ORIGINAL ARTICLE

Music Therapy and Its Status in Iranian Medical Texts and Knowledge: The association Between Music and Medicine

Abstract

Music is a scientific-cultural phenomenon that is related to medicine. The present study aims at reviewing the status of Iranian music in medical knowledge and its effectiveness on the brain and other organs of the body for treatment. This study with a descriptive-analytical approach by the keywords of music therapy, songs, and music history has been done by reviewing papers, books, medical history sources, and valid databases. A content review of texts shows that Iranian musicians have been aware of the music's effect on the quadruple temperaments as maintaining health and a therapeutic method for physical and mental illnesses. They believed in the connection between human nature and melodies. Today, researchers also believe that the metaphysical power of music and its positive effects on human morality and behavior and emotional states can be viewed from two dimensions: general and specific. Music therapy is a complementary therapy that improves the healing process of patients by raising the threshold of beneficial stress and mitigating negative affections, regulating internal processes, creating a state of relaxation, and boosting safety strength. Music was played in religious ceremonies in ancient Iran and was a sub-branch of mathematical sciences. Philosophers, physicians, musicians, and even poets have expounded on the effect of music on the human psyche. Music stimulates motivation, energy, and emotional connection, and because of its cost-effectiveness, attractiveness, ease

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of use, non-invasiveness, and performance by non-specialists, the latter can be used as a particular therapeutic technique in medicine and standard therapies and rehabilitation.

Key words: Music therapy, Medicine, Mental disorders, Patients

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Introduction

In history, art has been a means of adaptation, peacefulness, creativity, and the expression of love and friendship. Among all types of art, music has attracted the attention of human beings due to its dynamism, vibrant, and intrinsic attraction (Zadeh Mohammadi, 2001, p. 11). Music is a scientific-cultural phenomenon that can be traced back to the most primitive human societies (Alvandi, 2012, pp. 7-12). A brief review of the history of human life suggests that the application of music, whether as an art or as a means of communication, is as old as the history of human creation (Bunt, and Hoskyns, 2002, pp. 4-7; Henson, and Crichely, 1997, pp. 12-16; Ziraki, et al, 2011, pp. 15-22). Despite the paucity of sources and documents on the history of music and the knowledge of its instruments in Iran, the carvings and reliefs remaining on rock paintings and mosaics, musical instruments, religious books, poems, and writings of Iranian historians during the Islamic period exhibit the achievements of musicians and advocates of the music art (Gazvani, Asgari, and Ayazi, 2005, p. 22; Ibn Khaldun, 1996, p. 851). One of the manifestations of the art of music is its association with medicine and treatment, which has staunch scientific backing, serving as a way of dealing with diseases and their treatment since ancient times. Research shows that music therapy is as long established as the medical history, and its effects on expediting the healing process of physical and mental illnesses have been well documented (Darvishi, 2000, pp. 40-47; Shmit, 1992, pp. 36-40; Walters, and Imish, 2016, pp. 254, 257-258). The present study, looking into the therapeutic dimensions and effects of original Iranian music on the treatment of diseases, and emphasizing the category of therapist music, has analyzed the philosophy of playing and listening to music at different times of the day and night. Because a key technique to discover the roots of culture and science in human society is to explore the impact of its scientific and cultural beliefs on the life of people at that time, attempts have been made to present information by drawing on the works of past and recent researchers.

Reviews show that many studies have been done in music science and the relationship between music and medical knowledge and its effectiveness on brain function. Given the breadth of research on this subject, we have mainly focused on articles and research that are in line with the goal of the present study. The first source is the article entitled "The Impact of Music in Arabic Works" by George Farmer in 1926. While confirming the therapeutic role of music in this paper, Farmer discusses its function in striking a balance between the two hemispheres of the human brain, which instils morality in an individual (Farmer, 1952, pp. 89-124). The paper "A study of the effect of music on the performance of students' concentration and attention in Tehran Azad University" by Keyhani and Shariatpanahi also looks at the effect of music on the improvement of attention and memory performance (Keihani, and Shariatpanahi, 2008, pp. 101-106). The findings of the paper, "The Impact of Music on Humans", by Naeimi Tajdar, presented at the International Conference of Russia in 2016, suggest that the vibrations of music tunes, by stimulating the

vibrations of brain cells, reinforce and convey emotions (Naeimi Tajdar, 2016, pp. 2-11). The results of another paper entitled "A study of the effect of music on brain waves: a quantitative electroencephalographic study", in which the authors examined the effect of music on the cerebral cortex, were used as a means of treating and improving brain function (Hadis Ghaffari, and Alipour, 2017, pp. 71-83). In addition to the abovementioned papers, which have focused on medicine, references can be made to the article "Music therapy in ancient Iran until the Timurid era" written by Hatami and Pakbaz. In this paper, the authors, while analyzing the historical course of the status of music therapy in ancient Iran, have also dealt with the status of music from the views of Muslim physicians and musicologists from the beginning of Islam to the ninth century AH (Hatami, Pakbaz, and Ghaffari, 2015, pp. 107-131). Finally, we should mention Dehnad and Zafarmand's research entitled "Dimensions of music therapy in the science of ancient Iranian-Islamic music" which divides the types of musical instruments and their effects on human mood and the time of listening to different melodies around the day (Dehnad, and Zafarmand, 2017, pp. 23-34).

