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Original Article

Nursing Section

# Effect of Art Therapy on Cognitive and Psychological Well-being of Patients with Major Mental Disorders- An Experimental Study

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## ABSTRACT

**Introduction:** Psychological and recreational activities have been found to be useful in the field of psychiatry. 'Art Therapy' uses therapeutic use of art within the professional role in the personal development of the patient by creating art and finding meaning through them. People can improve their awareness of self and cope with symptoms of stress, anxiety, and traumatic experiences. They can also improve cognitive abilities and gain pleasure in making art.

**Aim:** To evaluate the effectiveness of art therapy on cognitive functions and psychological well-being among mentally ill patients admitted with major mental disorders.

**Materials and Methods:** An evaluative approach with a pre-experimental, one group pre and post-test design was adopted to select 60 patients admitted with major mental disorders in a selected psychiatric unit, Udupi, Karnataka, India through purposive sampling technique. Data collection was done from 1st December 2019 to 31st January 2020. Information was collected through Montreal Cognitive Assessment (MoCA) Scale and Psychological General Well-being Index (PGWBI) Scale. The pretest was conducted on the first day. Art therapy sessions were conducted for four consecutive days. Post-test assessments were done on the seventh and fourteenth day.

**Results:** The mean baseline MoCA score was 16.70±4.04 which improved to 19.10±4.07 on 7th day and 21.28±4.33 on 14th day. Similarly, baseline score of PGWBI was 35.28±13.94 which improved to 53.58±13.88 on 7th day and further increased to 81.80±17.69.

**Conclusion:** Art therapy has a strong effect on the psychological well-being of the patients with mental illnesses and is effective in improving cognitive functions and psychological well-being.


**Keywords:** Adjunct therapy, Leisure activities, Mental health, Montreal cognitive assessment scale

## INTRODUCTION

Art therapy is one of the complementary therapies useful in a wide spectrum of disorders, disabilities, and diseases including mental illnesses. Art therapy influences body and mind interaction that can affect physiological and psychological symptoms. By creating a work of art, an individual can ventilate his powerful emotions that are internalised. It is essential for the promotion of well-being of people with psychological disorders, since art therapy provides changes in the affective, interpersonal, and relational areas, improving the emotional balance at the end of each session. It provides patients with the opportunity to address issues or express without the use of spoken or written language. Art can not only be used to assess patients but can help in the evaluation of emotional, cognitive, and developmental conditions of the clients. Few attempts have been made to examine the effectiveness of art therapy as an adjunctive treatment for people with schizophrenia [1-3].

Results of previous studies have shown a statistically significant relationship between art and the negative symptoms of schizophrenia as well as in reducing social and life function problems [3-6]. Studies on the efficacy of art therapy have been conducted in other areas as well, such as cancer, medical conditions, organic brain disorder, long-term traumatic injuries, etc., [1,7-9]. However, very few studies have been done on mental health and mental illness [2,10]. Hence, this study was undertaken to assess the effectiveness of art therapy on the cognitive and psychological well-being of mentally ill patients (viz., schizophrenia, depression, mania) with intact insight.

## MATERIALS AND METHODS

An experimental one group pretest post-test research design was adopted. The data collection was done from 1st December 2019 to 31st January 2020 at a selected psychiatric unit, Udupi, Karnataka, India. Ethical clearance was obtained from the Institutional Ethics Committee (A.J Institute of Medical Sciences and Research Centre), wide Ref no: AJEC/REV/17/2018, dated 26/3/2018. Consent was obtained from participants before conducting the study.

**Sample size calculation:** A purposive sampling technique was adopted to select mentally challanged patients admitted with major mental disorders with insight. Based on a pilot study, with the power of the study as 80%, the sample size was calculated (using Open-epi software) and was found to be 60.

**Inclusion criteria:** Adults who had been diagnosed with specific conditions like schizophrenia, mania and depression and who had an insight into their illness.

**Exclusion criteria:** Patients who were drowsy, violent and uncooperative.

### Procedure

The instrument used for the study were Montreal Cognitive Assessment (MoCA) Scale, and Psychological General Well-being Index (PGWBI) Scale. The following demographic data were also recorded: age, gender, marital status, residing place, education status, occupation, type of family, number of siblings, and history of mental illness.

