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Effectiveness of laughter yoga on depression and quality of life among elderly residing in selected geriatric homes at Mangaluru

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Abstract

Background: Elderly are prized resources. We need to create a great awareness to safeguard the dignity and health of vulnerable section of society and help them live the rest of their lives with dignity. For health promotion in older adults, various strategies have been recommended by experts, among which Laughter yoga is an important one. It is the cheapest medicine for preventing many diseases and fighting against them. Since special attention should be paid to physical and mental health in older adults, laughter yoga can be applied as an effective strategy leading to health promotion, vitality, happiness and Quality of life in such age group.

Methodology: A Quasi- Experimental, non-randomized control group design was adopted for the study. The study population comprised residents from two different private old age homes. Sixty inmates were selected by purposive sampling technique (30 Intervention and 30 control group). Pre-test depression level was assessed by Geriatric Depression Scale (GDS-15) and Modified World Health Organization Quality of Life (WHOQOL-BREF) Scale was used to assess the pretest level of quality of life. Laughter Yoga technique was administered to the subjects in intervention group and post-test was conducted on the eighth day in both groups using the same questionnaires by face to face interview method.

Results: The mean post-intervention depression score (4.00±1.57) in intervention group was lower than their pre-intervention mean score (8.20±1.79) and the mean post-intervention QOL score (273.30±27.11) was more than the mean pre intervention QOL score (206.33±53.00).Where as in the control group no significant differences were observed between mean pre-test and post-test scores. The statical paired 't' value (32.202) for depression and (11.855) for quality of life were higher than the table value ('t'$_{29}$ = 2.05at p<0.05 level of significance). Where as in control group the computed 't' value (0.812) for depression and (0.002) for quality of life were less than the table value ('t'$_{29}$ =2.05≤0.05) at 0.05 level of significance. The unpaired 't' value (14.44) for depression and (14.93) for QOL were higher than the table value (t_{58}=2.00) at 0.05 level of significance.

Conclusion: The findings of the study showed a statistically significant difference on depression and QOL among elderly before and after the intervention, where as in the control group there was no significant deference in the pre-test and post-test scores. Based on the findings of the study, the investigator has drawn a conclusion that Laughter Yoga is one of the cost effective, non-invasive, non-pharmacological complementary and alternative therapies to reduce the level of depression and enhance QOL of elderly residing in Geriatric homes.

Keywords: Effectiveness, laughter yoga, depression; quality of life, elderly population, geriatric home

Introduction

"Laughter can lighten even the darkest day, at least try it".

Bronwyn Byrnes

In today's stress full life situations, we need to laugh much more. In the current scenario, where the world is yet to find a permanent solution to the COVID-19, boosting immune system remains as a challenge, but even without stepping out of house people can boost their immunity by practicing Laughter Yoga every day. The power of laughter is unnoticed every time we laugh. Laughter is the over the counter medicine available 24hrs.a day, to cure a variety of physical and emotional ailments. Laughter is the human gift for coping and for survival [1].

Laughter yoga (LY) is a specific type of laughter therapy that was developed in India in 1999 by Dr Madan Kataria, an Indian physician. LY is an exercise composed of unconditional laughing exercises with yoga breathing techniques. This joyous unconditional type of laughter in a positive social setting will produces physiological and biochemical changes that include the stimulation of oxytocin, thus promoting wellbeing. Laughter yoga's rule of thumb is- Fake it, until you feel it [2]. Fake laughter provides same psychological and physiological benefits as the real laughter [3].

Lately, there has been increased interest in non-pharmacological and noninvasive therapy. Laughter Yoga (LY) in the media has grown and many researchers have conducted a variety of studies on laughter. Laughter is a universal, low-cost and effective drug with no side effects. The therapeutic benefits of laughter include improved blood circulation, gastrointestinal, skeletal muscular and respiratory systems of the body, as well as hormones regulation, rest and sleep cycle regulation, and enhanced immune system performance [4].

Several studies concerning laughter in the treatment of

patients who are suffering from physical and psychiatric diseases have been published; improving QOL in patients with depression or dementia [5], decreasing stress and increasing natural killer cell activity and acting as moderator of stress for depressive symptoms [6] as examples.

