

Can listening to different type of music regulate negative emotions in adolescents?

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Abstract:

The aim of this study is to find out whether different types of music can regulate negative emotions. 32 adolescents aged 13–19, including 21 males and 11 females, were exposed to different music genres for 2 weeks. Three scales measuring anxiety, depression and happiness were administered at the beginning and the end of the experiment, and the collected data were analyzed with independent samples t-test. The results indicate that listening to soft music helps adolescents reduce anxiety, while listening to rock music increases anxiety levels. However, no significant relationship was found between depression and either type of music listening. Overall, music therapy is an effective intervention when soft music tracks are used.

Keywords: Depression, anxiety, music intervention, adolescents

1. Introduction

1.1 Description of the Condition

According to the China Mental Health Development Report (2019–2020) released by the Institute of Psychology, Chinese Academy of Sciences, the detection rate of depression among Chinese adolescents in 2020 was 24.6%, among which severe depression accounted for 7.4% of the total adolescent population. The overall prevalence of anxiety disorders among adolescents is 11%. Depression, also known as major depressive disorder, is a common and serious emotional disorder. People with depression experience persistent sadness and disappointment, and lose interest in activities they previously enjoyed. In addition to emotional problems, depression can also cause physical symptoms such as chronic pain or digestive

disorders. To be diagnosed with depression, symptoms must persist for at least two weeks. According to the DSM-5, anxiety is defined as "stressful, excessive worry and physiological changes such as elevated blood pressure". For a diagnosis of anxiety disorder, such anxiety must occur regularly and interfere with daily functioning.

1.2 Description of the Intervention

Music therapy can be defined as "the professional use of music and its elements as an intervention in medical, educational, and everyday environments with individuals, groups, families, or communities, who seek to optimize their quality of life and improve their physical, social, communicative, emotional, intellectual and spiritual health and well-being" [1]. Music therapy is delivered in a variety of contexts, including mental health, medical, community, devel-

opmental, and educational settings [2]. It can be provided in groups or individually. Participants may join an open group (e.g., in a psychiatric ward) or be referred and assessed by a music therapist before receiving individual treatment or closed group therapy.

1.3 Mechanism of Music Emotion Regulation

Music has a strong stimulating effect and can modulate emotions [3, 4]. In daily life, music is often intentionally used to regulate emotions and moods [5]. Juslin points out that music can affect motivation, self-image, and coping mechanisms for difficult emotions; in some music therapy practices, counsellors explicitly assist individuals in processing feelings evoked by music [5].

1.4 Research Significance and Objectives

This study aims to examine whether listening to different types of music can reduce negative emotions in adolescents. A 15-day online experiment was conducted to compare the score changes of two groups of participants who listened to either soft or rock music for 14 consecutive days.

The core research questions are as follows:

Can music reduce negative emotions in adolescents?

Do different types of music have different effects on emotional states?

This study focuses on adolescents without diagnosed mental illness, providing new insights into the selection of music genres in music therapy.

2. Literature Review

2.1 Development of Music Therapy

Music therapy is a comprehensive applied discipline integrating music, medicine and psychology. It represents a new development where music transcends the traditional field of artistic aesthetics and integrates humanistic spirit and life science. Professor K. Bruscia, a renowned American music therapist from Temple University, defines music therapy in his book *The Definition of Music Therapy* as: "a systematic intervention in which the therapist uses various forms of musical experience and the therapeutic relationships developed during therapy as the driving force for healing". Generally speaking, music therapy evaluates the physical and mental health status of patients with physical defects, mental disorders or emotional disturbances through musical responses. It is a comprehensive process that uses various forms of musical stimulation and experience, designs and selects multi-method treatment plans to provide support and intervention for patients, integrating

treatment, regulation, education and training.

2.2 Music Therapy for Negative Emotions

Liang's study aimed to investigate the effect of classical piano music therapy on depression levels in patients with mild to moderate depressive symptoms [6]. The study included four randomized groups of patients who completed the Beck Depression Inventory once a month. After receiving classical piano music therapy, patients' mean depression scores decreased significantly by 1.5–2.0 times ($p = 0.001$). Therefore, listening to classical music is recommended as a standalone treatment for mild depression and an adjunctive treatment for moderate depression.

