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RESEARCH ARTICLE

A STUDY TO ASSESS THE EFFECTIVENESS OF MUSIC THERAPY ON ELDERLY RESIDING IN SELECTED GERIATRIC HOMES, KANCHEEPURAM DISTRICT, TAMIL NADU, INDIA

Lakshmi L¹ and Shiv Bhushan Sharma²

¹Chettinad College of Nursing, Rajiv Gandhi Salai, Kelambakkam, Kancheepuram District, Tamilnadu, India

²Department of Physiology, Chettinad Hospital and Research Institute, Rajiv Gandhi Salai, Kelambakkam, Kancheepuram District, Tamilnadu, India

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ABSTRACT

In India, elderly population stands in second place in the world. Since 1990s, geriatric homes keep increasing 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 illness. The pulse is considered as one of the most accessible and important indications of the general condition of a patient. The pulse rate, being an index of the heart rate, is of the greatest importance. Those problems can be prevented by recent trends in the intervention which includes complimentary therapies especially music therapy.

The objectives of the study were 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. 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 pulse 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 pulse rate of the elderly; also showed a significant relationship between sex, educational status, exercise and family income with the higher rate of pulse. 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.

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INTRODUCTION

Asia has the fastest increase in the aging population in the world (1) In most gerontological literature, people above 60 years of age are considered as 'old' and as constituting the 'elderly' segment of the population. (2)

India is home to one out of 10 senior citizens in the world. This population, estimated to be over 80 million at present, is projected to grow to 137 million by 2021.(3)

This population, which was 77 million according to the 2001 census (7.5% of the total population), is projected to increase to 137 million by 2021. Three-fourth of the elderly population lives in rural areas. The annual growth rate is higher (3%) as compared to the growth rate of the total population (1.9%). Population projections show that by 2050, the elderly population in India will surpass the population of children below 14 years.(4) The magnitude of the future impact depends on the (in) ability of individual economies to resolve the demographic changes problem through increased privatization,

*Corresponding author: **Lakshmi L**

Chettinad College of Nursing, Rajiv Gandhi Salai, Kelambakkam, Kancheepuram District, Tamilnadu, India

pension reforms, a migration on more productive countries and extension of retirement age (5)

Taking care of them was mainly the responsibility of their children. But the trend in family system has a shift to nuclear family system lead to a force to stay in old age homes, resulting in significant reduction of daily activities and compromised satisfaction over life. Institutions are mushrooming since 1990s. In 1998, India had 728 old age homes. In 2006 it is increased to 1049(5). Mortality rate among elderly is increasing which is mainly due to bio physical illnesses, for which pulse is the main indicator. This is preventable by administering complementary therapies especially music therapy. (6)

For example, in certain arrhythmias, the heart rate differs from the pulse rate because some ventricular contractions produce no palpable pulse beats at the wrist. This pulse deficit derives great significance from the fact that it indicates the amount of energy uselessly expended by the heart. (7) 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.

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

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.

Table 1 Comparison of Pulse Rate Between Experimental and Control Groups

Period of assessment	Group				Student's independent t-test
	Experiment		Control		
	Mean	SD	Mean	SD	
Baseline	84.34	4.45	84.40	4.08	t=-0.09 p=0.93
1 st month	82.80	4.39	84.13	4.05	t=2.22 p=0.02*

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

Table no.12 Baseline, 1st month and 3rd month PULSE RATE comparison between experiment and control group elderly people.

Considering **Bale line PULSE RATE**, experiment group aged people are having 84.34 where as in control group it is 84.40. So the difference between experiment and control group is 0.06, it is small difference and it is not statistically significant.

Considering **1st month PULSE RATE**, experiment group aged people are having 82.80 where as in control group it is 84.13. So the difference between experiment and control group is 1.33. This difference is large and it is statistically significant.

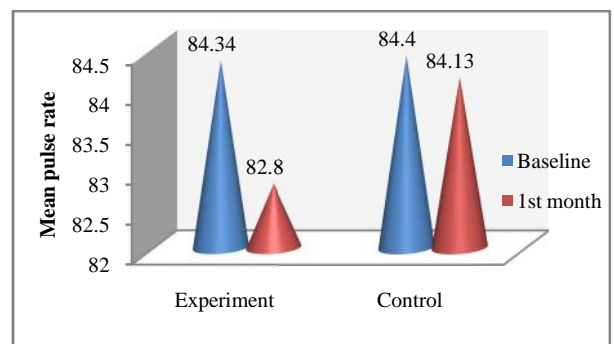


Figure 1 comparison of pulse rate between experimental and control group

Table 2 Effectiveness of Music Therapy On Pulse 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
Pulse rate	Experiment	84.34	81.35	2.99(2.08– 3.90)	3.54% (2.5% –4.6%)
	Control	84.40	83.80	0.60(0.15– 1.05)	0.7% (0.2% –1.2%)

Table no. 1 show the comparison of reduction score between pretest and posttest. In experiment group, they reduced 3.6% pulse rate & in control group, they reduced, 0.7% pulse rate 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.**

Table3 Identification of influence factors for reduction of Pulse rate using Multivariate logistic regression

Demographic variables	Sig.	Odds ratio	95%CI	
			Lower	Upper
Age(< 70 yrs Vs > 70 yrs)	.457	1.247	.696	2.234
Sex (Female Vs Male)	.015	1.904	1.182	4.693
Marital status(Married Vs others)	.940	.974	.486	1.950
Education status(Literate Vs Illiterate)	.746	1.132	.534	2.399
Income(Income Vs No income)	.504	1.300	.603	2.804
Exercise (Yes Vs No)	.043	2.058	1.033	4.100
Interest (Yes Vs No)	.979	.989	.443	2.208
Other habits(No Vs Yes)	.909	1.040	.531	2.038
Family income(> Rs.1500 Vs <Rs. 1500)	.187	.637	.327	1.243
Relationship(Yes Vs No)	.516	.801	.410	1.564

Table 3 shows the influencing factors to reduce pulse rate among the demographic variables of experimental group elderly people . Female are having 1.9 times more reduction than males and Exercise people are having 2.05 times more reduction than others. It was found using multivariate logistic regression.

