

Research on the Therapeutic Effect of College Students' Depression Based on Music Therapy

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Abstract. With the rapid development of today's society, the pressure of study and over-reliance on Internet mobile phones lead to zero communication, no communication and no talk. In universities, the number of students with depression tendency is increasing day by day. In recent years, campus cases caused by depression and autism have occurred frequently in China, which has become the focus of the whole society, and educators in universities are facing and constantly improving major issues. This paper discusses the effect of music therapy and biofeedback therapy on depression of freshmen, and expounds the psychological and biological mechanism of music therapy and biofeedback therapy on depression through the measurement of college students' psychological problem scale and the change of urinary cortisol index. Through the UPI scale, 90 students with depression were selected and randomly divided into three groups: music therapy+group counseling group (research group), music therapy group (control group 1) and group counseling group (control group 2). Before and after the intervention, the three groups were evaluated with Symptom Checklist 90 (SCL-90), Self-Rating Depression Scale (SDS) and urine cortisol. After statistical data analysis, observe the clinical efficacy of music therapy and group counseling in the comprehensive treatment of depression.

Keywords: Music therapy; College student; Treatment of depression.

1. Introduction

Depression is a common affective disorder, mainly characterized by significant and lasting depression, accompanied by corresponding changes in thinking and behavior. The main clinical manifestations are low mood, slow thinking, reduced speech and actions, accompanied by decreased appetite, decreased sexual desire, sleep disorders and other physical symptoms, and those who are serious have suicidal tendencies [1]. Depression is not only the main factor of suicide, but also one of the main diseases endangering human health. Some experts preliminarily estimated that in 2020, the medical expenses for depressive symptoms will be the second largest burden of all diseases, which will be one of the main factors that aggravate the medical burden of people [2]. Music is an alternative social art with a long history and no need for language communication. It has the characteristics of universality and strong appeal, and is an indispensable part of human spiritual life; It is one of the most basic elements in human living environment [3].

Music can play a unique psychotherapy function, make people happy physically and mentally, regulate qi and blood smoothly, and human beings can feel complete freedom and liberation from music, thus affecting people's physiological, psychological and emotional activities. Guided by the theory of traditional Chinese medicine, the music therapy of the five elements of traditional medicine in China follows the law that the five elements interact with each other and control each other, and music is selected according to time, people and symptoms [4]. Chinese medicine pays attention to the holistic concept and treatment based on syndrome differentiation. Traditional Chinese medicine treatment has the characteristics of flexibility and safety of medicine, and has always achieved good clinical results. However, the curative effect of pure Chinese medicine treatment is relatively slow. Some clinical researchers are seeking an optimized treatment scheme, such as Chinese herbal medicine combined with acupuncture, Chinese herbal medicine combined with psychotherapy, etc., in order to reduce the toxic and side effects of drugs, ensure economic security and improve clinical curative effect. Chinese herbal medicine combined with music therapy has become a new trend in clinical treatment of post-stroke depression [5]. As a special group, college students are faced with a

series of major life issues, such as the adaptation of college life, the study of professional knowledge, making friends and falling in love, and choosing jobs. Because their physical and mental development is not yet mature, and their self-regulation ability is relatively weak, complex self and social problems, coupled with intense learning tasks, will produce complex psychological conditions, which is easy to lead to psychological imbalance of college students, leading to depression, anxiety and other negative emotions [6]. In recent years, the competitive pressure, learning pressure, employment pressure and emotional pressure of college students have generally increased. As the future of the motherland and the pillar of the country, their mental health (MH) cannot be ignored. The root cause of this phenomenon is that people's understanding of depression is still in its infancy, including many teachers and medical staff in colleges and universities, who cannot correctly understand what depression is. Results Many patients, especially some introverted college students, were depressed and seriously ill, and did not know the cause and treatment [7].

This research is about the investigation and treatment of college students' depression, using music and biofeedback therapy, observing the changes of freshmen's psychological problem scale and urinary cortisol index before and after treatment, exploring the psychological and biological mechanism of music and biofeedback therapy, analyzing the current situation of college students' depression, providing theoretical basis for MH education in colleges and universities, and helping college students to study, live and work better.

