Effectiveness of Music Therapy on the Depression levels among Elderly at Assiut Geriatric Clubs

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Abstract
Background: *Depression is not a natural consequence of being old but it is a common problem among older adults that interferes with daily life and normal functioning of them.*
This study aimed *to evaluate the impact of music therapy in reducing depression symptoms among elderly population.*
Subject and methods: *One group pretest and posttest experimental study design was utilized. Geriatric citizen club in City Street and Geriatric clubs of Islamic cultural center in Assiut Governorate- Egypt were the setting. Subjects were included of all elderly aged 60- 79 years old, a total of 42 were recruited for music therapy intervention program during six months period. Personal data and Short Form Geriatric Depression Scale (GDS) were selected to measure the severity of depression.*
The results: *there was a significant improvement in severity of depression (P<0.001) between pre and posttest of music therapy intervention for depressed elderly.*
Conclusion: *music therapy has been founded as one of the important strategies toward optimal psychosocial wellbeing for reducing depression among elderly population.*
Recommendations: *additional randomized studies using a larger sample size based on appropriate measurements and long-term follow-up are required to verify the effect of music intervention on depression among senior citizen apartments.*
Keywords: *Elderly, Depression, Music therapy.*

I. Introduction

Ageing is the sequence of changes in individual over time and encompassing of physical, psychological and social change. It is a critical part for all communities reflecting the biological changes that occur, and also reflecting cultural and societal conventions [1]. The elderly population is the fastest growing in the world. Today; 125 million individual aged 80 years and over, moreover; the world's senior citizen aged 60 years and more is projected to increase to 2 billion by 2050. Egyptian persons old 60 years and over represented 9% from the total populations [2].

On the other hand; old age is among the greatest considered risk factors for most common diseases. Roughly 100,000 persons worldwide die every day due to age-related causes. According to the World Health Organization**,** over 15% of adults over the age of 60 suffer from a mental disorder. Depression is the most common psychological problems among seniors, occurring in 7 % of old age citizen. Elders account for more 18 % of suicides deaths in the United States [3]. For older adults, depression can come from chronic illness, disability, loss of spouse, worries for being dependent and due to institutionalization. These types of depression are long term and can be difficult to deal with it[4].

Psychological ageing is evidenced in a person through mental problems such as memory loss, dementia, depression and other psychosocial disorders that are associated with old age. Social, cultural and economic aspects such as: religion, social network and economic resource like financial bankruptcy do impact and have implications for ageing as a phenomenon [5]. Depression symptoms affect every aspect of older adults life which including energy, appetite, sleep, interest in work, hobbies and relationships. Unfortunately, all too many depressed seniors fail to recognize the symptoms of depression, or don't take the steps to get the help they need [6].

Depression is affecting about 79% of hospitalized elderly and approximately 50% of older adults living in private homes [7][8].Moreover; about 121 million persons worldwide suffering from depression and characterized by persistent depressed mood, which leads to changes in appetite, sleep pattern and overall functioning. Also it is characterized by a marked decreasing of self-esteem and feelings of worthlessness and guilt. Symptoms further include anhedonia, fatigue and impaired concentration. At its worst, it can lead to suicide, which is associated with the loss of 1 million lives per year. Also, Depression is projected to become the leading cause of disability and the second leading contributor to the global burden of disease by the year 2020 [9][5].

In this respect depression is also one of the most common reasons for the use of complementary and alternative therapies. The reasons for this are complex and vary according to patient group [10].

Music therapy (MT) has strong effect on anyone; also it releases a tripwire of memories improvement for old age individual, so that it is considered one of the most effective therapies for senior citizens. MT allow for memory recall which associated to satisfaction with successful and happy life events, which lead to positive mood and emotional states changes [11]. Music therapy effectively reduces anxiety, depression and agitated behavior for elderly. Not only music therapy found to be cost-effective, but also it was a promising intervention for improved quality of life among people with dementia [12].

Health care providers especially nurses help in improving the well-being of an older adults. Refraining from using traditional medical treatment within the elderly population becomes a challenge, as they are at risk of many illnesses. However, music therapy can provide a significant amount of physical pain reduction, reduce anxiety and depression, and foster social relationships with assisted living staff and social support circles. So, many studies considered music therapy an integrative form of treatment within the respective elderly population [13].