Another study proposed music therapy as a new approach for clinical psychiatry to treat generalized anxiety disorder (GAD), one of the most common and disabling mental disorders. Enrique and Victor presented the results of a pilot intervention for clinically controlled patients receiving medication. A structured protocol was used to reduce GAD symptoms through music therapy. The experimental group consisted of 7 patients without complications, who met the DSM-IV diagnostic criteria and were diagnosed by psychiatrists at the Ramon de la Fuente Muñiz National Psychiatric Institute. The researchers designed a 12-session treatment course (2 hours per session) for this group. Post-test measurements were conducted using the Beck Anxiety and Depression Scales. Wilcoxon statistical test showed a significant reduction in overall scores after the intervention. The results confirmed that music therapy is effective in reducing anxiety and depression levels in patients with GAD [7].

However, two studies found no significant effect of music on reducing negative emotions [8, 9]. Deshmukh et al. conducted a pilot study on the effect of Indian classical music on sleep quality in individuals with depression, and found no significant change in Montgomery-Asberg Depression Rating Scale scores [9]. Elliott examined the efficacy of music and muscle relaxation techniques in reducing anxiety among patients admitted to a coronary care unit with ischemic heart disease, and found no significant differences ($p < 0.05$) in psychological or physiological variables between groups [8]. That is, no significant anxiety reduction was achieved in patients using music or muscle relaxation interventions compared with the control group. One explanation suggested by Elliott is that the duration or number of interventions may be insufficient for cumulative effects to emerge [8]. A systematic review on the dose–response relationship in music therapy noted that small effects appear after 3–10 sessions, medium effects after 11 sessions, and large effects after 16 sessions [10]. This supports the view that the therapeutic effect of music

increases with the number of exposure sessions.

In summary, although there is evidence supporting the efficacy of music therapy for negative emotions, inconsistent findings exist. Overall, its effectiveness remains to be further verified.

2.3 Effects of Music Genres on Emotion Regulation

Burns et al. argued that classical music or self-selected relaxation music has better stress-reducing effects, and conducted an experimental study on undergraduate psychology students [11]. Participants completed the Self-Relaxation Rating Scale and State-Trait Anxiety Scale, followed by physiological measurements (e.g., heart rate, skin conductance). They then underwent a stress-inducing test, after which physiological measures and psychological scales were administered again. Participants were randomly assigned to one of four conditions: classical music, hard rock/heavy metal, self-selected relaxing music, or no music. Physiological indicators were recorded throughout the session, and participants completed the psychological scales again at the end. The findings supported the hypothesis that listening to classical music (or self-selected relaxing music) is associated with lower anxiety, greater relaxation and lower physiological arousal compared with hard rock music [11].

Elise's study also showed that after exposure to stressors, listening to classical music and self-selected relaxation music significantly reduced anxiety, anger and sympathetic nervous system arousal, and induced greater relaxation compared with sitting in silence or listening to heavy metal music [12]. Fifty-six college students (15 males and 41 females) underwent a stress test and then listened to different types of music. Several 4×2 mixed-design analyses of variance were performed to examine the effects of music/silence conditions (heavy metal, classical, self-selected music, silence) and time (before and after music exposure) on emotional states and physiological arousal. The results showed that listening to self-selected or classical music significantly reduced negative emotional states and physiological arousal after stress exposure, compared with listening to heavy metal music or sitting in silence [12].

Similarly, Pavlicevich recruited 100 undergraduates from the University of California as research subjects, and divided them into three groups: classical music group, jazz music group and pop music group, to test the effects of different music types on students' emotional states. The study found that students in the classical group were the most relaxed, with effectively relieved emotional stress. Students in the jazz group also showed relaxed mental

states, less tense than before the experiment; while the pop music group showed no significant change in mental state, with fluctuating tension levels. The researchers suggested that this may be related to the varying frequencies of the prelude and climax in pop music. Overall, these studies indicate that different music styles do have different effects on mood.

