

# Effect of Music Based Group Therapy on Cognitive Skills Among Geriatric Population with Depression

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## ABSTRACT

Depression is a serious recurring condition that affects role function and quality of life. Elderly people usually undergo depression because of their dependency on the family or people around them and also undergo cognition deficits due to that, especially the people who are staying in the care centers. The purpose of the study is to determine the effect of music based group therapy on cognitive skills among geriatric population with depression. The study design was a pre and post-quasi-experimental study. A total of 30 older adults in the age group of 65-75 years with depression were identified by assessing the older adult using Geriatric Depression Scale – Short Form. They were conveniently distributed into 2 groups as the experimental group (15 older adults) and the control group (15 older adults). The music based group therapy was given to the older adults for 36 sessions in the experimental group. Meanwhile, conventional occupational therapy was given to the control group and evaluated the effectiveness using pre and post-test of Montreal Cognitive Assessment Scale (MoCA). The statistical analysis showed significant improvement in both groups when compared to the post scores of both groups, there was high statistical significance shown in the experimental group. This study has concluded that the Music Based Group Therapy has a significant effect on cognitive skills among the geriatric population with depression. Hence this intervention proved its effect, the music based group therapy can be incorporated with occupational therapy programs to improve cognitive skills in other conditions.

**Keywords:** Music based group therapy, cognitive skills, depression, geriatric population.

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## INTRODUCTION

As we age, we face many physical and emotional changes that can affect our level of function and well-being. Rehabilitation of geriatric patients is imperative for the patient's well-being and society so that we can thrive socially and economically.

Major depression affects approximately 350 million people worldwide and is the fourth leading cause of disability. This disorder is a serious recurring condition that affects role function and quality of life. Research has shown that as many as 27% of older adults who live in a senior residence exhibit symptoms of depression. Due to this prevalence and the devastating and expansive effects of depressive symptoms early intervention and treatment is crucial.

Keeping socially mentally and physically active in elderly people can help slow down cognitive skills including short-term memory, attention, processing speed, and problem-solving. In addition, socio-economic status and prior life experiences can also heavily influence cognitive performance in the old age population. Mild cognitive impairment emerging the late-life depression does not appear to progress to dementia in most cases. Instead, it is a stable disturbance that improves only mildly when depressive symptoms are improved.

Occupational therapists help elderly patients improve their fine and basic motor skills, strength, dexterity, and their range of motion. They evaluate cognitive abilities as well as physical abilities. Cognitive Occupational Therapy interventions could have a positive impact on these clients' everyday occupational performance. Group occupational therapy improved neurocognition such as verbal fluency, working memory, attention, etc. Group therapy based on music is an interpersonal activity with common goals, favoring empathy and social interaction. It stimulates the cognitive process by focusing attention on the music, orientation, interaction with others memorizing lyrics, pitch, and

rhythm, factors which are known to stimulate executive, attention, verbal learning, and memory functions. Musical activities involve extensive stimulation of the brain, capable of including long-term neuroplasticity and improving emotional and cognitive functions.

**Aim of the study:**

To determine the effect of music based group therapy on cognitive skills among the geriatric population with depression.

**Objectives of the study:**

- To find out the persons with depression in the geriatric population using Geriatric Depression Scale - Short Form.
- To find out the effect of conventional occupational therapy on cognitive skills in the control group using Montreal Cognitive Assessment Test - Tamil.
- To find out the effect of music based group therapy on cognitive skills in the experimental group using Montreal Cognitive Assessment Test - Tamil.
- To compare the effect of conventional occupational therapy and music based group therapy between the control group and experimental group using Montreal Cognitive Assessment Test - Tamil.

**Research Hypothesis:**

There is a statistically significant difference between the post-test scores of the control and experimental group.

**Research Design:**

The research design was Quasi-Experimental.

**Sample Technique:**

The convenient sampling technique was adopted.

**Sample Size:**

Totally thirty (30) subject was adopted.

- Fifteen (15) were in the control group.
- Fifteen (15) were in the experimental group.

**Sample Setting:**

The sample setting in Little Drops old age home at Iyyappanthangal.

