

Impact of dance, drama, yoga and music therapy workshops on symptom reduction in patients with Schizophrenia: A randomized controlled study

Isuru LLA¹, Dahanayake DMA¹, de Alwis A², Weerasinghe A³, Hewage SN⁴, Ranasinghe CK⁵

¹ Registrar in Psychiatry, National Institute of Mental Health, Sri Lanka

² Senior Registrar in Forensic Psychiatry, National Institute of Mental Health, Sri Lanka

³ Founder/Director, Abhina Academy of Performing Arts, Mt Lavinia, Sri Lanka

⁴ Independent Researcher.

⁵ Consultant Psychiatrist, National Institute of Mental Health, Sri Lanka

Abstract:

Background: Drama, dance, yoga and music therapy is known to promote self-confidence, enhance interpersonal communication and promote wellbeing in patients with long term mental illnesses such as schizophrenia. Studies done to assess the impact of similar adjunctive treatments on symptom reduction have recommended further evaluation.

Aims: To measure the impact of dance, drama, yoga and music therapy on reduction of positive and negative symptoms of schizophrenia as well as the effect on a patient's self-confidence.

Methods: Seventy-three patients with schizophrenia were randomly allocated to the drama, dance, yoga and music therapy workshops which span over two months (test group; n=33) and to 'treatment as usual' (control group; n=40). Both groups were assessed using PANSS scores before and after the intervention. Rosenberg self-esteem scale (RSES) was administered to the subjects in the test group before and after the workshop.

Results: There was no significant difference between the two groups in PANSS scores prior to commencement of the study ($p > 0.05$ using Mann Whitney U test). Both test and control groups showed significant improvements in the positive, negative, general psychopathological and cumulative scores of the PANSS (2-sided $p < 0.0001$ across all subscales of PANSS for test and control groups using the Wilcoxon signed rank test), but there was no statistically significant difference among them. When non forensic patients were analyzed separately, a statistically significant difference was observed. There was no statistically significant improvement in forensic patients. In the test group there was a significant improvement in the self-esteem score (2-sided $p < 0.001$ using Wilcoxon signed rank test).

Conclusions: Exposure to dance, drama, yoga and music therapy lead to symptom reduction as well as a positive effect on self-esteem in the short term, in patients with schizophrenia. Future research conducted on patients with acute schizophrenia, covering larger sample sizes are needed to obtain more conclusive evidence on the impact of creative therapy.

Declaration of interest: None

Key words: Schizophrenia, creative therapy, drama therapy, psychodrama, dance therapy, music therapy, yoga

Introduction

Schizophrenia is a debilitating, often chronic illness which is a leading cause of disability worldwide (Huber, Gross, & Schuttler, 1975; Whiteford, Ferrari, Degenhardt, Feigin, & Vos, 2015). Pharmacological agents remain the mainstay of treatment. However, five to fifteen per cent of patients continue to have symptoms in spite of optimal medication (R. Ruddy & Dent-Brown, 2008). Functional impairment is seen in a significant proportion of the affected individuals even after symptom remission (Roder, Mueller, & Schmidt, 2011). The main factors contributing to poor functional outcome are negative symptoms, cognitive symptoms and deficits in social cognition. Other associated factors such as stigma, low self-esteem and lack of confidence also lead to social withdrawal paving the way to a vicious cycle.

Creative therapies are complex interventions that combine psychotherapeutic techniques with activities aimed at facilitating self-expression, and mainly focus on communication, social connection and self-awareness. The aesthetic media is used to 'contain' and give meaning to patients' experiences (R. A. Ruddy & Dent-Brown, 2007).

Drama (Bielanska, Cechnicki, & Budzyna-Dawidowski, 1991; R. A. Ruddy & Dent-Brown, 2007), dance (Xia & Grant, 2009), music (Kamioka et al., 2014; Mohammadi & Minhas, 2012; Talwar et al., 2006) and yoga (Bangalore & Varambally, 2012; Vancampfort et al., 2012) therapies separately have shown to improve negative symptoms, cognitive symptoms, self-confidence, self-expression, interpersonal communication and wellbeing in patients with schizophrenia. National Institute of Clinical Excellence (NICE) guidelines recommend arts therapies, a combination of the above mentioned therapies, as a psychological intervention in schizophrenia, which can be initiated during the acute phase or later (National Institute for Health and Care Excellence, 2014)

