DOI: 10.53469/wjimt.2024.07(06).21

Research Progress of Five-Element Music in the Treatment of Pulmonary Diseases

Hua Zhang*, Wenwu Bao

College of Chinese Medicine, Guangzhou Huali Science and Technology Vocational College, Guangzhou, Guangdong
Correspondence Author, 83686113@ qq.com

Abstract: ***The five-element music therapy, which is deeply rooted in the theoretical framework of the five elements in traditional Chinese medicine, has witnessed a growing body of research in recent years regarding its application in treating diseases associated with the zang-fu organs. This paper comprehensively reviews the research papers from both domestic and international sources and delineates the research advancements in the utilization of five-element music for the treatment of pulmonary diseases. It systematically summarizes and analyzes two primary treatment modalities: passive music therapy and active music therapy. By gaining an in-depth understanding of the current research landscape in this domain, a solid foundation is laid for further in-depth investigations in the future.***

Keywords: Five-Element Music; Pulmonary Diseases; Music Therapy.

1. INTRODUCTION

The treatment modality of five-element music traces its origin back to the theory of the five elements expounded in the classic work of traditional Chinese medicine, "Huangdi Neijing". In the context of the traditional Chinese medicine five-element theory, the five musical scales of Gong, Shang, Jiao, Zhi, and Yu can be precisely correlated and integrated with various physiological and psychological factors such as the five zang-organs (spleen, lung, liver, heart, and kidney) and the five emotions (thinking, worry, anger, joy, and fear) of the human body. Specifically, "The liver, pertaining to wood, corresponds to the musical scale of Jiao and is associated with the emotion of anger; the heart, belonging to fire, correlates with the musical scale of Zhi and the emotion of joy; the spleen, classified as earth, is in harmony with the musical scale of Gong and the emotion of thinking; the lung, categorized as gold, is linked to the musical scale of Shang and the emotion of worry; the kidney, associated with water, corresponds to the musical scale of Yu and the emotion of fear." Owing to such correspondences, the employment of music in different modes to address diseases of the corresponding zang-organs constitutes the core principle of five-element music therapy.

In recent years, as a non-pharmacological therapeutic approach, traditional Chinese medicine five-element music has been widely adopted in clinical practice. Particularly, there have been numerous studies and applications in areas such as emotion regulation[1], the treatment of anxiety and depression[2], and the improvement of sleep quality[3]. However, given that music per se inherently possesses the capacity to modulate emotions, merely focusing on its psychological therapeutic effects falls far short of comprehensively elucidating the profound connotations of five-element music therapy. Hence, it is imperative to seek more scientific justifications for the application of five-element music in the treatment of organic diseases of the five zang-organs. This paper specifically targets the "lung" organ and reviews the research on five-element music in the treatment of pulmonary diseases in recent years, with the aim of understanding the current research status and paving the way for more profound investigations in the future.

2. PASSIVE MUSIC THERAPY

Passive music therapy achieves its therapeutic efficacy through the act of listening to music. Among the pulmonary diseases, chronic obstructive pulmonary disease (COPD) and lung cancer are the two major categories that have seen relatively extensive applications of passive music therapy in clinical settings.

2.1 Application in Chronic Obstructive Pulmonary Disease (COPD)

Yun Wang et al. [4] conducted a randomized controlled trial involving 80 patients with stable COPD admitted to their hospital. The control group was administered routine nursing care, while the observation group was subjected to a combined intervention comprising Baduanjin exercise and listening to five-element music. The observation

period extended over a duration of three months. Multiple indices, including respiratory status, exercise endurance, lung function, and quality of life scores, were measured for both groups. The results unequivocally demonstrated that all the measured indices in the observation group were statistically significantly higher than those in the control group. Lin Ling et al. [5] probed into the impact of Shang-tune music on the anxiety and dyspnea symptoms of patients with stable COPD. The observation group received routine treatment, syndrome-based nursing care, and listened to Shang-tune music. The control group, except for not listening to Shang-tune music, was administered the same treatment measures as the observation group. The treatment regimen lasted for 12 weeks. Before and after treatment, the "Trait Anxiety Scale" (T-AI) and the "Medical Research Council Dyspnea Scale" (mMRC) were employed for assessment. The research findings conclusively indicated that Shang-tune music could effectively ameliorate the anxiety symptoms and relieve the dyspnea manifestations in patients with stable COPD. This experiment lucidly illustrated the standalone effect of five-element music. Not only in the stable phase of COPD patients but also in the adjuvant treatment of the acute exacerbation stage, there have been investigations on passive music therapy. For instance, Yanhua Cao et al. [6] carried out a randomized controlled trial among 107 patients with acute exacerbation of chronic obstructive pulmonary disease (AECOPD) admitted to the emergency intensive care unit of their hospital. The control group was provided with routine treatment and nursing care, whereas the observation group was given rehabilitation nursing modalities such as Shang-tune music nursing, patting the Taiyin Lung Meridian of the Hand, and rope-pulling exercise. The results manifested that the blood oxygen saturation of the patients in the observation group was higher after the intervention compared to that before the intervention. The number of rope-pulling times, grip strength count, and the score of the Brief Mood Scale of the two groups on the 11th day after the intervention were significantly elevated in comparison to the control group ($P<0.05$), signifying that the pulmonary rehabilitation regimen involving patting the Taiyin Lung Meridian of the Hand, rope-pulling exercise, and music nursing could enhance the blood oxygen saturation, exercise endurance, and mood status of AECOPD patients.

