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ARTICLE

From Fragmentation to Integration: A Multi-Site Pilot Study of Psychodrama in Chinese University Mental Health Systems

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ABSTRACT: Objectives: Chinese higher education faces rising depression rates amidst fragmented campus mental health services. This pilot study examined the feasibility and preliminary outcomes of implementing a standardized psychodrama program across multiple university sites. **Methods:** This single-arm study was conducted across three Beijing universities from September 2024 to January 2025. A total of 27 undergraduates completed an 8-week psychodrama intervention program comprising weekly 2.5-h sessions. A unified protocol was ensured through centralized facilitator training and cross-site supervision. Depressive symptoms were assessed using the Beck Depression Inventory-II at baseline, post-intervention, 3-month, and 6-month follow-ups. Retention rates were 93.8% at post-intervention and 84.4% at both follow-up assessments. **Results:** Significant reductions in Beck Depression Inventory II (BDI-II) scores were observed from baseline to post-intervention and follow-ups, with scores decreasing from a baseline median of 13.00 [9.50–21.50] (mean ± Standard Deviation = 14.67 ± 8.73) to 5.00 [3.50–10.50] (7.11 ± 5.87) at post-intervention ($p_{adj} < 0.001$, r = 0.817). Friedman tests confirmed significant temporal declines across all sites ($p < 0.05$). At the individual level, 37.0% of participants achieved a ≥50% BDI-II reduction at post-intervention, and 29.6% at 6-month follow-up. Improvement to minimal depression (BDI-II ≤ 13 from baseline ≥14) was achieved by 33.3% at post-intervention and 22.2% at 6 months. **Conclusions:** This study demonstrated the feasibility of a standardized, multi-site psychodrama framework in Chinese university settings and provided preliminary evidence of symptom reduction from baseline to post-intervention, with reductions sustained through 6-month follow-up. These findings support further controlled trials to evaluate efficacy and sustainability.

KEYWORDS: Psychodrama; multi-site study; depression; college students; mental health system

1 Introduction

Depression is a surging crisis for global universities [1]. One in three college students worldwide experience varying degrees of depression, a condition associated academical, interpersonal, and societal stressors [2–4]. This is particularly pronounced in China, where prevalence rates escalated from pre-pandemic estimates of 30% to 50% during the pandemic era [5–7], documenting a significant rise in symptom severity. Depression impacts the physical activity, academic performance, and social functioning of Chinese college students [8–10], posing a growing challenge to the national mental health landscape. For decades, mounting

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evidence across sociological and psychological research has highlighted the buffering effects of social networks on depression interventions [11–13]. Higher perceived adequacy of social support, stronger close social link, as well as larger social capital all correlate with depressive alleviation [14,15]. As proof, Chinese college students with weaker social connections exhibit a higher tendency toward suicide [16]. Despite the aforementioned insight in the field, the depression intervention paradigm within higher education systems remains largely atomized [17–20].

Building social networks for vulnerable groups is highly challenging within Chinese context [21,22]. On the cultural front, students, unlike their Western peers, are less prone to actively seek social support when facing mental health adversities [23,24]. The stigma surrounding mental health issues, particularly the fear of social exclusion, often leads students to handle problems on their own [25,26]. Within the administrative system, the depression intervention module of university mental health departments is significantly restricted by limitations in financial resources, ethical guidelines, and professional staff availability [27–29]. Furthermore, collaborations on mental health systems between universities are often lacking [29,30]. Implementing network-oriented depression interventions, as opposed to atomized ones, typically involves longer timeframes and higher resource demands, posing additional challenges [31]. As empirically documented by a China-Canada research team [32], the aforementioned dual challenges—in both help-seeking culture and administrative structures—are further intertwined as systemic barriers that shape the current Chinese campus mental health landscape. To date, there is a lack of evidence regarding how to foster network-based interventions within these constrained campus mental health ecosystems.

We attempted to address these challenges in four ways. First, we implemented psychodrama (PD), an established group therapy that uses role-playing and sociometry to promote healing, with evidence of efficacy across cultures [33]. PD is accredited in Europe [34], and supported by meta-analytic evidence for reducing depression through mechanisms like cognitive restructuring cognitive restructuring [35], behavioral activation [11–13], and neuroendocrine regulation [36]. Second, we culturally contextualized the intervention for Chinese collectivist frameworks [37–39]—which shape help-seeking behaviors and therapeutic engagement [40,41]. Adaptation in non-Western settings enhances PD's acceptability and gives it distinct characteristics in China [42,43]. Third, we standardized delivery using a "one program, multiple sites" protocol with centralized training and cross-site supervision, balancing fidelity with local adaptability to support scaling. Fourth, we fostered social networks both within and beyond sessions, encouraging real-world and online connections among participants [44].

Our pilot study therefore aimed to: (a) examine the potential of psychodrama to reduce depressive symptoms among Chinese college students, and (b) evaluate the feasibility of a standardized, multi-site delivery model within the fragmented university mental health system. By bridging these gaps, we position psychodrama as a clinically and administratively scalable intervention within China's university mental health infrastructure. As the first multi-site PD trial in Chinese mainland, this work pioneers a replicable, culturally responsive framework for university settings, contributing to evidence-based, resource-efficient service models.

2 Review

Depression among college students is increasingly understood not only as an individual condition but as one embedded in and worsened by deficient social networks [45,46]. This is particularly salient in China, where cultural and administrative factors make building such networks uniquely challenging [47–50]. Given its theoretical grounding in social systems and its action-based approach to fostering connection, psychodrama has the potential to address this dual challenge.

2.1 Theoretical Foundations: Psychodrama as a Catalyst for Social Bonding

Grounded in the work of Moreno, psychodrama is an action-based group therapy that employs role-playing and dramatic action to facilitate therapeutic change [51,52]. Its core theoretical constructs provide a robust framework for understanding and intervening in social relationships. The concept *social atom*—the smallest unit of an individual's social network—offers a model for mapping an individual's relational world [53]. This concept exhibits a remarkable theoretical congruence with modern social network theory, which systematically analyses how the connections (ties) between individuals (nodes) shape a range of outcomes, including health and well-being [54].