Elderly are prized resources. We need to create a great awareness to safeguard the dignity and health of vulnerable section of society and help them live the rest of their lives with dignity [7]. In the modern times, the meaning of the word family has gone down to a small family containing just wife and children only. There is no place for parents, grandparents, uncles and aunties, brothers and sisters, cousins. Life is being so busy; most of the people are feeling that they don't have enough time to spend with their family members. In this current situation, neglecting old people in the families is a quite common problem. Some good children are finding good old age homes for their parents if they are quite busy with their jobs or business. Some children are so busy enough that they are just leaving the parents to find the old age homes by themselves. An individual who worked hard all through his life for their children and wife would be with a view that in future he can relax in their children's company. But he is forgetting the fact that his children are grown up and quite busy with their works and thinking him as a burden in their lives.

Role of the nurse in providing care to the geriatric population includes not only physiological and physical factors but also psychological and emotional factors. Nurses can play vital role in reducing depression by using complimentary therapies which help the patient to cope with stress and to improve their QOL [8].

The investigator realized that there is an immense need of alleviating the depression and stress of the elderly in order to maintain good physical and mental health and to improve their QOL. During the literature review the researcher found that LY provides good massage to all internal organs, reduces the stress hormone level and depression, increases circulation and relaxes the muscles, reduces the negative strains, generates positive thoughts and helps to increase self-esteem and QOL. Best of all this, LY is a priceless medicine. Best of all it is a priceless medicine [9].

Hence the investigator felt that, it is necessary to assess the effectiveness of LY to reduce the level of depression and to enhance the QOL among elderly residing in old age homes.

Objectives

1. To assess the pre-test and post-test level of depression and quality of life among elderly residing in selected geriatric homes using geriatric depression scale (GDS-15) and Modified World Health Organization Quality of Life (WHOQOL-BREF) Scale.
2. To assess the effectiveness of laughter yoga on depression and quality of life among elderly in terms of difference in pre-test and post-test scores.
3. To compare the difference in mean post-test depression score and mean post-test quality of life score between experimental and control group.

Hypothesis

(All hypotheses will be tested at 0.05 level of significance)

H_1: There will be a significant difference in the level of depression and level of quality of life among the elderly before and after laughter yoga.

H_2: There will be a significant difference in the level of depression and quality of life between experimental and control group.

Methodology

Research Approach: Quantitative Research Approach

Research Design: Quasi- Experimental, non-randomized control group design

Sampling technique: Purposive sampling technique

Sample Size: 60

Setting of the study: Two different private geriatric homes, Mangalore.

Tool used for data collection

Section A: Geriatric Depression Scale (GDS -15) Standardized Tool

Geriatric Depression Scale (GDS-15) which consisting of 15 items was selected. Out of 15 items, 10 indicating the presence of depression when answered positively, while the rest indicate depression when answered negatively. Scores of 0-4 are considered normal; 5-8 indicate mild depression; 9-11 indicate moderate depression and 12-15 indicate severe depression.

Section B: Modified WHOQOL-BREF questionnaire

Modified WHOQOL-BREF questionnaire consisted of 25 questions about four domains of quality of life. Scores are scaled in a positive direction; higher scores denote better quality of life. The mean score of items within each domain is used to calculate the domain scores. Mean scores are then multiplied by 4 in order to make domain scores comparable with the scores used in the WHOQOL-100.

Data collection process

The purpose of the study was explained to the inmates and confidentiality was assured. After obtaining the consent, data was collected by face to face interview method. Initially data was collected and analyzed from 60 inmates from Institution 1. Of the 60 inmates interviewed, 43 had mild to moderate depression. From the 43 inmates, 30 elderly who met the inclusion criteria were selected by using purposive sampling technique (Intervention group-30). Data was collected from 60 inmates of Institution 2 and analyzed. Of the 60 inmates interviewed, 45 had mild to moderate depression. From the 45 inmates30 elderly who met the inclusion criteria were selected by using purposive sampling technique for (control group-30). Laughter Yoga Technique was given to 30 inmates in the intervention group on the same day immediately after pre-test, and was continued for 7days (once a day- half an hour). The post-test was conducted on the eighth day using the same tool from both group by interview method. Institutions for intervention group (Institution 1) and control group (Institution 2) was selected by using simple random method.