Significance of the study:

Approximately about 121 million people worldwide are suffering from depression. Moreover, depression is a common a serious problem among older adults that needs treatment. If left untreated, it can lead to suicide because for some older adults who have depression, sadness is not their main symptom and they may not be willing to talk about their feelings. Therefore, music therapy can be considered one of psychological interventions which help elderly to adapt with their losses, expression of their feeling and decrease negative mood.

II. Aim of The Study

This study was aimed to evaluate the impact of music therapy in reducing depression symptoms among elderly population.

Hypothesis: Music therapy sessions can significantly improve of depression in older adults.

III. Subject And Methods

3.1 Study Design:
One group pretest and posttest experimental study was utilized in this research.

3.2 Setting: The study was conducted in the geriatric clubs which affiliated to Assiut city (geriatric citizen club associated for Elgamai Alsharia in City Street and Geriatric clubs of Islamic cultural center).

3.3 Sample:
Convenient sample represents all elderly people who their ages ranged from 60: 79 years old and were attending to geriatric clubs at regular interval. It involved 100 elderly (male and female), after applied the pretest questionnaire 42 of them were suffering from depression and involved in the study.

Exclusion criteria: Older adults, who were diagnosed with other psychiatric problems, can't communicate with the researchers and who had audiological deficits were excluded from the study.

3.4 Tools of the study:
Two tools were utilized to collect pertinent for this study, these are:

Tool (I): A structured interview questionnaire:-
It designed by the researchers based on reviewing current national and international literature to assess a comprehensive, proper and accurate personal data of the studied sample. It included two parts:

- ▪ **Part (1):** personal data as, old\yrs, gender, educational level, job, marital status, residence, family condition (relationship, number)…etc.
- ▪ **Part (2):-**It included elderly medical history such as presence of chronic diseases as hypertension, diabetes, and renal disease, cardiovascular disease and medication used……etc.

Tool (II): Short Form Geriatric Depression Scale (GDS)

It assessed severity of depression in old age populations (15 items screening tool). It is self-report assessment with yes/no answers. The 10 items from total indicated the presence of depression when answered positively, while the rest questions indicated depression when participant responded negatively. The scale is scored as the following equal to 3 or less were suggestive as a normal, while 4 and 5 score indicated of mild depression; > 5-11 indicates moderate depression and 12-15 indicate severe depression. It took about 15 to 20 minutes to complete. The validity of scale was assessed by **Malakoutiet al.** [14]. Ronbach's α as a measure of internal reliability was high (0.88) and κ ranged from 0.57 to 0.75..

3.5 Data collection:

The study was carried from beginning of November 2016 to the middle of April 2017. The program was completed in four stages:

3.6 Preparatory stage:
Administrative permission:-

An official consent was got from the Dean of Faculty of Nursing\Assiut University to the director of the two clubs to obtain their vital assistance and necessary approval to conduct the study. This letter included the consent to carry out the study and clarified the purpose and nature of the study.

Ethical consideration:-

Research proposal were approved from Ethical Committee in the Faculty of Nursing. There is no risk for study subject during application of research. Written consent was obtained from the elderly that is willing to participate in the study, after explaining the nature and purpose of the study. Confidentiality and anonymity were assured. The Studied subject had the right to refuse to participate or withdraw from the study at any time. All the studied older adults who suffered from depression and didn't response to music therapy, the researchers advised them to go to psychiatric specialists to avoid the progress of the disease.

- • **Pilot study:**

The pilot study was carried out on 5 older adult to evaluate the clarity and applicability of the tool content and the time needed for filling it. It was included to the total sample of the study.

3.7 Assessment phase:
- - Initially the researchers were contacted and rapport was established with the studied elderly.
- - All ethical considerations were assured to them.
- - Personal data was collected from the older adults (100 elderly).
- - Depression scale was applied to all older adult (100 elderly)
- - Based on geriatric depression score, 42 of them were diagnosed with various levels of depression that were included in the study.
- - The researchers prepared suitable and quite place for applying the music sessions.