Complementing this, sociometry provides the methodological tools to quantitatively and qualitatively assess these relationships, thereby revealing group dynamics, affinities, and isolates [55]. Through sociometric exercises, psychodrama makes social structures visible and offers a means to strengthen positive ties and reintegrate individuals into the group fabric [56]. Parallelly, role theory contends that much psychological distress originates from rigid, conflicted, or underdeveloped social roles [57,58]. Psychodrama intervenes precisely here through techniques of *role expansion* and *role reversal*, creating a safe yet dynamic space for participants to experiment with new ways of being and to foster empathic understanding, thereby directly mitigating social anxiety and building relational skills [51]. Underpinning this entire process is *tele*, Moreno's (1953) concept of the authentic, two-way flow of feeling and perception, which is the critical mechanism that makes genuine encounter and change possible in the group.

2.2 Mechanisms of Change: Psychodrama beyond Intra-Group Bonding

Drawing on its theoretical foundations, psychodrama may build social capacity through sequential, action-based mechanisms. In this conceptualization, the first process is posited to begin within the therapeutic group, where psychodrama can be theorized to function as a social skills simulator [59,60]. It is suggested that through structured role-playing and situational enactment, participants may safely practice emotional expression, conflict resolution, and empathic communication, thereby potentially rebuilding the interpersonal competencies [56]. Second, this foundation of enhanced social skills could enable a second mechanism: the active construction of robust social networks [61]. Techniques such as mirroring and doubling can foster trust and reduce negative affect through shared drama-based action [62,63]. As meaningful bonds form, the group can evolve into a supportive peer network, thereby directly countering the social isolation prevalent among depressed students [64].

Third, psychodrama potentially promote the development of sustainable social support and capital. From a sociological perspective, the therapeutic ethos of mutual aid and collective reflection is expected to foster a foundation of trust and reciprocity—core components of social capital [65]. These relational resources is anticipated to extend beyond therapy, helping to create a durable support system that maintains therapeutic gains and buffers against future adversity [66]. Thus, psychodrama may facilitate a progression from skill development to network reinforcement, offering a comprehensive approach to the social aspects of depression [67].

2.3 Incorporating Modern Theories into Psychodrama Practice

Contemporary psychodrama theory continues to refine its application for modern mental health challenges [68]. Recent advances emphasize its utility in mitigating social isolation and enhancing relational resilience, making it a relevant intervention for university setting [69,70]. Its action-oriented, group-based nature can circumvent the help-seeking barriers and stigma, as it promotes self-disclosure in groups of university students [71].

A growing evidence base supports the cross-cultural applicability of psychodrama. Meta-analyses confirm its effectiveness in reducing depressive symptoms across diverse populations [42,72,73]. Importantly for this study, research in Chinese cultural contexts—including Chinese mainland, Hong Kong, and Taiwan—demonstrates its acceptability and positive impact on social connectedness [43]. Successful adaptations have integrated core cultural values into role-playing and sociometric exercises, enhancing its relevance within collectivist frameworks [40,74,75]. This evidence justifies the cultural contextualization effort central to our research design.

Based on this review, psychodrama presents a promising framework with the potential to mitigate depression through social network enhancement, by fostering bonding capital within groups and developing external relational skills. This supports the design of the current pilot study, which examines the feasibility and preliminary outcomes of implementing a standardized psychodrama program across multiple university sites. The approach addresses critical gaps by testing whether this culturally adaptable, group-based modality can function effectively within the fragmented landscape of Chinese campus mental health services.

3 Method

3.1 Program Design

Ethics. This program serves as a pilot model for future larger-scale interventions. It has completed ethical scrutiny in Chinese mainland (Department of Psychology at Renmin University of China IRB No. 24-054). Participants provided informed consent before the baseline assessment, affirming their voluntary engagement in the study and granting permission for data collection for subsequent quantitative analysis. Furthermore, comprehensive risk management strategies were implemented to safeguard participants and researchers throughout the study. These measures ensured adherence to ethical standards and upheld participant confidentiality at all stages.

Settings. This trial was implemented across three government-funded public universities in Beijing (Universities A, B, and C). The campuses are geographically dispersed across the metropolitan area—located in the southern suburbs, urban center, and northern suburbs, respectively—which minimizes potential cross-site interaction. They also differ in institutional focus and scale: University A is technology-oriented with an enrollment of approximately 9500; University B has a humanities and social sciences focus with about 6700 students; and University C specializes in agricultural sciences with around 10,000 students. This heterogeneity in location, academic orientation, and student population allows the study to examine the feasibility and implementation of the psychodrama intervention across distinct campus contexts within a single metropolitan setting.

Standardization. To standardize operations across the three universities, we developed a unified protocol. Pre-intervention training was provided to facilitators. During the intervention, biweekly supervision and weekly debriefing were implemented. For assessment, the Beck Depression Inventory-II [76] was uniformly applied, and pre-tests, post-tests, and follow-ups were conducted electronically via WJX (an online platform), ensuring the multi-site trial's standardization.

Control. Due to participant number constraints, this trial did not include a control group.

3.2 Participants

Eligibility Criteria. Participants were full-time students from the three universities, fulfilling these criteria: (1) Enrolled as undergraduates; (2) Aged 18–25; (3) In good physical health; (4). Expressed a desire for emotional support related to depressive mood or distress; (5) Willing to participate and provide

signed informed consent. Participants were excluded if they: (1) Had recent suicidal behavior (within the past month); (2) Were unwilling to fully participate in the study. Given the pilot nature of this study, eligibility was determined through a semi-structured interview conducted by trained personnel, rather than by applying a predetermined psychometric cutoff.

Recruitment & Selection. To mitigate the potential stigma associated with seeking mental health support, we used multiple recruitment channels—including social media announcements, campus posters, and official university websites—to reach students across the three institutions. Applicants from each university were assessed separately by three screening teams in accordance with the eligibility criteria outlined above. Several applicants subsequently declined participation, primarily due to the time commitment required for the eight-session intervention. In total, 32 participants completed the baseline assessment (Univ. A = 8, Univ. B = 14, Univ. C = 10). A complete flowchart of participant recruitment, screening, and retention is provided in the flow diagram (Fig. 1).

3.3 Human Resources

Facilitators. Three certified psychodramatists (Liu at University A, Wang at University B, Ma at University C) led the intervention groups. Each holds credentials as a Certified Practitioner (CP) and Practitioner Applicant for Trainer (PAT) from the American Board of Examiners in Psychodrama, Sociometry and Group Psychotherapy (ABEPSGP) and had prior experience delivering psychodrama to college students. Support staff from university counseling centers and social work units assisted at each site. All facilitators completed centralized training and received ongoing cross-site supervision to ensure protocol adherence and intervention quality.

