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Review

A Review of Heart Mizaj Indices in Persian Medicine along with a Look at Chinese Medicine

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Abstract

Mizaj is a fundamental concept in Persian Medicine (PM), based on which individualized prevention and treatment of diseases is achieved. In addition to the general Mizaj of the body, each organ has a specific Mizaj, the determination of which requires extraction and standardization of diagnostic indices. The purpose of this study is to extract indices of heart Mizaj from PM written sources as a prerequisite to design a standard tool for heart Mizaj. The study was conducted by extracting concepts related to heart Mizaj from reliable PM textbooks. Subsequently, the keywords Mizaj, heart Mizaj, and their equivalents including heart, and syndrome differentiation in complementary medical systems including Traditional Chinese Medicine (TCM) were searched in reputable scientific databases such as PubMed, Scopus, and Magiran. Our findings indicated that out of the 196 obtained articles on the subject of Mizaj, 19 were related to indices of body and organ Mizaj. None of the two articles related to heart Mizaj specifically categorized the criteria for determining the Mizaj of this organ. In PM references, heart Mizaj indices are discussed in anthropometric, physiological and psychological categories. Pulse indices, chest width, and emotional states are the most frequently mentioned indices of heart Mizaj. Indices of heart status in TCM have substantial similarities with heart Mizaj indices in PM. The results of this study can be used to achieve a standard method of determining the Mizaj of the heart that helps provide recommendations in PM-based prevention and treatment of diseases.

Keywords: Persian medicine; Traditional Chinese medicine; Temperament; Personalized medicine; Mizaj; Integrative medicine

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Introduction

According to personalized medicine, individual differences and genetic diversity are important reasons for different responses to a single treatment [1-4]. According to this model, each person has specific genomic, proteomic and metabolic characteristics, which determine susceptibility to diseases and response to treatment [5,6]. The aim of personalized medicine is to provide preventive measures and treatment modalities that are in accordance with genetics, lifestyle and environmental factors specific to an individual [3]. A surge of research is currently being conducted in this field. However, some limitations, especially high costs, have prevented extensive use in the healthcare system of countries [1,3,4].

Although personalized medicine is a new approach in conventional medicine, it has in fact been practiced for millennia in schools of traditional medicines of China, India, Greece and Persia, which offered preventive and treatment recommendations based on individual differences [7-11]. Consistent with the strategies of the World Health Organization (WHO), these medical systems are currently being revisited and used in different parts of the world [12-15].

Dating back to several thousand years ago, Persian Medicine (PM) or Iranian Traditional Medicine has presented many recommendations for health maintenance, as well as diagnosis and treatment of diseases with an individualistic approach via the concept of Mizaj [7,16,17].

Mizaj is determined based on the status of two pairs of qualities, namely hot-cold and wet-dry using physical, psychological and functional indices [7-9,18]. Although Mizaj is theoretically unique for each person, PM scholars have classified it into nine groups to facilitate diagnosis and treatment. These include a moderate group, four simple groups (hot, cold, dry, and wet) and four compound types (hot-wet, cold-wet, hot-dry, and cold-dry). Each of these Mizaj types can be seen in healthy people, but when deviated from the normal state, can cause various diseases called dystemperaments (*Su-e-Mizaj*) [9,17-19].

Moreover, PM ascribes a specific Mizaj to each organ, with the Mizaj of three organs of heart, liver and brain being the most crucial [20-22]. In fact, it can be claimed that the general Mizaj of the body is the average of the Mizajes of these three organs. Deviations in the Mizaj of each organ beyond the normal range cause a dystemperament in that organ [19,23].

PM scholars believed that the health of the heart has a substantial role in the health of the body and other organs, including the liver and brain [19,24,25]. Furthermore, they deemed a close relationship between emotional states and heart Mizaj [19,26,27]. Emphasizing the importance of heart status, PM sources have addressed diagnosing heart conditions and providing preventive and therapeutic recommendations [19,24].