Results

Section I: Pre-test and post-test depression and quality of life scores of the inmates.

Table 1: Frequency (f), Percentage (%) distribution and grading of inmates according to pre-test and post-test Depression scores n=30+30

		Intervention Group				Control Group			
Depression Score	Depression Grade	Pre –test		Post-test		Pre-test		Post-test	
		(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)
0-4	Normal	-	-	17	56.7	-	-	-	-
5-8	Mild	16	53.3	13	43.3	6	20	7	23.3
9-11	Moderate	14	46.7	-	-	24	80	23	76.7
12-15	Severe	-	-	-	-	-	-	-	-

Maximum Score 15

The data presented in Table 1 shows that in pre-test 53.3% of the inmates in the intervention group had mild depression and 46.7% had moderate depression and in post-test more than half of the inmates 56.7% reached in normal level and 43.3% had mild level of depression. Where as in control group majority of participants in the pretest as well as in the post-test (80%, 76.7%) had moderate level of depression.

Table 2: Frequency (f), Percentage (%) distribution and grading of inmates according to pre-test and post-test Quality of Life scores n = 30+30

		Intervention Group				Control Group			
QOL Score	QOL Grade	Pre –test		Post-test		Pre-test		Post-test	
		(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)
0-100	Poor	-	-	-	-	2	6.7	2	6.7
101-200	Average	17	56.7	-	-	27	90	27	90
201-300	Good	13	43.3	24	80	1	3.3	1	3.3
301-400	Better	-	-	6	20	-	-	-	-

Maximum Score 400

The data presented in Table 2 shows that in intervention group in pre-test 56.7% of the participants had average QOL and 43.3% had good QOL and in post-test majority of the participants (80%) attained good QOL and 20% attained Better QOL; where as in control group majority (90%) of participants in post-test showed average QOL which is equal to their pre-test QOL score.

Table 3: Mean median, minimum, maximum, and standard deviation scores of pre-test and post-test Depression of Intervention and control group n = 30+30

Intervention Group						Control Group				
Area	Mean	Median	Min	Max	SD	Mean	Median	Min	Max	SD
Pre-test	8.20 (54.7%)	8.00	5.00	11.00	1.79	9.37 (61.8%)	9.50	7.00	11.00	1.19
Posttest	4.00 (26.7%)	4.00	1.00	6.00	1.57	9.30 (61.8%)	9.50	7.00	11.00	1.26

Maximum Score 15

Data presented in Table 3 shows that in the intervention group the post-test Depression score ranged between 1-6and mean 4.00 (26.7%) which is lower than their pre-test range of score (5-11) and mean 8.20 (54.7%). Where as in the control group the Depression score ranged between 7-11 in pre-test as well as in the post test with mean of 9.37(61.8%) and 9.30 (61.8%). (Table 3, Figure 1)

Table 4: Mean and standard deviation scores of pre-test and post–test QOL of Intervention and control group n=30+30

Intervention Group						Control Group				
Area	Mean	Median	Min	Max	SD	Mean	Median	Min	Max	SD
Pre-test	206.33 (51.6%)	196.50	112	288	53.00	163.57 (41%)	169.00	76	219	29.72
Post-test	273.30 (68.3%)	269.00	220	326	27.11	163.56 (41%)	169.00	76	219	29.76

