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Research on the Innovative Application of Computer-Assisted Music Therapy in the Psychological Adjustment of College Students under the Concept of Cultural Parenting

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Abstract This study developed a computer-assisted music therapy based on somatic vibrational music for the mental subhealth state of college students. Low-frequency signal waves were used for sonic intervention, and the sound source and amplification-crossover-transducer device were designed. Exploratory factor analysis was utilized to screen the emotional word items of the scale, and the scale was revised. Combining the biofeedback instrument with the revised PANAS-R scale, a multimodal assessment system was constructed. All subjects showed significant positive elevation ($p<0.05$) in the positive mood dimension after the experiment, and the trend of heart rate in the control group was roughly similar to that of the experimental group, but the magnitude of change was not as large as that of the experimental group. The results of the paired-samples t-test showed that the heart rate of the control group showed a significant decrease only in the acquisition stage 3 of the experiment, while the heart rate of the experimental group showed a significant decrease in the acquisition stages 3, 4, 5 and 6. The computer-assisted music therapy proposed in this paper can effectively alleviate the anxiety cycle, providing a technical path with both scientific and humanistic features for psychological intervention in the perspective of cultural education.

Index Terms somatic vibration music, music therapy, exploratory factor analysis, paired samples t-test

I. Introduction

With the continuous development of society, cultural education plays an increasingly important role in people's lives [1], [2]. Cultural education refers to the process of cultivating people's ideology, morality, quality and artistic cultivation through traditional cultural education [3], [4]. As a form of education, cultural parenting is of great significance in enhancing national quality and promoting social harmony and stability [5]. In this context, students' mental health has received widespread attention [6]. At present, college students are affected by academic, employment and other factors, the overall decline in the mental health level of college students is obvious, and it is urgent to take effective measures to improve students' mental health [7], [8]. As a psychotherapeutic method, the role of music therapy in the psychological adjustment of college students has been increasingly emphasized [9], [10].

Music therapy is to treat patients from both physiological and spiritual pathways, so as to affect human physiological function and improve human psychological function, to achieve the treatment of psychological diseases and improve the psychological state [11]-[13]. Music therapy, as an effective means of psychological counseling, plays an important role in the mental health of college students [14]. Through the emotional regulation of music, the alleviation of anxiety and depression symptoms, the enhancement of self-knowledge, and the improvement of social problems, college students can obtain a better state of mental health [15]-[17]. And with the development of information technology, the application of music therapy in college students' mental health treatment with the assistance of computers will provide personalized and diversified psychological counseling services for college students to help them better cope with challenges and improve their quality of life [18]-[21].

In this paper, computer-assisted music therapy is designed, and low-frequency signal waves are selected to construct a somatic vibration music library. The credibility of the stimulation paradigm is verified by weighted coefficient entropy calculation, and the loss coefficient is used to correct the confidence probability of the collected data. Mental health research was conducted on the target subjects to explore the acceptance of music therapy among students. A sample of 100 college students was used to set up a controlled experiment. The eight-stage physiological index collection with the revised version of PANAS-R scale was selected as the measurement item, and the structural validity of the scale was verified based on factor analysis. The validity of the proposed music therapy was tested by combining the statistical results of the scale and physiological indicators.

II. Computer-assisted music therapy design and effectiveness evaluation

Against the background of the concept of cultural cultivation in education practice, the psychological health problems of college students show a hidden and continuous development trend. Traditional psychological counseling is limited by time and space constraints and privacy concerns, resulting in insufficient accessibility of psychological services. Music therapy, as a non-pharmacological intervention, has unique physiological-psychological regulation advantages due to its acoustic vibration characteristics and brain neural resonance mechanism. In this study, the innovative integration of somatosensory vibration technology and computerized adaptive system was used to construct a somatosensory vibration music-based intervention paradigm.

