



Research Article

The Effect of the Five Element Music Therapy on Improving Somatic Symptoms Caused by Depression and Anxiety

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Introduction

Somatic symptoms

Somatic symptoms refer to physical discomfort developed from the patient's subjective experience, while no organic pathological changes were observed in laboratory examinations. Its manifestations can involve multiple organs, or simulate the manifestations of any disease, including the neuromuscular, cardiovascular, digestive, respiratory, genitourinary, etc. Symptoms such as sleep disorders, fatigue and chronic pain are commonly presented as main complaints [1]. According to Caballero [2], the study revealed that 93% of 1150 patients with depression had at least one depression-related somatic symptom, while nearly half of the patients had 4-9 somatic symptoms, indicating that the incidence of somatic symptoms is very high when patients are depressed.

Depression and anxiety

Depression is a shared global mental illness that affects more than 270 million people worldwide. It is characterized by persistent depression, pessimism, disappointment, and a lack of interest or pleasure in previously beneficial or enjoyable activities. At the same time, sleep disturbances and changes in appetite, fatigue and difficulty concentrating are commonplace. A depressive episode can lead to disability and inability to fulfil responsibilities in the personal, family, social, and occupational fields, with mild, moderate, and severe degrees [3]. From the perspective of traditional Chinese medicine (TCM), the onset of depression

is mainly related to the liver [4]. Liver qi stagnation leads to the abnormal excretion function of the liver, and the liver is the primary emotion, so the dysfunction of the liver will lead to abnormal emotional will. On the other hand, emotions can also cause illness, and long-term depression will cause qi stagnation, which forms a vicious circle. As for anxiety, the clinical manifestations of anxiety disorder are nervousness, worry, and restlessness without a clear objective cause [5].

The Five Elements Music Therapy

The five musical notes refer to jué, zhǐ, gōng, shāng, and yǔ, which is the basic tone of ancient Chinese music pentatonic scale. Through repeated practice, it is verified that they correspond to the five main tones of Western music: mi, sol, do, re, and la [6], while they are associated with wood, fire, earth, metal and water respectively in the five elements. The Five Elements Music Therapy, or the five-phase music therapy, is a method to use different qualities of the five musical tones related to the five elements in treating mental disorders [7]. The therapy was first seen in the "Huangdi Neijing (Huangdi's internal classic)" and is developed based on the Five Elements that systematically links the five notes, the five elements, the five zang organs, and the five emotions [8]. As documented in Suwen: "The scale of liver is jué, the emotion of the liver is anger; the scale of the heart is zhǐ, the emotion of the heart is joy; the scale of the spleen is gōng, the emotion of the spleen is overthinking; the scale of the lung is shāng, the emotion of the lung is grief; the scale of the kidney is yǔ, the emotion of the kidney is fear." By inference, the five notes have the characteristics of respective five

elements such as presenting related five emotions; see Table 1 for details.

	Earth	Metal	Wood	Fire	Water
Scale	Gong	Shang	Jue	Zhi	Yu
The five elements	Late summer, belong to the earth	Autumn, belong to metal	Spring, belong to wood	Summer, belong to fire	Winter, the belong to water
The Five zang organs	The spleen	The lungs	The liver	The heart	The kidneys
The Five emotions	Overthink	Grief	Anger	Joy	Fear
Effect on the Qi movement	Promote the stability of the whole body's qi and regulate the ascending and descending of the spleen and stomach qi	Promote the upward and outward diffusion, downward and inward depuration of lung qi.	Maintain the free flow of qi over the entire body.	Promote the ascending of the whole body's qi	Promote the descending of the whole body's qi
Melody features	Elegant, soft, smooth, thick and solemn	High-pitched, tragic, sonorous and majestic	Stretched, melodious, far-reaching, full of vitality	Relaxed and lively, cheerful	Quiet and soft
Representative repertoire	The cresting moon, A Moonlit Night On the Spring Liver	The General's Command	A Visit to Suzhou	Festive Joy	Butterfly Lovers

Table 1: The classification and role of the Five Elements Music and their respective representative repertoire. [9]

Objectives

The purpose of this study is to verify the clinical efficacy of the Five Elements Music Therapy in the treatment of somatic symptoms caused by depression or anxiety and to promote the development of the application of TCM in the treatment of mood disorders.