The philosophical foundations of Traditional Chinese Medicine (TCM) define twelve main organs, each of which relates to the corresponding physical organ in the body. As one of the most important philosophical organs in TCM, the heart is the center of interactions and balance between internal and external body heat and responsible for managing the physical heart itself [28,29]. This organ is also the center for contemplation, thinking, and reasoning, and many of the functions that are categorized as brain activities in conventional medicine, including memory, emotions, depression, anxiety, sleep, concentration, weakness and intelligence [29-33]. TCM sources have specified various disease patterns for the heart, which are diagnosed via examining the mood, face color, tongue, pulse, and ear [35,36].

TCM researchers have designed and developed instruments for measuring the characteristics of the heart, such as standard questionnaires, electromechanical instruments, and softwares [37-40]. These standard instruments help TCM researchers and therapists conduct research on theoretical foundations of TCM and achieve more accurate diagnosis and treatment [37,38].

Due to the fact that cardiovascular disease (CVD) is a leading cause of death worldwide, many studies have been conducted to elucidate the relationship between CVD and genetic, ethnic, nutritional, and anthropometric indices to improve prevention and treatment [24,41-45]. In this regard, complementary medicine has gained attention for potentials in providing integrative prevention and treatment [12-14]. Standardization of diagnostic indices of heart disease in traditional systems of medicine, including PM, can help make this approach more practical [46].

PM sources have discussed heart Mizaj indices [47-51]. The main problem in using these indices is that most are qualitative, leading to disagreements in clinical diagnosis between specialists [18, 52]. Thus far, no standard method of determining Mizaj of the heart exists. Considering the importance of PM recommendations in prevention and treatment of CVDs [24,53-72], developing PM-based standard tools for determining the health status of the heart can help put these recommendations into practice. The purpose of this study is to extract and categorize specific indices of heart Mizaj in written sources of PM as a stepping stone for designing and standardizing heart Mizaj tools.

Materials and Methods

In this narrative review initially, ten valid PM sources were selected to review chapters on heart Mizaj. The books and their authors included:

• *Al-Mansouri Fi al-Teb*: Muhammad Ibn Zakaria al-Razi (Rhazes); 865-925 AD

• *Al-Hawi Fi al-Teb* (Liber Continens): Muhammad Ibn Zakaria al-Razi (Rhazes); 865-925 AD
• *Kamel al-Sana'a al-Tebbiya*: Ali Ibn Abbas Majusi Ahwazi (Haly Abbas); 949-982 AD
• *Al-Qanun Fi al-Teb* (Canon of Medicine): Ibn Sina (Avicenna); 980-1037 AD
• *Adviye-ye Ghalbiyeh*: Ibn Sina (Avicenna); 980-1037 AD
• *Hedayat al-Muta'alemin*: Rabi ibn Ahmad Akhawaini; 4th century
• *Zakhireh Kharazmshahi*: Ismaeil Jorjani; 1042-1137 AD
• *Kholast-ol Tajarob*: Baha Al-Dolah Razi; 16th century
• *Tebb-e Akbari*: Mohammad Akbar Arzani; 18th century
• *Exir-e A'zam*: Mohammad Azam Khan; 19th century
• *Nayer Azam*: Mohammad Azam Khan; 19th century

Subsequently, the keywords Mizaj, *ghalb* and *del* (both meaning heart in Persian) were searched in selected resources in Noor Comprehensive Software of Persian Medicine, to avoid missing any information. All obtained materials were extracted and categorized. In the next step, keywords of Mizaj, Mezaj, heart Mizaj, Heart Mezaj were searched in Persian or English (depending on database) in reputable scientific databases including Science Direct, PubMed, Magiran, Scientific Information Database (SID), Scopus, Iran Medex and Google scholar without setting any time limit. Additionally, some complementary medicine sources, including TCM textbooks (The foundations of Chinese medicine and the practice of Chinese medicine) were also examined briefly using related keywords such as pulse diagnosis, heart, and syndrome differentiation.

Results

In most reviewed PM textbooks, heart Mizaj indices are consistent and systematically categorized. Avicenna's Canon of Medicine is the most accurate in terms of structural order.