Supervisor. The study was supervised by Lai, an advanced psychodramatist credentialed as a Trainer, Educator, and Practitioner (TEP) by ABEPSGP, a Trained Leader (TL) and Trainer in the Therapeutic Spiral Model (TSM), and a recognized director by the International Zerka Moreno Institute. LNH guided the development of the intervention protocol and provided continuous supervision throughout the trial.

3.4 Intervention

Framework. The trial is a network-based psychodrama intervention framework targeting college students. The intervention comprised eight weekly sessions, each lasting 2.5 h (see Fig. 1 for an overview). The process was divided into three thematic phases (Early, Mid-term, and Final) to structure group development. Sessions combined interactive discussion—focusing on shared experiences and resource identification—with structured role-playing designed to externalize social connections and internal barriers, thereby facilitating network building.

Techniques. Core psychodrama techniques were utilized, including mirroring, role reversal, role playing, sculpture, social atom mapping, use of intermediate objects, sociometric exercises, and role training. These techniques aimed to: (a) enhance relationships with key social stakeholders, (b) develop emotional awareness of social support, and (c) actively construct supportive social networks. The intervention guided participants to identify both university/community resources and personal support strengths, culminating in exercises focused on future self-empowerment. In addition to in-session work, the intervention encouraged the development of social support outside the formal setting. This was facilitated through structured activities such as phone-based check-ins and guidance on forming connections outside the PD group.

3.5 Outcome Measurement

Instrument. Depressive symptoms were assessed using the Chinese version of the Beck Depression Inventory-II. This 21-item self-report instrument is rated on a 4-point Likert scale from 0 (no symptom) to 3 (most severe), with total scores ranging from 0 to 63. The Chinese BDI-II has been validated in previous studies and demonstrated high reliability and validity across diverse Chinese populations [77], including college students [78,79]. Based on established cut-offs, scores were interpreted as follows: 0–13 indicating minimal or no depression, 14–19 mild depression, 20–28 moderate depression, and 29–63 severe depression [76,80]. To evaluate the reliability of the scale in the current sample, we calculated internal consistency coefficients at different time points (baseline, post-intervention, first follow-up, and second follow-up). The results demonstrated excellent reliability of the BDI-II in our sample: Cronbach's $\alpha = 0.903$ at baseline, $\alpha = 0.826$ at post-intervention, $\alpha = 0.842$ at first follow-up, and $\alpha = 0.846$ at second follow-up. The overall Cronbach's α coefficient was 0.886, indicating high internal consistency reliability among Chinese college students.

Procedure. In this study, eligible college students provided informed consent and were assessed with the Chinese BDI-II alongside a semi-structured diagnostic interview. Measurements were administered electronically via the WJX platform, a widely used online survey tool in China that allowed participants to complete the survey on their mobile devices or computers. The pre-intervention assessment was administered before the initial session, while the post-intervention survey was completed within three days following the eighth session. In addition to the BDI-II diagnosis, baseline data included demographic and health-related characteristics, such as age, sex, race, educational levels of parents, family structure, and self-reported physical health. Recognizing the absence of data on the stability of PD intervention effects, this study implements a multi-wave assessment protocol: Baseline (T0, 1 week pre-intervention), Post-intervention (T1, within 1 week after final session), Short-term follow-up (T2, 3 months post-intervention), and Medium-term follow-up (T3, 6 months post-intervention).

3.6 Statistical Analysis

We employed a sequential, two-stage analytical strategy to first to examine preliminary changes in depressive symptoms and to assess the consistency of these changes across varied university sites. Data are presented primarily as medians with interquartile ranges [IQR] due to the non-normal distribution; means and standard deviations are also reported to facilitate comparison with previous studies.

First, to assess changes in depressive symptoms across the study period, we focused on within-participant comparisons. Due to the single-arm design, intention-to-treat analysis was not applicable. Missing data were handled by complete-case analysis, including only participants with Chinese BDI-II scores at all four assessments, resulting in a final sample of 27 participants (93.8% retention at post-intervention and 84.4% at follow-ups). Shapiro-Wilk tests indicated significant deviations from normality at post-intervention ($W = 0.924$, $p = 0.049$), 3-month ($W = 0.877$, $p = 0.004$), and 6-month ($W = 0.783$, $p < 0.001$) assessments. We therefore employed non-parametric methods, using Friedman rank-sum tests to detect omnibus time effects, followed by post-hoc Wilcoxon signed-rank tests for pairwise comparisons. The p-value represents the probability of obtaining the observed results, or results more extreme, under the assumption that the null hypothesis is true. A p-value < 0.05 was considered statistically significant for the primary Friedman tests. For the post-hoc pairwise comparisons, the significance level was adjusted to $p_{adj} < 0.0083$ (0.05/6) after applying the Bonferroni correction for six planned comparisons. Effect sizes (r) were computed to quantify the magnitude of effects independent of sample size.

Second, to explore potential heterogeneity in intervention response across the three university sites, we conducted site-specific Friedman and Wilcoxon tests following the same analytical approach described above. This allowed us to examine whether the observed temporal patterns were consistent or varied across different campus contexts. This analytical approach enabled a focused investigation of the intervention's temporal effects and cross-site consistency, aligning with the pilot study's objectives of assessing feasibility and preliminary within-person change.

