

The Efficacy of Person-Centered Expressive Art Therapy on College Students in Reducing Depression, Anxiety and Stress

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Abstract: This quantitative study looks at how well person-centered expressive art therapy (PCEAT) works in lowering depression, anxiety, and stress in college students. With depression, anxiety, and stress being common problems, mental health issues have recently become a significant concern among college students. By examining the possible advantages of PCEAT as a college student intervention, this study tries to solve these issues. The current study uses the rigorous randomized controlled trial (RCT) research approach, which is commonly regarded as the gold standard for assessing the efficacy of therapeutic interventions. The experimental PCEAT or control group is assigned at random to participants using the RCT approach. By assigning participants at random, biases and other confounding factors are reduced, allowing for a more thorough analysis of PCEAT's effects on mental health outcomes.

Keywords: PCEAT; Mental Health; Depression; Anxiety; Stress

1. Introduction

Globally, mental health issues have become a common phenomenon that plagues college students. Unfortunately, these conditions often go unnoticed and untreated, leaving college students vulnerable to social exclusion, stigma, educational challenges, and various health risks. In the United States, approximately half of college students reported suffering from severe psychological distress in the past year [1]. A study in the UK also showed that mental health issues among college students have increased fivefold since 1990 [2]. Chinese college students are under pressure in many ways, such as academic pressure, competitive employment pressure, and family economic pressure, which may lead to mental issues such as depression, anxiety, and insomnia among students.

According to statistics, about 76.9% of college students faced high academic pressure, 60.4% felt employment pressure, and 41.3% were troubled by family financial pressure [3].

These mental health issues include various types of depression, anxiety, stress, and suicidal ideation, with depression and anxiety being particularly common [4]. Many studies have shown that college students have higher rates of both depression and anxiety than non-college student populations of the same age [5] [6]. Moreover, the co-occurrence of depression and anxiety is relatively high among college students. One study showed that approximately 24.5% of college students reported co-occurring symptoms of depression and anxiety [4]. The comorbidity of depression and anxiety may exacerbate symptoms and affect an individual's quality of life and academic performance. For instance, Da Silva et al. (2022) conducted a comprehensive analysis across multiple countries, revealing a high prevalence of co-occurring depression and anxiety symptoms among college students [7]. Similarly, a study by Zhang et al. (2023) in China further emphasized the critical nature of this comorbidity, highlighting its detrimental impact on individuals' quality of life [8].

The efficacy of existing interventions for mental health issues in college students is limited, mainly based on verbal communication. Other forms, such as art therapy-based interventions, are not yet commonly used. Chinese college student mental health centers interventions are relatively simple and traditional, and the use of art therapy-based interventions is rare. Some people can be helped by verbal communication during counselling. However, when verbal communication is no longer beneficial, creative art therapy can help you break down the gaps and difficulties with internal communication or expression problems [9]. Clearly, psychotherapy based on verbal communication is not suitable for everyone, and many students

find it difficult to express their true inner thoughts verbally, perhaps due to limited language skills, emotional distress, traumatic experiences, or other underlying factors. Creative interventions can reduce the difficulty of verbalizing emotions for those unwilling to speak or unable to express personal meaning through language, encouraging a direction that promotes change and growth [10] [11]. According to N. Rogers (1993), person-centered expressive art therapy (PCEAT) is particularly beneficial for those who naturally gravitate toward stereotypes and have difficulty verbalizing their emotional experiences[12]. PCEAT offers a new form of helping students to freely express their emotions by engaging in artistic mediums such as painting, music, dance, and writing to express their inner feelings and experiences, and in the process to be able to explore, express, and discover their true thoughts in depth, to find ways to release stress, and to resolve their inner conflicts. PCEAT could be a potentially complementary method along with existing interventions to serve the students better, meet the psychological needs of different students, improve students' mental health in general, and provide valuable references for college student mental health centers in mainland China. This study aims to provide valuable insights for college students' mental health centers to improve the quality of services provided and to meet the individualized and diverse needs of different students.

