Mental Health and Lifestyle Journal

Year 2025
Volume 3
Issue 4

Comparison of the Effectiveness of Theater-Based Art Therapy and Psychosocial Rehabilitation on Illness Perception and Autonomous Arousal Readiness in Patients with Schizophrenia

Mona. Abolghasemzade [1], Afsaneh. Khajevandkhoshl [1*], Lilasadat. Aziziziabari [2]

1 Department of Psychology, Go.C., Islamic Azad University, Gorgan, Iran.
2 Department of Nursing, Go.C., Islamic Azad University, Gorgan, Iran
*Correspondence: a.khajevand@iau.ac.ir

Article type:
Original Research

Article history:
Received 01 June 2025
Revised 07 September 2025
Accepted 11 September 2025
Published online 04 October 2025

ABSTRACT

The objective of this study was to compare the effectiveness of theater-based art therapy and psychosocial rehabilitation on illness perception and autonomous arousal readiness in male patients with schizophrenia. This applied study employed a semi-experimental pretest–posttest design with a control group and a three-month follow-up. The statistical population consisted of male patients aged 25–55 years with mild schizophrenia under the supervision of Iranmehr Comprehensive Care Center in Qaem Shahr, Iran, in 2024. Using G*Power software, a total sample of 45 participants was selected through purposive sampling based on inclusion and exclusion criteria, and they were randomly assigned to two experimental groups (theater-based art therapy and psychosocial rehabilitation, 15 each) and one control group (15 participants). The Illness Perception Questionnaire (Broadbent et al., 2006) and the Autonomous Arousal Readiness Questionnaire (Korn, 1998) were administered at three stages: pretest, posttest, and follow-up. Data were analyzed using repeated measures ANOVA, Bonferroni, and Tukey post hoc tests in SPSS version 18. The results of mixed repeated measures ANOVA indicated significant main effects of group, treatment stage, and group × stage interaction for both illness perception and autonomous arousal readiness ($p < .001$). Bonferroni post hoc tests showed that illness perception increased significantly from pretest to posttest and follow-up, while autonomous arousal readiness decreased significantly over the same periods, with no significant differences between posttest and follow-up, suggesting sustained effects. Tukey post hoc comparisons further revealed that psychosocial rehabilitation produced significantly greater improvements than theater-based art therapy in both illness perception ($p < .001$) and reduction of arousal readiness ($p = .03$). The findings demonstrate that both theater-based art therapy and psychosocial rehabilitation are effective interventions for enhancing illness perception and reducing autonomous arousal readiness in patients with schizophrenia, with psychosocial rehabilitation showing comparatively stronger effects.

Keywords: Schizophrenia; Theater-based art therapy; Psychosocial rehabilitation; Illness perception; Autonomous arousal readiness

How to cite this article:
Abolghasemzade, M., Khajevandkhoshli, A., & Aziziziabari, L. (2025). Comparison of the Effectiveness of Theater-Based Art Therapy and Psychosocial Rehabilitation on Illness Perception and Autonomous Arousal Readiness in Patients with Schizophrenia. *Mental Health and Lifestyle Journal, 3*(4), 1-13. https://doi.org/10.61838/mhlj.3.4.10

Introduction

Schizophrenia is a chronic psychiatric disorder characterized by profound disturbances in thought, perception, emotion, and behavior, leading to significant impairments in functioning and quality of life. Its complexity arises not only from the severity of psychotic symptoms but also from the persistent social, cognitive, and emotional deficits that often accompany the illness. While pharmacological interventions remain the cornerstone of treatment, they are insufficient in addressing the full spectrum of challenges experienced by patients. Consequently, psychosocial and creative therapies such as art therapy and psychosocial rehabilitation have gained increasing attention as complementary approaches aimed at improving functional outcomes, emotional regulation, and illness perception (1, 2).

Art therapy, broadly defined as the structured use of creative processes in a therapeutic context, has a long history in the treatment of severe mental illness, including schizophrenia. Evidence demonstrates that engaging patients in creative expression through painting, theater, or other modalities provides a non-verbal channel for communication, supports emotional regulation, and promotes self-awareness (3, 4). In schizophrenia, where verbal communication may be fragmented or disorganized, these forms of expression are particularly valuable. Moreover, the creative process facilitates meaning-making and a sense of agency, counteracting feelings of passivity and alienation commonly associated with the illness (5).

A growing body of empirical research supports the effectiveness of art therapy in improving various dimensions of functioning in schizophrenia. Group art therapy has been found to enhance emotional expression, reduce alexithymia, and alleviate depressive symptoms (6, 7). Similarly, studies conducted in clinical contexts demonstrate improvements in social functioning, quality of life, and self-efficacy (8, 9). These findings are echoed by reports indicating that structured art therapy programs can decrease both positive and negative symptoms, while simultaneously improving emotional well-being (10). Importantly, cultural adaptations of art therapy interventions, such as the use of traditional Chinese materials or region-specific artistic practices, further expand the applicability of these approaches and highlight their flexibility (8).