MoCA scale was used to assess the cognitive functions among mentally ill patients. It has eight items. The tool consists of six areas with a maximum score of 30. Each correct answer has a score of one and the wrong interpretation is given a score of zero. Scores less than 17 indicate severe impairment, 18 to 23 indicate mild impairment and 24 to 30 indicate no cognitive impairment [11]. Permission was

obtained for MoCA and was translated in Kannada, reliability was checked using Cronbach's alpha and found to be 0.98.

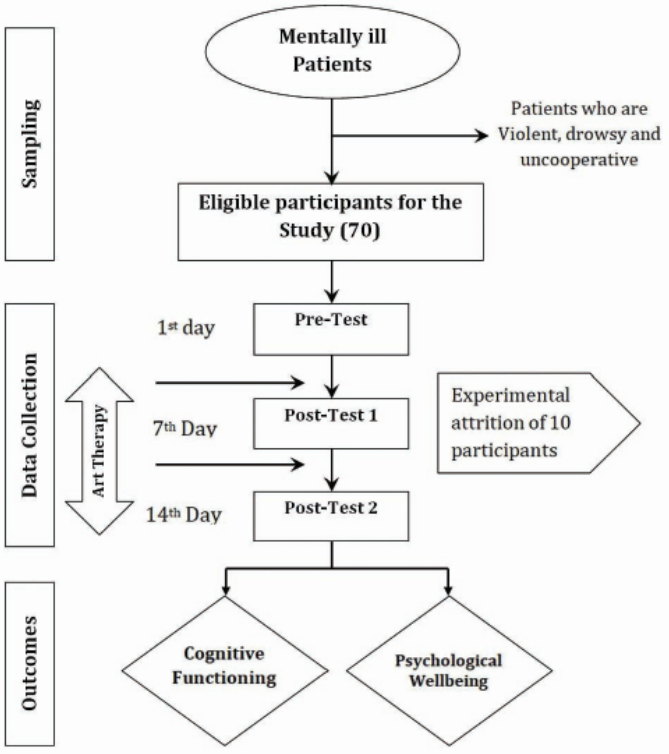
PGWBI Scale is a standardised scale with 22 items, with values ranging between zero and five which assess the psychological and general well-being of respondents in six Health-related Quality of life (HRQoL) sections developed in the United States [12]. Score zero indicates the worst possible level of well-being and 110 indicates the maximum level of well-being. Scores between 73-110 indicate positive well-being, 61-72 indicate mild cognitive impairment and less than 60 indicate severe distress. Permission was obtained to use and translate the tools in the local language, Kannada. Cronbach's alpha was used to check the reliability and found to be 0.88 for PGWBI scale [13].

Pretesting of all the tools was done by administering to ten mentally ill patients to determine the feasibility, clarity, and ambiguity of the tools and also the time required.

### Data Collection

Out of 70, ten participants dropped out (two were non cooperative and 8 got discharged before the completion of 14 days), and the remaining 60 were considered for final analysis. The pretest analysis was done on day one.

The art therapy sessions were administered by the investigator for 45 minutes every day for four consecutive days. During the next 10 days patients were allowed to practice art therapy during activities by themselves under the observation of a staff. The first two days the patients were shown to prepare paper bags from old newspapers and the next two days envelop making from coloured papers and brown sheets. The first post-test was conducted on the 7th day and the second post-test on the 14th day. An atmosphere of safety and support was provided for all the patients [Table/Fig-1].




**[Table/Fig-1]:** The process of art therapy for mentally ill patients.

## STATISTICAL ANALYSIS

Statistical analysis was done by Statistical Package for the Social Sciences (SPSS) 17 version. Descriptive statistics were used for demographic details and categorical variables. The normalcy of each observation of both outcome variables (cognitive functioning and psychological well-being) was tested using the 'Kolmogorov-Smirnov' test and found to have a p>0.05. The p-value justifies that the data is normally distributed, therefore, parametric tests like Repeated Measures Analysis of Variance (RMANOVA), were used to find the significant difference between the observation as there were more than two observations. Further post hoc test pairwise comparison was done using Bonferroni. All the tests were two-tailed, and p<0.05 was regarded as statistically significant.