Drama therapy encourages spontaneity and creativity and can promote emotional expression, but does not necessarily require the participant to have insight into their condition (Bielanska et al., 1991). This makes it a form of treatment that can

be offered to a wider population of patients. Dance therapy is defined as 'the psychotherapeutic use of movement as a process which furthers the emotional, social, cognitive, and physical integration of the individual' (Xia & Grant, 2009). It has shown benefit in different settings, including inpatient units and within the community. Music therapy helps communication through non-verbal means and promotes emotional expression (Kamioka et al., 2014). Yoga as a complementary treatment has shown beneficial effects on cognitive functions as well as metabolic syndrome, a common condition seen in these patients (Bangalore & Varambally, 2012). The participation of professional trainers, doctors and occupational therapists is considered to play an important role in motivating these patients for therapy sessions.

Our study was designed to assess the efficacy of a combination of drama, yoga, dance and music therapy in reducing positive and negative symptoms and enhancing self-esteem.

Method

Participants

A randomized controlled study was done with the participation of seventy three patients with long standing schizophrenia diagnosed according to the International Classification of Disease, 10th edition (World Health Organization, 1992). They were randomly allocated to creative therapy group and treatment as usual. Informed written consent was obtained from patients who retained the capacity for consent, while consent was sought from guardians of the others. Participants were receiving in-ward treatment at intermediate units at National institute of Mental Health, Angoda (the largest psychiatric hospital in Sri Lanka). The sample was chosen randomly from admission registers in each ward. Twenty of the participants were admitted for treatment under court orders to the forensic psychiatry unit of this hospital. Patients with learning disability, physical disabilities, critical medical conditions, late onset schizophrenia and whose primary diagnosis was directly linked to substance use were excluded.

The comparison group received standard care including medication and occupational therapy

activities such as horticulture, physical exercises and leisure activities.

Intervention

The therapy programme was conducted at the National Institute of Mental Health, Angoda, Sri Lanka. Drama, music, dance and yoga therapies were incorporated into a comprehensive program, which was conducted over a period of three weeks. Therapy sessions lasted six hours per day, and were conducted on eight days over this period.

These sessions were conducted by instructors from the Abhina Academy of Performing Arts, Sri Lanka. These instructors had successfully completed rehabilitation programmes for refugees, war victims and ex-combatants in the Northern Province of Sri Lanka and were trained in these therapies. Therapists participated in all activities.

Specific interventions employed were breathing control training, identification and correct interpretation of basic emotions, observation of others behaviour and mimicking, attention enhancing procedures, maintaining correct body posture, enhancing self-confidence through mastery of simple activities and positive feedback, enhancing social interactions through drama, dance and group music and effective communication.

Outcome measures

Both groups were assessed prior to and at the completion of three weeks of treatment sessions using the Positive and Negative Syndrome Scale (PANSS) (Fiszbeln & Lewis, 1967) for Schizophrenia to measure improvement of symptoms. It is an interviewer administered questionnaire and reduction of cumulative score in each category of positive, negative and general psychopathology domains indicates an improvement of the clinical condition. Self-esteem was assessed in the test group using the Rosenberg Self Esteem Score (RSES) (Rosenberg, 1965). It measures both positive and negative feelings about self and higher scores indicate higher levels of self-esteem. Investigators assessing the outcome measures were blind to the treatment modality employed. The forensic and non-forensic groups were separately analyzed and comparisons made.

Ethical aspects

Ethical approval was obtained from the Ethical Review Committee of the Sri Lanka Medical Association. (Registered under Sri Lanka Clinical Registry, Registration Number-SLCTR/2013/008). The therapists and participants did not receive financial incentives. As explained above, informed written consent was obtained from patients or guardians for participation in the study.

Results

The test group comprised of 33 patients, which included 23 non forensic and 10 forensic patients. The control group had 40 patients with 30 non forensic and 10 forensic patients. Majority (76.7%) of the participants were males.

The mean ages of the test group and the control group did not differ significantly ($p=0.176$) according to the independent sample t test and were 38.79 years ($SD=9.50$) and 41.92 years ($SD=9.84$), respectively. In both the test and control groups the majority were males.

