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EFFECT OF MUSIC THERAPY OF TRADITIONAL CHINESE MEDICINE ON PSYCHOLOGICAL DISORDERS OF STROKE PATIENTS

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Abstract:
This study is to explore the effects of music therapy of traditional Chinese medicine (TCM) on psychological disorders that are easy to attack stroke patients. Moreover, relevant psychological intervention measures to mitigate adverse emotions, such as depression, anxiety and fear, were proposed. The theory of music therapy of TCM was applied to relieve depression, anxiety and fear of stroke patients during the rehabilitation period. A control group who received conventional rehabilitation treatment was set. Compared with the traditional western medicine treatment, the music therapy of TCM not only shortened the rehabilitation period of stroke patients significantly but also mitigated negative emotions like depression, anxiety and fear greatly. In a word, the music theory of TCM is useful in psychological disorder management of stroke patients. Specifically, it can enhance bodily functions and improve quality of daily life, disease knowledge and satisfaction with medical treatment, as well as neurological deficits of stroke patients. In this study, the music therapy group of TCM is significantly more optimistic toward life than the control group, indicating that the music therapy of TCM can improve quality of daily life and relieve the discomfort of stroke patients. Furthermore, the music therapy of TCM helps patients to accept treatment actively while alleviating their negative emotions, such as hostility and boredom to the treatment. According to research conclusions, a new treatment of psychological disorders of stroke patients shall be developed by combining the music therapy of TCM and western clinical medicine.

Keywords: five-tone therapy of traditional Chinese medicine, health management, cerebral apoplexy

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1. Introduction

The leading power of music has given rise to many practical uses of music therapy in healing illnesses (Sunpert et al., 2016). Traditional Chinese Medicine (TCM) Music therapy is shaped according to the music theory of Yue Ji and the Five-Tone Theory of Huangdi Neijing (Wang, 2017). A stroke which is a clinical symptom manifested by local or diffuse neurological deficits as a response to the acute disorder of cerebral blood circulation. Stroke can threaten the physical health of human serious for its high morbidity, disability, relapse rate and mortality (Zhao, 2017). In recent years, although the improvement of living standards, way of life in coping with stress, has intensified mental pressure of people, thus increasing the incidence of stroke (Lesli, Skolarus, and James, 2014). Stroke affects individual patients, the whole family or even the society to different extents (Chuang, 2016). However, with the modern technology and advancement in medical sciences, the psychological impact of after stroke among stroke patients can be mitigated significantly by music therapy (Chuang, 2016). Therefore, this has raised the confidence from stroke patients in taking the initiative to cooperate in the treatment and thus improve the recovery percentage and mobility outcome. However, the effectiveness of music therapy application in Chinese Traditional Medicine is still in its infant stage. Therefore, the need for the related studies is needed (Wang, 2017; Azam and Moha Asri, 2015; Tham et al., 2017; Udriyah et al., 2019; Al Shehhi and Azam, 2019a; Tao et al., 2019). In this study, a total of 122 stroke patients consisting of 72 males and 50 females who were hospitalised in a tertiary A hospital in Tongren City, Guizhou Province from January 2017 to September 2018 were selected as respondents. The patients were divided into two groups, namely A and B where Group A was the experimental group and Group B served as the control group.

2. Literature Review

2.1 Music and Critically Ill Patients

A growing body of literature examines the utility of playing music to reduce anxiety and stress during critical illness (Davis & Jones, 2012; Guzzetta, 1989; Bradt, Dileo & Potvin, 2013; Chlan, Weinert & Heiderscheit, 2013; Sarkamo T., Ripolles P., Vepsalainen, 2014). The use of music reduced postoperative pain sensation and distress two days after the procedure in 89% of patients who had undergone abdominal surgery, compared with control patients who did not have music played for them (Potvin,2013). Studies that used music interventions in patients with myocardial infarction have consistently shown that music induces anxiety-reducing effects, with a mean anxiety reduction of 5.87 units on a scale of 20 to 80 units ($P < .001$) (Bradt, Dileo & Potvin, 2013). One study (Jaber et al., 2007) examined the effect of a 20-minute uninterrupted music intervention, versus 20 minutes of uninterrupted rest, in both intubated and nonintubated patients. Music intervention significantly decreased heart rate ($P< .05$), and pain measured by the Numerical Rating Scale ($P < .05$), ($P < .05$), in both intubated