2. Therapeutic effect of music therapy on depression of college students

2.1 Improvised accompaniment in popular music helps to improve the quality of treatment

Since the 1980s in China, pop music has developed rapidly with the popularity of TV movies and online sitcoms [8]. Because of the wide range and strong expressive force of songs, many popular songs and popular music have song versions, which are very popular and loved by college students in recent years. Therapists can formulate songs according to the preferences of patients with mild depression. Because most patients cannot have strong song skills and skills, therapists can rewrite the songs or the main melody of the music into a simple score for the latter to watch and practice. When the melody is practiced skillfully with the right hand, the therapist can compile the melody into a simple and easy to play accompaniment texture according to the patient's learning situation [9]. Beautiful music can help people express their feelings, promote blood circulation, enhance gastrointestinal peristalsis and digestive gland secretion, strengthen metabolic activities and improve immune resistance, so as to eliminate depression, maintain a stable mind and open mind, which is beneficial to health [10]. During the treatment process, the subjects are directly involved in singing, playing or performing, so as to improve the subjects' attention, arouse their interest, adjust their mood, and gradually establish the ability to adapt to the external environment, maximize the exertion of the functions of all parts of body and mind, and finally achieve the purpose of rehabilitation. Specific methods mainly include collective singing songs and solo singing. Subjects don't need to receive special music training or have any music skills. It doesn't matter whether the music played or sung is good or not. What's important is to let them participate in music therapy. The therapist asked the subjects to choose one or more songs or music pieces to play in the group. These songs or music pieces are the subjects' own favorite or have special significance in their own life experiences, thus triggering emotions and memories accompanied by music. Music association and imagination can affect the energy of personality psychology. During the implementation, the therapist induces the subject to relax, creating imagination in the background of specially compiled music. Visual images appear in the imagination, which are symbolic and often related to contradictions in their subconscious.

In the process of listening to music, the therapist guides the subject to tell the imagination generated, and discusses the meaning of the imagination content with the subject after the music. Use soft and beautiful music to soothe upset or depressed spiritual phenomena; Play music of different natures successively to release the mental depression of patients and change the psychological state

of people; By playing musical instruments in person (or participating in chorus), the subjects can recover their self-confidence and sense of balance, and then through ensemble training, they can gradually recover their collective consciousness and be willing to participate in collective activities; For individual subjects, let them feel their favorite music and write down their feelings and thoughts during listening. Finally, the study of song ensemble should be carried out at the final stage of the treatment process. Because the completion of the song duet must have two elements: first, the practitioner must have enough song skills and be able to master the song skills often used. Secondly, when two or more people cooperate, the rhythm, speed and various action links should be coordinated in a tacit way, which brings great difficulties to beginners of songs. If the above foundation is not available during the treatment process, the difficulties in learning songs will easily lead to greater anxiety and resistance, and the treatment will not operate normally and thus be interrupted.

2.2 Music is the expression of emotion

Music is the direct flow and expression of musicians' emotions. The way music reflects life has its own particularity. Unlike art, novels and dramas, they express emotions directly, concretely and intuitively, giving people the feeling of being there at a glance. The life reflected by music is indirect. Musicians resort to music only when they have feelings about life. It is the emotional reflection of musicians, and it is not the social life phenomenon itself that makes musicians have emotions. A large number of foreign studies have confirmed that music can cause various physiological reactions, such as lowering blood pressure, slowing down breathing, slowing down heartbeat, increasing skin temperature, lowering muscle potential, lowering skin resistance, increasing blood vessel volume, increasing norepinephrine content in blood, etc., thus obviously promoting the homeostasis of human body, reducing tension and anxiety, and promoting relaxation; It can also produce obvious analgesic effect; Enhance the immune system function of human body, etc. Music therapy can be divided into broad and narrow senses. Music therapy in the narrow sense emphasizes that therapy itself is a scientific and systematic therapy process, which includes the application of various methods and theoretical schools, including music, the treated person and trained music therapists. Without any one, it can't be called music therapy. In addition to the above meanings, music therapy in a broad sense also includes the use of all forms of music-related activities as psychological appreciation and counseling means. Such as listening, singing, instrumental performance, music creation, improvisation, dancing, etc.