This research aims to determine the following.

1.1 To examine the efficacy of PCEAT on depression among Chinese college students.

Hypothesis 1: Participants in the experimental group receiving PCEAT intervention show no significant decrease in depression levels compared to those in the control group receiving regular intervention.

1.2 To examine the efficacy of PCEAT on anxiety among Chinese college students.

Hypothesis 2: Participants in the experimental group receiving PCEAT intervention show no significant decrease in anxiety levels compared to those in the control group receiving regular intervention.

1.3 To examine the efficacy of PCEAT on stress among Chinese college students.

Hypothesis 3: Participants in the experimental group receiving PCEAT intervention show no significant decrease in stress levels compared

to those in the control group receiving regular intervention.

1.4 To investigate the efficacy of PCEAT for depression, anxiety and stress among Chinese college students of different genders and majors.

Hypothesis 4: The efficacy of PCEAT intervention on depression, anxiety, and stress is not significantly different depending on the gender and major of the participants.

2. Methods

The study, in collaboration with a college in Mainland China, seeks to develop a new form-nonverbalized protocol to reduce depression, anxiety and stress levels among college students. The participants who met all the inclusion and exclusion criteria were recruited from a list of students attending the college students mental health centre. The researcher initially screened 120 students, 11 students did not meet the inclusion criteria, and 9 students did not want to participate in this study after understanding the experimental process and requirements, so a total of 100 college students who met the inclusion criteria were recruited. Stratified random sampling was used to balance age, gender, and major, and participants were divided into an experimental group of 50 and a control group of 50. The organizers introduced eligible participants to the experiment's purpose, protocol, and participation requirements. Participants enrolled in the experiment will be required to sign a consent form indicating that they understand the purpose of the experiment and volunteer to participate. The experimental group engaged in PCEAT activities, including various art forms such as painting, sculpture, music, and dance, and the control group engaged in standardized cognitive behavioural therapy (CBT) activities. The process lasted 6 weeks, with one 1-hour weekly session for two groups.

A total of 93 college students completed the overall trial. 7 students dropped out of the experiment successively, and the dropout rate was 7%. 3 students in the experimental group dropped out, representing 6% of the PCEAT group; one chose to drop out in the second week due to a temporary encounter with a physical illness, and two dropped out in the third and fourth weeks due to an inability to persevere, respectively. Four students in the

control group withdrew, accounting for 8% of the control group; one felt uncomfortable with the treatment modality and withdrew in the second week, two withdrew in the third week due to medical reasons, and one withdrew in the fifth week due to a conflict with the

examination schedule. The final total number of students included in the data analysis sample was 93, with 47 in the experimental group and 46 in the control group. Figure 4.1 shows the overall flow of the experiment.