2.4 Music Preference and Therapy Effectiveness

To investigate the mechanisms of music-induced stress relief, Jiang examined the effects of music listening after stress induction [13]. Two hundred female music education students were randomly assigned to eight groups after experiencing stress induced by a mental arithmetic test. Participants in each group wore headphones while listening to music classified by arousal level, valence, and familiarity. Participants rated their tension and state anxiety before and after listening, as well as valence, arousal, music preference and familiarity after listening. The results showed that arousal level, valence level and music preference predicted stress and state anxiety levels, and music preference partially mediated the effects of music valence and arousal on stress relief. The most important factor for stress reduction was liking the music, rather than familiarity with it [13]. These findings have important implications for individuals and clinicians who use music for stress reduction.

3. Methodology

3.1 Study Design

This study was a field experiment conducted online in January. The final retention rate of participants was 56%.

3.2 Participants

The sample consisted of 32 adolescents (21 females and 11 males) aged 13–19 from across China, recruited via volunteer sampling.

3.3 Stimulus Materials

Music tracks. A total of 28 instrumental music tracks were used, including 14 soft music pieces and 14 rock music pieces. Each track lasted 2–10 minutes, and all were without lyrics to avoid the influence of lyrical content on individual perception. All tracks were screened by the researcher and family members to exclude overly harsh pieces — those without clear melody, with excessively loud or fuzzy audio, or with vocal parts.

3.4 Measurement Tools

3.4.1 The PHQ-9

The Patient Health Questionnaire (PHQ) is a self-administered version of common diagnostic tools for mental disorders. The PHQ-9 is the depression module, which scores DSM-IV criteria on a 4-point scale from 0 (not at all) to 3 (nearly every day). The internal reliability of PHQ-9 is excellent, with Cronbach's α of 0.89 in primary care settings and 0.86 in obstetrics and gynaecology settings. It also has good test-retest reliability: the correlation between patient-completed PHQ-9 at the clinic and clinician-administered PHQ-9 via telephone within 48 hours was 0.84, with nearly identical mean scores (5.08 vs. 5.03). In 85% of cases, clinicians can review the full 3-page PHQ (5 modules, 28–58 items) in less than 3 minutes [14].

3.4.2 The GAD-7

The 7-item Generalized Anxiety Disorder Scale (GAD-7) was developed by Spitzer et al. to screen for anxiety disorders in primary care, with positive results requiring further clinical diagnosis. The GAD-7 measures anxiety, uncontrollable worry, excessive worry, inability to relax, restlessness, irritability and feelings of impending doom, assessing the frequency of target symptoms over the past two weeks. The internal consistency of GAD-7 is excellent (Cronbach's $\alpha = 0.92$), and test-retest reliability is also good (intraclass correlation = 0.83) [15].

3.4.3 The EPOCH Scale

The researcher used the Chinese translation of the EPOCH Measure of Adolescent Well-Being, which assesses five dimensions: engagement, perseverance, optimism, connection and happiness, with a total of 20 items. Confirmatory factor analysis generally supports the five-factor structure, with good model fit indices. Strict measurement invariance was supported across gender and region, and strong invariance across school types and locations, indicating that the five-factor model is adequate and means are directly comparable across subgroups [16].

3.4.4 Rock-Soft Music Preference Scale

This 5-item scale was developed to quickly assess participants' preferences for rock and soft music, with two dimensions: rock preference and soft preference. Each item has four response options, ranging from ± 1 (never listen and dislike) to ± 4 (often listen and like very much). Total scores range from -12 to 12. Positive scores indicate preference for soft music, while negative scores indicate preference for rock music. Scores closer to 0 indicate weaker music style preference, and scores closer to ± 12 indicate stronger preference.

3.4.5 Daily Feedback Questionnaire

This questionnaire was designed to verify whether participants listened to the tracks in full. There are 4 items per day: the first three are fixed, assessing liking level, recommendation level and personal rating of the track; the fourth item changes daily and is easy to answer (e.g., "What is your favourite part of this song?"). The varying fourth item prevents participant boredom and ensures careful listening, as participants cannot repeat identical answers every day.