II. A. Computer-assisted music therapy design

Low-frequency music sound vibration can make people relax, high-frequency music will make people tense; rhythmic, loud music can stimulate people's aggression, the rhythm is soothing, moderate volume or weak music can make people calm; rich in 30~150Hz sinusoidal music sound wave has the therapeutic effect of mind-body relaxation. Therefore, the computer-assisted music therapy designed in this paper only responds to 30~150Hz audio signals, for other frequency signals can not play a music therapy effect.

The main equipment of the designed music therapy includes: sound source and amplification-crossover-transducer device, and its main medium is the mattress, the architecture is shown in Figure 1.

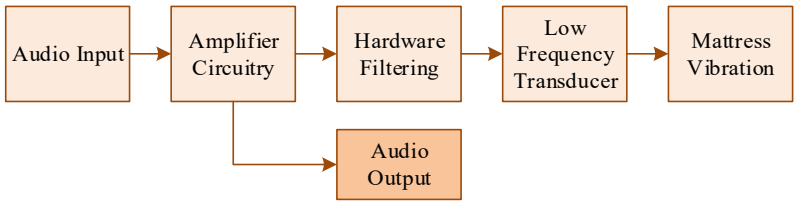


Figure 1: Overall Framework of music therapy

Somatic vibrational music is a special type of therapeutic music that is rich in low frequencies, mainly sinusoidal, with different melodies, rhythms and harmonies. Different waveforms, melodies and rhythms are used for different therapeutic purposes. It requires a harmonious pitch, pleasant feeling, not more than 70 decibels, a rhythm similar to the human heartbeat or respiration, a beautiful melody, and a soft tone. Frequently listening to Baroque and Mozart music, being hypnotized, doing yoga or meditation exercises, brain visualization training or with the aid of somatic music, two-way feedback instrument and other auxiliary instruments, can make the brain process α – wave state, which has a frequency of 14~30 times/second, when the cerebral cortex is in a relaxed and awake with weak excitement ("relaxed alertness “) state.

This music library is currently proposed to collect three types of slow cycle signal waves, fast cycle signal waves and fast cycle, urgent signal waves, the hardware part is currently designed to support only low-frequency signal waves (30~150Hz), in this paper, we choose Brahmsian female voices and Mozart's music as the therapeutic music. In addition, the construction of the repertoire library required for music therapy and the improvement of the theory of music selection are the prerequisites for improving the quality of music vibration therapy.

II. B. Theories of Reliability and Validity of Psychologically Mediated Assessments

II. B. 1) Paradigm credibility metrics

First, this paper defines the sum of stimulus paradigms made by an individual at moment t as B_t, which is the sum of informative events that is the result of the joint influence of n sub-evoked paradigms A^i at moment t, and thus the sum of stimuli B_t can be expressed as:

$$B_t = \sum_{i=1}^{n} \alpha_t^i A^i \tag{1}$$

where α_t^i denotes the weighting coefficient of the i th stimulus-evoked paradigm at moment t on the combined-evoked stimulus paradigm B_t, where the sum of the weighting coefficients α_t^i at any moment t satisfies the following equation:

$$\sum_{i=1}^{n} \alpha_t^i = 1 \tag{2}$$

It is intuitively understood that the stimulus input at any moment can always be decomposed into a weighted sum of n different sub-evoked paradigms. On this basis, this paper defines the stimulus paradigm confidence for evaluating the stimulus scene at moment t as V_{B_t}, which is mathematically represented as:

$$V_{B_t} = e^{-\sum_{i}^{n} \alpha_t^i \log \alpha_t^i} \tag{3}$$

where the exponent in Eq. is the entropy of the weighting coefficients of different stimulus paradigms at moment t.

When the number of sub-stimulus paradigms n tends to infinity and there is a uniform distribution $\alpha_t^j = \frac{1}{n}$ among the sub-stimulus paradigms, at this point Eq. (3) can be reduced to:

$$\lim_{n\to\infty} V_{B_t} = \lim_{n\to\infty} e^{-\sum_{i}^{n} \frac{1}{n} \log \frac{1}{n}} = 0 \tag{4}$$

It is intuitively understood that at this point in time any of the subparadigms in the combined paradigm is significant, and any data obtained at this point in time under the stimulus is not able to directly respond to the relationship with the sub-stimulus paradigm, i.e., data collection under the unknown paradigm is unavailable.

