

A Study to Assess the Effectiveness of Music Therapy on Elderly Residing in Selected Geriatric Homes, Kancheepuram District, Tamil Nadu, India

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Abstract: *The number of elderly in the developing countries has been growing at a Phenomenal rate; in 1990 the population of 60 years and above in the developing Countries exceeded that in the developed countries. According to present indications, most of this growth will take place in developing countries and over half of it will be in Asia, with the two major population giants of Asia, namely India and China contributing a significant proportion of this growing elderly (1). The elderly population aged 70 and above which was only 8 million in 1961 rose to 21 million in 1991 and to 29 million in 2001 (2). At the same time, due to urbanization and industrialization the elderly are forced to stay in geriatric homes. In geriatric homes more than half of the elderly are suffering from bio physical problems compared to the elderly residing in the community. Mortality rates will be higher among geriatric which is included in the vulnerable group by the year 2020, mainly due to bio physical problems especially cardiac and respiratory illnesses. The respiratory rate is considered as one of the most accessible and important indications of the general condition of a patient. Those problems can be prevented by recent trends in the intervention which includes complimentary therapies especially music therapy. To assess the effect of music therapy on elderly suffering from bio physical problems, who are residing in selected geriatric homes and to associate the effect with selected demographic variables were the objectives. The study was conducted in 'Little Drops' old age home (experimental group), and 'Little Angles' old age home (control group), Chennai, Tamil Nadu. A Quasi experimental design Pre-test/Post-test Control Group was used. Elderly samples of 101 in experimental group and 100 in control group were selected. Purposive sampling technique was used in selecting the samples. Inclusion criteria were followed, as the samples that were able to hear the music by conducting whisper test. Pre assessment of checking respiratory rate was done before the intervention of administration of music therapy. It was administered to the participants who were included in listening to a predesigned instrumental music based on raga Malkauns, for the duration of 22 minutes at a specified time in the evening for a period of 30 days. The collected data were analyzed using the descriptive statistics and inferential statistics. The study results revealed that, there is a significant relationship between the effect of music therapy and the increased respiratory rate of the elderly; also showed that female gender, married people, people interested in games and people walking had statistically significant reduction in respiratory rate, than their counterparts. The study concludes that training in the field of geriatrics and gerontology for Para professionals in counseling the elderly including music therapy beneficial effects on the problems of the elderly.*

Keywords: Music therapy, Elderly & Geriatric Home, respiration, music raga

1. Introduction

The number of people who turn 60 each year worldwide is nearly 58 million, equivalent to almost two persons every second. In 2012, people aged 60 or over represent almost 11.5 per cent of our total global population of 7 billion. By 2050, the proportion is projected to nearly double to 22 per cent. (3)

Living arrangements of older people are changing with modernization of societies. These types of arrangements force the elderly to stay in the geriatric homes. Such types of Institutions are mushrooming since 1990s. In 1998, India had 728 old age homes. In 2006 it is increased to 1049(4). Mortality rate among elderly is increasing which is mainly due to bio physical illnesses, for which respiration is the main indicator. This is preventable by administering complementary therapies especially music therapy. (5)

A study was conducted by Samitha Siritunga, Kumudu Wijewardena & et al on the effect of music on blood

pressure, pulse rate and respiratory rate of asymptomatic individuals in which maintenance of the respiratory rate within the normal range has also being identified as crucial for a healthy heart. Significant reductions of systolic and diastolic blood pressure, pulse rate and respiratory rate were observed immediately after listening to Indian classical music for about 22 minutes in asymptomatic individuals aged between 45 and 65 years (6).

Minimal studies were conducted even in developed countries. Clinical Training in the field of geriatrics and gerontology for Para professionals should include administration of complimentary therapies especially music therapy will definitely have beneficial effects on the bio physical problems of the elderly.

2. Materials and Methods

Research approach: Quasi-Experimental Research Approach

Research design Quasi experimental design Pre-test/Post-test Control Group Design

Settings of the study: ‘Little Drops’ old age home (experimental group), and ‘Little Angles’ old age home (control group), Chennai, Tamil Nadu.

Population: Elderly residing in the geriatric homes

Sample: elderly above 60 years of age, who can be able to read, write; also able to listen to the music.