3.5 Variables

The independent variable is music genre, and the dependent variables are anxiety level, depression level and positive emotion level. The researcher measured dependent variables via questionnaire scores, and operationalized the independent variable by having participants listen to one specific type of music. Familiarity, preference and timbre of the music were controlled. To ensure classification of rock or soft music, the researcher verified acoustic features of each track (e.g., rock music typically has frequencies between 60 and 100 Hz, with high intensity and dynamics). To control song familiarity, tracks with 100 to 500 comments were randomly selected. To avoid the influence of listening time on results, tracks were sent at noon, and participants could only listen between 12:00 and 18:00 daily. To eliminate demand characteristics, items from anxiety and depression scales were mixed with items from the positive emotion scale.

3.6 Experimental Procedure

The experiment lasted 15 days. On Day 1, participants chose to join an online group for the experiment or complete it independently (both methods were identical in procedure; group participation facilitated data collection). The PHQ-9, GAD-7 and EPOCH scales were distributed and baseline data were collected. Each participant completed the questionnaires individually via a questionnaire app on a mobile phone or computer, and was assigned a unique ID number from 1 to 62. Music tracks were distributed via NetEase Cloud Music, and each participant submitted a screenshot to confirm installation of the app. The music preference scale was then administered. Participants with scores from -12 to -4 were assigned to Group A (rock music group), those with scores from 4 to 12 to Group B (soft music group), and those with middle scores to Group C (no preference group). Participants in Group C were excluded from the formal experiment. For the next 14 days, assigned tracks and daily questionnaires were distributed and collected daily. On Day 15, all participants completed the PHQ-9, GAD-7 and EPOCH scales

again for post-test data collection. Finally, a feedback questionnaire was distributed, and participants received a full debriefing. No interaction or group chat was allowed during the entire process to ensure experimental standardization.

The experimental procedure is illustrated in Fig. 1.

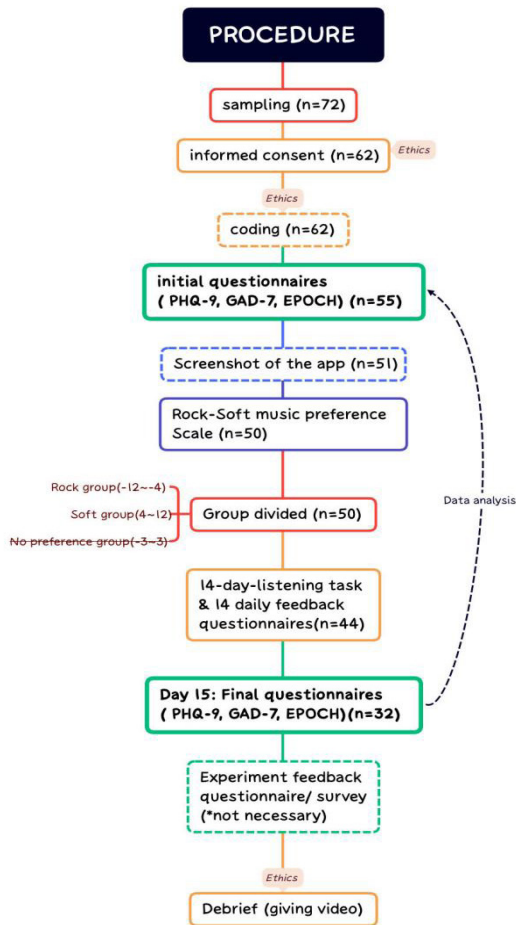


Fig. 1. Experimental procedure flowchart

3.7 Ethical Considerations

During the experiment, participants' personal information such as names and ages was not recorded or disclosed. Each participant was assigned a numerical ID to protect privacy. Informed consent was obtained before the experiment, and a debriefing was provided afterwards. A lighthearted video was sent to the chat group after the experiment to ensure participants remained in a positive mood. Participants were informed at the beginning that they could withdraw from the study at any time if they felt uncomfortable. The entire study procedure avoided any form of deception.

3.8 Data Analysis

The study collected both qualitative and quantitative data, with only quantitative data subjected to statistical analysis. Baseline emotion scores of each participant were compared with post-experiment scores. The Shapiro-Wilk test was used for normality testing: for normally distributed data, independent samples t-test was used; for non-normally distributed data, Spearman's rank correlation was used for significance testing, with a significance level of $p < 0.05$. Qualitative data from daily feedback questionnaires were only used to verify compliance and track participant attrition.