Table4 Association between Level of Pulse Rate Reduction Score and Their Demographic Variables (Experiment group)

Demographic variables	Level of PULSE RATE reduction score				Total	Chi square test
	Below average (< 2.99)		Above average (>2.99)			
	n	%	n	%		
Age group	61 -70 yrs	32	55.2%	26	44.8%	χ ² =1.20 P=0.54 DF=2
	71 -80 yrs	14	43.8%	18	56.3%	
	81 -90 yrs	5	36.4%	6	63.6%	
Sex	Male	31	60.8%	20	39.2%	t ² =4.36 P=0.05* DF=1
	Female	20	40.0%	30	60.0%	
Marital status	Married	16	45.7%	19	54.3%	χ ² =0.85 P=0.65 DF=2
	Unmarried	16	57.1%	12	42.9%	
	Widow/widower	19	51.4%	18	48.6%	
	Illiterate	10	47.6%	11	52.4%	
Education status	Elementary school	28	70.0%	12	30.0%	t ² =11.48 P=0.02* DF=4
	High school	7	36.8%	12	63.2%	
	HSC	2	20.0%	8	80.0%	
	Under Graduate	4	36.3%	7	63.7%	
	nil	33	47.8%	35	52.2%	
Income	< 500/month	2	28.6%	5	71.4%	χ ² =3.67 P=0.29 DF=3
	501-1500/month	8	72.7%	3	27.3%	
	1501and above	8	53.3%	7	46.7%	
Exercise	Nil	14	70.0%	6	30.0%	t ² =3.88 P=0.05* DF=1
	Walking	37	45.6%	44	54.4%	
	nil	38	46.3%	43	53.8%	
Interest	Games	6	75.0%	2	25.0%	χ ² =2.63 P=0.26 DF=2
	Tailoring	7	58.3%	5	41.7%	
	nil	34	49.3%	35	50.7%	
other habits	smoking	6	60.0%	4	40.0%	χ ² =0.59 P=0.89 DF=3
	pan chewing	7	53.8%	6	46.2%	
	Others	4	44.4%	5	55.6%	
	nil	34	49.3%	35	50.7%	
family income	less than 500/month	9	75.0%	3	25.0%	t ² =6.27 P=0.05* DF=2
	501-1500/month	21	58.3%	15	41.7%	
	1501and above	21	39.6%	32	60.4%	
relationship	Yes	18	42.9%	24	57.1%	χ ² =1.67 P=0.19 DF=1
	No	33	55.9%	26	44.1%	

* 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 persons after 1month score – pretest score.

It will give of pulse rate reduction score. **Average of this reduction score = 2.99**

Table no 4 shows the association between demographic variables and their level of reduction score in experiment group. Females, more educated and walking exercise elders and more family income people are reduced more than other people. Statistical significance was calculated using chi square test.

Table 5 Association Between Level Of Pulse Rate Reduction Score And Their Demographic Variables (Control Group)

Demographic variables	Level of pulse rate reduction score				Total	Chi square test
	Below average (< 0.6)		Above average (>0.6)			
	n	%	n	%		
Age group	61 -70 yrs	28	50.0%	28	50.0%	χ 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	24	48.0%	26	52.0%	χ ² =0.16 P=0.68 DF=1
	Female	26	52.0%	24	48.0%	
Marital status	Married	23	53.5%	20	46.5%	χ ² =0.42 P=0.81 DF=2
	Unmarried	10	45.5%	12	54.5%	
	Widow/widower	17	48.6%	18	51.4%	
Education status	Illiterate	16	61.5%	10	38.5%	χ ² =3.03 P=0.55 DF=4
	Elementary school	16	42.1%	22	57.9%	
	High school	9	45.0%	11	55.0%	
	HSC	5	62.5%	3	37.5%	
	Under Graduate	4	50.0%	4	50.0%	
Income	nil	32	51.6%	30	48.4%	χ ² =4.46 P=0.21 DF=3
	<500/month	3	30.0%	7	70.0%	
	501-1500/month	8	72.7%	3	27.3%	
Exercise	1501and above	7	41.2%	10	58.8%	χ ² =0.05 P=0.81 DF=1
	Nil	13	52.0%	12	48.0%	
	Walking	37	49.3%	38	50.7%	
Interest	nil	35	46.1%	41	53.9%	χ 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	28	46.7%	32	53.3%	χ ² =2.40 P=0.49 DF=3
	smoking	4	50.0%	4	50.0%	
	pan chewing	13	65.0%	7	35.0%	
	Others	5	41.7%	7	58.3%	
family income	less than 500/month	1	12.5%	7	87.5%	χ ² =5.13 P=0.07 DF=2
	501-1500/month	16	57.1%	12	42.9%	
	1501and above	33	51.6%	31	48.4%	
relationship	Yes	27	55.1%	22	44.9%	χ ² =1.00 P=0.37 DF=1
	No	23	45.1%	28	54.9%	

* 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 pulse rate reduction score. **Average of this reduction score = 0.6**

Table 5 shows the association between demographic variables and their level of 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.

CONCLUSION

Ageing, though it is a physiological phenomenon, 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. Drawing the study, the article concludes by arguing for further research to contribute to the growing body of evidence placing music learning at the centre of healthy ageing agendas.

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