Sample size: 101 samples in experimental and 100 in control groups who have met the inclusion criteria

Sampling Technique: purposive sampling technique.

Criteria for Selection of Sample:

Inclusion criteria: The inclusion criteria for the present study were:

- Males and females who are above the age group of 60 years.
- Those who can speak either Tamil or English language.
- Those who are willing to participate in this study
- Those who are able to listen to the music by conducting whisper test.

Exclusion criteria: The exclusion criteria for the present study were:

- Those who are not available at the time of study.
- Those with the disability of deaf and dumb

3. Results and Discussion

The collected data were entered in data sheet and analyzed using descriptive and inferential statistics. The distributions of the demographic data of the study participants are more than half the proportion (58.0%) of the elderly were in the age group of 60-70 years. With regard to the gender, males are found more (51%) than the females in the geriatric home (experimental group). Higher proportions (37.6%) of the elderly were widows/widowers. Also higher proportion (39.6%) of the old aged finished their primary schooling Majority (67.3%) of was having self income in the form of pension.

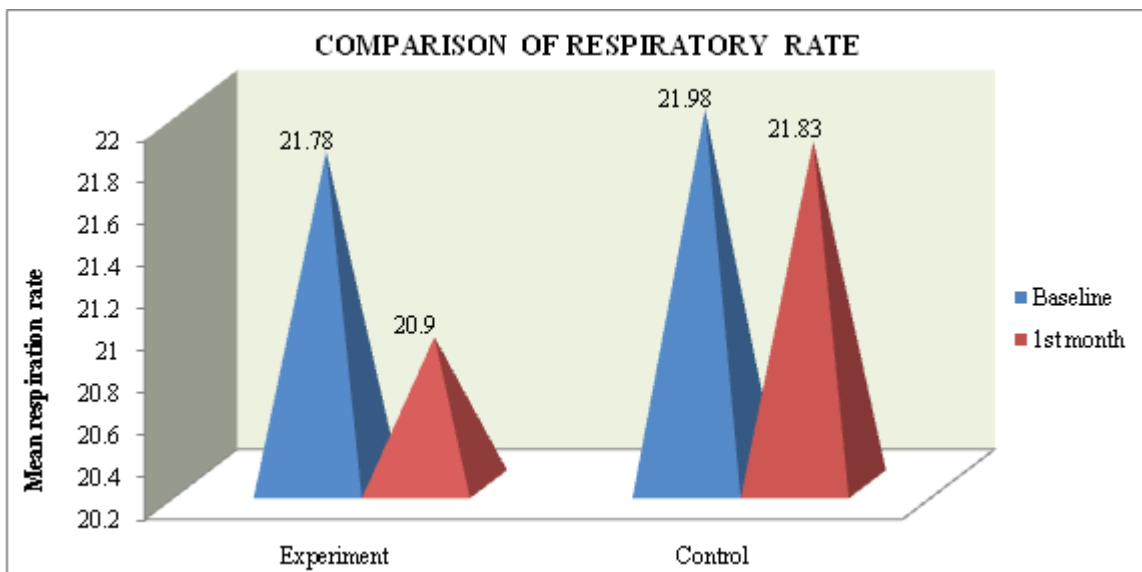


Figure 1: Comparison of respiratory rate between experimental and control groups

Table 1: Comparison of respiration between experimental and control groups

Period	Group				Student's Independent T-Test
	Experiment		Control		
	Mean	SD	Mean	SD	
Baseline	21.78	2.05	21.98	2.34	t=0.64 p=0.52
1 st month	20.90	1.76	21.83	1.79	t=3.70 p=0.001***

(Fig 1)

* Significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high significant at $P \leq 0.001$

Table no.14 Baseline, 1st month and 3rd month RESPIRATION comparison between experiment and control group elderly people.

Considering **Base line RESPIRATION**, experiment group aged people are having 21.78 where as in control group it is 21.98. So the difference between experiment and control group is 0.20, it is small difference and it is not statistically significant.

Considering **1st month RESPIRATION**, experiment group aged people are having 20.90 where as in control group it is 21.83. So the difference between experiment and control group is 0.93. This difference is large and it is statistically significant.