and non-intubated patients compared with patients who got rest only. (Jaber et al.,2007). Thus, the use of music has been demonstrated to reduce postoperative agitation and narcotic requirements for critically ill cardiovascular and medical-surgical patients (Good, 1995; Chlan, 2000; Su et al., 2013; Bradt, Dileo & Potvin, 2013). A recent multicenter randomised clinical trial provides additional evidence that playing music is associated with lower anxiety, sedation intensity, and sedation frequency compared with usual care and noise ablation in patients undergoing mechanical ventilation (Bradt, Dileo & Potvin, 2013). However, the study excluded patients who could not provide self-consent (i.e., stroke patients receiving mechanical ventilation) (Bradt, Dileo & Potvin, 2013). Music has been associated with decreased anxiety, pain, and agitation in patients receiving mechanical ventilation (Davis & Jones, 2012; Guzzetta, 1989; Bradt, Dileo & Potvin,2013; Chlan, Weinert & Heiderscheit, 2013; Sarkamo T, Ripolles P, Vepsalainen, 2014). However, few studies have examined music intervention for patients with acute stroke in critical care (Bradt & Magee, Dileo, 2010; Sarkamo, Ripolles & Vepsalainen, 2014; Sarkamo & Soto, 2012)

2.2 Role of Music in Stroke

Rehabilitation Stroke patients transition early, and often, to receive rehabilitation.48 Stroke patients are also at higher risk of emotional, cognitive, and consciousness disorders. Results from the Healthy Ageing and Intellectual Disabilities study in the Netherlands demonstrated that anxiety and depression were the following common illness. (Hermans & Evenhuis, 2013).

Moreover, anxiety and depression are both prevalent in rehabilitative care and may limit recovery Chemerinsky & Levine, 2006; Husseini, Goldstein & Peterson, 2012; Nguyen et al., 2008; Burvill et al., 1995). Anxiety manifests in 2 ways: emotional symptoms, such as fear and worry, and physical symptoms, such as dry mouth, dizziness, increased heart rate, sweating, rapid breathing, and possibly fatigue (Goldstein & Peterson, 2012). Depression is a disorder that has been characterised by low mood or loss of interest in things that once one found enjoyable, both of which affect the activities of daily living (Goldstein & Peterson, 2012; Haque et al., 2014; Rachmawati et al., 2019; Tarofder et al., 2019; Al Shehhi and Azam, 2019b; Azam et al., 2014; Haur et al., 2017; Tarofder et al., 2017; Katukurunda et al., 2019; Chong et al., 2019). It has been demonstrated that music-supported therapy can induce changes to the brain or plasticity, and because of the activation of the auditory-motor circuits that improve motor skills after acute or chronic stroke (Hermans & Evenhuis, 2013). The analysis of structural magnetic resonance imaging data of patients who listened to music for 6 months after stroke revealed an increase in the grey matter volume and reorganization in the frontal areas of the brain (left and right superior frontal gyrus and the middle frontal gyrus) that enhanced the recovery of verbal memory, focused attention, and language skills (Chlan, Weinert & Heiderscheit, 2013). Emotional effects induced by music learning, performing, and listening could engage reward-learning networks and corresponding neurotransmitter systems (Davis & Jones, 2012;

Guzzetta,1989; Bradt, Dileo & Potvin, 2013; Chlan, Weinert & Heiderscheit, 2013; Sarkamo, Ripolles, Vepsalainen,2014) that help to consolidate new information and increase the likelihood of voluntary practicing of new movements.

2.3 Scale Evaluation Method

Negative emotions and health conditions of stroke patients were assessed by the traditional Self-rating Depression Scale (SDS), Self-rating Anxiety Scale (SAS) and Symptom Checklist 90 (SCL-90) in the present study. These scales mainly assess anxiety and depression of patients before and after treatment. Case studies were carried out under the premise of consultation to experts in stroke psychological research. Essential attention was paid to emotional responses of patients and effect observation of the music therapy. Experts assessed stroke patients who were positive in the music therapy and gave similar advice.