Out of the 196 articles found on Mizaj, 11 examined general Mizaj indices, some of which were in line with heart Mizaj indices [8,9,18,73,74]. Nine articles summarized Mizaj and disorders of specific organs, including the brain, liver, uterus and stomach [20-23,75-79]. Reviewing PM symptoms and treatment, two articles compared heart failure with heart weakness [56,57]. In 2017, Ghods et al. compared one of the pathological conditions of the heart in PM called heart weakness and heart failure in allopathic medicine. In this study presented symptoms and examination methods to evaluate heart conditions of people in Persian and modern medicine and, the symptoms of some heart diseases related to the heart's Mizaj in PM are also mentioned. [56]. In this review study, Ghods et al. showed that the term "heart weakness" in PM sources is equivalent to "heart failure" in modern medicine. They stated that the recommendations of PM in this field can be helpful along with the recommendations of modern medicine [56].

Also, in the same year, during the publication of another study, Ghods et al. explained the causes of heart failure from the perspective of PM. [57] One article described examination tips to determine heart status based on Persian medical texts [49]. However, no study provided an accurate description of heart Mizaj indices.

Several TCM studies have been conducted on heart conditions and diseases, some of which have been dedicated to designing standard questionnaires [80,81] and pulse diagnosis tools [37,38,40]. The most common application of categorizing heart indices in TCM is diagnosing patterns of heart disease (differentiation syndrome), including blood stasis, and heart Qi and yang deficiencies [36,40,82]. These patterns are determined via examination of emotional and mental states, color of the face and tip of the tongue, pulse, ear points, and etc. [83,84].

Heart Mizaj indices

PM sources describe several indices to determine Mizaj of the body and each organ. Some of these indices are common to both general and organ Mizaj; while others are used for a specific organ [7,8,19]. The most important indices in diagnosing heart Mizaj include pulse, respiration, chest size, body physique and phenotype, chest and body skin to palpation, chest hair, physical functions, and emotional status [19,48,85,86]. These indices are listed in table 1.

Pulse

Observing principles of pulse diagnosis, PM physicians use ten pulse variables to infer the status of the body and the heart. Seven of these, including pulse strength, length, width, height (the three dimensions), speed, frequency and vessel consistency are more commonly used to diagnose heart Mizaj [19,49,87]. Other indices such as temperature of the skin to touch, uniformity, diversity, vessel fullness, and pulse weight, are not discussed thoroughly in heart Mizaj studies [19,87].

Most PM sources have mentioned the pulse as the first or second indicator of heart Mizaj, and have regarded an increase in speed, length, width, height and frequency of the pulse as a sign of hotness, and the opposite as a sign of coldness. Additionally, the flexibility of the radial artery is mentioned as a sign of wetness; while its rigidity is a sign of dryness of heart Mizaj. In general, individuals of a society are in a spectrum of normal Mizaj, which can be inclined to one side of the spectrum based on the difference in the quality of the diagnostic indices. When all the indices are in moderation, the Mizaj of the heart is moderate, and if any variable exceeds the normal range on either side

of the spectrum, it is considered a dystemperament [19,47-50,88].

In other medical schools, including TCM, pulse examination is one of the important indices to determine health. Examination principles are in many cases similar to PM [89]. However, the diagnostic models of TCM are remarkably different from PM [37,40,89]. TCM regards the pulse as an indicator for diagnosing disease patterns [36,40]. Similar to PM, strength, speed, frequency, fullness, and height of the pulse are the chief indices [37,40,80]. There are similarities and differences between the two medical schools that need separate research. PM regards indices at the highest extreme as a sign of hotness [49,87,101].