Although the mentioned research overlaps with the article in question to which we have given reference, the main focus of this article, which has a descriptive-analytical approach, is to study the effect and role of music in the healing process of some diseases, especially mental illnesses and the connection of melodies and tunes of music at different times of the day and night. Therefore, this study aims to explore the positive effect of music on the brain and other organs of the body from a therapeutic approach.

Findings

The trajectory of music in ancient Iran

In all ancient civilizations, music constituted one of the primary branches of science. The oldest Aryan literary work is the Vedas or Hindu scriptures which contains religious songs, and melodies; the ancient heritage of the Hindu-Iranian nations is in *Sanskrit*. The history of music in Iran dates back to ancient times when music art was fairly common and occupied a special place among the courtiers and ordinary people. A substantial part of the *Avesta* is dedicated to religious prayers and hymns that were recited with religious songs and ceremonies. The pottery motifs, remaining from that era, showcase ritual dance (Mashhoun, 1994, pp. 33, 55, 366). According to the existing evidence and research, music has been utilized in religious, court, and military ceremonies (Rahgani, 1998, pp. 58-60, 97, 112, 134).

During the Sassanid period, the art of music came to prominence and gained prestige under the patronage of the kings of this dynasty. Ardeshir Babakan, fascinated with this art, tended to place scientists, *Rameshgars* (poets), *Khonyagars* (singers), and royal maidens in three separate classes (Masoudi, 1988, p. 269). This art thrived at the time of Bahram Goor and Khosrow Parviz to the extent that some scholars recognized it as the golden age of Iranian music (Rahgani, 1998, pp. 58-60, 97, 112, 134). Thus, an important part of Sassanid civilization is the science of music, with the writings, inscriptions, plastering, motifs, and carvings of silverware as well as the mosaic paintings, giving evidence to the progress of the art of music in this era (Mashhoun, 1994, pp. 33, 55, 366). Barbad was the creator of melodies during the Sassanid dynasty. He played Seven *Khosravani* (Scale), thirty tones, and 360 songs according to the days of the week, thirty days of the month, and three hundred and sixty days in the Sassanid calendar, respectively. Accordingly, a

specific song was allocated to each day, which matched its temporal and spatial mood (Rahgani, 1998, pp. 58-60, 97, 112, 134). In Khosro Parviz court, a special order was in place for performing any music program. Nezami Ganjavi, in his work, *Khosrow* and *Shirin*, has rendered thirty tones of Barbad into the language of poetry (Fakhr al-Dini, 2013, p. 60). In light of the brief introduction to the trajectory of music in ancient Iran, it can be argued that the metaphysical effects of music and its psychological effects comprise the fundamental aspects of music and are viewed from two general dimensions. The general aspects of the music effect, the outcome of which is spiritual ecstasy and bliss, and its specific aspect can be explained in the fields of music therapy (Darvishi, 2000, pp. 40-47).

The nexus between music and medicine in Iran during the Islamic period

The study of the application of music therapy as a therapeutic technique in Iran's cultural and medical history can be summed up in several parts, some of which are deeply rooted in Iranian culture (Darvishi, 2000, pp. 40-47). Another dimension of the music function and the effect of melody on the body and mind should be sought in the writings and texts of philosophers, music theorists, and physicians. Abu Nasr Farabi (d. 949 AD) has made a seminal contribution to the heritage of Muslim music knowledge by composing the book "*al-Musiqa al-Kabir*". In this book, Farabi, a philosopher and physician, elaborates on music, its relationship with the soul and its impact on emotions. Farabi looks at various types of melodies and their purposes, dividing the effect of songs in their two forms (composing and performing) into three categories. The first part, which is more commonly known, is pleasant and calming for human beings, without appealing to or simulating artistic taste. The second category carries the same attributes but also kindles our imagination and creates images of objects in the mind. The third category is the reaction of moods. When these three states come together in a tone, that tone will be complete and, hence, more effective. The perfect tone arises from human sounds, but musical instruments can also simulate some of its components (Farabi, 1996, pp. 22-23, 58). In addition, there is a treatise entitled "Treatment of Diseases with Tunes", in which the writer elaborates on songs that contribute to the treatment of disease (Ibn Hindu, 1989, p. 186). Abu Zayd Ahmad Ibn Sahl Balkhi (850-934 AD), a philosopher, theologian, and writer in the field of medicine (theoretical medicine), has voiced his ideas on maintaining mental and physical health in the book "*The well-being of the body and soul*". While stressing the effect of music on the human soul and the treatment of physical diseases, he described the effects of music in protecting the health and its revival as follows: first, being desirable, pleasant and mellifluous music; second, having high-quality composition; and third, considering the value of the meanings of the poems used in it. When all three of the above factors are present in a piece of music, it will be perfect in status and virtue (Alijaniha, 2013, pp. 165-176).