3. Research Methodology

A deductive research approach selected for this particular study, which is deemed to be more appropriate as the identification of key concepts is derived from the existing theory. More specifically, this study begins with linking up the theory about the topic of interest from where the study logically constructs the relationship among concepts and formed hypotheses. This study is also casual; which is aimed to explore the effects of music therapy of traditional Chinese medicine (TCM) on psychological disorders that are easy to attack stroke patients. The research framework is shown in Figure.1.

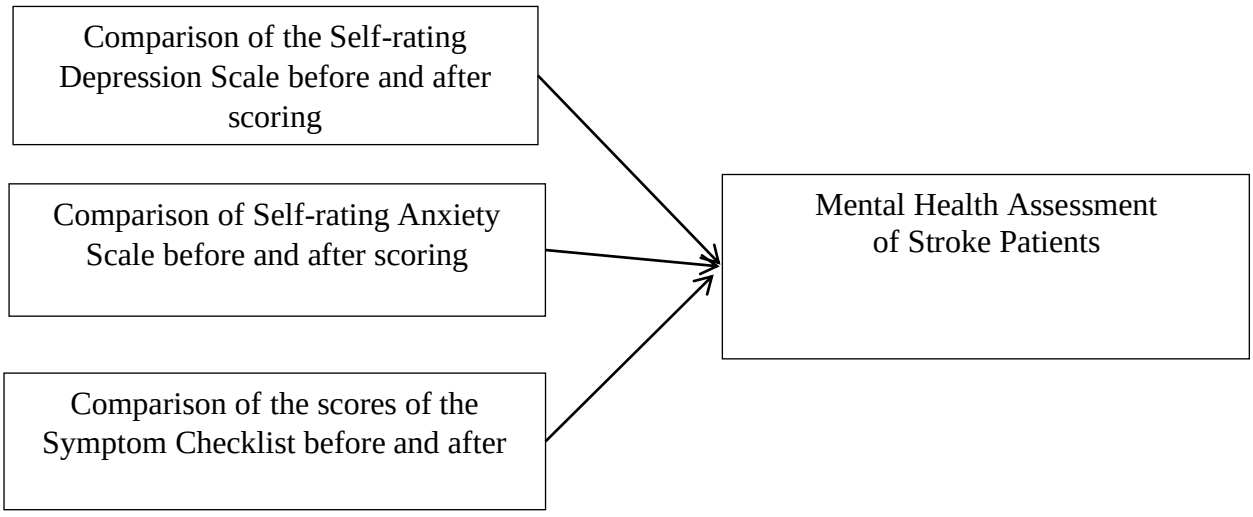

Figure 1: Research Framework

4. Statistical Analysis and Results

A statistical analysis on scale data of two groups before and after the music therapy of TCM was carried out with SPSS19.0. Data in abnormal distribution were analysed by descriptive statistics, whereas data in normal distribution were analysed by group T-test and variance analysis. Data before and after the music therapy were compared to verify the effects of music therapy on stroke patients.

4.1 General information

General information of the experimental group and the control group are introduced as follows. The experimental group (Group A) was composed of 61 patients (41 males (67.2%) and 20 females (32.8%)) averaging at 61.58±5.24 years old. The course of Group A was 12.28 days. The control group (Group B) had 61 patients (31 males (50.8%) and 30 females (49.2%)) averaging at 67.58±3.72 years. The course of Group B was 14.52 days. Two groups had no significant differences in general information, including gender, age and others.

Table 1: General information of the Experimental Group and Control Group ($\bar{x} \pm s$)

Group	The course of the disease (d)	Gender	*n*	Age (Years Old)	*t*	*P*
Experimental group	12.28	Male	41	61.58±5.24	0.241	0.792
		Female	20			
Control group	14.52	Male	31	67.58±3.72		
		Female	30			

The control group was diagnosed with 32 patients with ischemic stroke (52.46%), 29 patients with hemorrhagic stroke (47.54%), and six patients with ischemic-hemorrhagic mixed stroke (9.84%). The experimental group had 23 patients with ischemic stroke (37.71%), 38 patients' hemorrhagic stroke (62.49%), and four patients with ischemic-hemorrhagic mixed stroke (6.56%).