Materials and Methods

Inclusion Criteria:

1. All participants understand has signed the informed consent form;
2. SDS score \geq 53 points or SAS score \geq 50 points;
3. Have a certain level of education, and understand the content related to the Five Elements Music Therapy.

Exclusions Criteria:

1. Those who have recently used other antidepressants and psychoactive drugs;
2. People with severe mental retardation, speech comprehension impairment, cognitive dysfunction, hearing impairment, dislike of listening to music, Alzheimer's disease, history of major mental trauma;
3. Graduated from a major in music or engaged in music-related work;

4. People who are unable to listen to music videos online.

Dropout Criteria:

1. Those who interrupt the planned intervention during the study and have no effective data available;
2. Those who did not complete the treatment according to the requirements of the trial or used other methods in the treatment process that led to the change of evaluation indicators;
3. Those who fill in the scale in a non-standard manner and have low credibility;
4. Those who are unwilling to participate in the study or withdraw from the study halfway.

Study design

Intervention

Referring to Li et al. [10], the participants were first classified by TCM syndrome differentiation, and then according to the five elements principle, and the sequential restraining relationships among the five elements, corresponding music was arranged for the subjects. In the study, the music used was selected from the CD-ROM "Chinese Traditional Five Elements Music (authentic mode)" published by the Chinese Medical Multimedia Press, in which the music was classified according to the five scales, i.e., Gong, Shang, Jue, Zhi and Yu.

General Data Questionnaire

In this study, Depression Self-Rating Scale (SDS), Anxiety Self-Rating Scale (SAS) and Symptom Self-Rating Scale Somatization Factor (SCL-90) are used.

Data analysis

The researchers used Microsoft Excel2010 to build a database, enter data and convert scores. SPSS23.0 software was used for statistical analysis. The counting data were described by frequency and composition ratio, and the mean \pm standard deviation ($\bar{x}\pm s$) was used to describe the measurement data that met the normal distribution, and the median and quartile were used to describe the measurement data that did not meet the requirements. The normal distribution of the continuous data before and after the intervention was analyzed by the paired samples t-test, and the Mann-Whitney U test was used for analysis, and the difference was statistically significant with $p<0.05$.

Findings

General condition

The study was conducted from September 2021 to October 2022, and 20 participants were recruited in the end. Subjects were divided into the treatment group and the control group in a ratio of 1:1. During the study, 2 subjects withdrew from the study due to their failure to cooperate (1 in the treatment group and 1 in the control group), and the dropout rate was 9%.

SDS score

In this study, the SDS score decreased from 62.00 ± 6.99 to 51.75 ± 13.27 in the treatment group ($p=0.081$) after 4 weeks of the five elements music therapy, and from 67.67 ± 9.61 to 60.89 ± 5.67 in the control group ($p=0.148$). There is no statistical significance in both groups. Although the average difference between the treatment group before and after the intervention was 51% higher than that of the control group indicating the slight effect of the Five Elements Music Therapy on reducing the level of depression, the effect is still in doubt.

SAS score

The anxiety level decreased from 57.38 ± 8.15 to 46.38 ± 11.96 ($p=0.052$) in the treatment group while the scores fell from 64.44 ± 10.24 to 57.22 ± 16.30 in the control group ($p=0.097$). The effect of the five elements music therapy on lowering anxiety levels is questionable because there is no statistically significant difference in both groups, though the average difference between the treatment group before and after the intervention was 52% higher than that of the control group.

SCL-90 score

The severity of somatic symptoms decreased from 13.5 ± 8.60 to 8.88 ± 7.30 ($p=0.016$) in the treatment group and that in the control group decreased from 16.33 ± 9.21 to 15.78 ± 9.12 ($p=0.883$). Although the severity of somatic symptoms in both groups showed a downward trend after 4 weeks of follow-up, the intra-group change in the treatment group was statistically significant ($p<0.05$), indicating the effect of five elements Music Therapy on reducing the degree of somatic symptoms.

Distribution of the use of each scale in the Five Elements Music Therapy

The most used mode of music in this study was the gong scale with a usage rate of 56%, accounting for more than half of the proportion, followed by the Zhi scale with a usage rate of 22%, the use rate of the Yu scale and the jue scale were the same, with a usage rate of 11%, while the Shang scale was not used by any participants.