Baseline variables of PANSS and RSES did not follow the normal distribution (Shapiro Wilk test of normalcy, $p<0.001$) (Shapiro & Wilk, 1965). Therefore, subsequent analysis was done using non parametric tests; the Mann Whitney U test and Wisconsin signed rank test.

Both test and control groups were comparable at baseline in terms of PANSS scores ($p>0.05$). Both groups showed significant improvements in all PANSS scores (Table 1). In addition, significant improvement in the self-esteem score was observed in the test group ($p<0.001$).

The patients recruited for both test and control groups from the forensic units, when analyzed separately, did not show a significant improvement in PANSS scores (Table 1). There was no statistically significant improvement in self-esteem scores among patients from forensic units ($p=0.164$). In contrast, the patients from non-forensic units included in both test and control groups showed significant improvements in PANSS scores and RSES (Table 1).

Table 1 - PANSS scores at baseline compared with scores at the end of the intervention period

* Using Wilcoxon Signed Rank Test, 2-sided p

Patient population	Patient group	Pre-intervention - Median (Interquartile range)	Post-intervention- Median (Interquartile range)	P value*
Whole sample	PANSS Positive			
	Test	16.0 (14.0 – 19.5)	15.0 (10.0 – 17.5)	<0.001
	Control	17.0 (15.0 – 20.8)	16.0 (14.0 – 18.0)	<0.001
	PANSS Negative			
	Test	18.0 (15.0 – 22.5)	17.0 (11.0 – 22.5)	<0.001
	Control	19.0 (16.0 – 22.8)	18.0 (15.0 – 22.0)	0.014
	PANSS General			
	Test	33.0 (30.0 – 37.5)	29.0 (24.0 – 33.5)	<0.001
	Control	32.0 (27.3 – 37.8)	19.0 (23.5 – 36.0)	0.001
	PANSS Total			
Test	68.0 (63.5 – 77.0)	61.0 (49.5 – 72.0)	0.002	
Control	68.0 (62.0 – 74.0)	63.5 (54.5 – 72.8)	<0.001	
Forensic patients	PANSS Positive			
	Test	16.00 (13.50 – 21.50)	16.00 (14.00 – 22.25)	0.703
	Control	17.50 (14.75 – 22.00)	18.00 (14.25 – 22.50)	0.844
	PANSS Negative			
	Test	22.00 (18.75 – 24.5)	22.50 (18.75 – 25.50)	0.922
	Control	22.00 (18.75 – 25.2)	22.50 (18.75 – 26.50)	0.531
	PANSS General Psychopathology			
	Test	32.00 (30.00 – 33.75)	32.50 (30.50 – 34.75)	0.875
	Control	32.00 (33.50 – 30.75)	33.50 (30.75 – 35.75)	0.437
	PANSS Total			
Test	69.00 (65.00 – 77.25)	70.00 (66.75 – 77.75)	0.844	
Control	71.00 (68.75 – 77.75)	72.50 (69.25 – 80.75)	0.563	
Non-forensic patients	PANSS Positive			
	Test	17.00 (14.00 – 19.00)	13.00 (10.00 – 16.00)	<0.001
	Control	16.50 (15.00 – 20.25)	15.50 (13.75 – 17.00)	<0.001
	PANSS Negative			
	Test	16.00 (13.00 – 19.00)	13.00 (10.00 – 17.00)	0.001
	Control	17.50 (14.75 – 22.00)	17.00 (13.75 – 21.25)	<0.001
	PANSS General Psychopathology			
	Test	34.00 (29.00 – 38.00)	26.00 (21.00 – 32.00)	<0.001
	Control	31.00 (23.75 – 39.25)	27.00 (22.00 – 36.25)	<0.001
	PANSS Total			
	Test	68.00 (62.00 – 78.00)	52.00 (43.00 – 68.00)	<0.001
	Control	66.00 (61.50 – 74.00)	59.00 (52.75 – 69.25)	<0.001
RSES				
Test	25.00 (24.00 – 25.00)	24.00 (23.00 – 24.00)	<0.001	