Theater-based art therapy represents a unique modality within the broader spectrum of creative therapies. Unlike painting or music therapy, theater incorporates both verbal and non-verbal elements, role-play, and embodied expression, which together foster cognitive, emotional, and social engagement. Previous research highlights that theater-based interventions provide opportunities for perspective-taking, enhance communication skills, and create a safe space for patients to rehearse real-life situations (11, 12). This form of therapy also supports moral reasoning and self-reflection through narrative construction, thereby addressing cognitive and affective deficits that are central to schizophrenia. By engaging patients actively, theater therapy offers an experiential learning environment that can strengthen autonomy and self-regulation (13).

Psychosocial rehabilitation, on the other hand, is a structured approach that emphasizes restoring functional abilities, building adaptive skills, and promoting community integration. It involves training in self-care, communication, vocational preparation, leisure activities, and symptom management (14). Evidence shows that psychosocial rehabilitation programs help patients improve coping strategies, reduce relapse rates, and enhance adherence to treatment (15). Moreover, by targeting both cognitive and social domains, rehabilitation fosters independence and reduces caregiver burden (16). When implemented

consistently, these interventions create a supportive context where patients can acquire practical skills necessary for daily living, thus complementing pharmacological management of schizophrenia.

The link between art therapy and physiological regulation is increasingly being recognized in research on autonomic nervous system activity. Schizophrenia is associated with abnormalities in parasympathetic reactivity and autonomic imbalance, which contribute to heightened stress sensitivity and impaired emotional regulation (15, 17). Studies of mindfulness-based art therapy, for example, reveal significant improvements in autonomic functioning and mood among both healthy individuals and clinical populations (13, 18). Similarly, interventions involving sensory stimulation or body-focused activities, such as deep pressure stimulation, show reductions in physiological arousal and improvements in regulatory capacity (19). These findings underscore the potential of integrating creative and psychosocial modalities as means of addressing both psychological and physiological dimensions of schizophrenia.

Cross-cultural studies further strengthen the evidence base for art therapy and psychosocial rehabilitation. For instance, research in Indonesia has documented positive effects of painting-based art therapy on social functioning (20), as well as improvements in life satisfaction among patients participating in tie-dye creative activities (21). Another study reported that painting interventions significantly contributed to recovery trajectories and functional reintegration (22). Similarly, research in Eastern European contexts revealed that art therapy supported improvements in social interaction and quality of life among individuals with schizophrenia (23). These findings highlight not only the clinical benefits but also the cultural adaptability of art therapy across diverse settings.

While supportive evidence for art therapy is growing, some critical perspectives remain. The MATISSE trial, one of the largest randomized controlled trials of group art therapy for schizophrenia, reported mixed results, suggesting that not all patients may benefit equally (4, 24). Secondary analyses indicate that moderating factors such as baseline symptom severity, engagement level, and therapist competence can influence outcomes. These critiques underscore the need for carefully designed protocols, tailored interventions, and integration of multiple therapeutic modalities to maximize effectiveness.

Recent research combining art therapy with other structured interventions further demonstrates its potential. For instance, reality-oriented training combined with group art therapy has been shown to significantly enhance social functioning in chronic schizophrenia patients (25). Other integrated approaches incorporate emotion management training into group art therapy, leading to improved emotional expression and reductions in depressive symptoms (6, 7). Such evidence aligns with the broader understanding of schizophrenia as a disorder that requires multimodal treatment strategies, including both pharmacological and psychosocial dimensions.

Illness perception, defined as the cognitive and emotional representation individuals have of their illness, plays a critical role in determining adherence to treatment, coping strategies, and functional outcomes. Patients with schizophrenia often have impaired or distorted illness perception, which can undermine their motivation for treatment and recovery (16). Enhancing illness perception through therapeutic interventions has therefore become a vital goal, as it directly influences prognosis and quality of life (9). Similarly, autonomous arousal readiness—a physiological state reflecting heightened sensitivity to stressors—represents another critical factor, as excessive arousal can exacerbate psychotic symptoms and impair daily

functioning (15, 19). Addressing these dimensions requires interventions that not only target symptoms but also foster awareness, regulation, and adaptive functioning.

The current study builds on this growing body of evidence by comparing the effectiveness of theater-based art therapy and psychosocial rehabilitation on illness perception and autonomous arousal readiness among male patients with schizophrenia. Previous findings suggest that both interventions can positively impact emotional, cognitive, and social dimensions (8, 14). However, limited research has directly contrasted the relative effectiveness of these two approaches in the same clinical context. Given that art therapy emphasizes creative self-expression and psychosocial rehabilitation focuses on functional skill development, a comparative analysis provides valuable insights into their differential contributions.