Prominent and famous doctors, such as Ibn Raban Tabari (d. 861 AD), in the fifth chapter of the book *Firdous al-Hikmah* about the causes of weight loss and overweight, introduce the melody of music as a way of developing appetite and comforting the body (Ibn Raban Tabari, 2002, p. 82). Zakaria Razi who was widely known as an '*Ood* player (kind of music instrument) before establishing his medical career (Ibn Jojol, 1995, p. 77), elaborates on the effectiveness of music in the treatment of mental illness in his medical writings, especially *Al-Hawi* (Rhazes, 2001, p. 62). It should be noted that the views

of Iranian physicians were chiefly theoretical[1] and Avicenna could be cited as the first physician to apply music for the treatment of patients in practice (Nazenpour, 2009, p. 75). He also coined the terms *Isfahan*, *Nava*, and *Salmak* in *Shafa* for the first time (Avicenna, 1984, p. 151). Scales and Frets and other technical terms of music can be found in the writings of other poets[2] (Pourjavadi, 1995, pp. 32-70).

The analysis of the content of texts and treatises on music knowledge also reveals that Iranian musicians have been cognizant of the therapeutic function of music, describing music as a way of protecting health and treating physical and mental diseases. Abd Al-Mu'min ibn Safiyya al-Din Urmawi (1216-1294 AD), one of the well-known scholars in the field of music, has expounded on the importance of music and its association with medicine in his works (Ormavi, 2001, p. 185). He notes: "Philosophers have treated several diseases by the science of music: *Scale*, *Fret*, strange rhythms and melodies, such as *Degh* (illness and fever due to grief), Spasm and Tuberculosis" (Ormavi, 1967, pp. 30-32). Hassan Kashani, one of the renowned musicians of the eighth century AH, explains the impact of all twelve *Maghams* (scale), using a special mode in his treatise "*Kanz al-Tohaf*" quoting Maulana Safi al-Din Ormavi (Binesh, 1992, pp. 107, 124). (Figure 1).

The importance of the connection between music and medicine among Iranian scientists is evident in the composition of an independent treatise on music therapy. This treatise, written by Abd al-Rahman Ghaznavi in the 10th century AH, is noteworthy both for its antiquity and autonomous monograph in this field. In this work, the author has underscored the effect of music as a tool for treating diseases and its harmony and balance with the seasons and times and even with human temperament (Ghaznavi, 2013, pp. 22, 61, 81, 87-89, 97-98). One of the key points in insights and attitudes of physicians is the importance of familiarity with music in measuring the pulse and its states. The physician must be a pulmonologist to be able to diagnose diseases based on the system of pulse weight and rhythm (Mir Ali Naqi, 2000, pp. 142-148). It is a point that Avicenna has stressed clearly in his medical profession and work "*A treatise on the pulse*" (Avicenna, 2004, pp. 31-36). In general, the ancient physicians considered having the knowledge of weight and rhythm (harmony of melodies) one of the requirements of medicine. According to Ormavi, "it is obligatory for a doctor and a pulse specialist to master the science of *Advar* (scale) to avoid mistakes in measuring the pulse" (Ormavi, 1967, pp. 30-32). Maraghei also states in the book *Jame'at al-Alhan* that a physician diagnoses the

1- For information on the opinions of Muslim physicians about music, see: "The connection between medicine and music in Islamic civilization", Adel Bakri and "The status of music therapy in Muslim medical texts by reading the old treatise", Farkhondehzadeh and Gohari Fakhrabad.

2- Of course, it should be noted that Onsor Al-maali Keykavous Ibn Iskander Veshmgir (d. 1065), the author of Qaboosnameh is the first person to explicitly mention the fret of music in his work (Amir Onsor al-Maali, 1989, p. 196).

disease based on the pulse, which is impossible without a thorough knowledge of the rhythm, different types of pulse, rapidity, slowness, contradiction, frequency, traction, and pressure (Alijaniha, 2013, pp. 165-176; Maraqi, 1987, pp. 105, 231; During, 2013, pp. 49-50). The connection of music and, in particular, rhythms with the types of pulses, as a primary element in the medical diagnosis, is one of the topics raised by famous Iranian theorists, and many thought-provoking theories have been proposed in the field of music therapy. Today, researchers believe that the entire structure of music does not influence physiological responses, but the rhythm of the music exerts a major effect on the listener (Bernardi, Porta, and Sleight, 2005, pp.445-452).

