Application of Chinese five-tone melodies combined with acupuncture massage in reducing anxiety and depression levels of elderly

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Abstract

Background: To investigate the clinical efficacy of Chinese five-tone melodies combined with acupuncture massage on anxiety and depression in elderly in Nursing homes. Methods: The intervention music for 22 elderly participants was selected according to the different traditional Chinese medicine evidence types, and the music therapy combined with acupuncture massage therapy. The clinical intervention lasted for a total of 8 weeks. Participants were assessed with the Self-Assessment Scale for Anxiety and the Geriatric Depression Scale in pre- and post-intervention. Results: The Self-Assessment Scale for Anxiety and Geriatric Depression Scale scores of the elderly were significantly lower after the intervention compared to the pre-intervention period (P < 0.01). Conclusion: The five-element music combined with acupuncture massage therapy has a significant clinical effect in reducing the level of anxiety and depression in the elderly in Nursing homes.

Key words: Five-element Music, Acupuncture Massage, Anxiety, Depression, Elderly

Abbreviations: SAS, Self-Assessment Scale of Anxiety; GDS, Geriatric Depression Scale; TCM, traditional Chinese medical.

Competing interests: The authors declare that they have no conflict of interest.

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Background

The physiological and psychological changes in the elderly gradually diminish their life adaptability. In addition, life changes and lack of interpersonal communication make the elderly highly susceptible to anxiety and depression. Hai Zheng [1] pointed out that the prevalence of anxiety among elderly people in Nursing homes was 50.51% and the prevalence of depression was 60.82%. In addition, there is evidence that 18-38% of older people in long-term care facilities have mild depressive symptoms or classic depressive symptoms [2]. Anxiety and depression are extremely harmful to the physical and mental health of older adults and can have a negative impact on their blood pressure, cardiac function, cognitive function, physical discomfort, subjective well-being, and quality of life and mortality [3–6].

Currently, studies have shown that Chinese five-tone melodies and acupoint massage can reduce anxiety and depression levels in patients [7–10]. Jia-Jia Zhou [11] found that acupoint massage combined with Chinese five-tone melodies therapy was more effective in reducing anxiety and depression levels in chronic heart failure patients than either acupoint massage or Chinese five-tone melodies therapy alone. The purpose of this study was to investigate the efficacy of the Chinese five-tone melodies combined with acupoint massage therapy in reducing anxiety and depression in elderly in Nursing home by summarizing and integrating existing clinic and research experiences.

Methods

Study design

This prospective, self-controlled study used Chinese five-tone melodies combined with acupoint massage therapy to conduct an 8-week intervention for elderly people in Nursing homes. The changes of anxiety and depression levels in elderly people before and after the intervention were used as core indicators to evaluate the efficacy of the intervention.

Participants

The study was conducted from Nursing home in Tianjin, China. Their Nurse in charge informed participants of this ongoing study. The study was approved by the Medical Ethics Committee of Tianjin University of Traditional Chinese Medicine and followed the Declaration of Helsinki. The interventions used in the study were physical alternative therapies, were not invasive, and would not cause adverse reactions or sequelae to the participants. The research assistant explained the study in more detail and informed them that they could withdraw from the study at any time, without any negative effects on their future Nursing care and other benefits. If the elderly were still interested, they would be asked to sign an informed consent form and fill out the screening questionnaires made in paper form. The privacy of the participants would be protected. Then, the research assistant has based on the inclusion criteria and exclusion criteria to determine who is included in the study.

Inclusion criteria are as follows: The elderly who 1) were 60 years old and above; 2) were conscious, clear-thinking, and had the ability to read and write or could complete the questionnaire under the supervision of the researcher; 3) no psychological disorders other than anxiety and depression; 4) signed an informed consent form and volunteered to participate in this study.

Exclusion criteria are as follows: 1) elderly with hearing impairment; 2) elderly with severe communication and cognitive impairment; 3) elderly with previous organic diseases and those who were recovering from diseases with extremely unstable condition; 4) elderly who were taking anti-anxiety and depression medications; 5) elderly who were participating in other related studies that had an impact on psychological problems such as anxiety and depression.