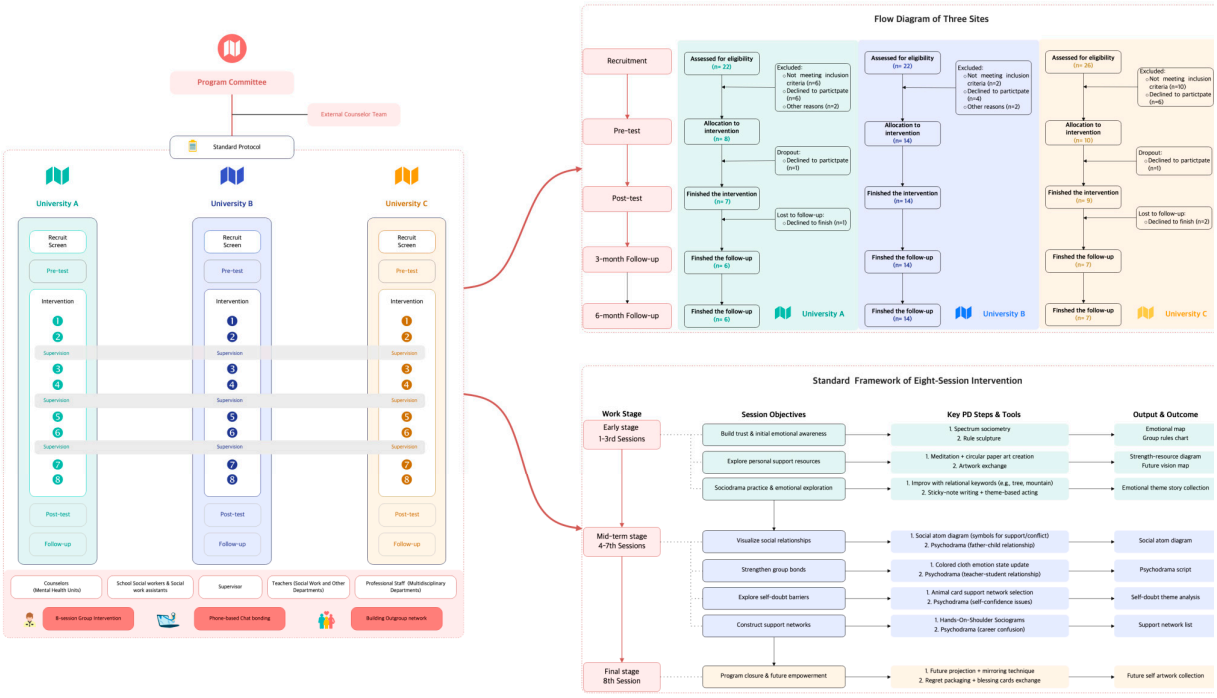

Figure 1: Overview of the Enrollment and Selection Protocol. Figure legend for Fig. 1: (Left Panel) Program Implementation Framework: Illustrates the key stages of the study (Design, Pre-Intervention, Intervention, and Follow-up) and the primary teams responsible at each phase (Research Team, Facilitators, Supervisor). (Upper Right Panel) Flow Diagram: Depicts the flow of participants through the three university sites (A, B, and C), including recruitment, screening, allocation, intervention completion, and assessment points. (Lower Right Panel) Structure of the 8-Session Psychodrama Intervention: Outlines the thematic progression of the weekly sessions (Early, Mid-term, and Final phases), lists the core psychodrama techniques employed, and highlights the integration of the social network theme throughout the intervention process. Note: BDI-II = Beck Depression Inventory-II; PD = Psychodrama.

4 Results

4.1 Baseline and Participant Characteristics

The final analytic sample of this single-arm intervention program consisted of 27 undergraduate students (mean age = 19.63 ± 0.93 years; 66.7% female) from three Beijing universities (University A = 6, University B = 14, University C = 7), all serving as experimental sites receiving the same intervention. Participants were predominantly urban residents (55.6%), with 44.4% holding rural *hukou* (a system of household registration), and reported an average of 1.74 ± 0.66 children per family. Most fathers had high school education or below (70.4%). Regarding health profiles, 74.1% self-rated as physically healthy, 55.6% exercised ≥2–3 times weekly, and the cohort showed elevated baseline depression symptoms (BDI-II score:

13.00 [9.50–21.50]; mean ± SD = 14.67 ± 8.73), with only 18.5% having prior counseling experience. Baseline characteristics of participants are presented in Table 1.

Table 1: Baseline characteristics of participants with complete data in the program.

Characteristic	Overall (N = 27)	Three Sites		
		Univ. A (n = 6)	Univ. B (n = 14)	Univ. C (n = 7)
Age (mean, SD)	19.63 (0.93)	18.67 (0.82)	20.21 (0.58)	19.29 (0.76)
Sex				
Male	9 (33.3%)	2 (33.3%)	3 (21.4%)	4 (57.1%)
Female	18 (66.7%)	4 (66.7%)	11 (78.6%)	3 (42.9%)
Hukou				
Rural	12 (44.4%)	2 (33.3%)	6 (42.9%)	4 (57.1%)
City	15 (55.6%)	4 (66.7%)	8 (57.1%)	3 (42.9%)
Number of children in the family	1.74 (0.66)	1.67 (0.52)	1.71 (0.73)	1.86 (0.69)
Father Education Level				
High school and below	19 (70.4%)	4 (66.7%)	10 (71.4%)	5 (71.4%)
University and above	8 (29.6%)	2 (33.3%)	4 (28.6%)	2 (28.6%)
Self-evaluated Physical Health				
Healthy	20 (74.1%)	5 (83.3%)	10 (71.4%)	5 (71.4%)
Neutral or Unhealthy	7 (25.9%)	1 (16.7%)	4 (28.6%)	2 (28.6%)
Get Exercise				
2–3 times one week or more	15 (55.6%)	3 (50.0%)	8 (57.1%)	4 (57.1%)
Less than 2–3 times one week	12 (44.4%)	3 (50.0%)	6 (42.9%)	3 (42.9%)
Seeking help from Counselors				
Yes	5 (18.5%)	1 (16.7%)	3 (21.4%)	1 (14.3%)
No	22 (81.5%)	5 (83.3%)	11 (78.6%)	6 (85.7%)

Data are number (%) or mean (SD, Standard Deviation).

4.2 Intervention Effects on Primary Outcome

4.2.1 General Time Effects

Significant within-subject changes across all timepoints were confirmed through Friedman tests. For the overall sample, $\chi^2(3) = 30.97$, $p < 0.001$ with moderate effect magnitude (Kendall's $W = 0.38$); University B showed significant temporal variation ($\chi^2(3) = 18.34$, $p < 0.001$, $W = 0.44$, moderate effect); University A demonstrated significant changes ($\chi^2(3) = 9.22$, $p = 0.03$, $W = 0.51$, large effect); and University C likewise exhibited significant variation across timepoints ($\chi^2(3) = 12.09$, $p = 0.01$, $W = 0.58$, large effect). Overall and site-specific trajectories of BDI-II scores are illustrated in Fig. 2. Corresponding BDI-II scores across timepoints are presented in Table 2 (median [IQR]; mean ± SD provided for reference). Friedman test results are presented in Table 3.