When one of the sub-stimulus paradigms k contributes 1 to the composite stimulus at moment t, i.e., the subparadigm is unique and certain, $\forall k$, $\left(\alpha_t^{i=k} = 1\right) \vee \left(\alpha_t^{i \neq k} = 0\right)$, at this point, there are:

$$V_{B_t} = e^{1\log 1 + \sum_{i\neq k}^{n} 0 \log 0} = 1 \tag{5}$$

This is the time when confidence is highest under the ideal single-stimulus paradigm, i.e., any data collected in a single-paradigm situation can be directly correlated with that paradigm to establish its correlation.

A more practical scenario is when the weighting coefficients of the substimulus paradigm are unknown, but when the number of samples of the substimulus paradigm is limited $n \leq N$ and the total length of the stimulus time is limited $t \leq T$, a hidden variable derivation can be made for α_t^i by collecting a large amount of data. In practice, the subparadigm scene j with the highest probability of occupying the largest share at moment t is often approximated as a single-scene stimulus by additional sensors, i.e., $\alpha_t^{i=j} \approx 1$, or by enhancing the single-scene evocation to boost the weight of a single paradigm among the conforming stimulus-evoked sources.

II. B. 2) Data validity measures

Assuming that the probability of evaluating the stimulus source A^i by the jth response indicator C_t^j available at the moment t is $p_{A_t^i}^{C_t^j}$, whereas in real life the collected data will often be due to transmission loss or signal aliasing, which significantly reduces the accuracy of its collection indicator D in responding to the real stimulus response situation, the confidence probability relationship between the collected data The confidence probability relationship between the indicator D and the real intrinsic response indicator C can be defined as:

$$p_{A_t^i}^{D_t^j} = \left(1 - \beta_{A_t^i}^{j}\right) p_{A_t^i}^{C_t^j} \tag{6}$$

where $\beta_{A_t^i}^{j}$ is the loss coefficient of the intrinsic response indicator C converted to the collected data indicator D, $0 \leq \beta_{A_t^i}^{j} \leq 1$, when the loss coefficient increases, the confidence of the collected data indicator D decreases. Therefore the confidence probability of the stimulus paradigm A^i by the collection indicator D can be expressed as:

$$P_{D_t}=1-\prod_{i=1}^{m}\left(1-p_{A_t^i}^{D_t^j}\right)=1-\prod_{i=1}^{m}\left(1-\left(1-\beta_{A_t^i}^{j}\right)p_{A_t^i}^{C_t^j}\right) \tag{7}$$

where m represents the number of indicators D.

When the collected data D has a loss coefficient $0<\beta_{A_t^i}^{j}\le 1$ with respect to the intrinsic indicator C and the number of indicators is infinitely large, i.e., when m tends to infinity, there is:

$$\begin{aligned}\lim_{m\to\infty}P_{D_t}&=1-\lim_{m\to\infty}\prod_{i=1}^{m}\left(1-p_{A_t^i}^{D_t^j}\right)\\&=1-\lim_{m\to\infty}\prod_{i=1}^{m}\left(1-\left(1-\beta_{A_t^i}^{j}\right)p_{A_t^i}^{C_t^j}\right)=1\end{aligned} \tag{8}$$

From Eq. (8), it can be seen that when the validity of the collected individual indicators is low, the validity of the data can be increased by increasing the type of collected indicators, therefore, this paper can improve the evaluation of stimulus-evoked time response by adding more dimensions of collected data.

When in in the data decay coefficient $\beta_{A_t^i}^{j}$ and the number of collection indicators m are determined, boosting the intrinsic response $p_{A_t^i}^{C_t^j}$ will improve the validity of the data, i.e., it should stimulate the individual to find a significance indicator. When in in the data attenuation coefficient $\beta_{A_t^i}^{j}$ and the number of collection metrics m are uncertain, but the number of collection metrics is finite $m<N$, then the attenuation coefficient $\beta_{A_t^i}^{j}$ can be lowered by more reasonably accurate sensory devices and equipment, which can improve the validity of data collection.