Table 2: Types of Stroke in the Experimental Group and The Control Group (*n*)

Group	Hemorrhagic apoplexy	Cerebral arterial thrombosis	Mixed type
Experimental group	38	23	4
Control group	29	32	6
Total	67	55	10

Medical history and bad habits of respondents were summarised, including diabetes (12 and 16), hypertension (24 and 18), coronary heart disease (16 and 23), hyperlipidemia (20 and 12) and smoking (12 and 6) in the experimental group and control group, respectively.

Table 3: Medical history and bad habits of the experimental group and the control group (*n*)

Group	Diabetes	Hypertension	Coronary heart disease	Hyperlipidemia	Smoking
Experimental group	12	24	16	20	12
Control group	16	18	23	12	6
Total	28	42	39	32	18

A significant difference in general information, such as the course of the disease, gender and age (P>0.05). In Table 3, the proportion of hemorrhagic apoplexies higher compared with that of ischemic stroke in both two groups. However, the proportion of ischemic-hemorrhagic mixed stroke is the lowest. Table 4 reveals that hypertension is the primary cause of stroke. Also, coronary heart disease is the secondary cause of stroke, and it may further cause cerebrovascular sclerosis. Moreover, diabetes and hyperlipidemia are important causes of stroke.

4.2 Statistical Analysis of the Self-Rating Depression Scale (SDS)

Scores of the experimental group and the control group before and after interventions were compared by the self-rating depression scale (SDS)'. Psychological intervention before and after this study was articulated and analysed as appended in many studies (Maghfuriyah et al., 2019; Pushpakumara et al., 2019; Al Shehhi and Azam, 2019c; De Silva et al., 2017; Kuruwitaarachchi et al., 2019; Pambreni et al., 2019; Fernando et al., 2019).

4.2.1 SDS Scores of Two Groups Before Psychological Interventions

SDS scores of the experimental group and the control group before and after interventions of five tone therapy of TCM were compared. Two groups have no statistically significant difference in term of SDS scores before psychological interventions (P>0.05). However, a statistically significant difference was observed between two groups after the music therapy of TCM (P<0.001). Statistical analysis results of SDS scores are listed in Table 5.

Table 4: Comparison of SDS scores between the experimental group and control group before and after five-tone therapy of TCM ($\bar{x} \pm s$)

Group	Experimental Group (*n*=61)	Control Group (*n*=61)	*t*	*P*
Before	61±5.24	59±4.54	1.0543	0.317
After	52±4.72	58±3.85	-2.769	0.0008

4.2.2 SDS Scores of Two Groups After Psychological Interventions

SDS scores of the experimental group and the control group before and after the five-tone therapy of TCM were compared. Two groups showed statistically significant difference before and after the five-tone therapy of TCM (P<0.001). Results are shown in Table 6.

Table 5: Comparative Analysis of SDS Scores Between the Experimental Group and the Control Group Before and After Five-Tone Therapy of TCM ($\bar{x} \pm s$)

Group	The experimental group (n=61)	Control group (*n*=61)	*t*	*P*
SDS score difference	7.54±2.67	2.94±2.37	6.954	0.0003

SDS scores of the experimental group and the control group before and after the psychological intervention were compared (Table 5). No statistically significant difference of SDS scores is observed between the experimental group and the control group before the five-tone therapy of TCM (P>0.05), but these two groups began to show a statistically significant difference in SDS scores after the five-tone therapy of TCM (P<0.001). The statistical analysis results demonstrate that although SDS scores between the experimental group and the control group are different after the five-tone therapy of TCM, SDS scores of both groups are decreased. Subsequently, SDS scores between the experimental group and the control group before and after five-tone therapy of TCM are further compared. It is found that the mean SDS scores of the two groups present different variation trends. Statistical analysis results were verified by a group T-test (Table 6). There is a statistically significant difference in SDS scores between the experimental group and the control group after five-tone therapy of TCM (P<0.001), indicating a decreasing trend of SDS scores. The SDS score of the experimental group is higher compared with that of the control group. Such a difference is attributed to five-tone therapy of TCM, and it shall be further discussed.