Table 2: Shapiro-wilk test for normality assumption.

	Analysis Population	Mean (SD)	Median (IQR)	Skewness	Kurtosis	Shapiro-Wilk	
						W	p
BDI-II Pre-test	Overall (N = 27)	14.667 (8.731)	13.00 [9.50–21.50]	0.001	2.085	0.972	0.645
	Univ. A (n = 6)	14.500 (11.167)	15.00 [7.00–20.00]	0.137	1.98	0.985	0.972
	Univ. B (n = 14)	12.429 (8.465)	10.00 [8.25–19.00]	0.352	2.245	0.955	0.647
	Univ. C (n = 7)	19.286 (5.880)	22.00 [14.50–23.50]	−0.331	1.491	0.901	0.335
BDI-II Post-test	Overall (N = 27)	7.111 (5.873)	5.00 [3.50–10.50]	0.795	2.675	0.924	0.049
	Univ. A (n = 6)	5.333 (5.989)	3.50 [0.75–8.50]	0.700	2.026	0.875	0.248

Table 2: *Cont.*

	Analysis Population	Mean (SD)	Median (IQR)	Skewness	Kurtosis	Shapiro-Wilk W	Shapiro-Wilk *p*
BDI-II Post-test	Univ. B (*n* = 14)	6.214 (5.925)	4.00 [3.25–6.00]	1.254	3.400	0.827	0.011
	Univ. C (*n* = 7)	10.429 (5.062)	9.00 [8.00–12.00]	0.829	3.027	0.929	0.539
BDI-II 3-month Follow-up	Overall (N = 27)	7.000 (6.552)	6.00 [2.00–9.00]	1.125	3.548	0.877	0.004
	Univ. A (*n* = 6)	9.833 (7.935)	9.50 [3.75–13.75]	0.369	1.864	0.941	0.664
	Univ. B (*n* = 14)	5.429 (5.302)	4.00 [2.00–8.50]	0.889	2.801	0.896	0.100
	Univ. C (*n* = 7)	7.714 (7.631)	6.00 [4.50–7.50]	1.533	4.250	0.774	0.023
BDI-II 6-month Follow-up	Overall (N = 27)	7.037 (8.300)	3.00 [1.50–13.50]	1.739	6.396	0.783	<0.001
	Univ. A (*n* = 6)	7.833 (6.824)	8.50 [2.25–14.00]	−0.061	1.085	0.977	0.935
	Univ. B (*n* = 14)	7.071 (9.973)	3.50 [1.25–6.75]	1.982	6.140	0.709	<0.001
	Univ. C (*n* = 7)	6.286 (6.550)	2.00 [1.50–11.50]	0.459	1.494	0.848	0.118

Note: BDI-II = Beck Depression Inventory-II; SD = Standard Deviation; IQR = Interquartile Range; Univ. = University; N = total sample size; n = subsample size; W = Shapiro-Wilk test statistic. A p-value < 0.05 was considered statistically significant.

Table 3: Friedman test results of BDI-II scores across timepoints by university.

School	*n*	χ^2	df	*p*	Effect Size (Kendall's *W*)	Magnitude
University A	6	9.22	3	0.026	0.51	large
University B	14	18.34	3	<0.001	0.44	moderate
University C	7	12.09	3	0.007	0.58	large
Overall	27	30.97	3	<0.001	0.38	moderate

Note: BDI-II = Beck Depression Inventory II. *n*: Number of participants with complete data at all four timepoints (baseline, final, 3-month follow-up, 6-month follow-up). χ^2: Friedman test statistic. *p*-values are from Friedman tests comparing scores across the four time points. A *p*-value < 0.05 was considered statistically significant. Effect size (Kendall's W) is interpreted as: 0.1–<0.3 = small, 0.3–<0.5 = moderate, ≥0.5 = large.

4.2.2 Pre-Post Intervention Effects

The 8-week psychodrama intervention was associated with reductions in BDI-II scores across all participants, with BDI-II scores decreasing from 13.00 [9.50–21.50] (mean ± SD = 14.67 ± 8.73) at baseline to 5.00 [3.50–10.50] (7.11 ± 5.87) post-intervention ($p < 0.001$, Wilcoxon signed-rank test with Bonferroni adjustment, $r = 0.817$). Non-parametric analyses were used due to non-normality in post-intervention BDI-II distributions overall (W = 0.924, $p = 0.049$) (see Table 2).

Site-specific analyses indicated varying trajectories. At University B, BDI-II scores decreased from 10.00 [8.25–19.00] (12.43 ± 8.46) to 4.00 [3.25–6.00] (6.21 ± 5.93) ($p_{adj} = 0.012$, $r = 0.832$). At University A, scores changed from 15.00 [7.00–20.00] (14.50 ± 11.17) to 3.50 [0.75–8.50] (5.33 ± 5.99) ($p_{adj} = 0.347$, $r = 0.863$). At University C, scores moved from 22.00 [14.50–23.50] (19.29 ± 5.88) to 9.00 [8.00–12.00] (10.43 ± 5.06) ($p_{adj} = 0.301$, $r = 0.772$). Complete pairwise comparisons are provided in Table 4.

4.2.3 3-Month Follow-up Outcomes

At the 3-month follow-up, BDI-II scores for the overall sample were 6.00 [2.00–9.00] (mean ± SD = 7.00 ± 6.55), compared to baseline (13.00 [9.50–21.50]; 14.67 ± 8.73) ($p_{adj} < 0.001$, $r = 0.801$). Scores did not differ significantly from post-intervention levels (5.00 [3.50–10.50]; 7.11 ± 5.87) ($p_{adj} > 0.999$, $r = 0.111$).