The main function of music is to enter people's hearts through its unique way of expressing life, so that people can get all kinds of associations and imagination from the depths of their hearts. Make yourself enter this situation or scene that you imagine from your heart, and let this situation and scene affect your mental state to achieve the purpose of treatment. Of course, the effect depends on the severity of the patient, the good guidance of the doctor and the cooperation of the patient. Of course, the results they get will be different because of the differences in the experience and cultivation of the audience. Obviously, the music image is not a static visual image, but an artistic image that the audience can feel through hearing. It can be seen that music is only the material medium and basic material of music art. It is not a bridge leading to established concepts and rational understanding, but a basic means and element of music art. When you are very depressed, you can temporarily relieve the depression by releasing, such as singing loudly or learning some percussion instruments to express your feelings. Even if you don't have any musical instruments, you can use musical instruments to express your feelings freely when you are depressed, so that the depression can be released in time, which can actually play a therapeutic role. Perhaps you will feel the "music" created by yourself from this release.

3. Investigation and analysis results

3.1 Screening survey objects and grouping

UPI was used to screen the freshmen in the whole university, and 90 students were randomly selected from the first class and the second class. College students' MH questionnaire, which is designed for early detection and early treatment of students with psychological problems, is widely used in Japanese colleges and universities to investigate freshmen's physical and MH. Its main function is to screen out freshmen who may have MH problems and take the initiative to intervene. Among the 60 items tested, 4 items are polygraph questions, and the remaining 56 items reflect students' distress, anxiety, contradiction and physical symptoms. (1) The total UPI score is above 25 ; (2) Question 25 is a positive selector; (3) There are at least two questions in the auxiliary questions that are affirmative selectors at the same time; (4) Clearly put forward the consultation request. All the researchers were trained before the inspectors entered the school, so that the music therapy measures were consistent, and the reading instructions of the scale were consistent. Then, all the data were expressed by the mean standard deviation (\bar{x} s), and the comparison showed differences by anovn analysis, and the comparison between groups was tested by t-test. All the data were statistically analyzed by SPSS 130 analysis application software on the computer. Music therapy can be divided into broad and narrow senses. Music therapy in the narrow sense emphasizes that therapy itself is a scientific and systematic therapy process, which includes the application of various methods and theoretical schools, including music, the treated person and trained music therapists. Without any one, it can't be called music therapy.

In addition to the above meanings, music therapy in a broad sense also includes the use of all forms of music related activities as a means of psychological appreciation and counseling. Such as listening, singing, instrumental performance, music creation, improvisation, dance, etc. At the beginning, the content was basically the same. They were all suggestive language for relaxing the body and mind, For example: "Relax every part of your body, close your eyes gently, then inhale deeply and exhale slowly, making you feel very quiet and relaxed. Imagine you are lying on a green lawn, with a blue sky overhead. There is a white cloud in the sky, thick and white, slowly falling on your body. According to the treatment status, constantly adjust the threshold value of positive enhancement, so that the subject can obtain the positive signal reaches 70% and the negative signal reaches about 30%. When the positive signal reaches more than 90% or 100%, the standard requirements of threshold can be raised; When the positive signal is about 50%, it is necessary to lower the threshold standard so that the training can be carried out step by step. At the end of each treatment, the subjects were trained to do limb flexion and extension exercises, and then pointed out the achievements to the subjects, and assigned homework and the next training task. Once a week, 40 minutes each time, four weeks as a course of treatment, a total of two courses. After a period of training, the subjects will not only feel that their psychosomatic symptoms have improved, but also gradually establish a new and healthy behavioral response mode, that is, when encountering stressful stimulus events or unpleasant situations, they can conduct self-psychosomatic adjustment according to the methods they have learned to avoid excessive emotional fluctuations affecting their psychosomatic health.