4.3 Statistical Analysis of Self-Rating Anxiety Scale (SAS)

Self-rating anxiety scale (SAS) scores of the experimental group and the control group before and after the psychological intervention were compared in the present study.

4.3.1 SAS Scores of Two Groups before Psychological Interventions

SAS scores of the experimental group and the control group before and after five-tone therapy of TCM were compared. There is no statistically significant difference between two groups in SAS scores before the five-tone therapy of TCM (P>0.05). However, two groups present statistically significant differences after the five-tone therapy of TCM (P<0.001). Results are listed in Table 6.

Table 6: Comparison of SAS scores between the experimental group and the control group before and after the five-tone therapy of TCM ($\bar{x} \pm s$)

Group	The experimental group (*n*=61)	Control group (*n*=61)	*t*	*P*
Before	55.78±4.22	54.56±3.57	1.754	0.225
After	49.52±3.15	52.31±4.13	-3.542	0.0006

4.3.2 SAS Scores of Two Groups after Psychological Interventions

SAS scores of two groups before and after five-tone therapy of TCM were compared. According to statistical analysis results, there is a statistically significant difference

(*P*<0.001) in SAS scores between two groups before and after five-tone therapy of TCM. Statistical analysis results are shown in Table 8.

Table 7: Comparative Analysis of SAS Scores Between the Experimental Group and the control group before and after five-tone therapy of TCM ($\bar{x} \pm s$)

Group	Experimental group (*n*=61)	Control group (*n*=61)	*t*	*P*
SAS scores	6.28±3.11	2.17±2.53	5.441	0.000

A statistical analysis of SAS scores of two groups before and after five-tone therapy of TCM was carried out. Results are represented in Table 7. There is no statistically significant difference between two groups given SAS scores before the five-tone therapy of TCM (*P*>0.05). Nevertheless, a statistically significant difference of SAS scores between the two groups is developed after the five-tone therapy of TCM (*P*<0.001). In a word, five-tone therapy of TCM widens the difference of SAS scores between the experimental group and control group and decreases the SAS scores significantly. According to further statistical analysis, changes of SAS scores of two groups are disclosed, which is expressed by the SAS scores after intervention minus the SAS score before. It can be seen from statistical analysis results that the mean SAS scores of the two groups show different variation laws. Later, a group T-test on differences of SAS scores between two groups was carried out. Results showed a statistically significant difference of SAS scores between the experimental group and the control group (*P*<0.001) after the five-tone therapy of TCM. For both experimental group and control group, the SAS score decreases after the psychological intervention.

Moreover, the SAS score of the experimental group is significantly higher than that of the control group. Such a difference might be a consequence of five-tone therapy of TCM. However, this has to be further discussed and analysed.

4.4 Statistical Analysis of Symptom Checklist (SCL-90)

Statistical Analysis of Symptoms was performed by analysing the SCL-90 scores of two groups in these studies which, it was analysed through the significance value of Five-Tone Therapy of TCM.

4.4.1 SCL-90 Scores of Two Groups Before Five-Tone Therapy of TCM

Scores of symptom checklist (SCL-90) of two groups before five-tone therapy of TCM were compared. Two groups had no statistically significant differences in term of somatisation, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, terror, paranoia, psychosis, as well as total scores of SCL-90 (*P*>0.05). Results are shown in Table 8.

Table 8: Statistical analysis results of SCL-90 Scores of two groups before give-tone therapy of TCM ($\bar{x} \pm s$)

Group	Experimental group	Control group	*t*	*P*
Somatisation	21.36±3.52	22.72±3.17	1.485	0.354
Obsessive-compulsive symptoms	23.42±2.63	23.16±2.73	-0.726	0.772
Interpersonal sensitivity	17.25±3.16	17.74±3.01	-0.246	0.547
Depression	37.54±6.25	36.26±5.32	-1.422	0.424
Anxiety	26.51±2.25	17.51±3.35	-1.755	0.656
Hostility	13.55±2.41	12.85±4.47	-2.225	0.884
Terror	11.55±3.63	11.73±2.54	-0.591	0.253
Paranoia	10.25±2.16	9.63±3.51	-0.221	0.841
Psychosis	15.58±3.47	16.25±3.17	-0.925	0.231
Other factors	20.53±3.43	19.53±3.55	-0.447	0.751
Total score	197.54±32.91	187.38±34.82	-0.521	0.835