Intervention

Participants have received 8-week Chinese five-tone melodies therapy combined with acupoint massage after the baseline assessment. The specific intervention methods are as follows: (1) Music: The healing music is Chinese Tianyün Chinese five-tone melodies. Each line of Chinese five-tone melodies is divided into two rhymes of Yin and Yang, and the researchers dialectically select the music according to the specific conditions of the participants [12, 13]. The details of the dialectical classification of Chinese five-tone melodies of music are shown in Table 1. (2) Acupoint massage: according to the "Technical Specification for Traditional Chinese Medicine Manipulative Massage Operation", select designated acupoints for massage operations. 1) Selection of acupoints: 9 acupoints including Yintang (EX-HN3), Shenting (DU24), Touwei (ST8), Cuanzhu (BL2), Sizhukong (SJ23), Taiyang (EX-HN5), Baihui (DU20), Fengchi (GB20), Jianjing (GB21). 2) Operation steps: place the participant in a supine position and relax the whole body. The massage therapist stand in front of the participant's head, rub the hands together and use the radial edge of the thumbs to push from the EX-HN3 to DU24 points 30 times alternately. Then push from EX-HN3 to the points of ST8 on both sides for 36 times. Use the threaded side of both thumbs to push from BL2 to both sides of the SJ23 30 times. Using both Yuji (L10) of hands, push from the midline of the forehead to the sides, and then push behind the ears.
and down to the neck 3–5 times. Massage the DU20 acupoint for 2–3 minutes; then tap the whole head gently with fingers for about 1 minute; finally massage the bilateral GB20 and GB21 points respectively with the press method, 10 times each.

**Instruments**
The self-made socio-demographic questionnaire was used to collect baseline information on participants. Its contents include gender, age, education level, marital status, amount of retirement, length of Nursing home stay, times of family visits per month, and past medical history.

The Self-Assessment Scale of Anxiety (SAS) [14] was developed by W.K. Zung in 1971 to measure the severity of anxiety states and its change in treatment. The scale contains 20 items, and uses a Likert 4-point scale ranging from "not at all"(0) to "extremely"(4). The higher score indicates the more severe anxiety tendency.

The Geriatric Depression Scale (GDS) [15] is an assessment tool to identify depressive symptoms in elderly, which evaluates whether the elderly experience emotional and behavioral depression, such as feelings of emptiness and hopelessness. The scale contains 30 items and is measured by answering "yes" or "no" based on how you felt the week before the day of the assessment. A "yes" answer counts for 1 point, and a "no" answer counts for 0 points. The total score is added up from the item scores.

<table>
<thead>
<tr>
<th>Five elements</th>
<th>The five internal organs (Traditional Chinese Medical)</th>
<th>Musical Characteristics</th>
<th>Applicable crowd</th>
<th>Representative piece of music</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td>Liver</td>
<td>The melody has a sense of the return of spring and vitality of the earth.</td>
<td>Depression, irritability, breast tenderness, menstrual pain, timid and easily frightened people.</td>
<td>“Eighteen Pieces of Barbarian Pipe”, “Walking Street”, “Six Panels of Chinese Flowers”</td>
</tr>
<tr>
<td>Fire</td>
<td>Heart</td>
<td>Warm and cheerful, lively and relaxed, composed of clear layers and a happy atmosphere.</td>
<td>Insomnia, panic attacks, heart and chest tightness, chest pain, or mouth ulcers.</td>
<td>“The Tune of the Purple Bamboo”, “Blossoms and the Moon”, “The Lotus in the Water”</td>
</tr>
<tr>
<td>Earth</td>
<td>Spleen</td>
<td>It's melodious, quiet, simple and dignified.</td>
<td>Abdominal bloating, indigestion, loose stools, obesity, stomach or uterine prolapse.</td>
<td>“Ambush from All Sides”, “Fishing Boat Singing in the Evening”, “Autumn Moon at the Han Palace”</td>
</tr>
<tr>
<td>Metal</td>
<td>Lungs</td>
<td>Soaring, mournful, resounding and majestic</td>
<td>Those with sore throat ulcers, coughing, nasal congestion, asthma and susceptibility to colds.</td>
<td>“White Snow in Spring”, “Iris in the Moon”, “Spring Dawn at the Lakes”</td>
</tr>
<tr>
<td>Water</td>
<td>Kidneys</td>
<td>Pure, cool and soft, with a sense of flowing water.</td>
<td>For urinary system diseases, soreness and weakness of the waist and knees, and diarrhea.</td>
<td>“Three Melodies of the Plum Blossom”, “Two Springs Reflecting the Moon”, “The Wild Goose Falling in Pingsha”</td>
</tr>
</tbody>
</table>
Ethical considerations
The intervention causes no harm to the participants and the privacy of all participants is well protected. The research assistant has explained in detail the purpose and procedures of the study to all participants and informed them that participation in the study is voluntary and that refusal to participate will not affect their future nursing care and other benefits. Participants completed the questionnaire anonymously. All participants have signed informed consent and all data was locked and accessible only by researchers.

Data analysis
A researcher who did not participate in the outcome measurement and was unaware of other study details entered the study data independently. SPSS 22.0 statistical software was used to analyze the collected data, and the measures were normally distributed and described by $X \pm SD$, while the counts were described by percentages. Paired samples t-test was used to test the differences between the two groups, and $P < 0.05$ was considered statistically significant.