Maximum Score 400

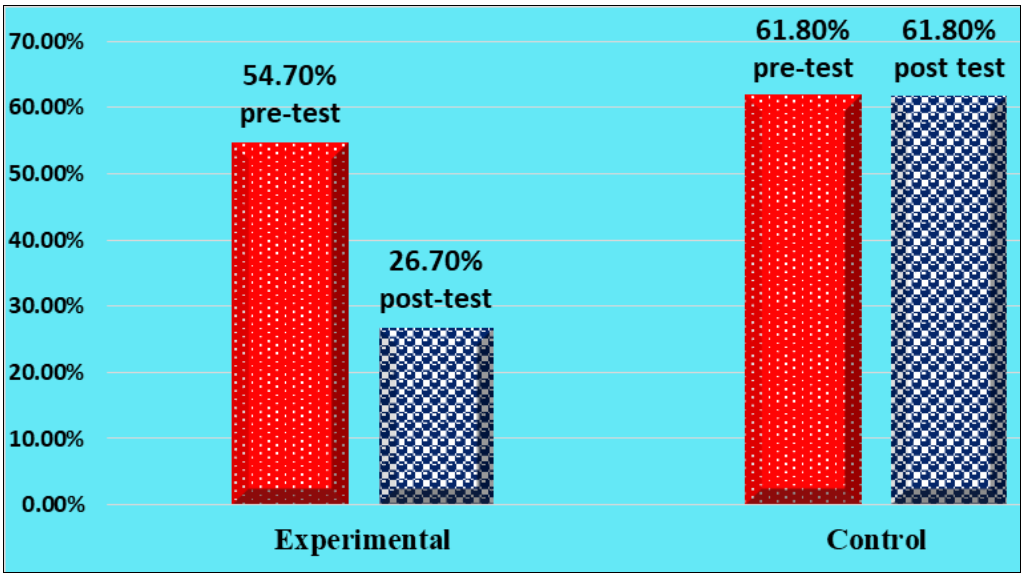

Fig 1: Bar diagram showing the mean pre-test and post-test depression scores

Data presented in Table 4 shows that the mean post-intervention level of QOL (273.30±27.11) 68.3% in intervention group is more than the mean pre intervention level of QOL (206.33±53.00) 51.5%. Whereas in the control group the mean pre-test level (163.57±29.72) 41% and the mean post-test level (163.56±29.76) 41% of QOL shows no significant difference (Table 4, Figure 2).

Table 5: Domain- wise mean and standard deviation scores of pre-test and post–test QOL of intervention and control group n = 30+30

Domains	Intervention Group		Control Group	
	Pre-test (Mean ±SD)	Post-test (Mean ±SD)	Pre-test (Mean ±SD)	Post-test (Mean ±SD)
Domain1 (Physical health)	55.73 ±15.98	75.37 ± 9.78	46.47 ±10.03	46.46 ±10.03
Domain2 (Psychological health)	58.27 ±17.18	75.00 ± 9.98	44.30 ±10.63	44.10 ±10.69
Domain 3 (Social relationships)	30.00 ±15.79	47.13 ± 6.22	24.43 ± 8.19	24.43 ± 8.19
Domain 4(Environmental)	59.87 ±14.81	75.80 ± 9.28	48.37 ± 8.43	48.57 ± 8.39
Question 1 (Related to perceived quality of life)	3.53 ± 0.82	4.13 ± 0.43	3.03 ± 0.72	3.07 ± 0.69
Question 2 (Related to satisfaction with general health)	3.33 ± 0.96	3.80 ± 0.55	2.90 ± 0.66	2.80 ± 0.66

