

The Application of the Dance Movement Therapy in the Rehabilitation of Adolescent Patients with Schizophrenia

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Abstract: The primary objective of this investigation is: To examine the impact of the dance movement therapy on the rehabilitation of adolescent patients diagnosed with schizophrenia. The method applied in this paper is: A total of 60 stable-phase adolescent patients (aged 13-18 years) diagnosed with schizophrenia were carefully selected from the Early Intervention Department of Chongqing Mental Health Center to form the sample. Through the utilization of a random number table, the participants were allocated into two groups: a control group and an intervention group. The control group received standard pharmacotherapy and traditional therapeutic recreational activities, whereas the intervention group received dance movement therapy in addition to the standard interventions. The scores obtained from the Brief Psychiatric Rating Scale (BPRS) and the Social Dysfunction Screening Scale (SDSS) were employed to compare and evaluate the outcomes of the two groups. The result of this paper is: Following the intervention, the total difference of BRPRS score in the intervention group was higher than that in the control group ($P < 0.001$). Notably, statistically significant variations were observed in domains such as anxiety and depression ($P < 0.05$), diminished vitality ($P < 0.05$), cognitive impairments ($P < 0.001$), as well as hostility and suspicion ($P < 0.05$). Moreover, with regard to the SDSS scale, the intervention group demonstrated noteworthy discrepancies, in comparison to the control group, in the areas of social withdrawal, social activities outside the family, and interest and concern for the external world ($P < 0.05$). The conclusion of this paper is: The dance movement therapy, employed as a rehabilitative modality for adolescent schizophrenia patients, stands to enhance positive affective encounters, ameliorate stress responsiveness and self-regulatory capacities, and mitigate emotional apathy and socio-reclusive tendencies.

Schizophrenia, a prevalent chronic mental disorder of uncertain etiology, is characterized by prolonged duration and significant impairment in social functioning. Early-onset schizophrenia is defined by the onset age between 13 and 18. ^[1] Recent reports suggest a rapid increase in the prevalence of early-onset schizophrenia, estimated at approximately 0.5% ^[2]. Presently, medication remains the primary treatment modality for adolescent schizophrenia, with recommendations and clinical practices primarily adapted from adult treatment protocols. Nevertheless, the effectiveness and safety of pharmacotherapy in the adolescent population remain contentious ^[3]. Adolescence

represents a critical period of rapid physical and psychological development, wherein the full maturation of both body and mind has yet to be realized. These developmental intricacies can potentially undermine medication efficacy, heightening the risk of adverse drug reactions and impeding physical development. Consequently, the management of schizophrenia in children and adolescents becomes increasingly challenging^[4-5]. Consequently, there is a growing impetus to explore non-pharmacological interventions and rehabilitation strategies.

The dance movement therapy, an emerging psychological treatment intervention, originated in Europe and America during the early 1990s. Initially reported by Chinese scholars, its therapeutic effects on chronic schizophrenia have gained recognition. By integrating the elements of body, movement, dance, and psychology, the dance movement therapy facilitates the harmonization of emotions, physicality, cognition, and social functioning. Notably, it plays a pivotal role in bolstering self-confidence, fostering improved interpersonal relationships, mitigating negative emotions, and enhancing overall quality of life^[6]. Consequently, the dance movement therapy has received considerable attention in the realm of adolescent schizophrenia rehabilitation. This study aims to explore novel ideas and methodologies that can be employed in the rehabilitation treatment of adolescent schizophrenia, thereby contributing new evidence supporting the utilization of the dance movement therapy in this context. Accordingly, a sample of 60 young patients diagnosed with early-onset schizophrenia was selected from the Early Intervention Department of Chongqing Mental Health Center in the hospital, spanning the period from January to October 2023. The ensuing findings are presented herein.

1. Objectives and Methods

1.1 Inclusion and Exclusion Criteria

Inclusion Criteria: ① Satisfying the diagnostic standards for schizophrenia as outlined in the ICD-10; ② Within the age range of 13 to 18 years; ③ Exhibiting a schizophrenia duration ≤ 5 years; ④ Reaching a stable phase after acute-phase medication treatment based on a total score < 60 on the Positive and Negative Syndrome Scale (PANSS) ⑤ Demonstrating emotional stability with scores < 7 on both the 17-item Hamilton Rating Scale for Anxiety (HAMA-17) and the 14-item Hamilton Rating Scale for Depression (HAMD-14) < 7] Exclusion Criteria: Patients with severe life-threatening physical illnesses, motor disorders, and individuals with changes in their disorders during the study are declined to participate in the study.