3.8 Intervention phase:
- - The depressive elderly divided into small groups maximum 5 elderly.
- - The number of session was 12 sessions, two sessions per week for 30 to 45 minutes for six weeks.
- - Each session of the music therapy, every participant was chosen singers that has positive emotional and sense for him, after that the music tracks were started and selected.
- - At the end of each session, the researchers wrote notes about the progress of the therapy

3.9 Evaluation phase :

After finishing all sessions, post-test was done and brochure was given to all studied elderly which included (definition of depression, signs and symptoms, dangers of depression, ways of prevention especially music therapy, and way of referral to psychiatric specialists).

IV. Statistical Analysis

The data were tested for normality using the Anderson-Darling test and for homogeneity variances prior to further statistical analysis. Categorical variables were described by **frequency**, mean and standard deviation **(Mean, SD)**. **Chi-square test** and fisher exact test used to compare between categorical variables where compare between continuous variables by **t-test** and **ANOVA**. **A two-tailed** $p < 0.05$ was considered statistically significant. All analysis were performed with the **IBM SPSS 20.0** software.

V. Results

Table: Distribution of participant elderly based on their socio-demographic characteristics in Assiut geriatric clubs. (n=42)

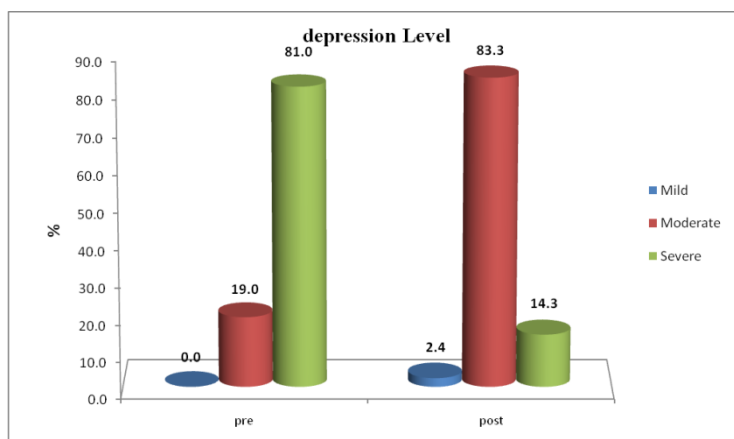| socio-demographic data	No	%
Age		
60-74 years	33	78.6
75-84 years	9	21.4
Mean ±SD (range)	69.4±5.5 (60-79)	
Sex		
Male	10	23.8
Female	32	76.2
Residence		
Rural	3	7.1
Urban	39	92.9
Marital status		
Married	11	26.2
Divorced/Widow	29	69.0
Single	2	4.8
Living status		
Living with family	21	50.0
Living alone	21	50.0
Education level		
Basic education	28	66.7
University	14	33.3
Occupation		
House wife	18	42.9
Retirement	24	57.1
Family relation		
Good relation	37	88.1
Superficial relation	5	11.9
Friends relation		
Good relation	35	83.3
Superficial relation	7	16.7
History		
Yes	28	66.7
No	14	33.3
Type of disease:		
Diabetes mellitus.	9	21.4
Cardiac disease.	4	9.5
Hypertension.	14	33.3
Liver disease.	1	2.4

Figure (1): Distribution of elderly patients regarding depression level according to geriatric depression scale in pre and post music therapy.

Table (2): The relation between socio-demographic data of studied elderly and their depression score in pre and post music therapy.

socio-demographic data	Depression Score	
	Pre intervention Mean±SD	**Post intervention Mean±SD**
Age		
60-74 years	12.08±1.06	10.06±1.14
75-84 years	12.78±1.18	10.22±0.94
P. value	0.093	0.700
Gender		
Male	11.85±0.91	10.25±1.36
Female	12.34±1.15	10.05±1.02
P. value	0.224	0.615
Residence		
Rural	12.17±0.58	10.83±0.58
Urban	12.23±1.15	10.04±1.11
P. value	0.925	0.230
marital status		
Married	12.36±1.23	10±1.43
Divorced/Widow	12.21±1.11	10.1±0.92
Single	11.75±0.35	10.5±2.12
P. value	0.770	0.843
Education level		
Basic education	12.23±1.11	10±1.01
University education	12.21±1.16	10.29±1.27
P. value	0.962	0.432