3.2 Result analysis

Before the experiment, the three groups of SDS, SCL-90, urinary cortisol, and general conditions were tested for homogeneity of variance, which was homogeneous and comparable. The analysis of variance showed that there was a significant difference in urinary cortisol concentration under different intervention methods ($p < 0.05$), and the t-test could be continued. Before and after the intervention, there was a significant difference in urinary cortisol between treatment group 1 and control group 1 ($P < 0.01$), and there was a difference in control group 2 ($P < 0.05$); The treatment group vs the control group 1 / $t = 2.885$ ($P = 0.007 < 0.01$); The treatment group vs the control group 2 / $t = 3.217$ ($P = 0.003 < 0.01$); Control group 1VS control group 2 / $t = 0.506$ ($P = 0.617 > 0.05$). As shown in Table 1.

Table 1. Values of urinary cortisol in three groups before and after treatment (x s)

Group	Number of columns	Urinary cortisol (ug/ml)		P
		Before treatment	After treatment	
Treatment group	30	27.36±13.64	16.134±5.623	0.000*
1 control group	30	22.6146±24.41	20.323±8.632	0.231*
2 control group	30	22.321±10.642	20.112±11.426	0.326*

From the two comparisons of the above treatment stages, $P < 0.05$, so there is a significant difference between the data of each stage. As shown in Table 2.

Table 2. Comparison of SDS scales in three groups after treatment

	Before treatment	In treatment	After treatment	F value	P value
SDS	60.85±2.33	55.20±3.20	44.82±3.62	265.33	<0.02

It can be seen from Table 2 that the SDS scale score results of the overall students before and after treatment are statistically significant. As shown in Figure 1.

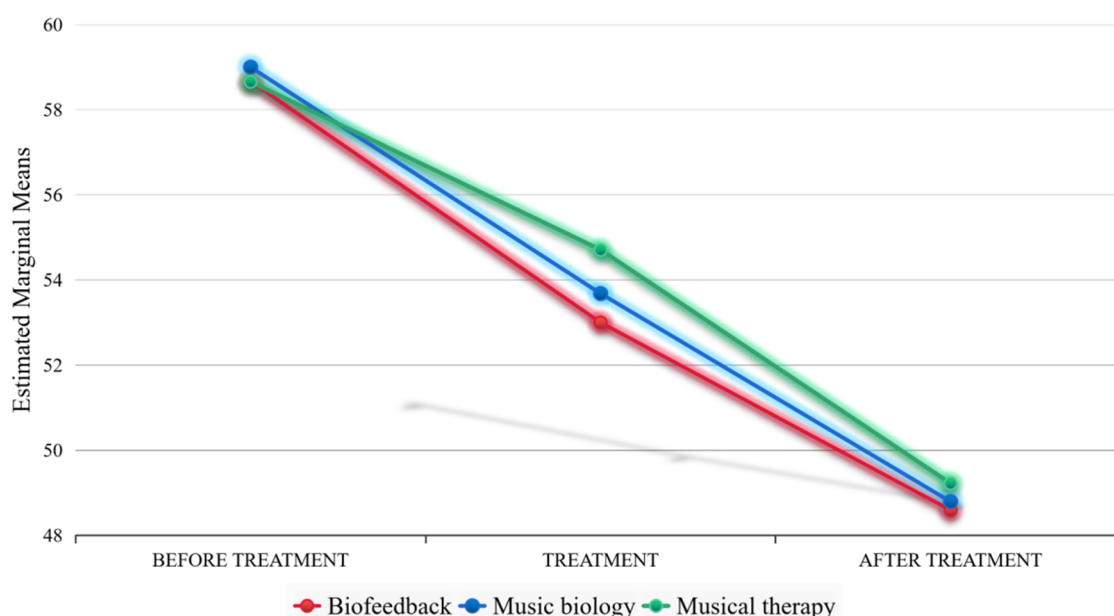


Figure 1. Comparison of SDS scores of three groups before, during and after treatment

It can be seen from the table that after treatment, the scores of SDS scale of the three groups of students were significantly lower than those before treatment, but the decline of music combined with biofeedback treatment group was more significant than that of music treatment group and biofeedback treatment group, and the results were statistically significant.