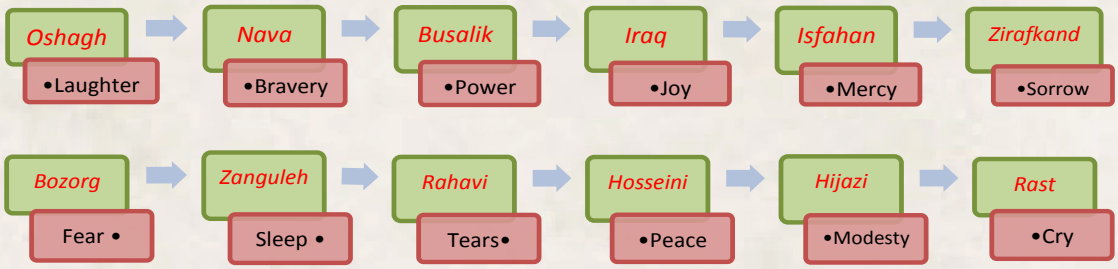

Figure 1. Twelve Maghams (scales) of music, each accompanied with its mode

In addition to philosophers and physicians, several Iranian poets have also highlighted the effect of music on moods in their poems. For instance, Abd al-Rahman Jami has expounded on the relationship between music and arousing the human spirit, arguing that musical tunes have a bearing on moods, such as sorrow, joy, fear, hope, and that modesty can change a person's mood (Jami, 2000, pp. 182-183). Several examples can be presented for the therapeutic place of music in the history of Iranian music, but for the sake of brevity, only a verse from Maulana Jalaluddin Mohammad Balkhi is given here, which exhibits the effect of music on human states:

You have put me to sleep by *Rahavi*
Now awaken me with *Zanguleh*, as it is my dream

Proper times to listen to music, sing, and play instruments

The relationship between the twelve *Maghams* (scales) of music and different parts of day and night is another central subject surveyed in the present study. The issue "The right times of song", in fact, reflects the association between music and time as well as the effect of the melody played/heard at the right time. As contended by a group of experts, although each rhythm has a certain impact on the human psyche, the effect of some melodies is entwined with certain hours of the day/ night or the sunrise and sunset. Avicenna also did not rule out the link between music's *Maghams* and specific hours of the day/ night and their effect on improving the disease, "At the dawn, listen to *Rahavi* and in the morning listen to Hosseini. Just before the afternoon, play Hijazi for the patients and as the evening

falls in, listen to *Isfahani*, as it cures the illnesses."[3] (Nazenpour, 2009, p. 75). Onsor Al-maali, the author of the book *Qabusnameh*, has mentioned music in Chapter 36, and talked about "The ritual and tradition of *khonyagari* (singing)". This chapter describes Iranians' insights and attitudes about music, including its effect on different dispositions, four temperaments, and improved physical and mental function. In addition, he has forged a connection between music and different times of the day and different seasons: "You need to know the time of playing each song even if you are a unique master" (Amir Onsor al-Maali, 1989, pp. 193-197). In the musical treatise of Mohammad Neyshabouri (6th century), the oldest treatise on this subject in Persian[4], the author describes *Parde* (frets) of music in the fourth chapter of his work. The primary goal of this chapter is to highlight the significance of the time when each fret should be played and according to the research conducted, this subject was for the first time raised in *Neyshabouri's* treatise (Pourjavadi, 1995, pp. 32-70). In his work, Ghaznavi also stresses the connection between the effectiveness of music's *Maghams* and modalities played/heard at different hours of the day and in different seasons. To him, "The *Magham* position would be beneficial for the disease of Spasm and facial nerve paralysis. In April, the right time of playing *Mobarqa* (one of the music branches) is when the noon is fading out" (Ghaznavi, 2013, pp. 22, 61, 81, 87-89, 97-98). Hassan Kashani has also articulated his stance on the efficacy of music proportionate to certain times of the day by stating that "some melodies should be played on the bed of patients at dawn" (Binesh, 1992, pp. 107, 124). Forsat al-Dowla Shirazi (1855-1919 AH), one of the last composers of ancient Iranian music, has explained the relationship between melody and the hours of the day: "The ancients believed that the twelve *Maghams* (scales) of music were inspired by each month of the year and each *magham* was assigned to a particular month; *rast* to the April (Aries); *Isfahan* to the June (Taurus); and so forth". He states his definite stance on the association of each *magham* with specific hours and its effect on healing the diseases as follows: "There are divergent views about the proper time of playing songs. However, this is not a general rule and in reality, playing a song or music with a melodious tune time could be advantageous at any" (Shirazi, 1966, pp. 15-16, 23).

The conclusion of this subject is dedicated to a description of different types of *maghams* and their divisions. In ancient Iranian music, musicians and specialists used *Abjad Numerals* to call the frets or melodies of music, and accordingly,

3- According to Pourjavadi, the editor of Mohammad Neyshabouri's treatise, Hassan Kashani has attributed the notion of the connection between music and time to Avicenna (Kunz al-Tohaf, 124-125). This, however, is distorted and not from Avicenna (Pourjavadi, 1995, p. 35).