Additionally, the study is positioned within a broader theoretical framework linking emotional expression, social cognition, and autonomic regulation in schizophrenia. Theories of emotion highlight the importance of varied and adaptive emotional experiences in promoting mental health (5). Empirical evidence from autonomic nervous system studies confirms that schizophrenia patients demonstrate atypical physiological responses during social and emotional tasks (17). These findings suggest that interventions capable of modulating both psychological and physiological dimensions—such as art therapy and psychosocial rehabilitation—may be particularly beneficial.

In summary, schizophrenia requires multimodal interventions that extend beyond pharmacological management to address deficits in perception, cognition, social functioning, and emotional regulation. Art therapy, particularly in its theater-based form, provides a creative and embodied approach that promotes self-expression and social engagement, while psychosocial rehabilitation delivers structured training aimed at restoring functional independence. Evidence from multiple cultural and clinical contexts supports the efficacy of both approaches (9, 14, 20, 22, 23, 25). However, comparative research directly examining their relative impact on illness perception and autonomous arousal readiness remains scarce. By addressing this gap, the present study aims to provide evidence-based insights that can inform clinical practice and guide the integration of creative and rehabilitative therapies in the comprehensive treatment of schizophrenia.

Methods and Materials

Study Design and Participants

This study was applied in nature and employed a semi-experimental design with a pretest–posttest control group and a three-month follow-up. The data collection was conducted cross-sectionally. The statistical population consisted of all male patients aged 25 to 55 years diagnosed with mild schizophrenia, who were referred to and under the supervision of the Comprehensive Care Center for Chronic Psychiatric Patients (Iranmehr) in Qaem Shahr during the year 2024. The sample size was determined using G*Power software, with the parameters set as an effect size estimation, an alpha level of 0.05, and a statistical power of 0.80. To ensure equal group sizes and maintain similar error variances across groups, the ratio of participants in the two experimental groups and the control group was kept equal. Based on the software estimation, the minimum required sample size for each group was 12, but to enhance robustness, an over estimation was applied, and the total sample size was set at 45 participants.

The sampling was purposive based on specific inclusion criteria. During the screening phase, the Autonomous Arousal Readiness Questionnaire (Korn, 1998) was distributed to all eligible individuals, and

those scoring below the 50th percentile cutoff point (score of 30) were considered potential candidates. From these, 45 individuals were selected and randomly assigned into three groups: two experimental groups (theater-based art therapy and psychosocial rehabilitation) with 15 participants each, and one control group with 15 participants.

The inclusion criteria were as follows: a confirmed diagnosis of mild schizophrenia according to ICD-11 criteria; at least two months since the initial diagnosis; continuous daily pharmacological treatment; male gender; no history of hospitalization; medium-level pathology severity; psychiatric supervision of drug dosage; age between 25 and 55 years; having a medical record at the Qaem Shahr psychiatric clinic; scoring greater than 30 in the initial screening with the Autonomous Arousal Readiness Questionnaire; absence of comorbid psychiatric or physical disorders that might interfere with participation; not receiving medications that impair participation, based on psychiatrist evaluation; homogeneity of participants across groups in terms of drug type and dosage; parental or primary caregiver consent; and adequate literacy. The exclusion criteria included incomplete questionnaires, absence in two consecutive intervention sessions, voluntary withdrawal at any stage, withdrawal based on psychiatrist or psychologist recommendation, development of acute psychiatric or physical complications during the study, or significant pathological deterioration.

Data Collection

The first tool was the *Illness Perception Questionnaire* developed by Broadbent and colleagues in 2006. This instrument includes nine items, with the first eight scored on a scale ranging from 0 to 10, yielding a total score range of 0 to 80. The ninth item is open-ended and not included in statistical analysis. Higher scores indicate stronger illness perception. Broadbent and colleagues confirmed the construct and content validity of the instrument, and reported its internal consistency with a Cronbach's alpha of 0.86. In Iran, Bazzazian and colleagues (2009) validated both the content and concurrent validity, reporting a Cronbach's alpha of 0.80 and test–retest reliability coefficients of 0.75 over a six-week interval.

The second tool was the *Autonomous Arousal Readiness Questionnaire* developed by Korn in 1998. This scale consists of 12 items rated on a five-point Likert scale ranging from "never" (1) to "always" (5). Higher scores indicate higher levels of autonomous arousal readiness, which is considered undesirable in this context. Construct and content validity were confirmed by the developers, with reported Cronbach's alpha coefficients of 0.91. In Iran, Safarinia and colleagues (2012) confirmed the construct and content validity, reporting a Cronbach's alpha of 0.89.

Interventions

The theater-based art therapy program, adapted from Jones (1997) and validated for content in Iran by Amirkhani and colleagues (2014), was conducted in ten 60-minute group sessions. The sessions were designed to progressively build therapeutic engagement and performance skills, beginning with familiarization, group goal-setting, and clarification of rules and responsibilities, as well as introducing the concept of moral reasoning and its significance in life. Participants were then trained in the essential elements of theater such as body movement, voice expression, emotional display, and stage basics, including posture, positioning, and interactions with other actors. Subsequent sessions focused on teaching appropriate recognition and expression of emotions through facial expressions, body language, and verbal

communication, as well as techniques for analyzing and developing roles from physiological, sociological, and psychological perspectives. Participants learned how to read and analyze scripts, after which roles were assigned and rehearsals were carried out based on the Heinz dilemma play. The group then engaged in repeated collective rehearsals to ensure active participation from all members, followed by individual performances and group evaluations. Toward the final sessions, participants presented a complete theatrical performance before an invited audience, after which feelings and feedback regarding the experience were shared. The program concluded with a summary, group closure, gratitude to participants, and administration of the posttest.