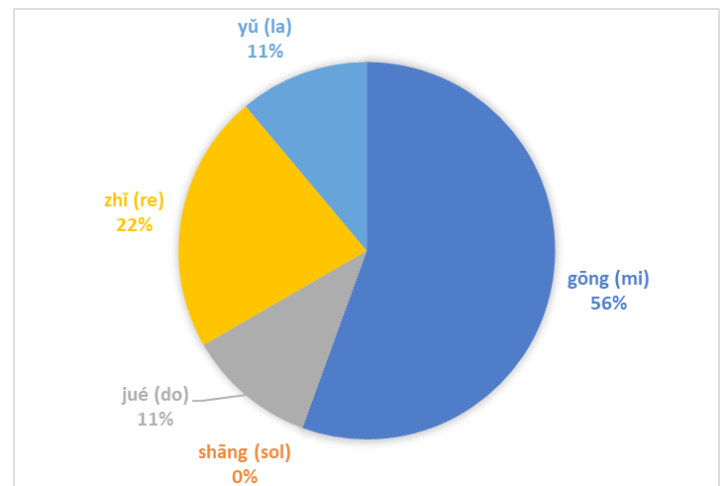


Figure 1: The distribution of each scale of the Five Elements Music Therapy in the intervention group (n=9).

Discussion

The efficacy of the Five Elements Music Therapy alone

Current studies that investigate the effect of the Five Elements Music Therapy on depression or anxiety often combine the intervention with other treatments [11-14], including electro-acupuncture, Chinese medicine, tai chi, auricular points plaster therapy, acupressure, hydrotherapy, mindfulness training and other therapies. While this study shows that the use of Five Elements Music Therapy alone has a certain effect on improving the somatic symptoms caused by these emotions.

The uniformity of pattern differentiation

Some scholars have pointed out the problem of the five elements therapy that the number of repertoires is too large and chaotic, and there is no systematic and unified music library at present [15]. In this study, the “Chinese Traditional Five Elements Music (Authentic Tone)” was selected. Although Professor Hao Wanshan from the Beijing University of Chinese Medicine served as the consultant on traditional Chinese medicine, which is authoritative, it was published in 1997. In the past two decades, research on the Five Elements Music Therapy has continued to be conducted, and many new developments have been made. A systematic music library should be developed and updated in the future.

Conclusions

The study analyzed the data and concluded that the Five elements music therapy improved somatic symptom severity caused by depression or anxiety. Selecting the respective mode of music based on the principle of syndrome differentiation in the implementation of the Five Elements Music Therapy is crucial according to dropout subjects’ feedback. Overall, the Five Elements Music Therapy method is a simple and economical alternative treatment for people with somatic symptoms. It should be promoted in clinical or healthcare aspects.

Limitations and prospects

Since the sample size was small, the reliability and validity of the study were affected. In addition, because there is no unified and authoritative five-element music library, the existing five-element music materials are limited, resulting in difficulty in music selection. To provide a stable foundation for the five-element music therapy implementation, the researchers hope that a unified and authoritative five-element music library could be developed in the future.

Although there are some limitations to this study, as a low-cost, small-sample clinical trial, this project has verified the hypothesis that the Five Elements Music Therapy can improve the somatic symptoms caused by depression or anxiety, so it is necessary to continue to deepen the research on related topics in the future, such as expanding the observation time and increasing the observation indicators.

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Appendix

Form of intervention

(1) Music selection: Using “Chinese Traditional Five Elements Music (Authentic Tone)”, the origin and hypothesized benefits of the Five Elements Music Therapy were first introduced to the participants, and the main somatic symptoms of the subjects were differentiated according to the 5th edition of the textbook of “Internal Medicine of Traditional Chinese Medicine”.

(2) Music player: the participants’ cell phones or computers.

(3) Time and frequency: once a day, 30 minutes each time, lasts for four weeks

(4) Main points of the implementation: control the appropriate volume according to the individual’s situation. Music with high volume is easily irritable, while music with low volume will weaken the effect of music therapy, which may affect the experimental results. Subjects were instructed to empty their urine before listening to music, take a comfortable position, relax and listen to music in a quiet environment.