Table (3): The relation between geriatric depression levels in pre and post applying music therapy, living status and their relations

Socio-demographic data	Depression Score	
	Pre intervention Mean±SD	**Post intervention Mean±SD**
Living status		
Living with family	12.24±1.24	10.14±1
Living alone	12.21±0.99	10.05±1.2
P. value	0.946	0.782
Family relation		
Good relation	12.18±1.06	10.15±1.05
Superficial relation	12.6±1.56	9.7±1.44
P. value	0.430	0.396
Friends relation		
Good relation	12.11±1.02	10.17±1.12
Superficial relation	12.79±1.47	9.71±0.91
P. value	0.146	0.319

Table (4): The relation between medical history and depression level among studied elderly in pre and post music therapy

Variable	Depression Score	
	Pre intervention Mean±SD	**Post intervention Mean±SD**
History		
Yes	12.16±1.19	10.04±1.04
No	12.36±0.95	10.21±1.22
P. value	0.595	0.624
Type of disease:		
Diabetes mellitus.	11.89±1.43	10.28±1.44
Cardiac disease.	12.38±1.18	10.75±0.87
Hypertension.	12.25±1.14	9.71±0.7
Liver disease.	12.5±0	9.5±0
P. value	0.875	0.277

Table (1) illustrated that the mean age of the studied sample (69.4± 5.5) and ranged from (60-79) years, 92.9% of them from urban area, 69.0% were widow\divorced, about two fifth (40.5%) of participants have secondary school education, There were 44.8% retirement and 48.6% of them live alone. According to family relationship about 88.1% of studied sample have family relationship, also 33.3% of them have hypertension and 21.4% have diabetes.

Figure (1) displayed the distribution of studied elderly according to their severity of depressive symptoms in pre and post music therapy. It was observed that, 81.0% of the studied elderly in the first week of

data collection (pre-test) had severe level of depression, while the majority (83.3%) of them had moderate level of depression in posttest (6th week). Also, it showed that there was a statistically significances differences between pre and post program according to geriatric depression level at p-value (< 0.001).

Table (2): Showed the relation between depression level and elderly socio demographic characteristics throughout phases of program, the table cleared that, there was improvement in the severity of depression in post intervention related to all socio-demographic variables. Also, there were not any statistically significant differences between all socio-demographic data and depression score in pre and post music therapy.

Table (3) displayed the impact of music therapy on severity of depression based on elderly living status and their relations in pre and post music therapy. It appeared from the table that, there was improvement in the severity of depression in post intervention related to living status and their relations. Also, there were not any statistically significant differences between living status, their relations and depression score in pre and post music therapy.

Table (4): Concerning relation between the mean score of depression and medical history of studied elderly throughout phases of music therapy, the table revealed that there was not any statistical difference between type of chronic diseases and the mean score of depression.

VI. Discussion

Depression was considered an old age problem which resulted from inability to survive with their health problems, providing the care for a partner with a physical impairment, sadness for death of loved one and resolve the problem which appeared among family members. Music therapy improved the elderly mood and increases their capacity to readjust with physiological and natural life events[15].

Concerning personal data of the studied sample, the mean age of elderly were 69.4±5.5. All elders participated in this study their age ranged from 60-79 years and more than two third of studied elderly aged 60 to 74 years had sever level of depression. This might be indicated that, the young older adults is the age of beginning major physical, psychological and sociologic losses as well as a reduced ability to compensate for some losses and reflect the serious effect of age related changes on psychological health of elderly people. The vast majority of elderly people from urban area, less than half of them live alone, more than half of studied elders were retired and the majority of the studied sample had strong family and friend's relation.

The present study displayed that, significance improvement in severity of depression among participant elderly throughout phases of music therapy intervention according to geriatric depression scale. This might be attributed to the listening of music provided a mood boost which elderly persons feel better about their selves and increased an opportunities for emotional expression and may serve as a distraction from unpleasant feelings.