Further, this paper defines the product of the confidence level V_{B_t} of the collection paradigm and the validity P_{D_t} of the collected data as the confidence level R_{B_t} for assessing the confidence level of the collected data, and thus, the data confidence level can be mathematically expressed as:

$$R_{B_t,D_t}=V_{B_t}P_{D_t} \tag{9}$$

Eq. (9) expresses the assessment reliability of the collection data metric D_t for the conclusion of the stimulus-evoked event under the composite stimulus paradigm B_t.

III. Example analysis of the application of computer-assisted music therapy

III. A. Research on the mental health status of the target population

III. A. 1) Psychological orientation

In this paper, 206 questionnaires were distributed in the form of preliminary research through the distribution of questionnaires, and 200 valid questionnaires were recovered based on the screening of response time, grade, and other issues to conduct research on psychological counseling for college students. The research mainly investigated the basic demographic information, the reasons for the individual's daily mood swings, the emergence of psychological problems and the way to deal with them, the experience of using psychological service products and satisfaction, the expectations of psychological assistance and guidance products, and the experience of psychological counseling.

Research conclusions:

(1) Most of the students will have a sub-healthy psychological state, the distress of psychological problems has a high correlation with grade level, and the pressure of graduating grade students on academic employment is higher.

(2) Mood fluctuations at night more than half of the situation, easy to self into negative emotions, the point of time does not support the visit to the psychological counseling room, the solution to a single way and limited effect.

(3) The acceptance of psychological relief through listening to music is high, accounting for 52% of the research users.

III. A. 2) Emotional approach

A semi-structured approach was used to interview the study participants on the basis of a proposed interview script, aiming to gain insight into the following:

(1) Types of anxiety events faced by students in higher education and their reactions to the whole process.

(2) To gain an in-depth understanding of the target group's acceptance and expectations of psychological service products.

(3) Exploring the target group's views on self-education and various ways of emotion channeling.

The interview outline was divided into four parts, including the daily emotional problems, behaviors, willingness & influencing factors of the target group as well as the basic demographic characteristics of the target group.

A total of 22 people were interviewed, in terms of gender characteristics, of which 11 were male and 11 were female, and in terms of educational characteristics, 8 were from freshmen, 6 were from juniors, 2 were from seniors, 2 were from researchers, 2 were from researchers, 2 were from researchers, and 2 were from researchers.

Interview conclusions:

(1) Emotional problems: Anxiety and other emotions arise on a daily basis, mainly due to coursework, exams, job hunting, dissertations and other events that affect emotions.

(2) Treatment: want to do things relatively perfect and satisfactory, will produce procrastination, stay up late and other behaviors, through obtaining self-recognition or recognition by others to relieve anxiety, the main way to explore the solution to the problem on their own, self-reflection to obtain self-reconciliation, and people encountering a similar situation to obtain effective advice tend to get effective feedback on peer-to-peer communication, and read high-quality psychological science and analysis of the article, Writing to convey information.

(3) Willingness to accept psychological service products and the factors influencing it: focusing on the professionalism and privacy of psychological related products, having a certain interest and ability in self-reflection, and being interested in and willing to try computer-assisted music therapy.

III. A. 3) Mental health status and needs

Collate the results of questionnaire research and user interviews to summarize the users' mental health status and the way of solving psychological problems.

(1) The psychological health condition of university student groups needs to be further improved.

(2) Users' fundamental needs: “Finding ways of psychological guidance” + “Improving psychological self-education ability”.

(3) Summary of users' psychological problems.

(4) Psychological problem reaction process.