## RESULTS

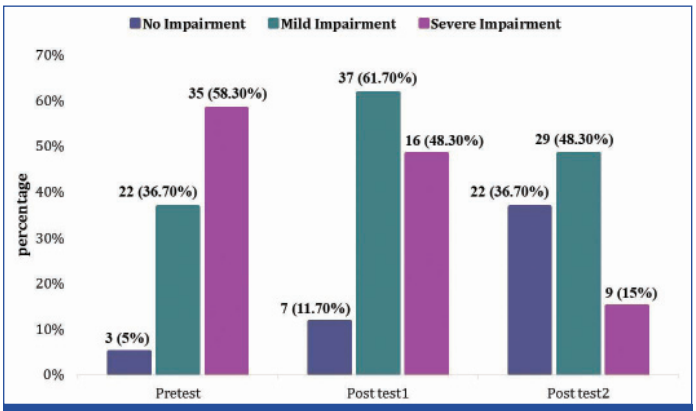
The sample characteristics revealed that out of 60 participants, 33.3% were in the age group of 39-48 years, the majority (56.7%) were females, and married (58.3%) [Table/Fig-2].

| Variable | Frequency (%) |
|---|---|
| **Age (in years)** | |
| 20-28 | 12 (20%) |
| 29-38 | 9 (15%) |
| 39-48 | 20 (33.3%) |
| 49-58 | 12 (20%) |
| Above 58 | 07 (11.7) |
| **Gender** | |
| Male | 26 (43.3%) |
| Female | 34 (56.7%) |
| **Place of residence** | |
| Urban | 33 (55%) |
| Rural | 27 (45%) |
| **Education** | |
| Primary education | 12 (20%) |
| Secondary education | 10 (16.7%) |
| High school | 20 (33.3%) |
| Pre University Course (PUC) | 12 (20%) |
| Graduate | 05 (8.3%) |
| Post-Graduate | 01 (1.7%) |
| **Occupation** | |
| Unemployed | 15 (25%) |
| Daily wage worker | 30 (50%) |
| Self-employed | 9 (15%) |
| Government-employed | 2 (3.3%) |
| Professional | 4 (6.7%) |
| **Marital Status** | |
| Single | 23 (38.3%) |
| Married | 35 (58.3%) |
| Widow/widower | 02 (3.4%) |
| Divorced | - |
| **Type of Family** | |
| Nuclear | 22 (36.7%) |
| Joint | 34 (56.7%) |
| Extended | 04 (6.7%) |
| **Number of siblings** | |
| None | 28 (46.7%) |
| one | 14 (23.3%) |
| two | 13 (21.7%) |
| Three and more | 05 (8.3%) |
| **History of admissions in a year** | |
| None | 10 (16.7%) |
| Once | 24 (40%) |
| Twice | 13 (21.7%) |
| Thrice | 09 (15%) |
| More than thrice | 04 (6.7%) |

**[Table/Fig-2]:** Frequecy and percentage distribution of particpants.

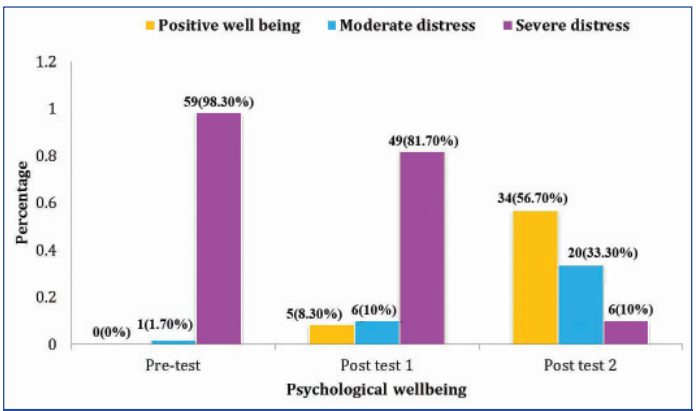
### Level of Cognitive Functions among Mentally Ill Patients

Data in [Table/Fig-3] depicts that 95%(57) of patients had cognitive function impairment at baseline which reduced to 88.3% (53) on the 7th day (post-test 1) after introducing art therapy and further reduced to 63.3% (38) by the 14th day (post-test 2). It also shows that severe impairment of cognition was reduced from 58.3% (35) to 15% (9) and on the contrary, participants having no impairment improved from 5% (3) to 36.7% (22) in 14 days.