The psychosocial rehabilitation program, adapted from the models of Burke and Ansel (1999) and Baker and Thompson (1999), and validated for content by Sadeghi Babookani and colleagues (2019), was implemented across twelve 60-minute sessions. The sessions began with orientation, clarification of research objectives, and initial assessment, followed by activities to improve physical and motor skills, such as jumping, balance training, and movement exercises. Music was then incorporated into physical exercises to enhance rhythm, coordination, and purposeful movement. Cognitive skills were addressed through puzzles, problem-solving games, recognition of time and numbers, memory exercises, and object identification. Subsequent sessions focused on improving self-care abilities and personal hygiene, alongside symptom management skills, including recognition of illness symptoms, emotional regulation strategies, and coping mechanisms. Communication skills were fostered through training in social etiquette, turn-taking, greetings, and role-play exercises. Social skills training also included self-assertion, error acceptance, dependency management, and token economy, alongside life skills education. Later sessions emphasized planning for leisure and recreational activities such as games and outings, as well as academic and learning strategies including observational learning, question-asking, and hypothesis formation. The final stages of the program concentrated on pre-vocational and therapeutic activities such as storytelling, journaling, handicrafts, and narrative therapy, culminating with a posttest, a review of previous sessions, and exchange of reflections among participants.

Data Analysis

Data analysis was conducted using both descriptive and inferential statistics. In the descriptive section, frequency distributions, means, and standard deviations were calculated to summarize demographic and baseline variables. For inferential statistics, repeated measures analysis of variance (mixed ANOVA) was employed to evaluate changes across pretest, posttest, and follow-up phases. Post hoc analyses were performed using Bonferroni and Tukey tests to identify between-group differences where applicable. All analyses were conducted using SPSS version 18, and the significance level was set at $p < 0.05$.

Findings and Results

The findings of this study are presented in two sections. First, descriptive statistics including means and standard deviations are reported for each dependent variable (illness perception and autonomous arousal readiness) across pretest, posttest, and follow-up stages in the two experimental groups and the control group. These descriptive results provide an overview of the changes observed across time in each group.

Following this, inferential statistical analyses are used to evaluate whether these differences were significant across conditions and time points.

Table 1. Descriptive Statistics of Dependent Variables Across Groups

Dependent Variable	Group	Pretest Mean (SD)	Posttest Mean (SD)	Follow-up Mean (SD)
Illness Perception	Theater-Based Art Therapy	10.64 (1.58)	16.86 (2.96)	16.95 (2.89)
	Psychosocial Rehabilitation	10.70 (2.04)	22.12 (2.78)	22.23 (2.44)
	Control	10.31 (0.69)	10.45 (0.93)	10.47 (0.53)
Autonomous Arousal Readiness	Theater-Based Art Therapy	35.70 (6.38)	26.61 (5.07)	26.54 (5.02)
	Psychosocial Rehabilitation	35.85 (4.95)	21.37 (3.23)	21.23 (3.02)
	Control	35.87 (4.32)	35.69 (4.14)	35.49 (4.20)

The descriptive findings indicate that both intervention groups demonstrated notable improvements compared to the control group. In terms of illness perception, participants in the theater-based art therapy group showed a marked increase from the pretest (M = 10.64, SD = 1.58) to posttest (M = 16.86, SD = 2.96) and maintained similar levels at follow-up (M = 16.95, SD = 2.89). Similarly, the psychosocial rehabilitation group exhibited a significant increase from pretest (M = 10.70, SD = 2.04) to posttest (M = 22.12, SD = 2.78) and sustained gains at follow-up (M = 22.23, SD = 2.44). In contrast, the control group showed minimal changes across all phases. Regarding autonomous arousal readiness, both intervention groups showed substantial decreases over time, with the theater-based art therapy group decreasing from pretest (M = 35.70, SD = 6.38) to posttest (M = 26.61, SD = 5.07) and follow-up (M = 26.54, SD = 5.02), while the psychosocial rehabilitation group improved more substantially from pretest (M = 35.85, SD = 4.95) to posttest (M = 21.37, SD = 3.23) and follow-up (M = 21.23, SD = 3.02). The control group, however, showed no meaningful changes across the three measurement points. These patterns suggest that both intervention programs were effective in enhancing illness perception and reducing autonomous arousal readiness in patients with schizophrenia, with psychosocial rehabilitation showing slightly greater improvements.