Breathing

Respiration is mentioned alongside pulse in most PM sources. In general, an increase in the depth, speed, frequency and temperature of breath (warmth of exhaled air) is considered a sign of hotness; while the contrary indicates coldness of the heart [19,47-50,86]. The studied texts mentioned no quantitative criteria to specify the normal range of these indices. There is no independent variable in respiration regarding qualities of wetness and dryness, but it is mentioned that wetness along with hotness can reduce the speed and frequency of respiration, since wetness reduces of the intensity of hotness. Alternatively, dryness along with heat can increase the depth, speed and frequency

Table 1. Heart Mizaj indices in Persian Medicine

Indices	Hot	Cold	Dry	Wet
Physique	− Broad chest − Muscular body	Small chest	− Thin chest − Thin body	Muscular or fatty chest
Chest hair	− Hairy chest − Thick hair − Black, and curly hair	− Sparse hair − Thin hair	− Hairy chest − Coarse hair	− Sparse hair − Soft hair
Physical function	− Fast movements − Strength	− Slow movements − Fatigue and weakness	− Fast movements	− Slow movements
Pulse	− Huge (long, wide and high-set) − Fast − High rate − Strong	− Tiny (short, narrow and low-set) − Slow − Low rate − Weak	Rigid radial artery narrow	Flexible radial artery wide
Respiration	− Deep − Fast rate − Warmth	− Shallow − Slow rate		
Reactivity (Reaction to external factors)	− Desire for cool weather − Desire for cool fragrances	− Desire for warm weather − Desire for warm fragrances	Annoyed by dryness	Annoyed by wetness
Tactile examination of Body and chest	− Warm	− Cold	− Rough	− Smooth
Mental and emotional states	− Brave − High vitality − Rapid onset of anger − Intense anger − Happy − Hopeful − Optimistic − Cruel − Quick-witted − Not much influenced by issues − Leadership	− Timid − Low vitality − Slow onset of anger − Mild anger − Sad − Hopeless − Pessimistic − Kind − Slow-witted − Influenced by the smallest issues	− Hardly influenced − Persistence of reactions − Enmity − Stubborn − Bad-tempered	− Easily influenced − Rapid disappearance of reactions (anger, pleasure, etc.) − Merciful − Compatible − Timid − Weary − Slow-witted

of breathing [48,50]. In cold heart dystemperaments, the breath is weak; while in hot dystemperaments there is an increase in the depth, speed and frequency of breathing, burning sensation, restlessness, and the need to breathe cool air. Hot dystemperament of the heart can cause thirst, which can be relieved by breathing cool air [19,47,48,51,88]. Shortness of breath, which is a sign of cold heart Mizaj in PM, is mentioned in TCM as a sign of heart Qi insufficiency or heart yang deficiency [36,82,90].

Skeletal framework

All studied sources mentioned chest size as either the first or a chief indicator of heart Mizaj. A large chest width shows hotness of the heart; while a small size indicates coldness of the heart. A high ratio of chest size to head and neck size is a specific sign of heart hotness and vice versa [19,47-50]. If the size of the chest is proportional to the size of the head and neck, this indicator loses importance, and other indices will be necessary to determine the Mizaj of the heart. Wet and dry qualities were not dealt with independently in this variable. It was only mentioned that hotness and wetness can lead to an increase in the width of the chest [19].

Body phenotype

Body phenotype index is mentioned as one of the indices for determining the Mizaj of the heart in some sources. Overall, generalized thinness is a sign of dryness, and if other causes are ruled out, it can also be a sign of hot dystemperament [19,47,88]. In some sources, muscularity is mentioned as a sign of hotness of the heart; while an increase in soft tissues and fatness of the chest is indicative of wetness, and scarcity of chest muscles is a sign of heart dryness [86].

Tactile examination

The general skin temperature in tactile examination is considered as one of the general and heart Mizaj indices [49,73]. About half of the sources have also mentioned palpation of the chest skin as a specific index of heart Mizaj [47,48,86]. Accordingly, warmness of the skin is a sign of heart hotness; while skin coldness indicates coldness of the heart. On the other hand, softness or dryness of the skin to touch is also considered a sign of wetness or dryness of the heart, respectively. Exacerbation of these symptoms can be a sign of heart dystemperament [47,88]. Additionally, some sources have discussed that warmness of the site of pulse examination (the wrist) is a sign of hot heart dystemperament [91,92]. Also, in Heart Yang Deficiency, the hands and feet, especially the hands, are cold. Coldness of the hands is also present in the state of Qi stagnation and blood stasis. But in Heart Yin Deficiency, the palms, soles and chest are hot [89].