4.4.2 SCL-90 Scores of Two Groups After Five-Tone Therapy of TCM

SCL-90 scores of two groups after five-tone therapy of TCM were compared. There is no statistically significant difference between two groups given somatisation, obsessive-compulsive symptoms, interpersonal sensitivity, hostility, terror, paranoia and psychosis of SCL-90 (P>0.05). However, there are statistically significant differences between the two groups concerning depression, anxiety and total scores of SCL-90 (P<0.01). Results are shown in Table 9.

Table 9: Statistical analysis results of SCL-90 Scores of two groups after give-tone therapy of TCM ($\bar{x} \pm s$)

Group	Experimental group	Control group	*t*	*P*
Somatisation	22.12±2.51	21.71±3.69	5.27	0.193
Obsessive-compulsive symptoms	19.75±3.17	20.58±3.55	-1.35	0.083
Interpersonal sensitivity	16.25±3.36	17.52±2.81	-1.56	0.226
Depression	30.26±2.13	36.46±2.85	-3.54	0.000
Anxiety	21.83±3.49	25.76±3.11	-3.37	0.000
Hostility	10.36±1.26	11.31±2.03	-1.59	0.523
Terror	11.22±1.07	12.56±1.88	-1.26	0.601
Paranoia	8.29±2.53	9.17±2.03	-0.893	0.441
Psychosis	14.37±2.07	15.51±2.16	-0.822	0.426
Other factors	16.37±3.06	17.58±2.56	-0.539	0.245
Total score	168.65±22.86	190.27±25.16	3.58	0.000

4.4.3 Differences of SCL-90 Scores Between Two Groups After Five-Tone Therapy of TCM

Differences of SCL-90 scores between two groups after five-tone therapy of TCM were analysed. It finds that there is no statistically significant difference between the experimental group and the control group in obsessive-compulsive symptoms, interpersonal sensitivity, terror, paranoia, psychosis and other factors (P>0.05). On the contrary, there are statistically significant differences between the experimental group

and the control group in somatisation, depression, anxiety, hostility and total scores of SCL-90 (P<0.001). Statistically, analysis results are shown in Table 10.

Table 10: Differences of SCL-90 scores between two groups after five-tone therapy of TCM ($\bar{x} \pm s$)

Group	Experimental group	Control group	t	P
Somatisation	0.76±1.01	-1.01±0.52	4.553	0.000
Obsessive-compulsive symptoms	3.67±0.54	-2.58±0.82	1.09	0.173
Interpersonal sensitivity	-1.75±1.25	-1.86±1.51	0.26	0.385
Depression	5.36±1.58	2.27±0.84	3.07	0.000
Anxiety	5.263±2.17	-2.94±1.06	3.36	0.000
Hostility	-0.54±1.26	0.77±2.13	2.06	0.000
Terror	1.08±1.55	0.76±2.05	0.56	0.514
Paranoia	0.51±2.08	0.25±1.96	0.87	0.642
Psychosis	1.26±1.87	0.86±2.15	0.42	0.385
Other factors	3.24±2.17	2.43±1.81	1.26	0.115
Total score	12.54±7.53	3.26±7.26	8.26	0.000

Statistical analysis results on differences of SCL-90 scores between the experimental group and the control groups are shown in Table 10. Two groups have similar SCL-90 scores on somatisation, obsessive-compulsive symptoms, interpersonal sensitivity, hostility, terror, paranoia, psychosis and other factors after the five-tone therapy of TCM, showing no statistically significant difference (P>0.05). However, there are statistically significant differences between the experimental group and the control group given depression, anxiety and total scores of SCL-90 (P<0.01). Based on statistical analysis results, scores of depression, anxiety and total scores of SCL-90 of both the experimental group and the control group are significantly different after the five-tone therapy of TCM. Moreover, scores of depression, anxiety and total scores of SCL-90 of both the experimental group and the control group are reduced significantly. According to further statistical analysis, differences of SCL-90 scores between the experimental group and the control group before and after the five-tone therapy of TCM were analysed. In the same time, changes of SCL-90 scores of two groups after the five-tone therapy of TCM compared with that before were disclosed. A group T-test verified differences of SCL-90 scores between the experimental group and the control group. Statistical analysis results on differences of SCL-90 scores between two groups after five-tone therapy of TCM are shown in the table. Differences of SCL-90 scores between the experimental group and the control group after the five-tone therapy of TCM were analysed. Concerning components of SCL-90, two groups showed no statistically significant differences given obsessive-compulsive symptoms, interpersonal sensitivity, terror, paranoia, psychoticism and other factors (P>0.05) after the five-tone therapy of TCM.