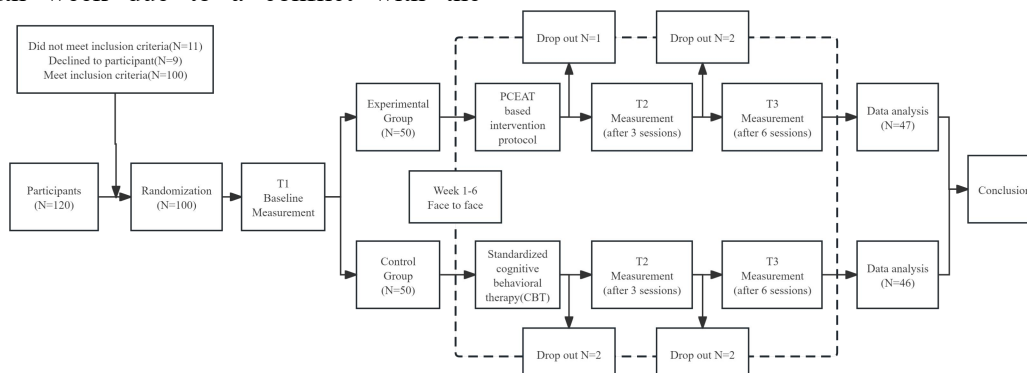


Figure 1 Research Methodology Flowchart

The PCEAT-based intervention protocol is designed according to three mental dimensions of college students, namely depression, anxiety and stress, guiding participants to accept emotional changes, integrate emotional contradictions, engage in deep self-insight, and learn to release depression, anxiety, and stress. Participants in the control group received

standardized CBT, a widely validated psychological treatment in college students' mental health center that focuses on reducing mental issues such as depression, anxiety, and stress by helping participants identify and change inappropriate patterns of thinking and behaviour [13].

Table 1. PCEAT-Based Intervention Protocol

Weeks	Dimensions	Activities	Materials	Goals	Procedures
1	Anxiety	Enter art therapy & draw your safe place	Crayons, markers, sketch paper	1. Enter art therapy to build interest 2. Establish a safe and trusting environment 3. Encourage clients to draw a safe place to reduce anxiety	1. Watch the video and learn about art therapy (10min) 2. Draw a safe place in your mind (40min) 3. Describe your painting (10min)
2	Anxiety	Explore anxiety	Crayons, markers, sketch paper	1. Control anxiety levels for minor events 2. Encourage clients to "save" anxiety for major life events. Such as illness	1. Listen to music and imagine the small things that make you anxious (10min). 2. Draw the way of "waste anxiety". In this creative experience, "waste anxiety" refers to anxiety about minor things, such as: What to wear? What to eat? When to get up in the morning? A small argument between peers (40min) 3. Describe your painting (10min)
3	Depression	Mandala Painting	Round mould, markers, crayons, sketch paper	1. Attention regulation 2. Expressing emotions through patterns, colours and images. 3. Stimulating unconscious expression to alleviate depression	1. Listen to the music and imagine what colours and patterns to use to express the emotion (10min) 2. Self-created mandala painting. Clients draw circles on paper and are asked to use colours and patterns to draw an emotion inside the circle. (40min) 3. Name the work and share the experience. (10min)

4	Depression	Be the master of your emotions	Crayons, markers, sketch paper	<ol style="list-style-type: none"> 1. Guide clients to accept changes in emotions 2. Guide clients to accept depressed and positive emotions 3. Help clients integrate emotional contradictions and engage in deep self-insight 	<ol style="list-style-type: none"> 1. Follow the video for a simple yoga exercise. (10min) 2. Draw emotional conflicts. Each person draws two circles and chooses three favourite and least favourite colours, filling the favourite colour in one circle and the least favourite colour in the other. (40min) 3. Guide the clients to relate the two colours to depression and positive emotions and explore the causes of depression in their lives and what small things can bring positive emotions. (10min)
5	Stress	Stress Monster	Clay, wooden mallet	<ol style="list-style-type: none"> 1. Understand and manage stress. 2. Create a monster can guide clients to observe and explore ways to deal with stress. 3. Clay-making facilitates the release of tension and energy. 	<ol style="list-style-type: none"> 1. Meditate. Imagine the image of the "stress monster" in your mind. (10min) 2. Make your own "stress monster" and guide the clients to vent their emotions and try to experience a sense of control. (40min) 3. Vent your anger at the "stress monster" by pounding clay and share your feelings in the process (10min)
6	Stress	Explore stress & self-growth	Crayons, markers, sketch paper	<ol style="list-style-type: none"> 1. Explore the effects of stress on the individual's body, emotions and attitudes. 2. Help the clients release stress and gain inner stability. 3. Review the whole process, summarize the self-growth and end the interventions. 	<ol style="list-style-type: none"> 1. Listen to music and imagine a tense human figure. (10min) 2. Fold a piece of paper in the middle and draw a tense human figure in one half and a relaxed human figure in the other half. (40min) 3. Compare the two figures and discuss the ways of relaxation; summarize the gains of the whole activity and the most impressive one. (10min)