Hair

Although characteristics of body hair are indices of general Mizaj, [8,73] characteristics of chest hair have been specifically used to determine the Mizaj of the heart [19,49]. Abundance, thickness, blackness and curliness of chest hair have been attributed to heart hotness, which are intensified by dryness and diminished by wetness. On the other hand, scarcity or lack of hair is a sign of coldness or wetness of the heart [19,47,48,50]. Also, softness and roughness of hair have been considered as indices of heart wetness and dryness, respectively [48].

Physical functions

Body strength and speed of physical movements are the two indices mentioned for this variable. In Ibn Sina's Canon of Medicine, body strength is introduced as one of the specific characteristics of heart Mizaj, and a sign of moderate Mizaj of the heart. In contrast, body weakness is a sign of cardiac weakness or cold Mizaj [19,47]. Regarding physical movements, hotness of the heart causes swiftness in actions and dryness strengthens this feature. In contrast, heart coldness causes fatigue and slowness of movements, and wetness intensifies this condition [19,47,50].

Mental and emotional states

In most PM sources, anger and courage are mentioned as important indices of hotness of the heart. Other indices such as leadership, great and numerous aspirations, vitality, and outgoingness are also signs of hotness. Opposite characteristics indicate coldness of the heart [19,47-50]. Happiness and hope also indicate heart strength and moderation in hotness and wetness [19,47]. Accordingly, a person with a hot Mizaj is witted, informs others [51], and performs daily tasks quickly and agilely, [19,47-50,86] and can even be hurried if the heat rises slightly or is accompanied by dryness. If not due to habit, the speed of onset and intensity of anger is a sign of heart hotness [19, 47-50,86]. Hot heart dystemperament is associated with sadness and restlessness with turmoil [19, 47,88]. A person with a cold heart Mizaj is dull, unmotivated, slow-minded, timid, and prone to depression. Such people are affected by the smallest issues, and although seldom angry, they are impatient and indecisive in dealing with problems [19,46]. In addition to the above, cold heart dystemperament is associated with severe fear and excessive compassion [19,46,78]. Heart wetness is characterized by easily being affected by good or bad events, but the evoked emotions are not stable and resolve quickly. For example, a person with a wet heart Mizaj gets angry quickly and calms down

quickly. In contrast, in dry heart Mizaj, both the impact of events and elimination of associated states are slower. As a result, a dry heart causes less satisfaction and forgiveness, stubbornness, bad temper, and slow settlement of anger [19,47-50]. In wet and dry dystemperament, these characteristics are more pronounced. For example, even important and crucial issues; hardly influence an individual with a dry dystemperament [19,47]. Compound Mizaj types manifest as combinations of these states. For example, a person with a cold-wet heart Mizaj does not easily become angry and resentful; whereas a cold-dry individual hardly loses temper, but resentment remains with him once evoked [19,47,50]. A person with hot-dry heart Mizaj is agile, stubborn, and loses temper easily, but calms down slowly. In hot-wet heart Mizaj, the person is less agile than hot-dry, gets angry quickly and calms down quickly [19,47,50].

Likewise, many of the functions that conventional medicine ascribes to the brain, are attributed to the heart in TCM. These include memory, emotions, depression, anxiety, sleep, and concentration [29,33]. TCM regards the heart as the center for thinking, reasoning and happiness, and a change in any of these indices can determine the status of the heart [29,33,35].

Reaction to external factors

Among written PM sources, only some have mentioned being influenced by qualities as an indicator of determining the Mizaj of the heart, with the most emphasis on dystemperament rather than normal Mizaj [18,47,88]. Individuals with hot heart Mizaj feel pleasant in cool weather and enjoy cool aromas [19,47,88]. A person with hot heart dystemperament feels turmoil, restlessness, burning, and shortness of breath especially in hot weather, which ameliorate with cool air [19,47,88]. Individuals with cold heart Mizaj and cold heart dystemperament feel pleasant in warmness-inducing situations, such as touching hot objects, breathing warm air, inhaling warm aromas, and eating hot-natured foods. In cold heart dystemperament, the severity of the symptoms is more obvious, and feels discomfort in coldness-inducing situations [19,47,88].