4. Results

4.1 Participant Demographics

A total of 32 participants completed the full 15-day study, including 11 in the rock music group and 21 in the soft music group. There were more male participants ($n = 17$, 53%) than female participants. Detailed demographic information is shown in Table 1.

Table 1. Participant demographic information

Items	Categories	N	Percent (%)□	Cumulative Percent (%)□
age	13	4	12.50	12.50
	14	4	12.50	25.00
	15	6	18.75	43.75
	16	3	9.38	53.13
	17	10	31.25	84.38
	18	1	3.13	87.50
	19	4	12.50	100.00
sex	male	17	53.13	53.13
	female	15	46.88	100.00

Items	Categories	N	Percent (%)□	Cumulative Percent (%)□
type of music	soft	21	65.63	65.63
	rock	11	34.38	100.00
Total		32	100.0	100.0

4.2 Effects of Music Genre on Emotion Scores

Independent samples t-test was used to examine the effect

of music genre on depression score difference, happiness score difference and anxiety score difference. The results are shown in Table 2.

Table 2. Music genre vs. emotion score differences

	Type of music (Mean±Std. Deviation)		t□	p□
	Soft music (n=21)	Rock music (n=11)		
Depression score difference	-0.19±2.77	0.00±2.00	-0.202	0.842
Anxiety score difference	-0.81±1.75	0.82±1.66	-2.541	0.016*
Happiness score difference	0.33±1.56	-1.18±1.83	2.458	0.020*
* p<0.05 ** p<0.01				

Music genre had a significant effect on happiness score difference at the 0.05 level ($t = 2.458$, $p = 0.020$): participants who listened to soft music had a significantly higher mean happiness score change (0.33) than those who listened to rock music (-1.18).

Music genre also had a significant effect on anxiety score difference at the 0.05 level ($t = -2.541$, $p = 0.016$): participants who listened to soft music had a significantly lower mean anxiety score change (-0.81) than those who listened to rock music (0.82).

No significant difference was found in depression score difference between the two music genre groups, though

a slight decrease (-0.19) was observed in the soft music group.

In conclusion, different music genres showed no significant effect on depression score differences, but had significant effects on happiness score differences and anxiety score differences.

4.3 Gender Differences in Emotion Levels

Independent samples t-test was also used to examine gender differences in emotion levels. The results are shown in Table 3.

Table 3. Sex vs. emotion levels

	Sex (Mean±Std. Deviation)		t□	p□
	Male (n=21)	Female (n=17)		
Original depression score	12.10±3.78	15.47±4.36	-2.555	0.015*
Original anxiety score	8.24±3.02	10.35±2.85	-2.203	0.034*
New depression score	12.00±3.38	14.18±4.57	-1.688	0.100
New anxiety score	8.57±2.52	9.53±2.96	-1.077	0.288
* p<0.05 ** p<0.01				

Different gender samples showed no significant differences in post-test depression scores and post-test anxiety scores ($p > 0.05$), indicating consistency in post-intervention emotion levels across genders. However, gender had significant effects on baseline depression scores ($t = -2.555$, $p = 0.015$) and baseline anxiety scores ($t = -2.203$, $p = 0.034$): males had significantly lower baseline depression scores (12.10) and baseline anxiety scores (8.24) than

females (15.47 and 10.35, respectively).

5. Discussion

5.1 Effects of Music Genre on Negative Emotions

Data analysis confirmed significant relationships between

music genre and changes in anxiety and happiness scores. Participants who listened to rock music showed significantly increased anxiety and decreased happiness, while those who listened to soft music showed significantly decreased anxiety and increased happiness. This finding is consistent with previous studies [7, 11].

However, no significant relationship was found between music genre and depression score changes. This contradicts the claim that "music therapy provides short-term beneficial effects for people with depression". A possible explanation is that the 2-week experimental duration was too short to produce observable effects on depression, which aligns with the dose-response finding that longer intervention duration yields greater effects [10]. This result also supports studies that found no significant effect of music on depression [8, 9].