Table 2. Standardized CBT Protocol

week	Purpose of the talk	Topic of the talk
1	Stage 1: Build relationships and set goals	Establish counselling relationships, introduce CBT, mental health education, motivation stimulation, and set treatment goals.
2	Stage 2: Behavioural activation	Create pleasant event tables, task grading, problem-solving, behaviour-change strategies, and relaxation exercises.
3	Stage 3: Identify negative automatic thinking work	Create a list of negative automatic thinking, classify it and challenge negative automatic thinking.
4	Stage 4: Correcting negative automatic thinking work	Challenge and correct negative automatic thinking, change negative automatic thinking and negative attribution mode.
5	Stage 5: Work on core beliefs	The discovery of non-adaptive core beliefs, forming and strengthening new core beliefs.
6	Stage 6: End of preparation	Consolidate the previous achievements, establish a support system, and conclude the overall talk.

3. Measures

Data on the participants' psychological status were collected using the DASS-21 before, during, and at the end of the experiment to assess the efficacy of the PCEAT in relation to CBT. To effectively assess individual mental

issues in the areas of depression, anxiety and stress, we chose to use the validated DASS-21 to assess participants' levels of depression, anxiety and stress [14]. The DASS-21 is a reliable and practical tool to help us understand how participants perform on these psychological issues and provide targeted

interventions and support. A widely used self-rated mental health measure, the DASS-21 contains 21 questions divided into three dimensions: depression, anxiety and stress, with seven questions for each dimension. It has high reliability and validity for participants of all ages, genders and cultural backgrounds. The scale allows us to fully explore the relationship between mental issues and other variables, providing useful information for future research.

4. Data Analysis

Data was analyzed to test the research hypotheses and the research objectives of this study. All data was analyzed in the Statistical Package for the Social Sciences (SPSS). These methods of analysis include descriptive analysis, chi-square test, independent samples t-test, and paired samples t-test. Power analysis and previous experience indicate that the sample size is sufficient to reveal medium-sized effects ($f = 0.2$, power = 0.8). To examine the efficacy of PCEAT on depression, anxiety and stress among Chinese college students, t-test and repeated measures ANOVA were used in the analysis.

5. Results

There was no significant difference in the distribution of basic information such as major, age, and gender between the two groups ($P > 0.05$), nor was there any significant difference in the baseline levels of depression, anxiety, and stress between the two groups ($P > 0.05$), which ensured that the experimental and control groups were comparable in all respects and allowed for a more accurate assessment of experimental effects.

5.1 The efficacy of PCEAT Compared to CBT on Depression Among Chinese College Students

5.1.1 Within-group comparisons.

Table 3 shows the basic information about the depression scores of the two groups at the beginning (t1), after three weeks (t2), and after six weeks (t3). The depression scores of the experimental group at t1 ($M=19.66$, $SD=5.723$), t2 ($M=14.98$, $SD=3.609$) and t3 ($M=11.91$, $SD=3.775$) show that there was a decrease of 4.68 in t2 compared to t1, and a decrease of 3.07 in t3 compared to t2. The depression scores of the control group at t1 ($M = 19.35$,

$SD = 5.858$), t2 ($M = 14.57$, $SD = 3.668$), and t3 ($M = 13.65$, $SD = 3.585$) show that there was a decrease of 4.78 in t2 compared to t1, and a decrease of 0.92 in t3 compared to t2. The paired samples t-test further verified a significant difference in the level of depression at each of the two-time points in both groups.

5.1.2 Between-subject comparisons.

The independent samples t-test showed that there was no significant difference between the two groups in depression at t1 and t2, and only at t3 was there a significant difference between the two groups ($p < 0.05$), indicating that the efficacy of the experimental group on depression was significantly better than the control group after six weeks.