**Inclusion Criteria:**

- Elderly people between the age of 65-75 years.
- Gender: Both male and female.
- Elderly people staying in a geriatric care center for the past 5 months.
- Elderly people with a depression score of above 5 on Geriatric Depression Scale- short form.
- Elderly people who speak and understand Tamil.

**Exclusion Criteria:**

- Elderly people below 65 years and above 76 years.
- Elderly people who have cognitive impairment with a score below 17 on MoCA - Tamil.
- Elderly people with chronic illness or mental illness.
- Elderly people with hearing problems and unable to follow instructions.

**Materials used:**

- 1) **Scales:**
  - Geriatric Depression Scale - Short Form (GDS - SF).
  - Montreal Cognitive Assessment (MoCA) - Tamil version.
- 2) Patient consent form

**Duration of the study:**

- This study was conducted for about 3 months.
- 20 sessions were carried out.
- Each session takes about 45 minutes.

### Procedure

A total of thirty subjects are selected according to the inclusion criteria. The depression was measured using Geriatric Depression Scale - Short Form and cognitive skills were measured using Montreal Cognitive Assessment Test, noted as pre-test values. The samples are equally divided into two groups, 15 samples in the control group and 15 samples in the experimental group. After the baseline data is obtained, the control group underwent conventional occupational therapy intervention as the experimental group underwent Music Based Group Therapy sessions. The Music Based Group therapy consists of a total of 36 sessions, 3 sessions per week on the alternative days of about 3 months. The Group Therapy sessions were based on cognitive components like orientation, memory, problem-solving, and sequencing. After the sessions, cognitive skills were again administered using Montreal Cognitive Assessment Test to get the post-test values. The pre and post-test values are used to find out the result of the study.

### Intervention Protocol

The goal of the study was to analyze elderly adults with depression and provide music based group therapy to help them to improve their cognitive skills. The elderly people were given various music based group activities. Warm-up and wind-down phase lasted 5 minutes each, and the action phase lasted 35 minutes. Some warm-up and wind-down activities are introducing themselves, clapping, breathing exercises, greeting one another, meditation, relaxation techniques, telling about each other, and telling the experience of the session. Some of the action phase activities like,

- ask them to sing songs related to seasons, mother, and father
- asking for a common song and ask the same song the next day
- find a missing word in the line of the common song
- antakshari, etc.

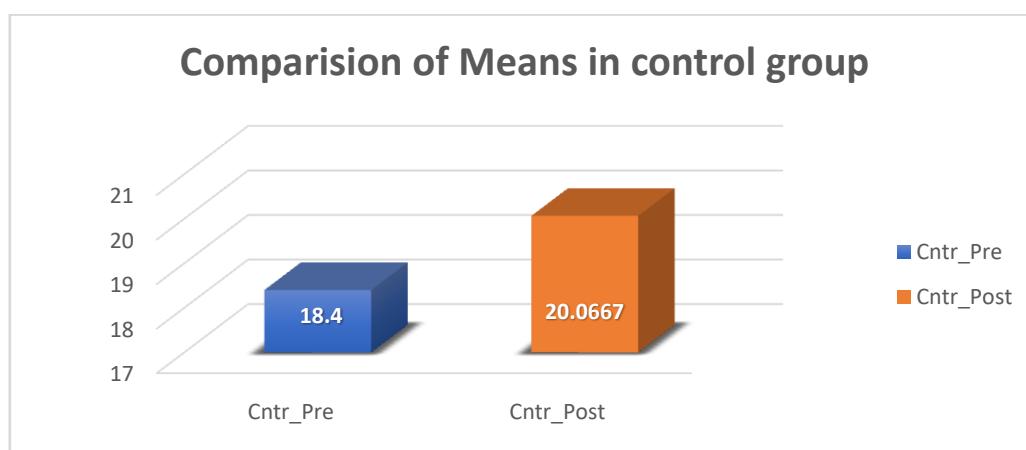
### DATA ANALYSIS AND RESULTS

**Table 1: Statistical analysis of pre-test and post-test in the control group**

|           | Mean    | N  | Z value | p-value |
|-----------|---------|----|---------|---------|
| Cntr_Pre  | 18.4    | 15 | -3.483  | 0.00*   |
| Cntr_Post | 20.0667 | 15 |         |         |

\*Significant at 5% alpha level

Table 1 shows the statistical analysis between the pre-test and post-test of the control group. Since the p-value of 0.00 is lesser than 0.05, alternate hypothesis is accepted. Hence, there is a statistically significant difference between pre-test and post-test scores in the Control Group of the MoCA scale. This suggests that the intervention received by the control group had significant improvement.