Results

22 participants were included in this study. All participants were recruited from July 2018 to May 2019 at two facilities of JianHua Nursing Home and TaoLeJia Nursing Home in Tianjin. Of the 22 participants, 8 were male and 14 were female, ranged in age from 62 to 86 years. Length of Nursing home residence: 2 elderlies under 6 months, 7 elderlies from 6 to 12 months, 5 elderlies from 1 to 2 years, 3 elderlies from 2 to 3 years and 5 elderlies from more than 3 years; history of chronic diseases: 3 hypertensive and 2 diabetic. In addition, there were 11 elderlies with sleep disorders and 2 elderlies with herniated discs. The differences in general information such as gender and age of all participants were not statistically significant ($P > 0.05$) and were comparable.

The participants' SAS score was 46.19 ± 9.48 before the intervention and decreased significantly by 40.06 ± 8.84 after 8 weeks of the intervention, the difference was statistically significant ($P < 0.01$). Comparison of the participants' GDS scores reveals that the scores decreased from 12.23 ± 6.13 before the intervention to 7.73 ± 3.87, $P < 0.01$, the difference was statistically significant. For details, see Table 2 and Table 3.

Table 2 Comparison of self-rating anxiety scale-Self-Assessment Scale of Anxiety standard score pre-intervention and post-intervention (N=22)

<table>
<thead>
<tr>
<th></th>
<th>$X$</th>
<th>SD</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-intervention</td>
<td>12.23</td>
<td>6.13</td>
<td>0.003</td>
</tr>
<tr>
<td>Post-intervention</td>
<td>7.73</td>
<td>3.87</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: SD, standard deviation.

Table 3 Comparison of the total score of Geriatric Depression scale-Geriatric Depression Scale pre-intervention and post-intervention (N=22)

<table>
<thead>
<tr>
<th></th>
<th>$X$</th>
<th>SD</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-intervention</td>
<td>46.19</td>
<td>9.48</td>
<td>0.001</td>
</tr>
<tr>
<td>Post-intervention</td>
<td>40.06</td>
<td>8.84</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: SD, standard deviation.
Discussion

Anxiety and depression are the most common mental health disorders and are strongly associated with the incidence and mortality of other disorders. At present, the mainstay treatments for anxiety and depression are cognitive behavioral therapy and medications. However, medication often causes a number of adverse events such as physical decline, drug addiction, and an increased risk of falls in elderly. [16, 17]. A therapeutically effective, safe and cost-effective intervention is necessary for older patients with anxiety and depression whose physical functioning is in decline. Chinese five-tone melodies combined with acupoint massage therapy has significant advantages in applicability and safety. Study have shown that music therapy can play a psychosensory role in regulating cortical excitatory or inhibitory processes, helping the body to improve stress capacity, and reduce the occurrence of tension and adverse mood [18]. Chinese five-tone melodies therapy is a type of music therapy in which the five tones refer to the five musical scales in Chinese music theory, namely Gong, Shang, Rue, Zhi and Yu, which correspond to the five elements of Yin and Yang in the traditional Chinese medical (TCM) system. [19]. Based on the holistic view of thought, TCM believes that the five tones and six rhythms are closely linked to the five organs and the six internal organs of the human body, which can directly influence the function of the internal organs and the generation of emotional feelings [20]. TCM massage therapy can promote psychological relaxation and is effective in the treatment of psychological disorders such as anxiety and depression [21]. Acupoint massage mainly stimulates acupoints through manipulation to act indirectly on the body's meridians, thus promoting the flow of qi and blood as well as peace of mind [22, 23].

In the process of individual aging, as social contacts and interpersonal interactions of the elderly in Nursing homes are reduced, the elderly often experience an obvious sense of social alienation and the basic need for interpersonal intimacy is not met, thus making them prone to various negative emotional experiences. In addition, the physical decline of older people, who are much less mobile, less able to eat and less sensory, worsens their psychological condition and increases the risk of anxiety and depression. Nursing home administrators should be aware of this phenomenon and actively explore interventions to help the elderly improve their mental health.

The intervention in this study superimposed the resonant principles of music and the physical stimulation of massage to promote internal and external unity of the body, mind and emotions. In addition, relationship building and conversations with elderly people during the implementation of interventions can be a good way to meet their social support needs. In this study, an 8-week intervention of five elements of music and acupoint massage was carried out on elderly people in Nursing homes. The results showed that the mean score of SAS score decreased by 6.13 points, indicating that it was effective in relieving anxiety symptoms in elderly people ($P < 0.01$). The mean score of GDS decreased by 4.5 points, indicating that it was also effective in treating depression in elderly people ($P < 0.01$). ($P < 0.01$). The findings of this study are consistent with previous studies [11, 24–26]. The randomization, selectivity bias and persuasiveness of the interpretation of the effect of the intervention were poorer in the pre- and post-self-controlled study than in the RCTs. Therefore, the results of this study need to be considered with caution, and RCTs that are more rigorous will be required to validate them in the future.

Conclusion

In summary, Chinese five-tone melodies therapy combined with acupoint massage therapy is notably effective on the treatment of anxiety and depression in the elderly in Nursing homes, and is worth to be clinically popularized and applied.

References