4- The treatise on music by Mohammad Neyshabouri is the first ancient Persian treatise on music, in which the author has written his work without using Greek or Arabic sources. Previously, music was always attributed to ancient Greece and Plato, Aristotle and Pythagoras The importance of this manuscript, in addition to exhibiting the Iranian aspect of music, lies in the explanation provides concerning the Iranian tradition and introducing Barbad as the founder of music. Another importance of the treatise is the effort of the author who intends to present practical materials scientifically (Pourjavadi, 1995, pp. 30-34).

they had extracted twelve main *maghams*, named after twelve constellations (Ghaznavi, 2013, pp. 22, 61, 81, 87-89, 97-98), as follows:

1. Oshagh 2. Nava 3. Busalik 4. Rast 5. Hosseini 6. Hijazi 7. Rahawi 8. Zanguleh 9. Iraq 10. Isfahan 11. Zirafkand and 12. Bozorg.

In addition to the *maghams*, there are 24 branches: *1. Dogah 2. Segah 3. Chahargah 4. Panjgah 5. Ashira 6. Nowruz Arab 7. Mahour 8. Nowruz Khara 9. Bayati 10. Hesar 11. Nahoft 12. Ozal 13.Ouj 14 Neyriz (Niriz) 15. Mobarqa 16. Rakab 17. Saba 18. Homayoun 19. Zawul (Zabul) 20. Isfahanak 21. Bastenegar 22. Khuzi 23. Nahavand 24. Mohayyer* (Ghaznavi, 2013, pp. 22, 61, 81, 87-89, 97-98).

Contemporary Iranian music

The preceding section presents a brief overview of the attitudes and insights of Iranian scientists about the therapeutic effect of music from the past until the introduction of modern science to Iranians. In the wake of the Constitutional Movement and exposure to modern thought and science (1894 AD), the principles and methods of old music fade out, giving their place to the discourse of new and modern music. There are two systems in the history of Iranian music: periodic and instrumental. In the former system, songs are considered a collection of cycles, while in the instrumental system, founded after the periodic one, songs are divided into seven groups, called *Dastgah*. This change, conversion, arrangement, and completion of musical instruments took place in the late thirteenth century during the Qajar rule over Iran (Mashhoun, 1994, pp. 33, 55, 366; Norouzian Neyshabouri, 2011, p. 18).

After a brief review of developments in Iranian music in the contemporary period, a short description of different instruments and their impact at any time of the day or night in modern Iranian music is presented here.

1- Dastgah (a collection of several melodies)

A. Dastgah-e Homayoun

Homayoun is a glorious, sedate, and at the same time heartwarming and charming song. According to Ruhollah Khaleghi, "*Homayoun* is a compassionate and kind counsellor who says the words of the heart and speaks to his listeners with utter modesty and humility and offers advice in such an eloquent manner that no speaker can hold a candle to its skill and mastery." He says: "*Homayoun* is a concoction of all spiritual emotions and attributes, but despite its nature, it also has the potentials for singing lullabies and *Zurkhaneh* (a kind of ancient Iranian sport) songs". It is better to listen to *Homayoun* in the morning to feel its profound effect on the listener (Khaleghi, 1962, p. 204).

B. Dastgah-e Mahur

Mahur is dignified, dreamy, exhilarating, and joyful, giving a unique glory to the listener and the composer usually utilizes this musical instrument (*Dastgah*) to express his audacity. *Mahur* has a special place among young people due to its resemblance to some foreign music. As the sun rises and the flowers blossoms, the music can be played on *Mahur*. The nature of *Mahur* is as delicate as its name and in a sense, its music marks the dawn of the day and life, youth and pride, bravery and richness.

C. Dastgah-e Shur

Shur, known as the mother of all *Dastgahs*, is recognized as a poetic system tinted with

reason and thoughts that agree with the tastes of the Orientals. *Shur* is deeply rooted in Iranian culture, bearing the signs of Iranian Sufism and mysticism. This *dastgah* is generally recognized as easy but difficult to imitate; however, despite its simple facade, it is rather complex. When listening to a song played in *Shur*, you feel peaceful due to its calming nature. The *Shur* cannot be strictly categorized as a sorrowful or uplifting song which is also one of the notable features of this *dastgah*. You can listen to *Shur* at any time of the day or night, but at night, it confers a special sense of delight to the listener. By way of comparison, it can be likened to a person whose words are cherished by. That's why, this song can be played in any place and at any time.

D. Dastgah-e Nava

It is a moderate device with a soft and gentle melody. *Nava*, also known as a pleasant song, is usually played at the end of the ceremonies. This *dastgah* implies secrecy and mystery. *Nava* induces calmness, accompanied by stillness and silence. By listening to its song, a sense of swimming in the gentle waves of the sea with indescribable calmness overwhelms you. Nava can be listened to throughout the day, but it is more recommended at night before going to bed.