The vicious cycle of reaction is: encountering stressful events - thinking about negative results - affecting emotions - delaying behaviors -bad outcome -exacerbates bad emotions. Adverse emotions can exacerbate behavioral delays and affect outcomes, thus falling into a vicious cycle. Entry points need to be found for users to break out of the cycle.

The way to deal with it will be to self-resolve with the help of online resources, books, courses, etc., and communicate with friends and family. It is thought that the threshold of psychological counseling room is high, and psychological problems are serious to a certain degree before they need to go.

(5) Concerns of psychological service approach

a) Protect personal privacy;

b) Hoping for simpler, quickly reachable and low-cost psychological service methods.

(6) Perception of psychological software

a) Focus on effect and enlightenment;

b) Online psychological one-on-one counseling charges high fees, which do not meet the economic status of college students;

c) Knowledge of computer-assisted music therapy and willing to try it.

III. B. Experimental design

III. B. 1) Objects of study

Subjects were recruited from the initially researched students through published notices and advertisements, totaling 100, 54 males and 46 females, with an age range of 18-26 years and a mean age of 21.9 years (SD = 1.38 years). All subjects were free of cardiovascular and respiratory diseases, and did not engage in strenuous exercise 2 hours before the test.

The experimental music materials were somatosensory vibration music and conventional relaxation training music designed in this paper. The experiment was explained to all subjects before the start of the experiment and an informed consent form was signed. One hundred subjects were randomly divided into the experimental group of somatic vibration music and the control group of relaxation training music, with 50 people in each group.

III. B. 2) Measurement items

Measurements were made in two dimensions: self-assessment scale and physiological indicators. The advanced biofeedback instrument spirit-10 was selected to measure the heart rate. spirit-10 adopts the Bluetooth wireless

flash technology to monitor the physiological indexes and feedback in 10 channels, and the collected physiological data can be as high as 2048/second, with the data precision as high as 24Bits, and can convert 16.77 million physiological signals.

The acquisition of physiological indicators in the experiment was divided into 8 stages according to the time of the experiment, as follows:

(1) Eyes open resting 1 for 150s;
(2) Resting with eyes closed 1, time 150s;
(3) Regulation 1, time 150s;
(4) Regulation 2, time 150s;
(5) Adjustment 3, time 150s;
(6) Adjustment 4, time 150s;
(7) Rest with eyes closed 2, time 150s;
(8) Resting with eyes open for 2, time 150s.

The collection of physiological indexes of pre-test and 24h post-test was divided by time, and 20-minute resting data were collected, and the data collection process was the same in both groups.

Table 1: Factor load, commonality and CR values of each item in PANAS-R

Project	Factor load		Commonality	CR value
	PA	NA		
Active	0.894		0.737	8.423
Full of enthusiasm	0.883		0.779	7.386
Happy	0.857		0.683	6.028
In high spirits	0.815		0.631	10.376
Excited	0.794		0.592	7.387
Proud	0.757		0.708	9.025
Delighted	0.725		0.482	8.883
Energetic	0.711		0.547	6.921
Grateful	0.603		0.395	12.017
Ashamed		0.736	0.635	14.286
Sad		0.718	0.557	7.835
Afraid		0.702	0.523	8.229
Nervous		0.683	0.398	9.011
Terrified		0.655	0.412	11.083
Guilty		0.618	0.375	7.375
Irritable		0.594	0.338	8.228
Trembling with fear		0.573	0.391	9.217
Angry		0.508	0.346	8.083

The scale used was the revised Positive and Negative Affect Scale (PANAS-R), which is widely used in studies of well-being and emotional states, and is a measure of emotional valence and emotional arousal, and is divided into two parts: positive affect (PA) and negative affect (NA). It has good internal consistency reliability, structural validity, and discriminant validity, and it can also take into account the measurement of trait emotions for different experimental designs between and within subjects, in addition, the PANAS scale is simple and clear, and has strong usability. However, in terms of accommodating different cultural differences, the PANAS may be ambiguous in terms of emotion word expressions, for example, Western cultures that are more individualistic view self-centered emotional experiences as a priority (e.g., pride), whereas collectivistic cultures such as China place more emphasis on other people-centered emotional experiences (e.g., shame), accompanied by a certain degree of social significance, and therefore, in order to make the Therefore, in order to make the PANAS more applicable to the cultural background of Chinese subjects, a revision of the PANAS scale, called the PANAS-R scale, was conducted in this paper.