5.2 The Efficacy of PCEAT Compared to CBT on Anxiety Among Chinese College Students

5.2.1 Within-group comparisons.

Table 3 shows the basic information about the anxiety scores of the two groups at three-time points. The anxiety scores of the experimental group at t1 ($M=15.23$, $SD=4.654$), t2 ($M=12.3$, $SD=4.128$), and t3 ($M=9.4$, $SD=3.462$) show that there was a decrease of 2.93 in t2 compared to t1, and a decrease of 2.9 in t3 compared to t2. The anxiety scores of the control group at t1 ($M=15.57$, $SD=6.238$), t2 ($M=13.39$, $SD=6.238$), and t3 ($M=11.09$, $SD=4.06$) show that there was a decrease of 2.18 in t2 compared to t1, and a decrease of 2.3 in t3 compared to t2. The paired samples t-test further verified a significant difference in the level of anxiety at each of the two-time points in both groups.

5.2.2 Between-subject comparisons.

The independent samples t-test showed that there was no significant difference between the two groups in anxiety at t1 and t2, and only at t3 was there a significant difference between the two groups ($p < 0.05$), indicating that the efficacy of the experimental group on anxiety was significantly better than the control group after six weeks.

5.3 The Efficacy of PCEAT Compared to CBT on Stress Among Chinese College Students

5.3.1 Within-group comparisons.

Table 3 showed the basic information about the stress scores of the two groups at three-time points. The stress scores of the experimental

group at t1 (M=24, SD=6.633), t2 (M=19.06, SD=5.139), and t3 (M=13.23, SD=3.552) show that there was a decrease of 4.94 in t2 compared to t1, and a decrease of 5.83 in t3 compared to t2. The stress scores of the control group at t1 (M=24.17, SD=6.322), t2 (M=19.61, SD=5.524), and t3 (M=15.61, SD=3.667) show that there was a decrease of 4.56 at t2 compared to t1, and 4 at t3 compared to t2. There is a significant difference in stress levels

Table 3 Levels of Depression, Anxiety and Stress at Three-Time Points in Both Groups

Dimensions	Group	N	Mean	Std. Deviation	Std. Error Mean
Depression in t1	PCEAT	47	19.66	5.723	.835
	CBT	46	19.35	5.858	.864
Depression in t2	PCEAT	47	14.98	3.609	.526
	CBT	46	14.57	3.668	.541
Depression in t3	PCEAT	47	11.91	3.775	.551
	CBT	46	13.65	3.585	.529
Anxiety in t1	PCEAT	47	15.23	4.654	.679
	CBT	46	15.57	6.238	.920
Anxiety in t2	PCEAT	47	12.30	4.128	.602
	CBT	46	13.39	4.558	.672
Anxiety in t3	PCEAT	47	9.40	3.462	.505
	CBT	46	11.09	4.060	.599
Stress in t1	PCEAT	47	24.00	6.633	.968
	CBT	46	24.17	6.322	.932
Stress in t2	PCEAT	47	19.06	5.139	.750
	CBT	46	19.61	5.524	.814
Stress in t3	PCEAT	47	13.23	3.552	.518
	CBT	46	15.61	3.667	.541

Table 4 Independent Samples Tests Comparison of Depression Scores between the Two Groups after 6 Weeks of Treatment

Dimensions		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	p	t	df	p	Mean Difference
Depression in t3	Equal variances assumed	0.276	0.601	-2.275	91	0.025	-1.737
Anxiety in t3	Equal variances assumed	1.084	0.301	-2.152	91	0.034	-1.683
Stress in t3	Equal variances assumed	0.013	0.911	-3.172	91	0.002	-2.375

5.4 The Effect of Gender and Major on Pceat to Reduce Depression, Anxiety, and Stress

The experimental group consisted of 47 participants: 15 were art majors, and 32 were non-art majors. By gender, 24 were males and 23 were females.