Facing various contradictions, pressures and setbacks, modern college students are prone to psychological problems. The problem of freshmen, a special group of college students, is particularly prominent. After enrollment, they live a relatively independent life in the face of new environment, new students and new learning content. They have an unprecedented sense of freshness and loneliness, especially for introverted students. This period of maladjustment is relatively longer. When they come to the new environment, if they can adapt to the new environment and get along well with their classmates, they will not only eliminate their loneliness, but also strengthen their courage to face the new life, laying a solid foundation for future study and life. Some students can't solve the present situation well. After a long time, they will have a series of psychological problems, such as depression, inner conflicts, deep pain, pessimistic disappointment about the future, lack of self-confidence and mental exhaustion. To sum up, depression has a high prevalence among college freshmen, who have experienced many negative life events and heavy learning burden. People with poor health,

disharmony in family, few hobbies, introverted personality and unstable mood have a high prevalence of depression. At the same time, the high prevalence rate also reminds people to pay more attention to college students, to carry out more psychological counseling and psychotherapy (such as music therapy, biofeedback therapy, etc.), to strengthen the teaching of psychological knowledge, and to pay attention to the cultivation and improvement of students' psychological quality.

4. Conclusions

In modern times, the influence of psychological and social factors on health is increasingly obvious. Modern medicine is gradually changing from biomedical model to bio-psychological-social medical model. Music is an abstract language. As the most emotional art, it can not only cultivate sentiment and develop intelligence, but also promote personality development, regulate emotions and promote the healthy development of body and mind. The employment competition of college students is extremely fierce, which will increase their mental pressure. If you don't have certain psychological endurance and self-regulation ability, it will easily lead to inner imbalance, resulting in various mental disorders and mental illnesses. In practice, what depression patients need is not simple preaching and unchanging psychotherapy, but the organic combination of personality, accomplishment, experience and theory of doctors and teachers, and creative and reasonable treatment. Music therapy does not play a role through human reason. It advocates the role of emotional creativity. It is an operable method that many patients with depression are willing to accept and try. It is worth vigorously studying and popularizing.

References

- [1] Hclr A, Hhwr. F B, Cyl A. The effect of music therapy on reducing depression in people with dementia: A systematic review and meta-analysis[J]. *Geriatric Nursing*, 2019, 40(5):10-16.
- [2] Dai W S, Huang S T, Xu N. The effect of music therapy on pain, anxiety and depression in patients after coronary artery bypass grafting[J]. *Journal of Cardiothoracic Surgery*, 2020, 15(1):6-10.
- [3] Wang T T. EFFECT OF MUSIC THERAPY ON RELIEVING DEPRESSION OF TEACHERS[J]. *Basic & clinical pharmacology & toxicology*. 2018(Suppl.2):122.
- [4] A L F, B H D, C H N. Effect of music therapy derived from the five elements in Traditional Chinese Medicine on post-stroke depression[J]. *Journal of Traditional Chinese Medicine*, 2017, 37(5):6-8.
- [5] Shen Y, Wang Z, Hao A. Investigating the Effect of VR + Haptics Approach on Students' Flow Experience and Outcomes: An Empirical Study on VR Laparoscopy[J]. *Complexity*, 2021,62(5):10-18.
- [6] Chen-Jung C, Yi-Chang C, Che-Sheng H. Effects of preferred music therapy on peer attachment, depression, and salivary cortisol among early adolescents in Taiwan[J]. *Journal of Advanced Nursing*, 2019.62(9):12-15.
- [7] Lapid M I, Bigelow M, Stelpflug A. 202 - Music Therapy Intervention to Reduce Caregiver Distress at End of Life: A Feasibility Study[J]. *International Psychogeriatrics*, 2021, 33(S1):7-7.
- [8] Toole M, Bendinger G M, Ensor J E. Abstract OT3-08-01: A randomized study of personalized music therapy for patients with early stage breast cancer receiving chemotherapy[J]. *Cancer Research*, 2017, 77(4):08-10.
- [9] Chou K R. CN35 Effects of music therapy on anxiety and depression in cancer patients undergoing chemotherapy[J]. *Annals of Oncology*, 2020, 31(3):11-16.
- [10] Qin R Y. STUDY ON THE EFFECT OF MUSIC THERAPY ON PSYCHOLOGICAL INTERVENTION OF PATIENTS AFTER OPERATION[J]. *Basic & clinical pharmacology & toxicology*. 2018(2):12-22.