorrhea in athletic and non-athletic female with a cold temperament. Although the mean primary dysmenorrhea in the cold-tempered non-athlete group was higher at 43.8 than the mean in the cold-tempered athlete group at 37.4, both groups were classified as having moderate primary dysmenorrhea. This result is consistent with the study of Aghasian (2014). In this study, the results showed that the incidence of primary dysmenorrhea in the athlete group was 39.85% and in the non-athlete group was 44.19%, with no significant difference observed (17). Aghasian (2014) indicated that increasing the duration and hours of exercise in the athletes had no effect on the level of menstrual disorders (17). Shirovieh et al. (2016) have shown that the highest frequency of primary dysmenorrhea was in girls with a cold and moist uterine temperament (18). Based on this study, students with moderate and dry temperaments have a higher frequency of primary dysmenorrhea than other

temperaments, and with the prevalence of cold and wet temperaments in the uterus of students with primary dysmenorrhea, the presence of this bad temperament can be a predictor of primary dysmenorrhea. Contrary to the present study, Majdar Azbarmi (2014) showed that the prevalence of primary dysmenorrhea was significantly different in athletes and non-athletes. Also, the physical, psychological symptoms, and pain intensity of athletic students are statistically significantly different from those of non-athletic students. Therefore, athletic activity and the type of activity are related to the pain intensity of primary dysmenorrhea (19).

The findings of this study showed that there was no significant difference between the rates of primary dysmenorrhea among athletic and non-athletic women with cold and hot temperaments. Kaviani et al. (2020) also indicated that the is a significant relationship between pain severity and temperament, in addition, severe dysmenorrhea was seen in 66.7% of people with cold temperament (13). In this regard, the findings of Facchin et al.'s (2016) study showed that there is a relationship between the severity of pelvic pain due to endometriosis and the type of temperament (14). The positive association between temperament and pain profiles in a variety of diseases has been demonstrated in many studies. As an example, headaches in the study of Senches-Roman et al., (2007) the association of temperaments with muscle pain (20) in Melmegren et al.'s study (21) and patients with fibromyalgia in Guerensy-Kenney et al.'s study (22). On the other hand, the results of the study by Nuster et al. (2012) showed that temperament assessment can enhance the professionals' understanding of pain and behavioral experience in patients with chronic pain (23). A study by Granott et al. (2005) in women with Vestibulitis Velar (24) described the association between severity and duration of pain with temperament, so it is likely that physical pain may be alleviated by assessing temperament and improving maltempered. The warmer the temperament, the less severe the severity of dysmenorrhea; Cold temperament increases the potassium level of the blood, causing viscosity and obstructions, which make the blood not easily withdrawn from the uterus, and the uterine response also increased by muscle contractions, thereby causing pain during menstruation and prolonging its duration (25,26). The difference between the present study results and other studies may be due to the age of the subjects and their level of physical fitness. The results of Jafarnejad et al. (2016) study revealed that aerobic exercise reduces physical and psychological symptoms of primary dysmenorrhea in warm and cold temperaments but the most significant decrease is observable in cold temperaments (27).

5. Conclusion

According to the research findings, it can be concluded that temperament type and level of physical activity have no effect on the rate of primary dysmenorrhea in women aged 20 to 30.

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Conflict of interests: The authors declare that there is no conflict of interest regarding the publication of this manuscript.

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