Before conducting the main analyses, the statistical assumptions required for repeated measures ANOVA were carefully examined. The results indicated that the assumption of normality was met, as assessed by the Shapiro–Wilk test and inspection of skewness and kurtosis values, which fell within the acceptable range. The assumption of homogeneity of variances across groups was also supported according to Levene's test, and Mauchly's test of sphericity confirmed that the sphericity assumption was not violated. Furthermore, the absence of multicollinearity and outliers was verified through correlation matrices and boxplot inspections. These results collectively confirmed that the data satisfied the necessary conditions for applying repeated measures ANOVA, allowing for reliable interpretation of the subsequent inferential analyses.

Table 2. Summary of Mixed Repeated Measures ANOVA

Dependent Variable	Source of Variation	Sum of Squares	df	Mean Square	F	Sig.	Effect Size	Power
Illness Perception	Group	1423.808	2	711.904	90.097	.001	.811	1.00
	Treatment Stages	809.943	1	809.943	207.700	.001	.832	1.00
	Group × Stage	485.368	2	242.684	62.233	.001	.748	1.00
Autonomous Arousal Readiness	Group	2094.517	2	1047.258	26.254	.001	.556	1.00
	Treatment Stages	1459.063	1	1459.063	83.873	.001	.666	1.00
	Group × Stage	773.016	2	386.508	22.218	.001	.514	1.00

The results of the mixed repeated measures ANOVA revealed significant main effects of group and treatment stage for both illness perception and autonomous arousal readiness. Moreover, the interaction effect of group by treatment stage was statistically significant in both variables, indicating that the interventions produced different patterns of change over time compared to the control group. The effect sizes were large across all comparisons, and the statistical power was consistently 1.00, confirming the robustness of these results.

Table 3. Bonferroni Post Hoc Test Results for Differences Between Pretest, Posttest, and Follow-Up

Dependent Variable	Comparison	Mean Difference	Std. Error	Sig.
Illness Perception	Pretest – Posttest	-5.927	0.443	.001
	Pretest – Follow-up	-6.000	0.416	.001
	Posttest – Follow-up	-0.073	0.072	1.000
Autonomous Arousal Readiness	Pretest – Posttest	7.919	0.877	.001
	Pretest – Follow-up	8.053	0.879	.001
	Posttest – Follow-up	0.133	0.083	.349

The Bonferroni post hoc comparisons demonstrated that for illness perception, both posttest and follow-up scores were significantly higher than pretest scores, while there was no significant difference between posttest and follow-up, suggesting that the gains were sustained over time. For autonomous arousal readiness, both posttest and follow-up scores were significantly lower than pretest scores, again indicating improvement and maintenance of effects, while the difference between posttest and follow-up was not significant, reflecting stability of the intervention outcomes.

Table 4. Tukey Post Hoc Test Results Comparing the Two Experimental Groups

Dependent Variable	Group Comparison	Mean Difference	Std. Error	Sig.
Illness Perception	Psychosocial Rehabilitation – Theater-Based Art Therapy	3.528	0.593	.001
Autonomous Arousal Readiness	Psychosocial Rehabilitation – Theater-Based Art Therapy	-3.464	1.331	.030

The Tukey post hoc results comparing the two experimental groups indicated that psychosocial rehabilitation was significantly more effective than theater-based art therapy in improving illness perception, with a mean difference of 3.53. In contrast, psychosocial rehabilitation also led to significantly greater reductions in autonomous arousal readiness compared to theater-based art therapy, with a mean difference of 3.46, highlighting its relatively stronger impact across both outcome domains.

Discussion and Conclusion

The present study aimed to compare the effectiveness of theater-based art therapy and psychosocial rehabilitation on illness perception and autonomous arousal readiness in male patients with schizophrenia. The results demonstrated significant improvements in both dependent variables among the experimental groups, with psychosocial rehabilitation yielding somewhat stronger effects than theater-based art therapy. Specifically, illness perception improved markedly in both intervention groups compared to the control group, with gains sustained over the three-month follow-up. Similarly, autonomous arousal readiness decreased significantly in the experimental groups, indicating enhanced regulation of physiological arousal states, whereas no significant changes occurred in the control group. These findings underscore the potential

of integrating structured creative and rehabilitative interventions alongside pharmacological treatment for schizophrenia.

The improvement in illness perception among participants is consistent with prior literature emphasizing the role of psychosocial and creative interventions in enhancing patients' understanding and appraisal of their condition. Research highlights that illness perception is a critical determinant of treatment adherence, coping strategies, and overall prognosis in schizophrenia (9, 16). Art therapy, in particular, has been reported to facilitate self-awareness and foster new insights into the illness experience by offering symbolic avenues for expression (10, 26). For instance, studies conducted in Indonesia demonstrated that painting-based art therapy significantly improved social functioning and contributed to patients' perception of recovery (20, 21). Similarly, psychosocial rehabilitation programs have been shown to increase patients' engagement with treatment and improve their sense of illness controllability by equipping them with practical self-management and social skills (14). The findings of the present study thus align with these observations, reinforcing the argument that interventions fostering both reflective insight and skill-building are effective in promoting adaptive illness perception.