Overall, these significant findings build on existing music therapy theories. This study makes a major contribution to research on emotion regulation effectiveness in adolescents, as most existing studies focus on adult populations. For example, Chan's study recruited older adults as participants [17], leaving a research gap in adolescent populations.

5.2 Gender Differences in Emotion Regulation

One notable finding is that females had significantly higher baseline negative emotion levels (depression and anxiety) than males. Previous research has shown that normal amygdala volume is strongly associated with stable emotional regulation. Scientists found that women with anxiety and depression show greater amygdala volume reduction than men with the same conditions, which may be linked to fluctuating hormone levels [18]. This may partly explain why women are more sensitive and responsive to negative events.

After the music intervention, no significant gender difference remained in negative emotion levels: females' scores decreased while males' scores remained nearly unchanged. This preliminary finding suggests that listening to music can reduce females' negative emotions regardless of genre. This is a preliminary hypothesis about the mechanism of music in regulating women's emotions, which requires further experimental verification.

5.3 Study Generalizability

Unlike previous laboratory-based music therapy studies, this experiment was conducted online, with participants from across China, improving generalizability. For example, Burns' study recruited only psychology undergraduates from a single college [11], and Pavlicevich's sample was limited to University of California undergraduates.

Such samples may not be representative of people from other majors or regions.

Additionally, many previous studies recruited participants with diagnosed mental disorders [6, 7], which cannot represent the general population. This study recruited participants without any diagnosed mental disorders to examine the effectiveness of music intervention in healthy populations, providing a new perspective on the effects of music on non-clinical groups.

6. Evaluation

6.1 Research Findings

This study investigated the effects of different music types on adolescents' negative emotions. The results confirmed that intervention duration and music preference are key factors in adolescent music therapy. Experimentally, soft music effectively reduced adolescent anxiety, whereas rock music increased anxiety levels. Music intervention showed a notable emotion-regulating effect on female adolescents, though the underlying mechanism remains unclear and requires further exploration.

6.2 Methodological Strengths

This study possesses several methodological merits. First, nationwide online sampling reduced regional bias common in offline studies. Second, mutual unfamiliarity between researchers and participants eliminated researcher subjective bias and ensured objective results. Third, the whole experiment strictly followed academic ethical standards, with full informed consent, complete privacy protection, and guaranteed participants' right to withdraw.

6.3 Research Limitations

Several limitations affect the generalizability and robustness of the findings. First, the sample size was small with a high attrition rate, as only 56% of participants completed the two-week intervention, making the results preliminary. Second, unlike most prior studies focusing on clinical adolescent populations, this study recruited healthy adolescents, so its findings cannot be directly applied to clinical cases. Third, the online design lacked real-time supervision, leading to uncontrolled variables including inconsistent daily music listening frequency and potential external music exposure, which may confound the experimental outcomes.

6.4 Future Prospects

Future research should recruit larger and more diverse samples to improve result validity and reduce attrition.

Further studies can also explore the correlation between music genres and adolescent depression and conduct comparative research on clinical groups to enrich practical applications. In addition, optimizing experimental supervision to standardize listening behaviors will control confounding variables. More in-depth research is also needed to reveal the mechanism behind the gender differences in music-induced emotional regulation.