2.2 Application in Lung Cancer

Xuemei Zhao et al. [7] explored the influence of five-element music combined with positive psychology intervention on cancer-related fatigue (CRF), negative emotions, and healthy behaviors of lung cancer patients. The control group was administered routine nursing intervention, while the observation group was subjected to the intervention of listening to five-element music combined with positive psychology intervention. The results divulged that the combination of listening to five-element music and positive psychology intervention could improve the CRF condition, alleviate negative emotions, and enhance healthy behaviors in lung cancer patients. Chenbing Sun et al. [8] investigated the effect of five-element music combined with Xiaoyao San on the anxiety behavior of lung cancer patients with anxiety. The treatment group was treated with Xiaoyao San in conjunction with listening to five-element music, while the control group was only given Xiaoyao San treatment. The evaluation indices encompassed not only the subjective Hamilton Anxiety Scale score (HAMA), State-Trait Anxiety Scale (STAI), but also the objective peripheral blood cytokine (IL-1β, IL-6) indices. The results unequivocally demonstrated that the HAMA score, STAI score, and blood index of the treatment group were significantly lower than those of the control group ($P < 0.05$), thereby corroborating the practical efficacy of listening to five-element music in ameliorating the anxiety symptoms of lung cancer patients. Xiaofan Liu et al. [9] explored the impact of traditional Chinese medicine five-element music intervention on the depression state and sleep quality of lung cancer patients, and similar outcomes were obtained. Nevertheless, with respect to the application of five-element music in lung cancer, the majority of the research has been centered around improving the emotional state of lung cancer patients, and hitherto, no studies on enhancing the lung function of patients have been unearthed.

3. ACTIVE MUSIC THERAPY

Active music therapy attains its therapeutic effect through the act of singing and is alternatively known as "singing therapy". Among the pulmonary diseases, COPD is the primary one that has seen relatively extensive applications of active music therapy in clinical practice. Essentially, singing therapy can be regarded as a novel form of pulmonary rehabilitation training, characterized by its ease of implementation, pleasantness, and high compliance rate.

Jiechenming Xiao [10] investigated the effect of singing therapy on the exercise endurance and emotional state of patients with stable COPD. The control group was provided with routine nursing care and community health management services, while the intervention group was additionally administered singing therapy. Appropriate five-element music pieces were selected and sung under the guidance of a music therapist. After a period of three

months, a series of tests, including the 6-minute walk test, modified dyspnea index (Borg score), quality of life assessment scale, self-perceived burden scale, and overall well-being scale, were conducted for both groups. The results evinced that the respiratory function and overall well-being of the intervention group were statistically significantly higher than those of the control group. Hua Liu et al. [11] primarily explored the impact of singing therapy on the anxiety and depression of patients with stable COPD. The results demonstrated that the five-element music singing therapy could effectively mitigate the anxiety and depression symptoms of patients. According to the results of meta-analysis [12], singing can be utilized to improve the quality of life (SF-36PCS) and the strength of the respiratory muscles (PEmax) of COPD patients. The singing therapy of five-element music not only improves the subjective scoring indices related to patients' feelings but also exerts a positive influence on the indices of lung function. Haimin Zhu et al. [13] explored the application effect of singing therapy as a rehabilitation means for COPD in primary hospitals. The control group was administered health education + low- to medium-intensity exercise training + routine drugs, while the control group was supplemented with singing therapy. The results revealed that compared to the control group, the anxiety and depression scale (HADS), mMRC score of the subjective scoring scale of the observation group were lower, and the objective indices of lung function such as PEF and FEV1% were higher, with statistically significant differences. Yingying Ji et al. [14] also obtained analogous results. The five-element music singing therapy in conjunction with pulmonary rehabilitation training had a salutary impact on the cardiopulmonary function, quality of life, emotional state, and sleep quality of COPD patients.