In addition to cognitive and perceptual outcomes, the study found that both interventions produced significant reductions in autonomous arousal readiness, with psychosocial rehabilitation achieving slightly larger reductions than theater-based art therapy. Dysregulation of the autonomic nervous system has been widely documented in schizophrenia and is associated with heightened physiological arousal, impaired stress tolerance, and difficulties in emotion regulation (15, 17). Research on mindfulness-based art therapy confirms that creative practices can normalize autonomic activity and improve mood regulation in both healthy individuals and clinical populations (13, 18). Similarly, deep pressure stimulation and other sensory regulation strategies have been reported to reduce physiological arousal and enhance regulatory capacity (19). The present findings suggest that theater-based art therapy, by incorporating embodied role-play and emotional expression, engages autonomic regulation through experiential learning and social interaction. At the same time, psychosocial rehabilitation directly targets stress management and emotional regulation skills, thereby producing robust improvements in physiological arousal readiness.

The stronger effect of psychosocial rehabilitation on both illness perception and arousal readiness may be explained by its structured and multifaceted approach. Unlike theater-based art therapy, which emphasizes expressive and symbolic processes, psychosocial rehabilitation systematically addresses cognitive, emotional, and behavioral domains, including self-care, communication, and social skills (14). Prior evidence indicates that such comprehensive training programs are particularly effective in promoting adaptive functioning and reducing relapse risk (25). Additionally, psychosocial rehabilitation often incorporates symptom management techniques that directly confront maladaptive illness beliefs and physiological stress responses (7). This integrated focus may account for the superior outcomes observed in the present study.

Nevertheless, the improvements observed in the theater-based art therapy group should not be underestimated. Theater therapy provides unique therapeutic benefits by integrating narrative, embodiment, and interpersonal engagement. Studies suggest that drama-based interventions foster perspective-taking, enhance emotional expression, and provide a safe context for practicing real-life social interactions (11, 12). By allowing patients to "try on" different roles and rehearse alternative patterns of

behavior, theater-based art therapy supports cognitive flexibility and emotional regulation in ways that are distinct from traditional rehabilitation (5). Moreover, theater therapy enhances group cohesion and collective learning, which can contribute to sustained improvements in illness perception (8). Thus, while psychosocial rehabilitation demonstrated stronger statistical effects, theater-based art therapy remains a valuable complementary approach that may appeal to patients seeking creative or embodied modes of expression.

The sustainability of treatment gains at the three-month follow-up further underscores the clinical relevance of these findings. The lack of significant differences between posttest and follow-up scores indicates that improvements in illness perception and arousal readiness were maintained over time. This observation is consistent with prior research demonstrating that structured art therapy and rehabilitation interventions yield enduring benefits when delivered consistently (9, 23). Moreover, studies have emphasized that patient engagement and therapeutic alliance are key predictors of long-term outcomes (3, 24). The group-based format of both interventions may have contributed to these sustained effects by fostering mutual support, accountability, and shared learning.

The findings of this study also contribute to ongoing debates in the literature regarding the effectiveness of art therapy for schizophrenia. Large-scale trials such as MATISSE reported mixed results, raising concerns about the generalizability of art therapy outcomes (4, 24). Critics argue that factors such as therapist training, patient readiness, and cultural adaptation significantly influence outcomes (1). The positive results observed in the present study, however, suggest that when theater-based art therapy is implemented within a structured protocol and complemented by appropriate patient selection, it can produce meaningful improvements. Moreover, the comparative design provides evidence that art therapy, while effective, may be most impactful when integrated with broader psychosocial rehabilitation frameworks.

Another important dimension illuminated by this study concerns the cultural adaptability of interventions. Evidence from diverse contexts—including Asia, Europe, and Latin America—has demonstrated that art therapy and rehabilitation can be successfully implemented across cultural boundaries (20-23). The present findings, derived from a Middle Eastern clinical context, further support this conclusion, reinforcing the argument that creative and psychosocial interventions possess inherent flexibility that allows them to resonate with local values, practices, and patient needs. This adaptability enhances their potential for integration into global mental health frameworks, particularly in low- and middle-income countries where access to advanced biomedical treatments may be limited (2).

Finally, the study provides theoretical insights into the interplay between emotion regulation, social cognition, and physiological arousal in schizophrenia. Theories of emotion emphasize the importance of varied and adaptive emotional experiences in maintaining psychological well-being (5). Schizophrenia is characterized by deficits in these domains, leading to maladaptive illness perceptions and heightened physiological readiness (15, 17). The observed improvements in both illness perception and arousal readiness following the interventions suggest that theater-based art therapy and psychosocial rehabilitation may serve as mechanisms for restoring adaptive emotion regulation and autonomic balance. These findings align with prior evidence indicating that integrated interventions can simultaneously address psychological and physiological dimensions of mental illness (18, 19).