The revision of the PANAS-R scale is based on the theory of affective loop modeling, the collection and selection of scale items, and a series of experimental tests. Exploratory factor analysis was used for the screening of the scale's emotion word items, which yielded a KMO value of 0.822 and a chi-square value of 2848.019 for the Bartletts' test of sphericity ($p<0.001$). Factor analysis was then performed and the results of the analysis are shown in Table

1, where the CR values for all emotion word items were significant at the $p<0.001$ level, indicating good item differentiation.

The revised PANAS-R scale includes 9 each of positive emotion and negative emotion descriptive words, and subjects were required to make descriptions of their emotion word experiences on a 5-point Likert scale, and the internal consistency coefficients for the pre- and posttests of the scale conducted in this study were 0.82 and 0.83, respectively.

III. B. 3) Experimental Procedures

The data of this experiment were measured subject by subject, and the experimental procedure was divided into three components, which were physiological data collection, computer-assisted music therapy trial, and PANAS-R scale filling, and the duration of each phase of the proposed music therapy was 150s, and the experimental conditions conducted by each subject were presented randomly in Latin square.

The experimental flow of the proposed music therapy is organized as shown in Table 2. Subjects would listen to four musical stimuli in sequence, and four beats of the same pitch would appear at the beginning and end of the music to remind the beginning and end of the music.

Table 2: Arrangement of the Music Therapy Experiment Process

	Process							
	150s	150s	150s	150s	150s	150s	150s	150s
1	Baseline 1	Sanskrit female voice	Baseline 2	Sanskrit female voice	Baseline 3	Mozart music	Baseline 4	Mozart music
2	Baseline 1	Mozart music	Baseline 2	Mozart music	Baseline 3	Sanskrit female voice	Baseline 4	Sanskrit female voice
3	Baseline 1	Mozart music	Baseline 2	Sanskrit female voice	Baseline 3	Mozart music	Baseline 4	Sanskrit female voice
4	Baseline 1	Sanskrit female voice	Baseline 2	Mozart music	Baseline 3	Sanskrit female voice	Baseline 4	Mozart music

After the end of the experiment, in addition to the recording of physiological indicators by the main subject, the PANAS-R Positive Emotions subscale was filled in and interviewed with the subjects. After 24 h, the data on the subjects' physiological indicators were collected again.

Table 3: Analysis of Variance for Self-assessment Scale Reports

Emotion type	Mean square	F value	Sig.
Active	47.386	38.376***	0.000
Full of enthusiasm	40.277	32.084***	0.000
Happy	42.253	25.173**	0.015
In high spirits	40.295	32.199**	0.008
Excited	41.269	28.271*	0.033
Proud	43.017	36.228***	0.115
Delighted	42.228	35.375*	0.018
Energetic	41.035	32.972*	0.022
Grateful	37.227	20.186**	0.071
Ashamed	0.275	0.275*	0.127
Sad	1.116	5.386*	0.119
Afraid	0.283	2.077**	0.108
Nervous	2.085	4.289*	0.297
Terrified	1.327	3.335*	0.711
Guilty	1.144	9.271**	0.923
Irritable	1.783	2.462*	0.117
Trembling with fear	1.295	0.912**	0.083
Angry	1.097	0.476*	0.426

III. C. Analysis of results

III. C. 1) Self-assessment scales

The results of the ANOVA for the self-assessment scale report are shown in Table 3. The subjects showed significant positive enhancement ($p<0.05$) in all positive mood dimensions, indicating that music therapy has a significant intervention effect on self-identity and vitality stimulation.