On the contrary, there are significant differences between the experimental group and the control group concerning somatisation, depression, anxiety, hostility and total scores (P<0.01). According to the statistical analysis, scores of somatisation,

depression, anxiety and hostility of both groups are decreased after the psychological intervention. Also, scores of somatisation, depression, anxiety and hostility of the experimental group are decreased more compared with those of the control group. Therefore, differences between the experimental group and the control group in scores of somatisation, depression, anxiety, hostility and total scores of SCL-90 might be attributed to the intervention of five-tone therapy of TCM. However, this requires further discussions and analysis.

5. Discussion and Conclusion

Based on data analysis in the present study, the five-tone therapy of TCM can improve psychological conditions and emotions of stroke patients, which are conducive to shorten the rehabilitation period and improve the rehabilitation effect of stroke patients. Nevertheless, research conclusions in the present study are different from previous research fruits to some extents (Zhang, 2016). This has to be discussed in future. Therefore, it is suggested to promote clinical application of music therapy of TCM in medical and health care of patients, especially in the rehabilitation of stroke patients.

5.1 Effects of music therapy of TCM on emotions of stroke patients

In this study, essential attentions were paid to the effects of music therapy of TCM on control of negative emotions like depression and anxiety in the rehabilitation of stroke patients. It is reported that the incidence rate of depression and anxiety in post-stroke patients is 40% ~ 50%. However, such depression and anxiety are different from patients who are clinically diagnosed as depression and anxiety. In previous studies, depression or anxiety is often confused clinically with patients undergoing depression or anxiety.

In the present study, 122 patients were selected according to criteria strictly and were divided into the experimental group and the control group equally. None of these patients dropped out of the study. Psychological conditions of all respondents before and after the study were assessed. The experimental group was treated by the music therapy of TCM, which conformed to research methods in associated literature. All selected respondents have some medical histories and bad habits, including diabetes, hypertension, coronary heart disease, hyperlipidemia, hyperuricemia and smoking. Based on detailed analysis, there are more patients with diabetes and hypertension is higher than patients with other diseases, indicating the higher vulnerability of patients with diabetes and hypertension to stroke compared with rest patients. Moreover, smoking is another important cause of stroke.

5.2 Effects of music therapy of TCM on a recovery of post-stroke patients

The music therapy of TCM plays traditional Chinese music to patients by combining the image response, which can mitigate and even cure diseases (Chang & Xie, 2012). Firstly, sound waves generated by music can influence central and peripheral nerves of

patients through the neuropsychological mechanism. Some studies (Jayasuriya and Azam, 2017; Dewi et al., 2019; Nguyen et al., 2019; Kanapathipillai and Azam, 2019; Gunasinghe et al., 2019) pointed out that quiet and soft music can decrease electrical response and of skin and volume response of blood vessels to below the baseline level. This proves the effect of music in the reduction of the wake-up level of patients. Rhythmic melodies and music enters into brains from ears and generates sound waves to regulate emotions, secretion of neurotransmitters and hormones, and ease pains of patients.

Moreover, music can trigger positive emotions and thereby induce positive emotions and pleasant psychological experiences (Liu, 2014). As an auditory stimulus, music can trigger other senses and imaginations to produce physiological and psychological phenomena. Pitch, intensity, length, speed and rhythm of music determine imaginations on size, weight, brightness, emotion and space height. Music with themes not only triggers patients to make imaginations but also can perceive and vent emotions (Li & Xi, 2014). The rhythm of music is similar and synchronous with physiological rhythms, such as muscle response, heart rate and respiratory tension and relaxation (Xia & Li, 2014).

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