**[Table/Fig-3]:** Level of cognitive functioning among the study respondents.

The data in [Table/Fig-4] reveals that in the pretest and positive well-being was not present but after the art therapy intervention the positive well-being increased to 8.3% (5) on the 7th day (post-test 1) and further increased to 56.7% (34) on the 14th day (post-test 2). On the contrary, the distress which was severe in 100%(60) in pretest was reduced to 91.7% (55) on the 7th day (post-test 1) and declined to 43.3% (26) by the 14th day (post test 2). This data supports that art therapy can influence the positive well-being of mentally ill patients to a good extent.




**[Table/Fig-4]:** Level of psychological well-being among mentally ill patients.

As there were multiple observations (more than two observations) RMANOVA was used to find the significant difference between related population means. The Normalcy was tested using the 'Kolmogorov-Smirnov' test and found to be normally distributed (p>0.05). Mauchly's test of Sphericity indicated that the assumption of Sphericity was violated, $\chi^2$=51.21, p<0.0001, hence, Greenhouse Geisser correction was used to test the hypothesis. Data in [Table/Fig-5] reveals that there was a significant effect of art therapy on cognitive function (F(1.32,78.28)=177.20, p<0.001) and positive well-being {F(1.26,74.37)=292.41, p<0.001} [Table/Fig-6]. Pairwise comparison was done using Bonferroni which revealed that the means was significantly different over the period [Table/Fig-7].

| Cognitive function | Mean (SD) | Mean difference with baseline | p-value |
|---|---|---|---|
| Pretest | 16.70 (4.04) | | |
| Post-test 1 | 19.10 (4.07) | -2.40 | <0.001 |
| Post-test 2 | 21.28 (4.33) | -4.58 | <0.001 |

**[Table/Fig-5]:** Effectiveness of art therapy on Montreal Cognitive Assessment (MoCA).
$F_{(1.32, 78.28)}$=177.20, p<0.001

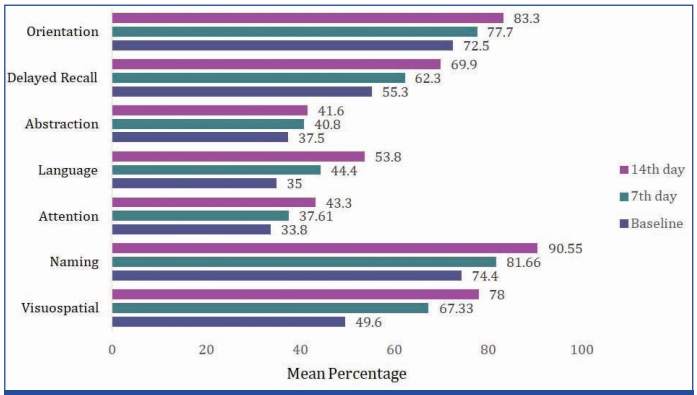
| Psychological well-being | Mean (SD) | Mean difference with baseline | p-value |
|---|---|---|---|
| Pretest | 35.28 (13.94) | | |
| Post-test 1 | 53.58 (13.88) | -30.68 | <0.001 |
| Post-test 2 | 81.80 (17.69) | -57.90 | <0.001 |

**[Table/Fig-6]:** Effectiveness of art therapy on Psychological General Well-being Index (PGWBI).
$F_{(1.26, 74.37)}$=292.41, p <0.001

| MoCA attributes | Mean | | | df | | F-value |
|---|---|---|---|---|---|---|
| | Pre-test | Post test 1 | Post test 2 | Time | Error | |
| Visuospatial | 2.48 | 3.36 | 3.9 | 1.39 | 82.07 | 74.63*# |
| Naming | 2.33 | 2.45 | 2.71 | 2 | 118 | 29.01*# |
| Attention | 2.36 | 2.63 | 3.03 | 1.61 | 94.97 | 22.67*# |
| Language | 1.05 | 1.33 | 1.61 | 1.67 | 98.59 | 29.86*# |
| Abstraction | 0.75 | 0.81 | 0.83 | 1.11 | 65.51 | 129.04*# |
| Delayed recall | 2.76 | 3.11 | 3.48 | 1.17 | 104.87 | 50.73*# |
| Orientation | 4.35 | 4.66 | 5 | 1.65 | 97.83 | 30.33*# |

**[Table/Fig-7]:** Repeated measures ANOVA on MoCA attributes.
*p<0.001, df: Degrees of freedom, Sphericity accepted; #Bonferroni pairwise comparison was significant

Repeated measures ANOVA of MoCA variables revealed that there was a significant effect of art therapy on cognitive variables viz., visuospatial, naming, attention, language, abstraction, delayed recall, and orientation [Table/Fig-8].