III. C. 2) Physiological indicators

(1) Descriptive statistics of physiological index measurements

The descriptive statistics of the physiological response data generated by the experimental and control groups are shown in Figure 2, and the physiological data values presented are the result of subtracting the baseline data from the data in the experiment.

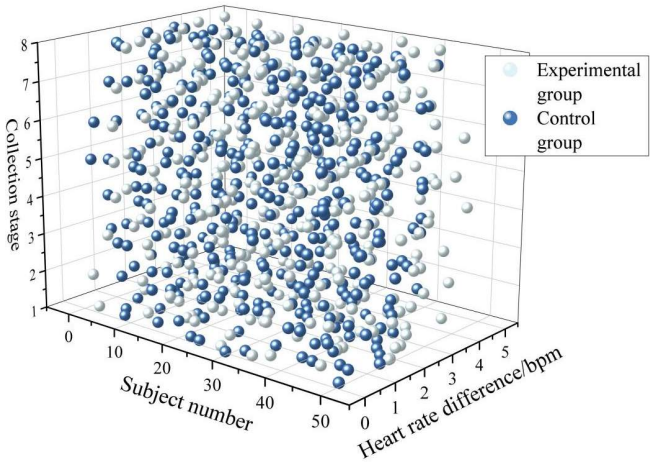
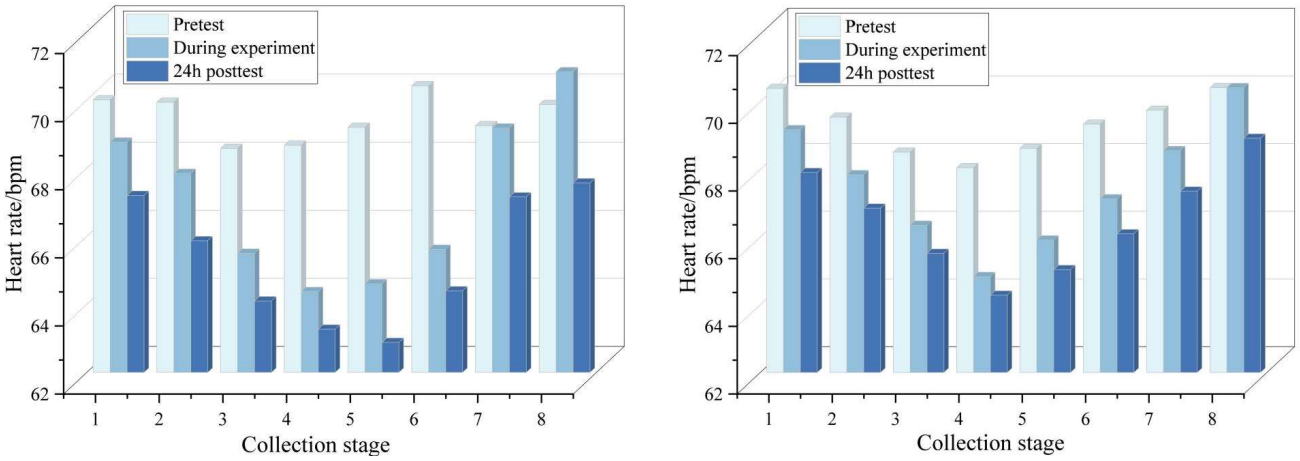