Table 1 - Comparison of change in PANSS scores

Patient population	Score	Test Change Score - Median (Interquartile range)	Control Change score - Median (Interquartile range)	P value*
Total sample	PANSS Positive	1 (0 – 5)	1 (0 – 3)	0.241
	PANSS Negative	3 (0 – 4)	0 (0 – 1)	0.062
	PANSS General	3 (0 – 8.5)	1 (0 – 2)	0.055
	PANSS Total	7 (0.5 – 16)	2.5 (0 – 6)	0.082
Non-forensic patients	PANSS Positive	2 (1 – 6)	1 (0 – 4)	0.048
	PANSS Negative	3 (0 – 5)	0 (0 – 1.25)	0.010
	PANSS General	5 (2 – 11)	1.5 (0 – 2.25)	0.004
	PANSS Total	11 (3 – 22)	4 (1 – 7)	0.006

* Using Wisconsin Signed Rank Test, 2-sided p

When analyzing the difference from pre intervention to post intervention scores (change score) between the treatment and control groups in the total sample, there was no statistically significant difference (Table 2). However, when non forensic patients were analyzed separately, there was a significant difference ($p < 0.05$) between the test and control groups in improvement seen in all categories of PANSS score (Table 2).

Discussion

This study showed that exposure to dance, drama, yoga and music therapy have a positive effect on self-esteem and lead to symptom reduction in the short term in a sub group of non-forensic patients with schizophrenia. Results of this study are compatible with results of most other studies which utilize the above mentioned treatment modalities to improve positive and negative symptoms of schizophrenia (Bangalore & Varambally, 2012; Bielanska et al., 1991; Kamioka et al., 2014; Mohammadi & Minhas, 2012; R. A. Ruddy & Dent-Brown, 2007; Talwar et al., 2006; Vancampfort et al., 2012; Xia & Grant, 2009).

Bolstering self-confidence is one of the important factors that facilitate social integration (Roder et al., 2011). This study showed improvement in patients' self-confidence, which may also play a role in functional recovery.

The exact mechanism of effect of this kind of therapy is unknown. However, several hypotheses are postulated. It has been shown that patients with schizophrenia have deficits in social cognitions, i.e. the cognitive processes involved in how individuals think about themselves, other people, social situations and interactions. Creative therapies enhance the ability to interpret facial emotional expressions leading to better social outcomes (Addington, Girard, Christensen, & Addington, 2010; Mancuso, Horan, Kern, & Green, 2011). These interventions also improve non-verbal expressivity and encourage prosocial interactions (Brune, Abdel-Hamid, Lehmkamper, & Sonntag, 2007).

The creative therapy workshops have not led to any significant differences in the symptom scores or the self-confidence scores in the forensic population. The same is seen in the controls from the forensic units. This might be due to different characteristics in the forensic patients including the duration of illness, severity of symptoms, length of hospitalization and opportunities for social interactions.

This study assessed only short term changes in symptoms and self-esteem. It would be prudent to design studies over longer periods and those which measure long term outcomes even after cessation of therapy, in order to strengthen the evidence for using creative therapy in non-forensic and forensic settings.

These findings open up the possibility for exciting developments in the management of schizophrenia. This would require longer term interventions and trained personnel, as well as facilities to conduct therapy sessions. However, antipsychotic treatment alone leaves much to be desired and employing drama, dance, yoga and music therapy may help fill this gap.

Limitations

The participants were all in-ward patients and were on antipsychotic medication. Thus they were recruited to the study at a point where their clinical states were changing. However, they have all been transferred out of acute care units prior to enrolment in the study and were most likely at a stage where these changes were less rapid. In addition, both the study and control groups received antipsychotic medication of comparable efficacy and dosages. Secondly, we did not follow up our patient population in the longer term after the termination of therapy due to lack of resources. Thirdly, the nature of the intervention under study rendered the blinding of participants impractical. However, the clinicians who assessed the patients were blinded to the nature of treatment received by each patient. Finally, the sample size is too small, particularly of forensic patients, to make a conclusion.

Conclusions

However, based on the results of this study, further research can be encouraged in larger samples of patients with acute schizophrenia, to obtain more conclusive evidence on the use of creative therapy to enhance recovery.