E. Dastgah-e Segah

The *Segah* music has its origin in Iranian culture. Although it is also widely used by the Turks, the Persian-speakers sing it differently. In both *dastgahs*, singing is accompanied by sorrow and grief. It is also one of the most delicate *dastgahs* that must be performed with strong emotions. In addition to its hidden grief, it imparts firmness and power, reflecting a kind of dignified and majestic supplication to the beloved that ultimately provokes hope. It is better to be played and sung before sunrise.

F. Dastgah-e Chahargah

Chahargah possesses a mystical spirit, like a wise old sage, and bears the characteristics and virtues of a perfect man. It sheds tears of sorrow in failures and tears of joy on felicitous occasions. This *dastgah* is the best choice for composing patriotic and epic songs and pieces because it can perfectly inspire a sense of enthusiasm, bravery, and pride in the listener. *Chahargah*, unlike *Abu'ata* and *Isfahan*, is masculine and it is better to listen to it at sunrise.

G. Dastgah-e Rast-e Panjgah

As its name implies, it contains all five scales in Iranian music and captures all of them. Like *Mahur*, it is a dignified and majestic song that offers advice and cautions to his descendants in the way an old sage does. This *dastgah* has subtleties and delicacies that induce a special feeling of concentration and comfort in humans. You can listen to this song throughout the day, but the best time is from the morning to before the call for noon prayer (Binesh, 1992, pp. 107, 124).

2- Avāz (Songs)

A. Bayat-e Turk Avāz

It is mainly used in mystical and dervish melodies and can forge a connection with the god and inner happiness. In *Bayat-e Turk*, sorrow and grief are less conspicuous as it de-

scribes one's position before the beloved. This sadness and angst are of the kind that is essential for the human soul. *Bayat* signifies heaven and has a contemplative and religious mood. The word *Turk* in this song refers to the *Qashqai Turks*, rather than *Turks* dwelling in other parts of Iran. Many local *Qashqaie* songs are reflected in this song, which is the reason it is also known as *Bayat Zand* too. Another noteworthy point is that some experts believe that *Bayat* is an abbreviation of the word *Abyāt* (verses). Around noon is the best time to listen to *Bayat-e Turk*. It is said that even the call to prayer heard in *Ruh al-Arvah* (kind of melody) wields a profound effect on the listener.

B. Abu'ata Avaz

Abu'ata avāz are also known with titles, such as *Saranj* (*Sarang*), *Dastan-e Arab*, and *Sorney*. Forsat al-Dawla Shirazi contends that *Abu'ata* is the same as *Sarang* and was one of the twenty-four branches of ancient Iranian music (Shirazi, 1966, pp. 15-16, 23). On the other hand, others posit that there is a connection between *Abu'ata* and one of the Indian rabbis named *Sarang*. *Abu'ata*'s song is very delicate and intricate. If we were to assign a gender to *dastgahs* and *avazs*, *Abu'ata* would be feminine because it is rife with tenderness and elegance. *Abu'ata* represents a kind of longing and complaining about the beloved which embodies the supplications for love. Most of the street panhandlers in the past presented what they demanded in the Hejaz and *Abu'ata*. In the past, most of the street panhandlers presented what they demanded in the Hejaz and *Abu'ata*. *Abu'ata* song can be played all day long, but it is more heartwarming and pleasant in the afternoon.

C. Avāz Afshari

The name *Afshari* in Iranian music is an allusion to the *Afshar* tribe which has its roots in the Azerbaijani Turks. *Afshari* is an evocative and dolorous song that expresses inner sorrow and intimate dialogue with the Creator. *Avāz Afshari* is thought-provoking and probably that is the reason why this song is used for supplications. The magical effect of this avāz is more evident as the sunsets.

D. Avāz Dashti

Dashti is the most plaintive Iranian song. Unlike the seemingly happy melodies that are made of, it bears an implicit sorrow that provokes the most heart-rending feelings in the listener. This song is very delicate at the same time. The grief inherent in the *Dashti avāz* is related to the separation from the beloved and the suffering and predicaments of life. Emotion plays a crucial role in the singing of *Dashti avāz*. Many songs in the northern region of Iran, especially on the Caspian Sea, such as *Deilaman* and *Gilaki* in the *Mazandaran* and *Gilan* provinces, are sung with this *avāz*. The best time for *Dashti avāz* is at the sunset and the beginning of the night.

E. Avāz Bayat-e Isfahan

Bayat-e Isfahan is one of the ancient songs and probably the most romantic Iranian song. It is attractive, deep and at the peak of feeling, and its rhythm alternates between joy and sorrow. Like *Abu'ata*, it is feminine. The emotional tone of this song is very strong so the bulk of romantic poems are sung in this *avāz*. When listening to *Bayat-e Isfahan*, it is as if you are dangled between joy and grief. *Bayat-e Isfahan* seems to be heir to lasting romances. The best time to listen to Isfahan songs is at night before going to bed which

helps you enter the realm of dreams (Boukeh Obehi, 2011, p. 48; Zia al-Din, 2011, p. 15).