Figure 2: Physiological response data describe the statistical results

(2) Analysis of heart rate control results

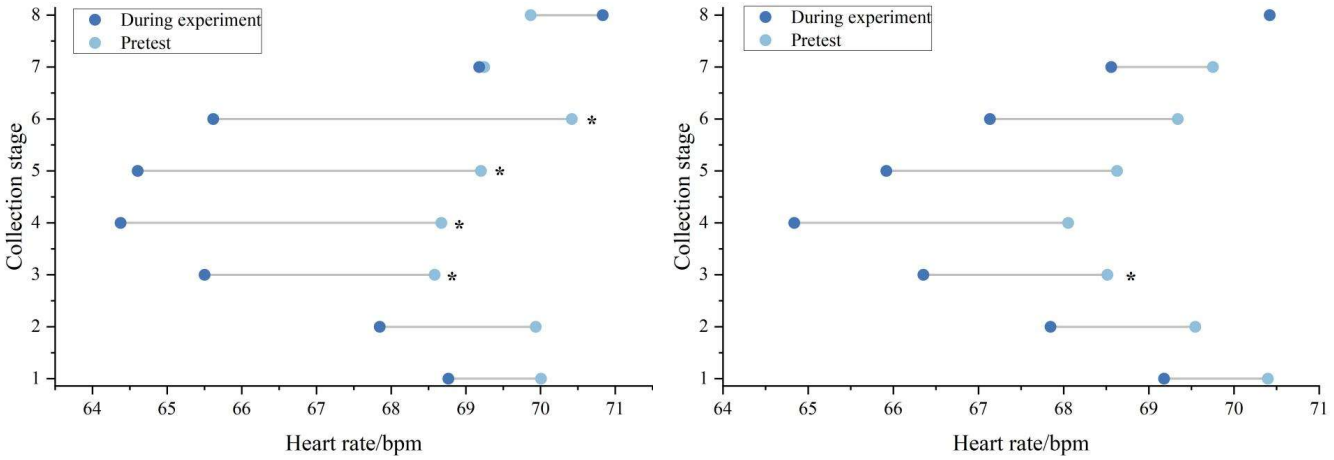
Taking the average value of each group, the results of pre-test, mid-experiment, and 24h post-test of the experimental and control groups are shown in Fig. 3 (a~b), respectively. At acquisition stages 3, 4, 5 and 6 in the experiment, the heart rate of the subjects showed a relatively large decrease. By the 24-h posttest, the heart rate of the experimental group decreased overall compared to the mid-experiment, and the change in heart rate was relatively smooth throughout the acquisition phase. The trend of heart rate changes in the control group of students was roughly similar to that of the experimental group, but the magnitude of change was not as large as that of the experimental group.



(a)Experimental group (b)Control group

Figure 3: Results of pretest, during experiment, and 24h posttest

The results of the paired-sample t-tests for the pre-test and experimental heart rates of the experimental and control groups, respectively, are shown in Fig. 4 (a~b). The heart rate of the subjects in the control group showed a significant decrease only in the acquisition stage 3 in the experiment, and stage 3 was the stage of the first conditioning, indicating that the subjects using conventional relaxation training music therapy had a certain relaxation effect at the beginning of the contact, and that this relaxation effect would slowly disappear with the growth of the duration and the increase in the number of conditioning. And the experimental group showed a significant decrease in heart rate in the acquisition stages 3, 4, 5 and 6, proving the effectiveness of the music therapy proposed in this paper.



(a)Experimental group (b)Control group

Figure 4: Results of paired t-test

IV. Conclusion

In this paper, computer-assisted music therapy was designed to explore its feasibility and effectiveness with questionnaires and controlled experiments.

The ANOVA results of the self-assessment scale report showed that the subjects showed significant positive enhancement in all positive mood dimensions ($p<0.05$), indicating that music therapy has a significant intervention effect on self-identity and vitality stimulation. At acquisition stages 3, 4, 5, and 6 in the experiment, the subjects' heart rates showed a large decrease. By the 24-h posttest, the heart rate of the experimental group decreased overall compared to the experiment, and the change in heart rate was relatively smooth throughout the acquisition phase. The trend in heart rate for the control students was generally similar to that of the experimental group, but the magnitude of change was not as large as in the experimental group. The heart rate of the control group only decreased significantly in the acquisition stage 3 of the experiment, which was the first adjustment stage, indicating that the subjects who used the conventional relaxation training music therapy had a certain relaxation effect when they were first exposed to the music therapy, and this relaxation effect would disappear slowly with the growth of the duration and the increase of the number of adjustments. And the experimental group showed a significant decrease in heart rate in the acquisition stages 3, 4, 5 and 6, proving the effectiveness of the music therapy proposed in this paper.

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