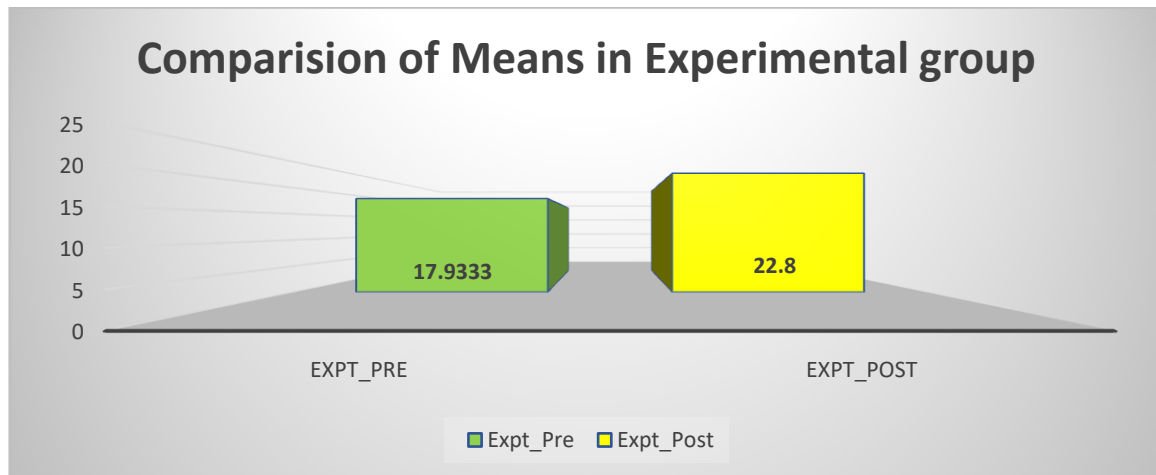
**Graph 1: Comparison of means between pre-test and post-test of the control group.**

**Table 2: Statistical analysis of pre-test and post-test in the experimental group**

|           | Mean    | N  | Z value | p-value |
|-----------|---------|----|---------|---------|
| Expt_Pre  | 17.9333 | 15 | -3.455  | 0.001*  |
| Expt_Post | 22.8    | 15 |         |         |

\* Significant at 5% alpha level

Table 2 shows the statistical analysis of the pre-test and post-test of the experimental group. In the Experimental group, since the p-value of 0.001 is less than 0.05, alternate hypothesis is accepted. Hence, there is a statistically significant difference in the Experimental Group between pre-test and post-test scores of the MoCA scale. This suggests that the intervention received by the experimental group had significant improvement.



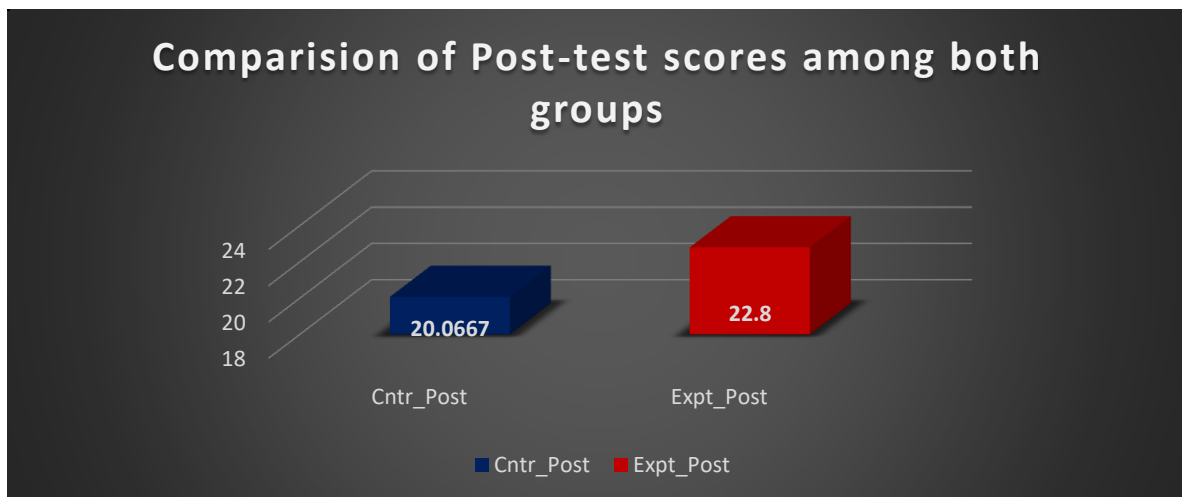
**Graph 2: Comparison of means between pre-test and post-test of the experimental group.**