References

- Addington, J., Girard, T. A., Christensen, B. K., & Addington, D. (2010). Social cognition mediates illness-related and cognitive influences on social function in patients with schizophrenia-spectrum disorders. *J Psychiatry Neurosci*, 35(1), 49-54.
- Bangalore, N. G., & Varambally, S. (2012). Yoga therapy for Schizophrenia. *Int J Yoga*, 5(2), 85-91. doi: 10.4103/0973-6131.98212
- Bielanska, A., Cechnicki, A., & Budzyna-Dawidowski, P. (1991). Drama therapy as a means of rehabilitation for schizophrenic patients: our impressions. *Am J Psychother*, 45(4), 566-575.
- Brune, M., Abdel-Hamid, M., Lehmkamper, C., & Sonntag, C. (2007). Mental state attribution, neurocognitive functioning, and psychopathology: what predicts poor social competence in schizophrenia best? *Schizophr Res*, 92(1-3), 151-159. doi: 10.1016/j.schres.2007.01.006
- Fiszbeln, & Lewis, A. Q. (1967). *The Positive and Negative Syndrome Scale (PANSS) for Schizophrenia* (Vol. 13).
- Huber, G., Gross, G., & Schuttler, R. (1975). A long-term follow-up study of schizophrenia: psychiatric course of illness and prognosis. *Acta Psychiatr Scand*, 52(1), 49-57.
- Kamioka, H., Tsutani, K., Yamada, M., Park, H., Okuizumi, H., Tsuruoka, K., . . . Mutoh, Y. (2014). Effectiveness of music therapy: a summary of systematic reviews based on randomized controlled trials of music interventions. *Patient Prefer Adherence*, 8, 727-754. doi: 10.2147/PPA.S61340
- Mancuso, F., Horan, W. P., Kern, R. S., & Green, M. F. (2011). Social cognition in psychosis: multidimensional structure, clinical correlates, and relationship with functional outcome. *Schizophr Res*, 125(2-3), 143-151. doi: 10.1016/j.schres.2010.11.007
- Mohammadi, A. Z., & Minhas, L. S. (2012). A Study of the Effects of Music Therapy on Negative and Positive Symptoms in Schizophrenic Patients. *German J Psychiatry*, 15(2), 56-62.
- National Institute for Health and Care Excellence. (2014, February 2014). Psychosis and schizophrenia in adults: treatment and management. from <http://www.nice.org.uk/guidance/cg178/chapter/1-recommendations>
- Roder, V., Mueller, D. R., & Schmidt, S. J. (2011). Effectiveness of integrated psychological therapy (IPT) for schizophrenia patients: a research update. *Schizophr Bull*, 37 Suppl 2, S71-79. doi: 10.1093/schbul/sbr072
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Ruddy, R., & Dent-Brown, K. (2008). Drama therapy for schizophrenia or schizophrenia-like illnesses. (3). doi:10.1002/14651858.CD005378.pub2
- Ruddy, R. A., & Dent-Brown, K. (2007). Drama therapy for schizophrenia or schizophrenia-like illnesses. *Cochrane Database Syst Rev*(1), CD005378. doi: 10.1002/14651858.CD005378.pub2
- Shapiro, S. S., & Wilk, M. B. (1965). An analysis of variance test for normality (complete samples). *Biometrika*, 52(3-4), 591-611.
- Talwar, N., Crawford, M. J., Maratos, A., Nur, U., McDermott, O., & Procter, S. (2006). Music therapy for in-patients with schizophrenia: exploratory randomised controlled trial. *Br J Psychiatry*, 189, 405-409. doi: 10.1192/bjp.bp.105.015073
- Vancampfort, D., Vansteelandt, K., Scheewe, T., Probst, M., Knapen, J., De Herdt, A., & De Hert, M. (2012). Yoga

- in schizophrenia: a systematic review of randomised controlled trials. *Acta Psychiatr Scand*, 126(1), 12-20. doi: 10.1111/j.1600-0447.2012.01865.x
- Whiteford, H. A., Ferrari, A. J., Degenhardt, L., Feigin, V., & Vos, T. (2015). The Global Burden of Mental, Neurological and Substance Use Disorders: An Analysis from the Global Burden of Disease Study 2010. *PLoS ONE*, 10(2), e0116820. doi: <http://doi.org/10.1371/journal.pone.0116820>
- World Health Organization. (1992). *The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Description and Diagnostic Guidelines*. Geneva: World Health Organization.
- Xia, J., & Grant, T. J. (2009). Dance therapy for schizophrenia. *Cochrane Database Syst Rev*(1), CD006868. doi: 10.1002/14651858.CD006868.pub2