5.4.1 Different majors.

Table 5 shows the depression scores (M=12.53, SD=4.438), anxiety scores (M=8.93, SD=3.918), and stress scores (M=13.07, SD=3.990) for art majors and the depression scores (M=11.63, SD=3.462), anxiety scores (M=9.63, SD= 3.270) and stress scores

at each of the two-time points in both groups through a paired samples t-test.

5.3.2 Between-subject comparisons.

Table 4 shows that there was no significant difference between the two groups in stress at t1 and t2, and only at t3 was there a significant difference between the two groups ($p < 0.05$), indicating that the efficacy of the experimental group on stress was significantly better than the control group after six weeks.

(M=13.31, SD=3.393) for non-art majors. There were no significant differences in depression, anxiety, and stress across majors by the independent samples t-test.

5.4.2 Different Genders.

Table 5 shows depression score (M=12.17, SD=4.167), anxiety score (M=9.42, SD=3.562) and stress score (M=13.5, SD=3.923) for male students and depression score (M=11.65, SD=3.393), anxiety score (M=9.39, SD=3.434), and stress score (M=12.96, SD=3.183) for female students. As verified by the independent samples t-test, there was no significant difference between genders in depression, anxiety and stress.

Table 5 Levels of Depression, Anxiety and Stress in College Students with Different Majors and Genders

Dimensions			N	Mean	Std. Deviation	Std. Error Mean
Depression score in t3	Major	Art	15	12.53	4.438	1.146
		Non-art	32	11.63	3.462	0.612
	Gender	Male	24	12.17	4.167	0.851
		Female	23	11.65	3.393	0.707
Anxiety score in t3	Major	Art	15	8.93	3.918	1.012
		Non-art	32	9.63	3.27	0.578
	Gender	Male	24	9.42	3.562	0.727
		Female	23	9.39	3.434	0.716
Stress score in t3	Major	Art	15	13.07	3.99	1.03
		Non-art	32	13.31	3.393	0.6
	Gender	Male	24	13.5	3.923	0.801
		Female	23	12.96	3.183	0.664

6. Discussion and Conclusion

The overall experiment was completed well, with no significant differences between the two groups in terms of dropout rate, gender, major and age, ensuring that the two groups were comparable in all aspects and reducing experimental bias. The independent sample T-test and the paired sample T-test provided comparisons and results between and within the two groups on depression, anxiety, and stress before, during, and after the experiment. The study results show that the overall efficacy of the experimental group is better than that of the control group; the effect does not differ significantly between different genders and majors. This PCEAT-based intervention protocol is effective in reducing the levels of depression, anxiety and stress among college students. Although the CBT intervention used in the control group is also effective, the experimental group is more effective. In addition, there were no significant differences in the efficacy of depression, anxiety and stress within the experimental groups in terms of gender and age.

The research shed light on how well CBT and PCEAT work to improve mental health. Finding the unique potential for self-exploration and personal improvement advantages connected to PCEAT are the anticipated outcomes. The study aims to add to the therapeutic landscape by providing new viewpoints on addressing mental health by comparing the efficacy of PCEAT with CBT. The anticipated results have the ability to guide treatment procedures and advanced knowledge

about the beneficial effects that creative and cognitive interventions can have on people who are dealing with a range of mental health issues. When it comes to treating the growing mental health issues among college students in China, PCEAT provides a distinctive and all-encompassing strategy. PCEAT seeks to offer a thorough and individualized therapeutic experience. This strategy tries to use the expressive power of the arts to promote healing and growth while acknowledging the interdependence of people's emotional, cognitive, and creative components. PCEAT gives students the opportunity to explore and describe their emotions and inner experiences in ways that can be problematic. This approach fits well with the developmental stage of college students because they frequently struggle with self-identity issues, stress, and academic pressure.

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