Despite its contributions, this study is not without limitations. First, the sample size was relatively small, which may limit the generalizability of the findings. Although statistical power was sufficient for detecting significant effects, larger samples would allow for more nuanced analyses of moderating variables such as age, illness duration, or baseline symptom severity. Second, the study focused exclusively on male p atients, which restricts the applicability of the results to female populations who may respond differently to creative and rehabilitative interventions. Third, while follow-up data were collected at three months, longer-term follow-up would provide stronger evidence of sustainability and potential relapse prevention. Fourth, the study relied on self-report measures for illness perception and arousal readiness, which, although validated, may be subject to response biases. Finally, the interventions were delivered in a single clinical setting, limiting the ability to assess contextual or cultural variability in implementation.

Future research should aim to replicate these findings in larger, more diverse samples that include both male and female patients across varying stages of illness. Longitudinal studies with extended follow-up periods are needed to evaluate the durability of treatment effects and their impact on relapse rates, functional independence, and quality of life. Comparative studies across cultural contexts would help clarify the adaptability of theater-based art therapy and psychosocial rehabilitation in different health systems. Additionally, integrating objective physiological measures such as heart rate variability or galvanic skin response could strengthen conclusions regarding autonomic regulation. Future trials might also explore hybrid models that combine elements of theater-based art therapy and psychosocial rehabilitation, assessing whether integrated protocols yield synergistic benefits. Finally, qualitative research capturing patient and caregiver perspectives would provide valuable insights into subjective experiences, perceived benefits, and barriers to participation.

From a practical standpoint, the findings suggest that psychosocial rehabilitation and theater-based art therapy should be integrated into routine clinical care for patients with schizophrenia. Clinicians should consider offering both modalities, tailoring the choice to patient preferences, abilities, and treatment goals. Psychosocial rehabilitation may be prioritized when the focus is on skill-building, independence, and functional recovery, whereas theater-based art therapy may be more suitable for patients seeking creative expression, emotional release, and social engagement. Training programs for mental health professionals should incorporate competencies in delivering both interventions, ensuring fidelity to structured protocols while allowing flexibility for cultural adaptation. Finally, policymakers and healthcare administrators should support the inclusion of creative and psychosocial interventions in mental health services, recognizing their potential to enhance outcomes, reduce relapse, and improve overall quality of life for individuals living with schizophrenia.

Acknowledgments

The authors express their deep gratitude to all participants who contributed to this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

References

1. Ruiz MIR, Aceituno D, Rada G. Art Therapy for Schizophrenia? Medwave. 2017;17(Suppl1):e6845-e. doi: 10.5867/medwave.2017.6845.
2. Luo X, Zhang Z, Zheng Z, Ye Q, Wang J, Wu Q, et al. Art Therapy as an Adjuvant Treatment for Schizophrenia: A Protocol for an Updated Systematic Review and Subgroup Meta-Analysis of Randomized Clinical Trials Following the PRISMA Guidelines. Medicine. 2022;101(40):e30935. doi: 10.1097/md.0000000000030935.
3. Patterson S, Debate J, Anju S, Waller D, Crawford M. Provision and Practice of Art Therapy for People With Schizophrenia: Results of a National Survey. Journal of Mental Health. 2011;20(4):328-35. doi: 10.3109/09638237.2011.556163.
4. Holttum S, Huet V. The MATISSE Trial–A Critique. Sage Open. 2014;4(2). doi: 10.1177/2158244014532930.
5. Frijda NH. Emotion Experience and Its Varieties. Emotion Review. 2009;1(3):264-71. doi: 10.1177/1754073909103595.
6. Lim E, Park S-Y, Jang SH, Bahk WM, Kwon YJ, Yoon B-H, et al. M185. The Effects of Group Arts Therapy Based on Emotion Management Training on the Emotional Expression, Alexithymia, Depression and Quality of Life in Patients With Schizophrenia. Schizophrenia Bulletin. 2020;46(Supplement_1):S206-S7. doi: 10.1093/schbul/sbaa030.497.
7. Lee S-Y. The Effects of Group Arts Therapy Based on Emotion Management Training on the Emotional Expression, Alexithymia, Depression and Quality of Life in Patients With Schizophrenia. Bjpsych Open. 2025;11(S1):S55-S. doi: 10.1192/bjo.2025.10172.
8. Tong J, Yu W, Fan X, Sun X, Zhang JM, Zhang J, et al. Impact of Group Art Therapy Using Traditional Chinese Materials on Self-Efficacy and Social Function for Individuals Diagnosed With Schizophrenia. Frontiers in Psychology. 2021;11. doi: 10.3389/fpsyg.2020.571124.
9. Çataldaş SK, Eren N, Üstün N, Ofluoğlu F, Ayhan CH. Effects of Art Therapy on Quality of Life and Social Functioning in Individuals With Schizophrenia. Journal of Psychosocial Nursing and Mental Health Services. 2025;63(5):49-55. doi: 10.3928/02793695-20250107-02.
10. Chen C-R, Du S-C. Effects of Art Therapy on Positive Symptom, Negative Symptom and Emotion in Schizophrenia. 2024. doi: 10.37766/inplasy2024.3.0021.
11. Syafril S. Idiom-Idiom Estetik Pastiche, Parodi, Kitsch, Camp, Dan Skizofrenia Dalam Karya Teater Postmodern Indonesia Jalan Lurus. Komposisi Jurnal Pendidikan Bahasa Sastra Dan Seni. 2012;9(2). doi: 10.24036/komposisi.v9i2.97.