**Table 3 Statistical analysis of the post-test scores of the control and experimental group**

|                  | Mean    | N  | Z value | p-value |
|------------------|---------|----|---------|---------|
| <b>Cntr_Post</b> | 20.0667 | 15 | -2.012  | 0.044*  |
| <b>Expt_Post</b> | 22.8    | 15 |         |         |

\*Significant at 5% alpha level

Since the p-value of 0.044 is lesser than 0.05, alternate hypothesis is accepted. Hence, there is a statistically significant difference in post-test scores between the control and experimental groups of the MoCA scale. This suggests that the intervention received by the experimental group had more improvement when compared to the control group.



**Graph 4.3 Comparison of post-test scores among both control and experimental group.**

## DISCUSSION

The purpose of the study was to find out music based group therapy is effective in the cognitive skills among the geriatric population with depression. Similar studies were done to find out the effect of group music therapy in the form of group singing, on depressive symptoms and loneliness in institutionalized geriatric individuals having mild depression and concluded that it was effective. Table 1 and graph 1 it has shown the statistical analysis between the pre-test and post-test of the control group. The mean value of the pre-test is 18.4 and the mean value of the post-test is 20.07 and the Z value is -3.483 and the p-value is 0.00 and which indicates that there is a statistically significant

difference between pre-test and post-test scores in the control group. It indicates that there was a statistical improvement in the control group after conventional occupational therapy.

**Table 2 and graph 2** it has shown the statistical analysis between the pre-test and post-test of the experimental group. The mean value of the pre-test is 17.93 and the mean value of the post-test is 22.8 and the Z value is -3.455 and the p-value is 0.001 and which indicates that there is a significant improvement between the pre-test and post-test in the experimental group.

**Table 3 and graph 3** it has shown the statistical analysis of the post-test between the control group and the experimental. The mean value of the control group is 20.07 and the mean value of the experimental group is 22.8 and the Z value is -2.012 and the p-value is 0.044 and which indicates that there is a significant improvement in the experimental group when compared to the control group, the alternate hypothesis is accepted. This shows that music based group therapy shows significant improvement when compared to other conventional occupational therapy programs. Even though there was a significant difference in the statistical analysis of post-test in the control and experimental group, the result was not as we expected. It might be possible if the intervention was given for more periods and more frequency in a week. It was indicated that Music Based Group Therapy showed improvement in cognitive skills among the geriatric population than other conventional occupational therapy programs.

### CONCLUSION

From the statistical analysis, the results showed that there was a statistically significant difference in the post-test of the control group and the experimental group. This study has concluded that the Music Based Group Therapy has a significant effect on cognitive skills among geriatric population with depression. Hence this intervention proved its effect, the music based group therapy can be incorporated with occupational therapy programs to improve cognitive skills in other conditions.

#### Limitations:

- The limitation of the study includes the small number of samples involved.
- The limitation of the study includes a confined age group.
- The limitation of the study includes people with severe cognitive impairment and other chronic diseases.

#### Recommendations:

- The same study can be replicated in a large sample size and with more frequency of sessions in a week to generalize their results.
- The music based group therapy can be used for other conditions such as TBI, parkinsonism, etc.
- This study can be taken place in the hospital setup and other community-based setups.

**Source of Funding:** Self

**Conflicting Interest:** None

**Ethics Clearance:** Approval from Institution Scientific Review Board (ISRB) was obtained prior to the study.

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