PM sources have mentioned palpitations as one of the signs of heart weakness or dystemperament. This symptom may be seen in a variety of Mizaj disorders, and is thus, not widely used as a differential indicator of heart Mizaj or Su-e-Mizaj [18, 86, 88]. TCM also regards palpitations as pathological and a sign of heart Qi insufficiency [84].

Some similarities and differences of heart status indices in PM and TCM are summarized in table 2.

Discussion

Personalized medicine has received attention in recent decades, considering the characteristics of each individual in line with lifestyle modifications to prevent and treat diseases [2,3,6,93]. A heritage of the ancient Persians, PM has long emphasized individual differences in diagnosis and treatment via the concept of Mizaj [16,94].

Recently, preliminary results of some studies have shown basal metabolic rate (BMR), neurohormonal system function, body temperature, physical capacity, and personality traits to be significantly related to Mizaj types [95-98]. For example, Mohammadi Farsani et al. (2020) determined the Mizaj of sub-

Table 2. Comparison of Heart status indices in Persian Medicine and Chinese Medicine

Indices	Persian Medicine	Chinese Medicine
Pulse	Radial artery	Radial artery
Respiration	Depth, Speed, Frequency	Depth
	temperature,	
	Burning sensation,	
	Need to breathe cool air	
Skeletal structure	Chest size	-
Skin characteristics	Chest and body skin temperature	Skin temperature of the extremities
Chest hair	Amount, thickness and color	-
Physical functions	Strength/ Weakness	Strength/Weakness
	speed of physical movements	
Mental and emotional states	Emotional actions and reactions	Emotional actions and reactions
Face color	Paleness	Paleness
Palpitation	+	+
Tongue	-	Color
Characteristics		Size

jects using the standard ten-item Mojahedi Mizaj questionnaire and examined some biological indices. Based on the results of this study, BMR, sympathetic activity, thyroid hormone activity, blood pressure, heart rate and temperature were significantly higher in warm-tempered individuals compared with those with cold Mizaj. Moreover, in hot Mizaj, skeletal muscle mass was higher than normal; whereas in cold Mizaj, it was the fat mass that exceeded the average level [96]. Using standard tools for determining Mizaj can facilitate the process of utilizing PM -as a personalized medical school, to improve healthcare services.

In addition to general Mizaj, Persian scholars also examined the Mizaj of the chief organs separately, based on which they provided specific recommendations. These recommendations can also be helpful for various diseases including cardiovascular diseases [10-11-23-24-99]. This study was conducted to study indices of Mizaj and Su-e-Mizaj of the heart in PM sources. A high degree of coherence was observed in most reviewed textbooks in terms of categorization and inferences [18,47-50,86]. PM textbooks have not specified the priority and weight of indices in determining heart Mizaj, but according to studied texts, more emphasis is placed on chest width, pulse and mental states [18, 47-50,86].

Other medical schools, especially TCM, use several indices to determine heart status and have similarities and differences with PM [32,35,89]. In PM, the Mizaj of a healthy heart is categorized in terms of hot-cold and wet-dry qualities. Heart dystemperament results when any of these qualities exceed normal limits [18]. According to TCM, the characteristics of the heart are mostly considered in patterns of various diseases that are currently known as syndromes [35,89]. Some indices such as pulse, mental states and emotions, respiration, skin characteristics and physical strength have been considered as indices of heart status in both schools [18,32,35,47]. Other PM indices including muscle mass, skeletal structure, chest fat, impacts of exposure to odors or hot weather, speed of physical movements, and also chest hair are not used in TCM. On the other hand, indices such as tongue characteristics and sweating, described in some TCM heart disease patterns, have not been regarded in PM [35,80].