12. Park N-E, Park J-H, Kim D-E, Kim S-H, Chung D-K. A Case Report of a Schizophrenic Patient Treated With Art Therapy and Korean Traditional Medicine. Journal of Oriental Neuropsychiatry. 2016;27(3):147-55. doi: 10.7231/jon.2016.27.3.147.

13. Ando M, Kira H, Hayashida S. Changes in the Autonomic Nervous System and Moods of Advanced Cancer Patients by Mindfulness Art Therapy Short Version. Journal of Cancer Therapy. 2016;07(01):13-6. doi: 10.4236/jct.2016.71002.

14. Utas-Akhan L, Avcı D, Basak I. Art Therapy as a Nursing Intervention for Individuals With Schizophrenia. Journal of Psychosocial Nursing and Mental Health Services. 2024;62(5):29-38. doi: 10.3928/02793695-20231025-02.

15. Andersen E, Lewis GF, Belger A. Aberrant Parasympathetic Reactivity to Acute Psychosocial Stress in Male Patients With Schizophrenia Spectrum Disorders. Psychiatry Research. 2018;265:39-47. doi: 10.1016/j.psychres.2018.04.009.

16. Constantin C-N. Art-Terapia În Schizofrenie – Aspecte Ale Cercetării Cantitative. Rpsih. 2025;71(1):37-46. doi: 10.59277/rpsih.2025.1.03.

17. Jáuregui OI, Costanzo EY, Achával Dd, Villarreal MF, Chu E, Mora MC, et al. Autonomic Nervous System Activation During Social Cognition Tasks in Patients With Schizophrenia and Their Unaffected Relatives. Cognitive and Behavioral Neurology. 2011;24(4):194-203. doi: 10.1097/wnn.0b013e3182400 7e9.

18. Ando M, Ito S. Changes in Autonomic Nervous System Activity and Mood of Healthy People After Mindfulness Art Therapy Short Version. Health. 2016;08(04):279-84. doi: 10.4236/health.2016.84029.

19. Reynolds S, Lane SJ, Mullen B. Effects of Deep Pressure Stimulation on Physiological Arousal. American Journal of Occupational Therapy. 2015;69(3):6903350010p1-p5. doi: 10.5014/ajot.2015.015560.

20. Adiba DMF, Paramita H. The Effect of Art Therapy by Painting Technique on Social Function Level in Schizophrenia Patients at Menur Mental Hospital, Surabaya City, East Java, Indonesia. The Int J Of Med Science and Health. 2024;4(3):20-30. doi: 10.70070/2sfc2565.

21. Dzakiya EL, Untari R. PENGARUH TERAPI SENI TIE-DYE TERHADAP KEPUASAN HIDUP PASIEN SKIZOFRENIA DI RSJD Dr. RM. SOEDJARWADI KLATEN. Jurnal Ilmiah Kedokteran. 2024;3(1):32-9. doi: 10.55080/mjn.v3i1.700.

22. Krisniati TR. Exploring the Efficacy of Art-Related Activities Particularly Painting as Adjuvant Therapy in Schizophrenia: An Evidence-Based Case Report. Journal of Psychiatry Psychology and Behavioral Research. 2024;5(1):17-24. doi: 10.21776/ub.jppbr.2024.005.01.4.

23. Kozhyna G, Kryshtal AA. Evaluation of the Influence of Art Therapy on the Dynamics of Social Functioning of Schizophrenic Patients. Inter Collegas. 2017;4(3):150-3. doi: 10.35339/ic.4.3.150-153.

24. Leurent B, Killaspy H, Osborn D, Crawford M, Hoadley A, Waller D, et al. Moderating Factors for the Effectiveness of Group Art Therapy for Schizophrenia: Secondary Analysis of Data From the MATISSE Randomised Controlled Trial. Social Psychiatry and Psychiatric Epidemiology. 2014;49(11):1703-10. doi: 10.1007/s00127-014-0876-2.

25. Feng J, Chen H, Fu L. Effect of Reality Oriented Training Combined With Group Diversified Art Therapy on Social Function of Chronic Schizophrenia. Journal of Clinical Medicine Research. 2024;5(2):269. doi: 10.32629/jcmr.v5i2.2327.

26. Cheng C, Elamin ME, May H, Kennedy M. Drawing on Emotions: The Evolving Role of Art Therapy. Irish Journal of Psychological Medicine. 2021;40(3):500-2. doi: 10.1017/ipm.2021.20.