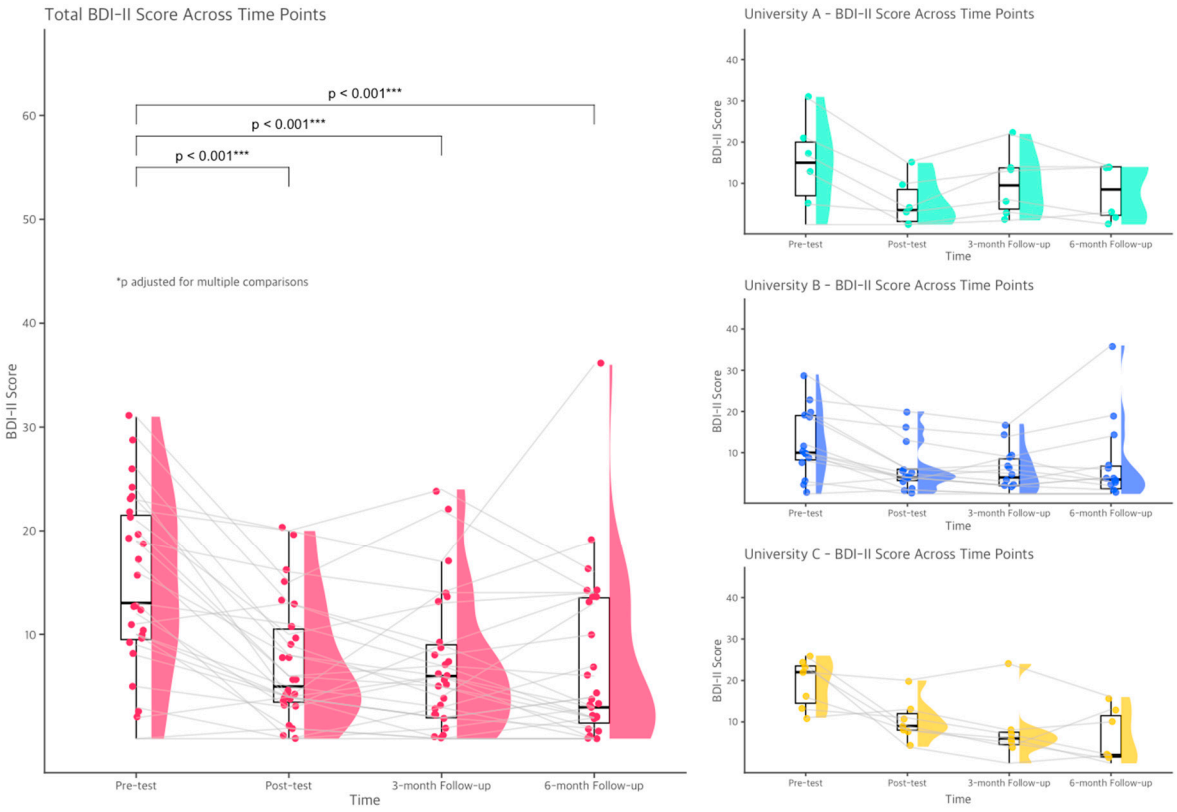

Figure 2: BDI-II scores across time points: overall and site-specific trajectories. Figure legend for Fig. 2: (Left Panel) Overall BDI-II scores for the full sample (N = 27) at four time points: pre-test (baseline), post-test, 3-month follow-up, and 6-month follow-up. Boxplots show median (central line), interquartile range (box), and range (whiskers: 1.5× IQR). Individual data points are jittered to avoid overlap, with grey lines connecting repeated measures from the same participant. Half-violin plots illustrate score distributions. Significance brackets indicate Bonferroni-corrected pairwise comparisons (Wilcoxon signed-rank tests) between baseline vs. post-test, baseline vs. 3-month follow-up, and baseline vs. 6-month follow-up. (Right Panel) Site-specific BDI-II scores for University A (top), University B (middle), and University C (bottom) at the same four time points, presented using the same graphical conventions. Note: BDI-II = Beck Depression Inventory-II. Wilcoxon signed-rank tests with Bonferroni correction for multiple comparisons (significance threshold: $p < 0.0083$); only comparisons with $p < 0.0083$ are considered statistically significant. ***$p < 0.001$ indicates a statistically significant difference.

Site-specific analyses showed the following patterns. At University A, scores changed from baseline (15.00 [7.00–20.00]; 14.50 ± 11.17) to 9.50 [3.75–13.75] (9.83 ± 7.94) ($p_{adj} > 0.999$, $r = 0.601$) and from post-intervention (3.50 [0.75–8.50]; 5.33 ± 5.99) to 9.50 [3.75–13.75] (9.83 ± 7.94) ($p_{adj} = 0.204$, $r = 0.909$). At University B, scores changed from baseline (10.00 [8.25–19.00]; 12.43 ± 8.46) to 4.00 [2.00–8.50] (5.43 ± 5.30) ($p_{adj} = 0.015$, $r = 0.859$) and from post-intervention (4.00 [3.25–6.00]; 6.21 ± 5.93) to 4.00 [2.00–8.50] (5.43 ± 5.30) ($p_{adj} = 0.714$, $r = 0.441$). At University C, scores changed from baseline (22.00 [14.50–23.50]; 19.29 ± 5.88) to 6.00 [4.50–7.50] (7.71 ± 7.63) ($p_{adj} = 0.188$, $r = 0.831$) and from post-intervention (9.00 [8.00–12.00]; 10.43 ± 5.06) to 6.00 [4.50–7.50] (7.71 ± 7.63) ($p_{adj} = 0.630$, $r = 0.645$). Complete statistical details are provided in Table 4.

4.2.4 6-Month Follow-up Outcomes

At the 6-month follow-up, BDI-II scores for the overall sample were 3.00 [1.50–13.50] (mean ± SD = 7.04 ± 8.30), compared to baseline (13.00 [9.50–21.50]; 14.67 ± 8.73) ($p_{adj} < 0.001$, $r = 0.769$). Scores did not differ significantly from post-intervention levels (5.00 [3.50–10.50]; 7.11 ± 5.87) ($p_{adj} > 0.999$, $r = 0.133$).

Site-specific analyses showed the following patterns. At University A, scores changed from baseline (15.00 [7.00–20.00]; 14.50 ± 11.17) to 8.50 [2.25–14.00] (7.83 ± 6.82) ($p_{adj} = 0.347$, $r = 0.863$) and from post-intervention (3.50 [0.75–8.50]; 5.33 ± 5.99) to 8.50 [2.25–14.00] (7.83 ± 6.82) ($p_{adj} > 0.999$, $r = 0.432$). At University B, scores changed from baseline (10.00 [8.25–19.00]; 12.43 ± 8.46) to 3.50 [1.25–6.75] (7.07 ± 9.97) ($p_{adj} = 0.137$, $r = 0.665$) and from post-intervention (4.00 [3.25–6.00]; 6.21 ± 5.93) to 3.50 [1.25–6.75] (7.07 ± 9.97) ($p_{adj} > 0.999$, $r = 0.035$). At University C, scores changed from baseline (22.00 [14.50–23.50]; 19.29 ± 5.88) to 2.00 [1.50–11.50] (6.29 ± 6.55) ($p_{adj} = 0.134$, $r = 0.896$) and from post-intervention (9.00 [8.00–12.00]; 10.43 ± 5.06) to 2.00 [1.50–11.50] (6.29 ± 6.55) ($p_{adj} = 0.542$, $r = 0.672$). Complete statistical details are provided in Table 4.