Interestingly, among the indices mentioned in PM sources, some are related to behavioral and emotional states [18,47-49]. This view also exists in East Asian medical systems. In these schools of medicine, mental states are related to the five organs, especially the heart. In a study by Ye-Seul Lee et al., the authors stated that the heart is jointly involved in experiencing most emotions, and that states of sadness, joy, anxiety, surprise and thinking are under the control of the heart [32,34]. One of the differences with PM is the relationship of fear and anger with the heart. In fact, one of the most common behavioral states associated with heart conditions in PM is the level of courage and anger [47,50]. In contrast, fear is related to the kidneys, and anger to the liver in East Asian medical schools [32]. Although emotions are attributed to the brain in modern medicine, recent studies in the field of neuroscience have shown that there are mutual interactions between physical functions of the body and emotions [32,34]. Since such conditions are related to the brain rather than the heart in conventional medicine, finding evidence for these theories, can open new doors to identifying factors that contribute to diversity of mental and emotional states, susceptibility to diseases, and response to treatment. Perhaps the secret to this close relationship between the characteristics of the heart and the brain lies in the words of Persian scientists: "vital spirit is the source of psychic spirit" [18,87]. Based on PM perspective, the center of psychic functions is the brain; while the cause of these functions originates from the heart (center of the vital soul) [18, 87].

In the following, each of the mentioned indices is briefly discussed and some evidence of recent studies that are consistent with PM theories are presented. Certainly, in order to obtain more accurate information, extensive and more detailed studies are needed.

According to the theoretical foundations of PM, heat causes growth. This effect is enhanced when hotness is accompanied by appropriate amounts of wetness [18,49,74]. Thus, chest size is in accordance with hotness, especially that of the heart. The importance of this index is such that it has been described as the pathognomonic indicator of heart Mizaj [18,47-50,86]. Accordingly, the size of the chest relative to the head and neck alone is a definite sign of heart Mizaj, with bigger ratios indicating hotness and smaller ones coldness. Indeed, if the size of the chest is proportional to the dimensions of the head and neck, other indices should also be considered [18, 47-50, 86].

Due to the importance of using anthropometric indices in determining general and heart Mizaj, extensive cross-sectional studies with standard tools are needed to elucidate this relationship [100].

The pulse is one of the most important diagnostic criteria in PM and one of the most important indices for determining heart Mizaj [18,87,92].

According to TCM, some heart syndromes are associated with Yang or Qi deficiency, which tend to decrease the indices. In contrast, an increase in Yang can cause some indices to increase [35,80]. For example, in PM, a short pulse is indicative of a cold-wet heart [18,48,86], and in TCM, an empty pulse indicates heart Qi deficiency [34]. A weak pulse indicates heart dystemperament, mostly cold-wet in PM [18,48,86], and Qi or Yang deficiency in TCM [34,80,82]. In both

PM and TCM, the pulse along with other mental and physical indices, are used to determine heart and body status [8,35,49,80].

In conventional medicine, only heart rate and pulse strength and regularity (common with PM and TCM) are used in pulse analysis [41,45]. Although various pulse measuring instruments have been designed by TCM researchers, they are not fully standardized and not widely used clinically or in research [37,40,80]. Thus far, no standard method or valid tool has been designed to measure pulse indices from the perspective of PM.

A number of studies have investigated the relationship of BMR, blood pressure and heart rate with Mizaj [96,98]. In 2020, Mohammadi Farsani et al. reported that individuals with hot Mizaj have higher BMR, systolic and diastolic blood pressure, and heart rate [96]. In 2017, Yousefifard et al. showed that male gender, diastolic and systolic blood pressure, and heart rate have a direct relationship with Mizaj [98]. These findings are consistent with the results of our study.