These results confirm the findings by **Thompson et al.** [16] and **Chu et al.** [17] who observed that, group music intervention is a non-invasive and inexpensive therapy that reduces depression immediately after music therapy and were apparent throughout the course of therapy in aging persons.

In addition, another study by **Dobbins** [18] focused on the Effect of Group Music Therapy Interventions and Individual Music Therapy Interventions on Changes in Depressive Symptoms in elderly Persons with dementia in Residential Facilities reported that there was a significant difference in depressive symptoms over time.

Also, the current finding in agreement with the results of **Chou and Lin** [19]who indicated that depression decreased at the 12th session (P < 0.001); after music therapy one month follow-up (P < 0.044; P < 0.001; P < 0.026). This may be attributed to those participants in music program performed significantly better on depression, distress, self-esteem and mood.

Therefore, our findings supported by the study of ,**Chan et al.** [20]who pointed that, the music group had consistently reduced depression scores compared with the control group during the eight-week study .In this respect, **Murrock and Higgins** [21]suggested that, music would evoke a psychological response by altering mood and leading to improved health outcomes.

On the other hand, A key result from Music therapy for depression in older adults analysis conducted by **Zhao et al.** [22]who found that, while music therapy had no significant impact on depressive symptoms compared to standard therapy, it seemed that music therapy had a significant effect when added to standard therapy (compared with standard therapy alone).

However, in the study conducted by **Tai et al.** [23] who examined the changes in depression and measured the effect of music intervention on the cognitive and depression status of senior apartment residents in Taiwan revealed that, there is no significant reduction was observed in the depression score between the baseline and after one month assessment. While, significant changes were observed in the two groups between the baseline and the 4-month assessment. These changes may be attributed to the personal care that our staff and colleagues provided to each participant.

Various associations between severity of depression and socio-demographic variables were noticed in various studies. In the current study, no significant association was observed between depressive symptoms and

personal data of the studied elderly. This finding were partially supported by the findings of **Esmayel et al.** [24]who reported that, no significant association was noticed between depressive symptoms and other socio-demographic variables while significant association observed between depressive symptoms and low income.

Adding to the evidence of this finding, **Hamza et al.** [25] did not found any significant difference between depression and socio-demographic data, while **Sidik et al.**[26]reported that, significant relation with income. Also, **Shehata et al.**[27]found significant association with gender only, while **Hadi et al.**[28]explained significant associations with age and education.

Unfortunately, these differences in the associations of depression with personal data characteristics may be suggesting that the elderly are depressed by being ill, being away from their families, being unable to work and facing a risk of death but considering all these events as normal part of becoming ageing.

Depression can be a side effect of chronic health conditions and managing those conditions. Additionally, promoting a lifestyle of healthy living such as improvement of living conditions and social support from family, friends or support groups can help treat depression [2].

The current study explored the influence of chronic disease and elderly individual's relations with family or friends on depression symptoms which indicated minimal improvement with no significant difference between pre and post program in severity of depression. One possibility is that, many older adult individuals, their perceptions of ageing is that many discomfort from chronic illness and social problems commonly associated with ageing process. Also, suggesting emotional support from family and friends is important predictor of psychological wellbeing among elderly.

These results were inconsistent with **Argyropoulos et al.** [29] who reported that depressive symptoms were more frequent in women who didn't married, including divorced and widowed, compared to married and in subjects living alone at home.

Depressive symptoms were more frequent in elderly with chronic diseases compared to those without co morbidity. Also, study in Alexandria by **El- Kady and Ibrahim** [7] who reported higher prevalence of depression among hospitalized elderly (79%) compared to institutionalized (36%) and community-dwelling (24%) elderly.

VII.   Conclusions

Based on the current study findings, it can be concluded that music therapy significantly reduced the severity of depression in elderly persons through group session. This study showed that music intervention improved the mood status.

VIII.   Recommendations

Based on the study results, it was recommended that additional randomized studies using a larger sample size based on appropriate measurements and long-term follow-up are required to verify the effect of music intervention on depression among senior citizen apartments.

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CONFLICTS OF INTEREST
The authors declare that there is no conflict of interest.

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