1.2 General Information:

The study selected 30 patients who met the inclusion criteria for the dance movement therapy group, while an additional 30 patients served as the non-dance movement therapy control group. Of the participants, 13 were male and 17 were female, with an average age of (15.94 ± 1.4) years. The average years of education were (10.2 ± 1.5) years. The PANSS total score averaged (56.43 ± 11.0) points, the HAMA-17 total score averaged (4.4 ± 1.6) points, and the HAMD-14 total score averaged (5.24 ± 2.8) points. In the control group, there were 14 males and 16 females, with an average age of (15.75 ± 1.2) years and an average years of education of (10.23 ± 1.4) . The PANSS total score averaged (56.95 ± 11.3) points, the HAMA-17 total score averaged (4.0 ± 4.8) points, and the HAMD-14 total score averaged (5.45 ± 5.5) points. No statistically significant differences were observed in terms of age, years of education, PANSS total score, HAMA-17 total score, and HAMD-14 total score between the two groups (all $P > 0.05$). The experiment received approval from the Medical Ethics Committee of Chongqing Mental Health Center, and all participants voluntarily participated in it with

the informed consent of their legal guardians.

1.3 Methods

The control group underwent standard medication treatment and engaged in routine therapeutic recreational activities within the department. Medication treatment involved the administration of second-generation antipsychotic drugs, while regular therapeutic recreational activities within the department included indoor exercises, playing chess or cards, reading, watching television, as well as outdoor activities such as walking and playing basketball. In addition to the standard treatment, the intervention group received the dance movement therapy sessions five times a week, each lasting one hour, for a total of ten sessions. The specific details are described as follows:

1.3.1 To establish a dance movement therapy group and devise the corresponding activity schedule

The group comprises a proficient dance movement therapist who possesses qualifications as a psychotherapist, a supervisor specializing in the dance movement therapy, a psychiatrist assigned to the ward, and a nurse specialized in ward rehabilitation. The activities were conducted in closed small-group settings, and the specific plan is provided in detail in Table 1.

Table 1: Plan for the Dance Movement Therapy

Phases (1h/Session)	Content	Assignment
Session 1: Group Establishment	The primary objective is to establish the therapeutic group. This entails introducing the principles and techniques of dance therapy, establishing the group rules, conducting a thorough assessment, and formalizing the group's commitment by signing a collective contract. Furthermore, participants engage in activities that involve self-introduction through bodily movements, exchanging greetings with fellow group members, and collectively creating a dance that embodies the group's name.	Journaling: The journal entries are to be composed using free-form drawing and doodling techniques, capturing the acquired knowledge and experiences, and assigned a single-word title that encapsulates their essence.
Sessions 2-5: Group Integration Phase, Sensing Support, Connecting with Themselves	Dancing with favorite and least favorite body parts and engaging in interactive dances between the two body parts; Dancing in a mirrored manner with a partner. Facilitating connection, enhancing empathy, experiencing support, and accepting self.	Journaling: The journal entries are to be composed using free-form drawing and doodling techniques, capturing the acquired knowledge and experiences, and assigned a single-word title that encapsulates their essence.
Sessions 6-9: Group Responsibility Phase, Taking Responsibility for Self and Others	Grounding exercises: Core strength training to promote self-stabilization, exploration of body diagrams to aid members in establishing personal boundaries, and engaging in 3-person small group exercises involving different spatial dimensions (high, medium, and low). Actively seeking their position within these exercises and embracing group responsibilities.	Journaling: The journal entries are to be composed using free-form drawing and doodling techniques, capturing the acquired knowledge and experiences, and assigned a single-word title that encapsulates their essence.
Session 10: Closure Phase, Review and Reflection, Emotional Processing	Themed dance performance: Each member reflects on their experiences and insights from the 10 sessions through movements and creates a themed dance performance, witnessed by other group members; the group performs a creative farewell dance and a dance of hope.	Journaling: The journal entries are to be composed using free-form drawing and doodling techniques, capturing the acquired knowledge and experiences, and assigned a single-word title that encapsulates their essence.

The composition of evaluators in this study primarily consisted of psychotherapists and nursing staff members (specifically those holding supervisory positions or above). Prior to the commencement of the study, the evaluators were divided into two distinct groups, each assigned the responsibility of conducting assessments using the Brief Psychiatric Rating Scale (BPRS) and the Self-Rating Depression Scale (SDSS) on all participants both one month prior to and after the completion of the treatment. The final patient scores were determined by calculating the mean scores obtained from the evaluations conducted by both evaluator groups. To ensure rating consistency, all evaluators underwent training sessions delivered by the psychotherapist, which focused on familiarizing them

with the criteria for scoring the BPRS and SDSS scales. It is worth noting that the evaluators were not involved in the dance movement therapy, thereby effectively implementing blinding procedures.

1.3.2 Statistical analysis involved the utilization of SPSS 22.0 software to analyze the collected data.

Categorical data were subjected to χ^2 tests, while continuous data were expressed using $(\bar{x} \pm s)$. Independent sample t-tests were employed for intergroup comparisons, and statistical significance was determined with a threshold of $P < 0.05$.