Aromatherapy in PM is one of the therapeutic modalities to strengthen the heart and reduce some complications associated with cardiovascular diseases, such as fear, sadness, anxiety, palpitations, etc. In modern studies, the effects of some scents, including lavender, on reducing anxiety, blood pressure, and heart rate have been reported. On the other hand, fear and anxiety in cardiovascular diseases increase myocardial oxygen consumption and can increase heart rate and blood pressure. In PM, special perfumes are recommended to improve the condition of a patient or a healthy person, based on the heart and brain Mizaj. [102]

As mentioned in the introduction, the Mizaj of the heart, as one of the main organs of the body, is very effective in shaping the general Mizaj of the body, and several indices that have been proposed are common to the Mizaj of the heart and the general Mizaj [8,19,56]. Considering that a standard instrument for determining the heart's Mizaj has not yet been designed, in this section, we use the studies conducted on the general Mizaj with a standard instrument to complete the evaluations, and it is suggested that in the future, stronger studies be performed with the design of a standard instrument for determining the heart's Mizaj.

According to our findings, an increase in the depth, rate, and speed of respiration and warmth of exhaled air are signs of heart hotness [19,47-50,86]. In a cross-sectional study in 2017, Attarzadeh et al. concluded that individuals with hot Mizaj have higher aerobic capacity than others [103]. It is suggested that standard respiratory assessment tools, including spirometry, be used in future research to evaluate the relationship between respiratory parameters and general/organ Mizaj.

According to PM sources, agility in physical activities is an important indicator of general, brain, and heart Mizaj [49,73,104]. This characteristic can be studied quantitatively. In 2017, Hosseini et al. compared the Mizaj of active and inactive individuals, and reported a significant direct relationship between the level of physical activity and Mizaj [105]. In a study by Khavidki et al. in 2020, the frequency of hot-dry Mizaj was reported to be higher in gymnastics, kurash, and futsal athletes that need agility for good performance [106].

In 2017, Salmannejad et al. demonstrated that levels of happiness are significantly higher in hot and moderate Mizaj compared with cold Mizaj, which is consistent with PM theories [25].

In order to prove PM and TCM theories regarding the relationship between heart indices and heart health, developing standard tools is a necessity. It is suggested that a standard questionnaire and checklist be designed based on the indices extracted from PM sources in this study to enable simultaneous study of anthropometric, physiological and psychiatric states with heart Mizaj. Moreover, research by hybrid method, interviews with experts and formation of expert panels are being conducted by authors of this article in order to specify major and minor criteria and to determine practical methods of use.

In 2016, Salmannejad et al. extracted and classified the brain Mizaj assessment criteria from the perspective of PM sources, and then in 2021, Fatahi et al. published a standard brain Mizaj questionnaire based on PM sources and the consensus of PM experts [17-104]. This successful sample of studies can predict that the present study will be a prelude to the preparation of a standard tool for determining heart Mizaj.

Our study, while being innovative regarding the introduction of heart Mizaj diagnostic indices in PM and the comparison of them to TCM, also faced some limitations. As the first limitation, the degree of importance of each of the indices of heart Mizaj in the PM sources is not clear. And as the second limitation, the difference between the two Chinese and Persian schools makes it impossible to make a complete comparison, because in the PM, individual differences are based on the degree of heat and cold, which can be divided both in healthy people and in patients, but in Chinese medicine, this indices mostly used in patients.[16,89]

Considering that currently, the standard tool for determining heart Mizaj is not available, conducting a series of cross-sectional studies is suggested. In the first stage, by forming an expert panel discussion, the team of PM specialists will determine the heart Mizaj of the participant and evaluate the correlation between the heart Mizaj and its indices mentioned in

the PM sources. Then, it should be assessed between indices that the standard tools for determining them are available today with the heart Mizaj indices. The result of these mention studies can be used as a preliminary steps to developing the design of a standard heart Mizaj scale.

Conclusion

Persian scholars emphasized differences in Mizaj to provide personalized prevention and treatment recommendations. In this study, indices of heart Mizaj were extracted from PM sources. Considering the current attention to personalized medicine and the importance of heart Mizaj diagnosis in PM, developing standard heart Mizaj diagnostic tools based on the findings of this study is suggested. It also seems that owing to the similarities between PM and TCM, these two schools of medicine can be used alongside each other and integrated into conventional medicine. Despite different philosophical backgrounds, both PM and TCM emphasize the centrality of the heart in controlling human mental states, which indeed demands further studies.

Conflict of Interests

None.

Acknowledgments

None.

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