In addition, several foreign scholars have also engaged in research related to singing therapy. Kaasgaard Mette et al. [15] studied the improvement effect of singing therapy on lung function. The results indicated that the changes in various indices such as the 6-minute walk test (6MWT), HADS, lung function, dyspnea, and compliance were all favorable. Cahalan Roisin et al. [16] tested 6MWT, HADS, COPD Assessment Test (CAT), and lung function tests (FEV1, FVC, FEV1/FVC). The results showed that there was a statistically significant improvement in 6MWT, while no significant changes were observed in CAT and HADS. McNaughton Amanda et al. [17] tested lung volume, 6MWT, HADS, Clinical COPD Questionnaire (CCQ), and the number of hospital days for acute exacerbation of COPD (AECOPD). The results demonstrated that the HADS anxiety score was significantly reduced and 6MWT increased. Lord Victoria et al. [18] The results showed that HADS decreased significantly, but 6MWT did not show improvement. In the qualitative aspects, the patients in the singing group reported better subjective feelings and higher overall well-being. Bonilha Amanda Gimenes et al. [19] The research showed that the singing group exhibited a temporary increase in the Borg scale of dyspnea and inspiratory volume after a brief period of singing, accompanied by a reduction in expiratory reserve volume. In the comparison between groups at the end of the training, a significant difference was noted in the change of the maximum expiratory pressure.

4. CURRENT SITUATION ANALYSIS

At present, the music therapy methods globally can be categorized into two main types: passive music therapy and active music therapy. The application of five-element music in the treatment of pulmonary diseases also encompasses these two therapeutic strategies. Among pulmonary diseases, COPD and lung cancer have been the focus of extensive music therapy applications. The role of music therapy in lung cancer predominantly lies in improving the anxiety and depression states of patients, primarily through passive music therapy. For COPD, both passive and active music therapy methods have been employed. Notably, in foreign countries, active music therapy is more prevalently utilized. This may be attributed to the fact that the process of singing is tantamount to a form of pulmonary rehabilitation training, and the modality of singing is more agreeable and conducive to patient compliance than traditional rehabilitation training. Therefore, it can be postulated that COPD represents a prime candidate disease for investigating the therapeutic efficacy of five-element music in pulmonary diseases. Through an in-depth analysis of domestic and international literature, it is evident that almost all studies have reported improvements in the subjective perception of respiratory function in COPD patients after music therapy. With regard to the objective indices of lung function, some studies have also yielded significant results. Overall, the effectiveness rate of domestic trials appears to be higher than that of foreign trials. This disparity may be ascribed to the longer trial duration in China, typically exceeding 12 weeks, in contrast to the generally shorter duration of 6-8 weeks or even less in foreign countries. Additionally, the music selection in China is predicated on the theoretical framework of five-element music, whereas in foreign countries, it is often based on subjective perception and may not be guided by the principles of five-element music.

5. CONCLUSION AND PROSPECT

Traditional Chinese medicine, as a quintessential gem of Chinese national culture, not only fulfills its role as a

medical discipline in curing diseases and saving lives but also exhibits great potential in interdisciplinary integrations. The five-element music, as exemplified in this paper, holds significant promise for in-depth research and exploration in terms of its therapeutic effects and scientific underpinnings. Both five-element music and the corresponding diseases of the five zang-organs present fertile avenues for future research. This paper, by centering on the "lung" organ and meticulously collating and analyzing domestic and international literature, posits that COPD serves as a crucial entry point for probing the therapeutic impact of five-element music on pulmonary diseases. Although extant domestic and foreign studies have achieved consistent and favorable results in terms of subjective indices such as patients' feelings, discrepancies remain in the outcomes related to objective indices such as lung function. Consequently, in future research endeavors, greater emphasis should be placed on objective indices to fortify the evidentiary basis and enhance the persuasiveness of the therapeutic effects of five-element music.