Table 2: Effectiveness of music therapy on respiratory rate between experimental and control groups

Bio physical parameter	Research study groups	Baseline Mean value	After 1 month Mean value	Mean Difference with 95% Confidence interval	Percentage Difference with 95% Confidence interval
Respiration	Experiment	21.78	20.13	1.65(1.24– 2.06)	7.6%(5.7% –9.5%)
	Control	21.98	21.52	0.46(0.18– 0.74)	2.1%(0.8% –3.4%)

Table no. 2 shows the comparison of reduction score between pretest and posttest. Differences between pretest and posttest score was analyzed using proportion with 95% CI and mean difference with

95% CI. It shows the **effectiveness of music therapy** on bio physical problems of the elderly residing in selected geriatric homes.

Table 3: Association between level of respiration reduction score and their demographic variables (control group)

Demographic variables		Level of Respiration reduction score				Total	Chi square test
		Below average (<0.46)		Above average (>0.46)			
		n	%	n	%		
Age group	61 -70 yrs	28	50.0%	28	50.0%	56	$\chi^2=0.12$ P=0.94 DF=2
	71 -80 yrs	17	51.5%	16	48.5%		
	81 -90 yrs	5	45.5%	6	54.5%		
Sex	Male	23	46.0%	27	54.0%	50	$\chi^2=0.64$ P=0.42 DF=1
	Female	27	54.0%	23	46.0%		
Marital status	Married	19	44.2%	24	55.8%	43	$\chi^2=5.67$ P=0.07 DF=2
	Unmarried	8	36.4%	14	63.6%		
	Widow/widower	23	65.7%	12	34.3%		
Education status	Illiterate	11	42.3%	15	57.7%	26	$\chi^2=5.36$ P=0.25 DF=4
	Elementary school	16	42.1%	22	57.9%		
	High school	13	65.0%	7	35.0%		
	HSC	4	50.0%	4	50.0%		
	Under Graduate	6	75.0%	2	25.0%		
Income	nil	34	54.8%	28	45.2%	62	$\chi^2=3.31$ P=0.24 DF=3
	<500/month	4	40.0%	6	60.0%		
	501-1500/month	3	27.3%	8	72.7%		
	1501and above	9	52.9%	8	47.1%		
Exercise	Nil	10	40.0%	15	60.0%	25	$\chi^2=1.33$ P=0.24 DF=1
	Walking	40	53.3%	35	46.7%		
Interest	nil	35	46.1%	41	53.9%	76	$\chi^2=1.98$ P=0.37 DF=2
	Games	3	60.0%	2	40.0%		
	Tailoring	12	63.2%	7	36.8%		
other habits	nil	35	58.3%	25	41.7%	60	$\chi^2=6.67$ P=0.09 DF=3
	smoking	4	50.0%	4	50.0%		
	pan chewing	5	25.0%	15	75.0%		
	Others	6	50.0%	6	50.0%		
family income	less than 500/month	1	12.5%	7	87.5%	8	$\chi^2=5.79$ P=0.06 DF=2
	501-1500/month	17	60.7%	11	39.3%		
	1501and above	32	50.0%	32	50.0%		
relationship	Yes	29	59.2%	20	40.8%	49	$\chi^2=3.24$ P=0.07 DF=1
	No	21	41.2%	30	58.8%		

* significant at $P < 0.05$ ** highly significant at $P < 0.01$ *** very high significant at $P < 0.001$

Reduction score value is calculated using Difference of each person after 1month score – pretest score. It will give of Respiration reduction score. **Average of this reduction score = 0.46**

Table 3 shows the association between demographic variables and their level of respiratory rate reduction score in control group. None of the demographic variables are

associated with their level of reduction. Statistical significance was calculated using chi square test.

Table 4: Association between level of respiration reduction score and their demographic variables (experiment group)