Some of the old ideas and beliefs in Iranian music, such as the association between time and music, and the impact of celestial bodies on music have been rejected in the discourse of modern Iranian music. Iranian music is composed of seven *dastgahs* (a collection of several songs) and five *avāzs*, each with its characteristics so that every *dastgah* of Iranian music is underlined by a theory. That being said, although there is no clear rule for listening to music at different parts of the day, there are still points among these theories that are derived from the synthesis of the theory and experience of musicians and singers.

The following is the taxonomy of *dastgahs* and *avāzs*, elements, colors, moods, and the proper time for listening, reading, and playing music in harmony with diverse hours of the day (Table 1).

The position of music therapy in modern medicine

There are two approaches to therapeutic methods in modern medicine: conventional medicine and complementary or alternative medicine. Alternative medicine includes the common method of acupuncture, music therapy, art therapy, etc. which are the most well-known types. Music therapy is one of the sub-branches of medical sciences in which music is utilized as a systematic tool for the treatment of diseases. Today, in most developed countries, music serves as a therapeutic method[5]. Music therapy is a complementary therapy that improves the healing process of patients by raising the threshold of beneficial stress and eliminating adverse emotions, regulating internal processes, inducing a state of calmness, and boosting immunity (Chang, Chen, and Huang, 2008, pp. 2580-7; Chang, and Chen, 2005, pp. 453-61). This method is classified into two parts. The inactive part is related to listening to music and the active part has something to do with playing, singing, and rhythmic movements. In active music therapy, various mental, sensory, and motor reactions are stimulated and extraordinarily coordinated (Pacchetti, et al, 1998, pp. 57-67).

There are basic principles of music in human nature. From the early days of childhood, the perception of rhythm and arrangement of sounds and melodies is observed in the brain and body's biological and physiological structure, which is expanded throughout life by listening to a raft of songs and melodies. Informed by this innate and biological familiarity, music, more than any other types of art, arouse motivation,

5- The first music therapy conference in Iran entitled "Research on music from the perspective of neuroscience and behavior" was organized by the music therapy of the Student Scientific Research Center of Tehran University of Medical Sciences in 1999.

energy, and emotional connection (Zadeh Mohammadi, 2011, pp.231-249). Therefore, researchers from the distant past have always been looking for ways to influence music on the central system of the brain. In the nineteenth century, psychologists and musicologists, such as Carl Stumpf, have studied the effect of music in terms of levels of sensory processing. Some neuroscientists, such as Auguste Nabloch, have also discussed the language processing under the impact of music. Another psychologist, Richard Wallace, has drawn on these ideas to express music processing and his patients' reactions (Graziano, and Johnson, 2015, pp. 33-49).

Table 1: The Taxonomy of *Dastgahs* and *Avāzs*

No	Dastgah (Song)	Mood	Color	Element	Time to listen or play
1	*Dastgah-e Homayoun*	Royal, aristocratic, joyful	Dark green	Fire	Early morning (dawn)
2	*Dastgah-e Mahur*	Joyful and uplifting, magnificent, luxurious	Sky blue	Wind	Morning (beginning of the day)
3	*Dastgah-e Shur*	Poetic, understanding, and thinking	Red	Fire	Night
4	*Dastgah-e Nava*	Peaceful, holy, mysterious, and peaceful	White	Wind	Late Night
5	*Dastgah-e Segah*	Sadness, strength, grandeur, and hope	Azure blue	Water	Before Sunrise
6	*Dastgah-e Chahargah*	Powerful, festive, and patriotic	Golden yellow	Air (steam)	At sunrise
7	*Dastgah-e Rast Panjgah*	Focus, magnanimity, and advice	Bright tan	Earth	Morning to noon
8	*Bayat-e Turk avāz*	Mystical, religious, and memorable	Black	Earth	Noon and early evening
9	*Abu'ata avāz*	Thought, complaining, and longing	Purple	Earth	Evening
10	*Afshari avāz*	Pain, suffering, sorrow, and separation	Brown	Soil	Near sunset
11	*Dashti avāz*	Heartbreaking, supplication, complaining	Brown	Soil	Sunset and the beginning of the night
12	*Bayat-e Isfahan avāz*	Emotional, charming, romantic, and mystical	Light green	Fire	At night before going to bed

The human brain has different parts with different functions. The brain is a directory for recording emotions, voluntary actions, decision-making, and a center for mental processes. The human brain comprises a vast number of nerve cells, called neurons, through which messages are transmitted to different parts of the body. Changes in these waves prompt extensive variations in human thoughts, feelings, and behavior (Hadis Ghaffari, and Alipour, 2017, pp. 71-83). Musical emotions are a function of the state of the structural elements of music, such as rhythm, beat, and melodic intervals. The brain perceives the melodic and rhythmic composition of music as a whole, while clinical and psychological studies suggest the independent processing of these factors at the time of music composition and perception (Bengtsson, and Ullen, 2006, pp. 272, 284; Pallesen, et al, 2005, pp. 450-453). There is a growing body of research on the function of music in medicine, the therapeutic goals of which are disease prevention, post-surgery rehabilitation, curtailed duration of medication use, and decreased length of treatment (Nematian, 1999, pp. 129-

145).