**[Table/Fig-8]:** Effect of art therapy on MoCA attributes.

## DISCUSSION

Art therapy has been used as a therapeutic method in various populations like dementia, alzheimers, schizophrenia, depression, cancer patients, inmates, elderlies. Few studies in mental illness have revealed art therapy effectively reducing psychiatric symptoms and improving well-being or quality of life [1,4,6]. Thus, researchers wanted to assess how effective art therapy works on cognition and psychological well-being among patients with major psychiatric illnesses like schizophrenia and depression. The result revealed that art therapy on daily basis is effective for improving cognition and psychological well-being.

The current study was focused on major illnesses like schizophrenia, mania, and depression whereas, others were more specific- on depressive symptoms [6] Schizophrenic patients [2,4,14-16], and dementia [17]. Present study was conducted for two weeks continuous session and whereas, other researchers like Richardson P et al., Crawford MJ et al., and Leurent B et al., conducted 12-week session involving 1.5 hours and Chandraiah S et al., conducted for

eight weeks, weekly session for 45 to 60 minutes [3,4,6,18]. The current study was most similar to the study conducted by Isaac S et al., which was conducted on a daily basis for 30 days [10]. The above studies suggest that daily sessions of a duration of 45-60 minutes are better than weekly sessions for improving cognitive and psychological well-being. Further studies with three month follow-ups are recommended to find the effectiveness of art therapy in medium term.

The current study findings revealed that art therapy has a good influence on cognitive functioning among the mentally ill [Table/Fig-8] which was similar to findings of a study conducted in India where 90% of participants had moderate impairment before art therapy and it was reduced to 65% in post-test [10]. Another study conducted in China [16] where art therapy (music) revealed that there was a significant reduction of psychiatric symptoms when administered as six sessions per week for three months for two hours per day.

The current study also showed that art therapy is effective in improving all the cognitive variables in MOCA like language (35% to 53.8%), delayed recall (55.3% to 69.9%), naming (74.4% to 90.55%) and visual spatial (49.6% to 78%) [Table/Fig-8]. A similar result was found in a study conducted in China, where dementia [17] patient's attention was enhanced, verbal fluency was increased from 7.3% to 25.9% and semantic clustering was increased from 0 to 5.76% with art creation activities, portraits, landscapes, and narrative paintings. The above studies concluded that art therapy has some effect in improving the attention and orientation of mentally ill patients, reducing behavioural and psychological symptoms improving the patients social skills, and easing the burden of dementia patient's caregivers.

The study findings showed that art therapy had a strong effect on the psychological well-being of a mentally ill patients [Table/Fig-6]. On the contrary, a study conducted in the United Kingdom [3] showed that well-being score among art therapy (58.3±21.1 to 65.1±18.6) was more than activity therapy (59.1±19.25 to 66.1±18.4) and standard care (64.5±20.6 to 68.1±18.8) during the 24 months follow-up with no significant differance. Another study conducted in Berlin [19] also showed art therapy in improvement in quality of life but with no significant difference from Treatment as a Usual (TAU) after 12 weeks follow-up. This may be due to the fact that art therapy on daily basis may have given constant positive reinforcement and a sense of accomplishment improving well-being, whereas, studies from UK and Berlin may have lacked that constant interaction and reinforcement for a significant improvement. It suggests that art therapy if continuous may show a good result in improving psychological well-being.

### Limitation(s)

The study was conducted only in a selected psychiatric unit at Udupi which imposes limitations in the generalisation of findings. The sample size was limited to 60 because of time constraints. No control group was selected for the study. Only subjective responses were considered. The study was conducted for a limited period of 2 weeks.

## CONCLUSION(S)

Findings of the study indicated that art therapy interventions were effective in improving the level of cognitive functions and psychological well-being among mentally ill patients. Art therapy should be introduced on a daily basis instead of weekly to get the maximum effect on mentally ill patients. A similar study can be replicated in various other settings like hospitals, orphanages etc. A longitudinal study can be carried out with different time intervals of data collection that is at diagnosis, after six months, one year, and at two years.

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