Demographic variables		Level of respiration reduction score				Total	Chi square test
		Below average (≤1.65)		Above average (>1.65)			
		n	%	N	%		
Age group	61 -70 yrs	30	51.7%	28	48.3%	58	$\chi^2=0.15$ P=0.92 DF=2
	71 -80 yrs	16	50.0%	16	50.0%	32	
	81 -90 yrs	5	40.0%	6	60.0%	11	
Sex	Male	33	64.7%	18	35.3%	51	$\chi^2=8.32$ P=0.01** DF=1
	Female	18	36.0%	32	64.0%	50	
Marital status	Married	12	34.2%	23	65.8%	35	$\chi^2=6.15$ P=0.05*DF=2
	Unmarried	18	64.3%	10	35.7%	28	
	Widow/widower	21	54.0%	17	46.0%	38	
Education status	Illiterate	9	42.9%	12	57.1%	21	$\chi^2=6.22$ P=0.18 DF=4
	Elementary school	20	51.3%	19	48.7%	40	
	High school	7	36.8%	12	63.2%	19	
	HSC	5	50.0%	5	50.0%	10	
Income	Under Graduate	9	81.8%	2	18.2%	11	$\chi^2=5.36$ P=0.14 DF=3
	nil	34	50.0%	34	50.0%	68	
	< 500/month	2	28.6%	5	71.4%	7	
	501-1500/month	4	36.4%	7	63.6%	11	
Exercise	1501and above	11	73.3%	4	26.7%	15	$\chi^2=5.99$ P=0.01** DF=1
	Nil	15	75.0%	5	25.0%	20	
	Walking	36	44.4%	45	55.6%	81	
Interest	nil	46	56.7%	35	43.3%	81	$\chi^2=7.31$ P=0.02* DF=2
	Games	1	12.5%	7	87.5%	8	
	Tailoring	4	33.3%	8	66.7%	12	
other habits	nil	31	44.9%	38	55.1%	69	$\chi^2=3.64$ P=0.30 DF=3
	smoking	7	70.0%	3	30.0%	10	
	pan chewing	7	53.8%	6	46.2%	13	
	Others	6	66.7%	3	33.3%	9	
family income	less than 500/month	3	25.0%	9	75.0%	12	$\chi^2=3.57$ P=0.16 DF=2
	501-1500/month	19	52.7%	17	43.3%	36	
	1501and above	29	54.7%	24	45.3%	53	
relationship	Yes	22	52.4%	20	47.6%	42	$\chi^2=0.10$ P=0.74 DF=1
	No	29	49.2%	30	50.8%	59	

* significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high significant at $P \leq 0.001$

Reduction score value is calculated using Difference of each person after one month score – pretest score. **Average of this reduction score = 1.65.**

Table 4 shows the association between demographic variables and their level of respiratory rate reduction score in experiment group. Female gender, married people, people interested in games and people walking had statistically significant reduction in respiratory rate, than their counterparts. Statistical significance was calculated using chi square test.

Table 5: Identification of influence factors for reduction of Respiration using Multivariate logistic regression

Demographic variables	Sig.	Odds ratio	95%CI	
			Lower	Upper
Age(< 70 yrs Vs > 70 yrs)	0.818	1.075	0.58	1.993
Sex (Female Vs Male)	0.338	1.387	0.711	2.706
Marital status(Married Vs others)	0.074	0.512	0.246	1.066
Education status(Literate Vs Illiterate)	0.419	0.723	0.33	1.586
Income(Income Vs No income)	0.327	1.515	0.66	3.477
Exercise (Yes Vs No)	0.004	3.589	1.497	8.668
Interest (Yes Vs No)	0.031	2.896	1.091	7.19
Other habits(No Vs Yes)	0.394	1.365	0.667	2.791
Family income(> Rs.1500 Vs <Rs. 1500)	0.769	0.901	0.45	1.806
Relationship(Yes Vs No)	0.463	1.303	0.643	2.637

Table 5 shows the influencing factors to reduce respiration among the demographic variables of experimental group elderly people. Interest people are having 2.89 times more reduction than males and Exercise people are having 3.58 times more reduction than others. It was found using multivariate logistic regression.

4. Conclusion

Old aged population is also considered as one of the vulnerable group of population who needs much attention to alleviate bio physical problems of the elderly. Due to urbanization and industrialization old aged are forced to stay in the old age homes. Due to loneliness, feeling aloof, and other factors in geriatric homes lead to bio physical problems which can be treated with music therapy, one of the complimentary therapies.

Music therapy helps the old aged by reducing bio physical problems through musical progress. By conducting the research study, the author concludes that music can be considered for the use of programmes in preventing cardio vascular disease. As listening to relaxing music would be more acceptable to the elderly population as an intervention method of reducing CVD risk, it would lead to an improvement in the quality of life of the elderly.

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