Table 4: Pairwise comparisons of BDI-II scores across timepoints by school (Wilcoxon signed-rank test with bonferroni adjustment).

School	Comparison	*n*	Statistic	*p*	p_{adj}	Effect Size (*r*)	Magnitude
University A							
	Baseline vs. Post-intervention	6	15	0.058	0.347	0.863	Large
	Baseline vs. 3-month follow-up	6	17.5	0.172	>0.999	0.601	Large
	Baseline vs. 6-month follow-up	6	15	0.058	0.347	0.863	Large
	Post-intervention vs. 3-month follow-up	6	0	0.034	0.204	0.909	Large
	Post-intervention vs. 6-month follow-up	6	3	0.279	>0.999	0.432	Moderate
	3-month vs. 6-month follow-up	6	12	0.281	>0.999	0.430	Moderate
University B							
	Baseline vs. Post-intervention	14	102	0.002	0.012	0.832	Large
	Baseline vs. 3-month follow-up	14	78	0.002	0.015	0.859	Large
	Baseline vs. 6-month follow-up	14	68.5	0.023	0.137	0.665	Large
	Post-intervention vs. 3-month follow-up	14	68	0.119	0.714	0.441	Moderate
	Post-intervention vs. 6-month follow-up	14	22	>0.999	>0.999	0.035	Small
	3-month vs. 6-month follow-up	14	24	0.449	>0.999	0.178	Small
University C							
	Baseline vs. Post-intervention	7	26	0.050	0.301	0.772	Large
	Baseline vs. 3-month follow-up	7	27	0.031	0.188	0.831	Large
	Baseline vs. 6-month follow-up	7	28	0.022	0.134	0.896	Large
	Post-intervention vs. 3-month follow-up	7	24	0.105	0.630	0.645	Large
	Post-intervention vs. 6-month follow-up	7	24.5	0.090	0.542	0.672	Large
	3-month vs. 6-month follow-up	7	18	0.553	>0.999	0.256	Small
Overall							
	Baseline vs. Post-intervention	27	342	<0.001	<0.001	0.817	Large
	Baseline vs. 3-month follow-up	27	316.5	<0.001	<0.001	0.801	Large
	Baseline vs. 6-month follow-up	27	283	<0.001	<0.001	0.769	Large
	Post-intervention vs. 3-month follow-up	27	196.5	0.601	>0.999	0.111	Small
	Post-intervention vs. 6-month follow-up	27	129	0.650	>0.999	0.133	Small
	3-month vs. 6-month follow-up	27	154	0.637	>0.999	0.084	Small

Note: BDI-II = Beck Depression Inventory II. *n*: Number of participants with complete paired data for each school. Wilcoxon signed-rank test with Bonferroni correction applied ($0.05/6 \approx 0.0083$). The p_{adj} column reports Bonferroni-corrected *p*-values; comparisons with $p_{adj} < 0.0083$ are considered statistically significant. Effect size (*r*) is interpreted as: $r < 0.3$ = small, $0.3 \leq r < 0.5$ = moderate, $r \geq 0.5$ = large.

4.2.5 Individual-Level Improvement

To complement the group-level analyses, we examined individual-level improvement using three complementary indicators: improved to minimal depression, improvement by at least one severity category, and ≥50% reduction in BDI-II scores. As shown in Table 5, at post-intervention, 9 of 27 participants (33.3%) who were at least mildly depressed at baseline recovered to minimal depression (BDI-II ≤ 13); 10 participants (37.0%) improved by at least one severity category; and 10 of 27 participants (37.0%) achieved a ≥50% reduction in BDI-II scores from a baseline of at least mild depression. At 3-month follow-up, 8 (29.6%) recovered to minimal depression, 10 (37.0%) improved by at least one category, and 7 (25.9%) achieved a ≥50% reduction. At 6-month follow-up, 6 (22.2%) recovered to minimal depression, 10 (37.0%) improved by at least one category, and 8 (29.6%) achieved a ≥50% reduction. The proportion of participants whose severity category remained unchanged ranged from 59.3% to 63.0%, while deterioration was observed in 1 participant (3.7%) at 6-month follow-up.

Table 5: Improvement in depressive symptoms from baseline to post-intervention and follow-ups.

	Post-Intervention vs. Baseline (N = 27) (%)	Month Follow-up vs. Baseline (N = 27) (%)	6-Month Follow-up vs. Baseline (N = 27) (%)
Improved to minimal depression (BDI-II ≤ 13 from ≥14)	9 (33.3)	8 (29.6)	6 (22.2)
Improved by ≥1 severity category	10 (37.0)	10 (37.0)	10 (37.0)
BDI-II Reduction ≥ 50% (BDI-II baseline ≥14)	10 (37.0)	7 (25.9)	8 (29.6)
Unchanged	17 (63.0)	17 (63.0)	16 (59.3)
Worsened	0 (0.0)	0 (0.0)	1 (3.7)

Note: BDI-II = Beck Depression Inventory-II. Severity categories based on BDI-II manual (Beck Beck et al., 1996): Minimal = 0–13, Mild = 14–19, Moderate = 20–28, Severe = 29–63. Improved to minimal depression includes only participants with baseline BDI-II ≥ 14 who scored ≤ 13 at follow-up. Improvement by at least one category was calculated for participants with baseline BDI-II ≥ 14. ≥50% reduction is calculated as (baseline − follow-up)/baseline × 100%. Indicators are not mutually exclusive; participants may meet multiple criteria.