The goal of medicine is to cure disease, and treatment methods provide a means to achieve this goal. On the other hand, music is an art that, with therapeutic applications, and due to its cost-effectiveness, attractiveness, ease of use, non-invasiveness, and execution by non-specialists, can be utilized as a technique along with common therapies and rehabilitation in medicine (Fyntz, 2001, pp. 7-14; Nematian, 2001, p. 4). In addition, there is no age restriction in this treatment method, and patients, ranging from infants to the elderly, can be cured in this way (Fosson, Martin, and Haley, 1990, pp. 324-327). However, the type of music, the frequency and time of use, the quality and application, as well as the habits and lifestyles and the nexus between music and culture should not be overlooked.

Nowadays, music has established its position as a treatment for disorders related to motor skills and excellent cortical functions which are not responsive to medication or surgery (Ashayeri, 2002, pp. 11-12). Experts in their research have reached the physiological effects of this method in reducing fear and anxiety (Steelman, 1990, pp. 1026-1034) as well as the healing process of patients with anxiety, depression, and obsessive-compulsive disorder (Shirani, 2014). The findings suggest that music therapy has been significantly effective in alleviating the symptoms of mental disorders in patients (Sheybani, et al, 2010, pp. 54-60). This is a point that has been regarded by Iranian physicians in the history of music therapy. Rhazes' stance (Rhazes, 2001, p. 62) and Ahwazi's prescription (d. 1010 AD) regarding the importance of mental health (Majousi Ahvazi, 2008, p. 421) and Al-Akhawayni Bokhari's emphasis (fourth century AH) on the importance of *Sama* (singing along with dancing) for the human soul (Akhawayni Bokhari, 1992, pp. 165, 653) are a testimony to the function of music psychotherapy in the treatment of neurological and mental illnesses, including melancholy. There is a report in the book *Ikhwan al-Safa* (Brethren of Purity) that describes, for the first time, the application of music in hospitals as a treatment for mentally ill patients (Mojmal al-Hikma, 1996, pp. 78-79).

Discussion and conclusion

The research results illustrate that music, deemed as an artistic manifestation in ancient Iran, was used in religious ceremonies and prayers. In Iran, during the Islamic period, music was categorized as a branch of mathematical sciences in the classification of common sciences, and philosophers, physicians, musicologists, and even poets have elaborated on the effect of music on man's mental state. In the meantime, doctors have gone a step further in discussion and have benefited from music in the treatment of different kinds of diseases. Evidence on medical integration with music in the works of these scientists to accelerate the healing of patients' pain suggests that this kind of treatment has had scientific support. Today, in light of the effect of modern sciences on the discourse of music and the specialization of sciences and the development of complementary medicine, music has been recognized as a valid therapeutic technique.

Researchers' findings shed light on the association between music and human nature. In fact, more than other types of art, music stimulates motivation, energy, and emotional connection and due to its cost-effectiveness, attractiveness, ease of use, non-invasiveness, and execution by non-professionals can be adopted as a special technique in medicine along with other common therapies and rehabilitation methods.

The relationship between the twelve musical sections with various day and night times and the positive impacts of tunes and musical sounds on all body organs indicate the deep

relationship of this art with the human body and soul. The subjects, such as specific time listening to music, different types of songs, the way to play, elements and different states, while introducing the original Iranian music to the world, can decently help traditional medical professionals to use this classical heritage during treatment.

In classical Iranian music, due to special features, namely compressed vocal flows, centrism, inner, journey, and most importantly, a culture geared towards emotional effects of music, music-induced stimuli and emotional effects are more palpable and its connection with love, motivation, interests, and social relationships are outstanding. This type of music has a powerful emotional load and aside from being a stimulus for cognitive backgrounds and mental actions, triggers feelings and emotions. For this reason, patients exhibit stronger and better responses to the emotional and communication facets of music, and negative symptoms are associated with more pronounced changes. Therefore, the deleterious effects of anxiety, tension, stress, and mental pressure can be significantly diminished by playing musical instruments or listening to the right instruments and songs. Given the crucial role of music in promoting peace and harmony in human feelings and emotions, this valuable art can serve as a great complementary therapy for some diseases, especially neurologic and psychiatric diseases.

Conflict of Interest

The authors declare that they have no conflict of interest.

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