References

- [1] World Federation of Music Therapy. What is music therapy? [EB/OL]. (2011). <https://schlr.cnki.net/zn/Detail/index/GARJ2020/SSJD9A5A6CC1D38F5BA4F592F7EF09DA3388>. Accessed 22 Jan 2023.
- [2] Edwards J. The Oxford Handbook of Music Therapy [M]. Oxford: Oxford University Press, 2016. https://scholar.cnki.net/zn/Detail/index/GARJ2021_2/SJESCFE01EF1A8CC66D1DA75CB9CB8C8919. Accessed 22 Jan 2023.
- [3] Baumgartner T, Esslen M, Jancke L. From emotion perception to emotion experience: emotions evoked by pictures and classical music [J]. *International Journal of Psychophysiology*, 2006, 60: 34–43. https://scholar.cnki.net/zn/Detail/index/GARJ0010_5/SJESE02D6E803B94F9FDDFB3433BAA32A0F0. Accessed 19 Jan 2023.
- [4] Baumgartner T, Lutz K, Schmidt CF, Jäncke L. The emotional power of music: how music enhances the feeling of affective pictures [J]. *Brain Research*, 2006, 1075(1): 151–164. Accessed 22 Jan 2023.
- [5] Juslin PN, Liljestrom S, Västfjäll D, Lundqvist LO. How does music evoke emotions? Exploring the underlying mechanisms [M]// Juslin PN, Sloboda JA. *Handbook of Music and Emotion: Theory, Research, Applications*. New York: Oxford University Press, 2010: 605–642.
- [6] Du L. Classical Music Styles and Piano Therapy for Patients with Depressive Disorders [J]. *MUSICA HODIE*, 2021, 21. <https://doi.org/10.5216/mh.v21.66519>. Accessed 28 Jan 2023.
- [7] Enrique G, Victor C. Music therapy in generalized anxiety disorder [J]. *The Arts in Psychotherapy*, 2015, 44: 19–24. <https://doi.org/10.1016/j.aip.2015.02.003>. Accessed 22 Jan 2023.
- [8] Elliott D. The effects of music and muscle relaxation on patient anxiety in a coronary care unit [J]. *Heart and Lung*, 1994, 23: 27–35. <https://pubmed.ncbi.nlm.nih.gov/8150641/>. Accessed 24 Jan 2023.
- [9] Deshmukh AD, Sarvaiya AA, Nayak AS. Effect of Indian classical music on quality of sleep in depressed patients: a randomized controlled trial [J]. *Nordic Journal of Music Therapy*, 2009, 18: 70–78. <https://doi.org/10.1080/08098130802697269>. Accessed 8 Feb 2023.
- [10] Gold C, Solli HP, Krüger V, Lie SA. Dose-response relationship in music therapy for people with serious mental disorders: systematic review and meta-analysis [J]. *Clinical Psychology Review*, 2009, 29: 193–207. Accessed 24 Jan 2023.
- [11] Burns JL, Labbé E, Arke B, et al. The Effects of Different Types of Music on Perceived and Physiological Measures of Stress [J]. *Journal of Music Therapy*, 2002, 39(2): 101–116.
- [12] Labbé E, Schmidt N, Babin J. Coping with Stress: The Effectiveness of Different Types of Music [J]. *Applied Psychophysiology and Biofeedback*, 2007, 32(3–4): 163–168. Accessed 24 Jan 2023.
- [13] Jiang J. The types of music, music preference and familiarity of decompression effect [D]. Fujian Normal University, 2011. <https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD2012&filename=1012266645.nh>. Accessed 24 Jan 2023.
- [14] Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure [J]. *Journal of General Internal Medicine*, 2001, 16(9): 606–613.
- [15] Spitzer RL, Kroenke K, Williams JBW, Löwe B. A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7 [J]. *Archives of Internal Medicine*, 2006, 166(10): 1092–1097. <https://doi.org/10.1001/archinte.166.10.1092>. Accessed 24 Jan 2023.
- [16] Zeng G, Kern ML. The Chinese EPOCH Measure of Adolescent Wellbeing: Further Testing of the Psychometrics of the Measure [J]. *Frontiers in Psychology*, 2019, 10: 1457. <https://doi.org/10.3389/fpsyg.2019.01457>. Accessed 24 Jan 2023.
- [17] Chan MF, Wong ZY, Onishi H, Thayala NV. Effects of music on depression in older people: a randomised controlled trial [J]. *Journal of Clinical Nursing*, 2012, 21(5–6): 776–783. https://scholar.cnki.net/zn/Detail/index/GARJ0010_3/SJES13011701880492. Accessed 24 Jan 2023.
- [18] Raffi ER, et al. Premenstrual dysphoric disorder: 5 interwoven pieces [J]. *Current Psychiatry*, 2017, 16(9). <https://schlr.cnki.net/zn/Detail/index/GARJ2019/SJIX6156277BF7801AC0B445B687C039>. Accessed 18 Jan 2023.