5 Discussion

5.1 Feasibility and Preliminary Outcomes, and Short-Term Stability

This pilot study demonstrates the feasibility of implementing a standardized psychodrama program across multiple university sites in Beijing. we delivered an 8-week intervention concurrently at three institutions with differing academic profiles. Centralized training for facilitators and ongoing cross-site supervision were employed to ensure consistent protocol delivery. The model proved operationally feasible: recruitment targets were met across sites, and participant retention remained high throughout the study period, indicating high acceptability. Quantitative data indicated reductions in depressive symptoms post-intervention, with these lower scores maintained at the 3-month and 6-month follow-ups. The successful administration of a unified protocol and the observed retention rates suggest that a standardized, cross-campus approach to psychodrama is viable within Chinese university mental health systems. Multi-site studies represent a recognized strategy for examining the feasibility and preliminary outcomes of interventions across varied settings [81,82]. Compared to single-site investigations, such designs can aid in recruiting participants from multiple sources and allow for the observation of implementation processes in different contexts [83] thereby improving generalizability through broader geographical and demographic representation [84]. To further refine such multi-site models, future feasibility studies could consider (a) prespecifying benchmarks for site-level recruitment and retention, (b) systematically documenting any

necessary local adaptations to the core protocol, and (c) planning analyses to explore how site characteristics may relate to implementation processes or outcomes.

Preliminary data also suggested beneficial outcomes that were maintained over time. As highlighted in recent systematic reviews, fewer than 30% of published PD studies incorporate follow-up assessments [85], leading to limited longitudinal data on outcome stability [68,73]. Similarly in China, empirical investigation into the sustained efficacy of PD interventions remain scarce [43]. To contribute preliminary longitudinal data, this pilot study included follow-up assessments at 3 and 6 months post-intervention. BDI-II scores remained lower than baseline at both follow-ups, with no statistically significant changes observed between the post-intervention, 3-month, and 6-month time points. This pattern suggests that symptom levels did not return to baseline within the 6-month observation window and remained relatively stable after the active intervention phase. Future studies should extend follow-up periods (e.g., 12–24 months) to examine the longer-term trajectory of outcomes and explore factors associated with maintenance or change.

5.2 Design Rationale: Addressing Engagement Barriers through Social Connection

The intervention design was informed by the recognition that stigma and reluctance to seek formal help are salient barriers to mental health engagement among Chinese college students [25,26], which can pose implementation challenges for conventional interventions in Chinese university settings [86]. Our intervention was designed with a dual-component structure aiming to foster social connections: (a) structured in-session exercises to cultivate social awareness and bonding within the psychodrama group, and (b) encouragement of peer contact and mutual support outside formal sessions. This design sought to integrate therapeutic processes with peer-support elements, potentially offering a less stigmatizing entry point for engagement. The high retention rates observed in this study are consistent with the acceptability of such a format. Future research is needed to qualitatively explore participants' experiences of social connectedness and to empirically test whether such design features can effectively reduce engagement barriers.

5.3 Methodological Considerations and Limitations

Several key limitations must be considered when interpreting the findings of this pilot study. First, the single-arm design and small sample size limit causal inference and reduce statistical power. Second, the lack of randomization and a control group increases risks of selection bias and confounding from factors such as academic stress or natural symptom fluctuation. Third, participant characteristics (e.g., predominantly urban hukou, 66.7% female) may restrict generalizability to other student populations. Fourth, the 6-month follow-up period is insufficient to assess the longer-term stability of outcomes. Fifth, the reliance on certified psychodramatists may pose challenges for scalability in resource-constrained settings.

The issue of sample size needs particular discussion, as it is a common constraint in psychodrama interventions. Small cohort sizes inherently reduce statistical power in intervention research [87–89], presenting particular methodological constraints for PD studies in Chinese mainland. Campus-based interventions typically enroll fewer than 30 participants, with randomized controlled trials (RCTs) occasionally including fewer than 10 individuals [42,43]. Such constrained samples significantly compromise statistical power and limit generalizability [90]. To address the recruitment challenges typical of such modalities, this study employed a multi-site design across three universities, enrolling 27 participants in total. While this approach pooled recruitment efforts and allowed for preliminary cross-site observation, the resulting subgroup sizes per site (6 to 14) remained small. This is reflected in our site-specific analyses, where some within-site changes did not reach statistical significance, illustrating how limited subgroup

samples affect statistical conclusions. The single-arm design further means that the observed improvements, while consistent with a treatment effect, could also be influenced by non-specific factors.

These methodological considerations collectively point to clear priorities for future research. First, randomized controlled trials with larger, more diverse samples are essential to establish causal efficacy and enhance generalizability. Second, such trials should incorporate longer follow-up periods (e.g., 12–24 months) and multi-method assessments to better understand long-term trajectories and underlying mechanisms [91]. Third, to improve scalability, research should explore implementation strategies such as hybrid delivery models or task-shifting approaches to reduce dependency on highly specialized facilitators. Building on the feasibility demonstrated in this pilot study, future work can thus more rigorously evaluate psychodrama's effectiveness and its potential role in campus mental health systems.

6 Conclusion

This multi-site pilot study examined the feasibility and preliminary outcomes of implementing a standardized psychodrama program for Chinese college students across three Beijing universities. The 8-week intervention, delivered to 27 undergraduates reporting depressive symptoms, employed core psychodrama techniques including role reversal, mirroring, and sociometry. Quantitative data indicated reductions in BDI-II scores post-intervention, with reductions maintained at the 3-month and 6-month follow-ups. The study demonstrated feasibility in terms of protocol standardization, cross-site coordination, and high participant retention. Limitations include the small sample size, absence of a control group, and reliance on self-report measures. The findings provide preliminary support for further investigation of psychodrama as a culturally responsive group intervention within university mental health systems.

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Availability of Data and Materials: The relevant data of this study are available upon request from the corresponding author.

Ethics Approval: This study has been approved by the Ethics Committee of the Department of Psychology at Renmin University of China (IRB No. 24-054). In this study, eligible college students provided informed consent.

Conflicts of Interest: The authors declare no conflicts of interest.

Abbreviations

PD	Psychodrama
BDI-II	Beck Depression Inventory-II
CP	Certified Practitioner
PAT	Practitioner Applicant for Trainer
ABEPSGP	American Board of Examiners in Psychodrama, Sociometry and Group Psychotherapy
TEP	Trainer, Educator, Practitioner
TSM	Therapeutic Spiral Model
IRB	Institutional Review Board
WJX	Wenjuanxing (Questionnaire Star)
RCT	Randomized Controlled Trial

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