REFERENCES

[1] Liu Li;Wang Chuanying;Wang Huili. The effects of Five Elements music on depression, neurological function, and amino acid neurotransmitters in stroke patients with subthreshold depression[J]. Nursing Research, 2023,37(8):1460-1464.
[2] Zhang Bin;Chen Yu;Qiu Zhiyan. The Influence of Traditional Chinese Medicine Five Elements Music Therapy on Depression in College Students[J]. Journal of Nanjing University of Traditional Chinese Medicine (Social Sciences Edition), 2014,15(2):115-117.
[3] Zhu Lin;Zhang Xiaolin. Clinical Observation on the Treatment of Primary Insomnia with Five Elements Music Therapy[J]. Chinese Medicine Modern Distance Education of China, 2023,21(15):122-124.
[4] Wan Yun. The effect of Baduanjin combined with Five Elements music therapy on pulmonary function and quality of life in patients with stable chronic obstructive pulmonary disease[J]. Heilongjiang Medical Journal, 2024,37(1):226-227.
[5] Lin Ling;Li Sheng;Chen Xi. Observation of the therapeutic effect of commercial music on anxiety and dyspnea in stable patients with chronic obstructive pulmonary disease[J]. Yunnan Journal of Traditional Chinese Medicine, 2017,38(8):104-105.
[6] Cao Yanhua. The application of pulmonary rehabilitation interventions in patients with acute exacerbation of chronic obstructive pulmonary disease[J]. In Proceedings of the 4th Shanghai International Nursing Conference, 2019:685.
[7] Zhao Xuemei;Li Jiangqin;Wang Fenghua;Liu Pingping. The Effect of Five Elements Music Combined with Positive Psychology Intervention on Cancer related Fatigue, Negative Emotions, and Health Behaviors in Lung Cancer Patients[J]. International Journal of Psychiatry,2024,51(2):146-149.
[8] Sun Chenbing;Tang Yunzhe;Zhao Wenshu et al. A randomized controlled clinical study of Five Elements music combined with Xiaoyao San intervention on anxiety behavior in lung cancer patients[J]. China Journal of Chinese Medicine, 2023,38(7):3499-3504.
[9] Liu Xiaofan;Liu Xiangli. The effect of Traditional Chinese Medicine Five Elements music intervention on depression and sleep quality in lung cancer patients[J]. Modern Distance Education of Chinese Medicine, 2019,17(11):50-52.
[10] Xiao Jiechenming. The effect of singing therapy on exercise tolerance and mood in community patients with stable COPD[D]. Guangxi University of Chinese Medicine,2021.
[11] Liu Hua;Song Mei;Zhou Xiaolan;Wang Jiangning. The impact of singing therapy on anxiety and depression in community patients with stable chronic obstructive pulmonary disease[J]. Modern Clinical Nursing, 2016,15(11):46-49.
[12] Fang Xuejie;Qiao Zhengtong;Yu Xinjuan;Tian Rujin;Liu Kai;Han Wei.Effect of Singing on Symptoms in Stable COPD:A Systematic Review and Meta-Analysis.[J].International journal of chronic obstructive pulmonary disease,2022,17:2893-2904.
[13] Zhu Haiming;Chen Guanbin;Liu Yehui et al. The application of singing therapy as a rehabilitation method for chronic obstructive pulmonary disease in primary hospitals[J]. Inner Mongolia Medical Journal,2020, 52(7):807-809.
[14] Ji Yingying;Hao Jianfeng;Su Ming. The study of music therapy-assisted pulmonary rehabilitation training for COPD patients[J]. China Rehabilitation,2019, 34(3):150-154.
[15] Kaasgaard Mette;Rasmussen Daniel Bech;Andreasson Karen Hjerrild;Hilberg Ole;Løkke Anders;Vuust Peter;Bodtger Uffe.Use of Singing for Lung Health as an alternative training modality within pulmonary rehabilitation for COPD: an RCT.[J]. The European respiratory journal，2021，59(5)：2101142.

[16] Cahalan Roisin;Green James;Meade Ciara;Griffin Anne."SingStrong": Singing for better lung health in COPD - A pilot study.[J]. Physiotherapy theory and practice，2021，38(12)：1-9.
[17] McNaughton Amanda;Weatherall Mark;Williams Mathew;McNaughton Harry;Aldington Sarah;Williams Gayle;Beasley Richard.Sing Your Lungs Out-a community singing group for chronic obstructive pulmonary disease: a 1-year pilot study.[J].BMJ open,2017,7(1):e014151.
[18] Lord Victoria ;Cave Phoene;Hume Victoria ;Flude Elizabeth ;Evans Amanda;Kelly Julia ;Polkey Michael ;Hopkinson Nicholas.Singing teaching as a therapy for chronic respiratory disease - a randomised controlled trial and qualitative evaluation.[J].BMC Pulmonary Medicine,2010,10(1):41.
[19] Bonilha Amanda Gimenes;Onofre Fernanda;Vieira Maria Lucia;Prado Maria Yuka Almeida;Martinez José Antônio Baddini.Effects of singing classes on pulmonary function and quality of life of COPD patients.[J].International journal of chronic obstructive pulmonary disease.,2009,4:1-8.

Author Profile

Hua Zhang, Postsecondary Teacher , attending doctor ,obtained a master's degree from Beijing University of Chinese Medicine, College of Chinese Medicine, Guangzhou Huali Science and Technology Vocational College. Research direction: education and human development.

Wenwu Bao, student of Guangzhou Huali Science and Technology Vocational College.