2. Results

2.1 The comparison of BPRS scores before and after treatment in the two patient groups is presented in Table 2

Table 2: The comparison of BPRS scores before and after treatment in the two patient groups

Program	Control Group			Intervention Group			P Value
	Before the Treatment	After the Treatment	Difference	Before the Treatment	After the Treatment	Difference	
Anxiety and Depression	9.42±2.06	8.46±1.84	0.96±1.37	10.70±2.18	8.97±2.11	1.72±1.21	0.012
Lack of Vitality	7.81±2.01	6.95±1.75	0.88±1.85	7.74±1.97	5.82±1.48	1.93±1.48	0.01
Cognitive Impairment	9.97±2.09	8.70±1.44	1.26±1.39	10.31±2.23	7.71±1.90	2.61±1.25	<0.001
Hyperactivity	6.42±1.41	5.39±1.64	1.01±1.26	7.17±1.56	5.91±1.32	1.27±1.36	0.395
Hostility and Suspicion	5.77±1.11	4.83±0.86	0.93±1.25	6.33±1.21	4.81±0.96	1.51±1.14	0.04
Total Score	39.46±7.35	34.33±4.97	5.10±2.61	42.31±6.57	33.24±5.12	9.07±3.36	<0.001

Note: The p-value reflects the statistical significance of the score differences before and after treatment in the two patient groups (scores, $x \pm s$).

2.2 The comparison of SDSS scores before and after treatment in the two patient groups (Table 3)

Table 3: The comparison of SDSS scores before and after treatment in the two patient groups

Program	Control Group			Intervention Group			P Value
	Before the Treatment	After the Treatment	Difference	Before the Treatment	After the Treatment	Difference	
Social Withdrawal	0.90±0.50	0.69±0.50	0.23±0.48	0.94±0.56	0.46±0.56	0.51±0.57	0.037
Social Activities Beyond the Family	1.01±0.40	0.80±0.49	0.21±0.48	1.04±0.50	0.51±0.40	0.52±0.55	0.011
Self Care for Daily Living	1.01±0.60	0.62±0.47	0.47±0.60	1.23±0.78	0.57±0.41	0.66±0.68	0.195
Interest and Concern for the Outside World	1.30±0.77	1.03±0.61	0.26±0.50	1.24±0.68	0.63±0.56	0.59±0.54	0.007
Sense of Responsibility and Planning	0.93±0.57	0.62±0.46	0.30±0.57	0.98±0.57	0.63±0.50	0.35±0.54	0.880

Note: The P-value reflects the statistical significance of the score differences before and after treatment in the two patient groups (scores, $x \pm s$).

3. Discussion

Schizophrenia, as one of the most persistent and severe common mental disorders affecting children and adolescents, still presents controversies regarding the effectiveness and tolerability of pharmacological treatments in this special age group^[7]. With the onset of psychiatric disorders occurring at an earlier age and an increase in relapse rates, the importance of effective rehabilitation for children and adolescents with mental disorders, particularly schizophrenia, has been increasingly emphasized. Non-pharmacological interventions have gained an advantageous position in the rehabilitation of adolescent mental disorders due to their lower risk and absence of drug-related side

effects. The dance movement therapy, currently recognized as an effective adjunctive measure in the rehabilitation of psychiatric disorders [8-10], enhances expressive and communication abilities, promotes social interaction, and encourages active engagement in activities beyond the family setting during the rehabilitation of schizophrenia patients. Moreover, through bodily movements and actions, the dance movement therapy facilitates self-understanding and empathy, fosters self-esteem and improved empathy, and enhances responsibility. Furthermore, the dance movement therapy contributes to sensory-motor integration, activates the body and brain, enhances cognitive function, facilitates positive emotional experiences, and rebuilds hope. As a distinctive rehabilitation program implemented by the Mental Health Center of Chongqing, the dance movement therapy has been widely employed as an adjunctive treatment for adolescent mental disorders.

The clinical ratings in this study reveal statistically significant differences ($P < 0.05$) in anxiety, depression, lack of vitality, hostile suspicion, social withdrawal, external interests and concerns, and engagement in activities beyond the family setting before and after dance therapy for both patient groups ($P < 0.05$). These findings indicate that the dance movement therapy effectively improves the social functioning of adolescent inpatients with schizophrenia, aiding their faster reintegration into their families and society. Additionally, the study found that increasing the frequency of dance therapy sessions to once daily, compared to the traditional weekly sessions, particularly benefits patients with lower functioning by enhancing their emotional expression and empathy. This study confirms the value of the dance movement therapy as an effective adjunctive measure in the treatment of adolescent schizophrenia and warrants further promotion. However, it is important to acknowledge the limitations of this clinical study, including the restricted duration due to the average length of hospitalization (The study only included 10 sessions for one cycle), and the limited number of included cases. In future clinical practice, the institution will improve the rehabilitation curriculum for the dance movement therapy and expand the research case database to further validate the scientific significance of the dance movement therapy in the treatment of adolescent schizophrenia.

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