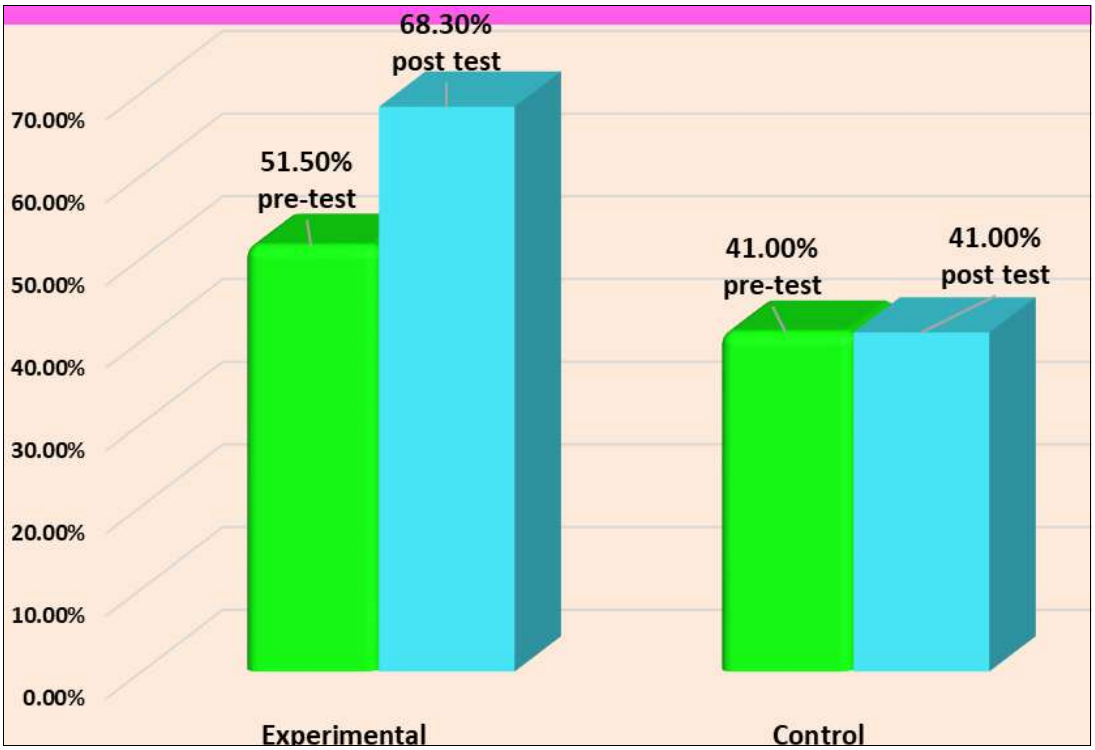

Fig 2: Bar diagram showing the mean pre-test and post-test quality of life scores

Maximum Score in each domain: 100 Max. Score for Q1 and Q2: 5

Data presented in Table 5 indicates that domain wise mean and SD score of QOL among the inmates. In intervention group the mean post-intervention score of domain-1(Physical health) is 75.37±9.78 and pre mean score is 55.73±15.98; In domain-2 (psychological health) the post score is75.00±9.98 and pre mean score is 58.27±17.18; In domain 3 (Social relationship) the post score is 47.13±6.22 and pre mean score is 30.00±15.79 and In domain-4 (Environment) the post mean score is 75.80±9.28 and pre mean score is 59.87±14.81 among 30 participants. For question 1(Related to perceived quality of life) the post mean score is 4.13±0.43 and pre mean score is 3.53±0.82. For question 2 (Related to satisfaction with general health) the post mean score is 3.80±0.55 and pre mean score is 3.33±0.96. Where as in the control group no significant difference observed.

Section III: Effectiveness of Laughter Yoga on Depression and QOL among Elderly.

Table: 6 Paired‘t’ test to test the significant difference between the mean pre-test and mean post-test Depression scores among the intervention and among the control group n=30+30

	Intervention Group				Control Group			
Depression	**Mean**	**Mean Difference**	**SD**	**t-value**	**Mean**	**Mean Difference**	**SD**	**t-value**
Pre-test	8.20	4.2	1.79	32.202	9.37	0.07	1.19	0.812
Post-test	4.00		1.57		9.30		1.26	

Maximum Score15

$t_{(29)}$ =2.05, p<0.05=significant.

Data presented in Table 6 shows that the computed ‘t’ value in intervention group (32.202) is more than the table value (‘t’=2.05≤0.05) at 0.05 level of significance. This shows that Laughter Yoga was effective in reducing the level of depression among elderly residing in geriatric homes.

Data presented in Table 6 also shows that in the control group the computed ‘t’ value (0.812) is less than the table value (‘t’=2.05≤0.05)at 0.05 level of significance.

Table 7: Paired ‘t’ test to test the significant difference between the mean pre-test and mean post-test QOL scores among the intervention and control group n = 30+30

QOL	Intervention Group				Control Group			
	Mean	**Mean Difference**	**SD**	**t-value**	**Mean**	**Mean Difference**	**SD**	**t-value**
Pre-test	206.33	66.97	53.00	11.855	163.57	0.01	29.72	0.002
Post-test	273.30		27.11		163.56		29.76	

Maximum Score 400

$t_{(29)}$ =2.05, p<0.05=significant.

Data presented in Table 7 shows that the computed ‘t’ value (11.855) in the intervention group is more than the table value (‘t’=2.05≤0.05)at 0.05 level of significance. Therefore the null hypothesis (H_{03}) is rejected and research hypothesis is accepted. This shows that Laughter Yoga was effective in improving QOL among elderly residing old age homes.

Data presented in Table 7 shows that the computed ‘t’ value (0.002) in the control group is less than the table value (‘t’=2.05≤0.05) at 0.05 level of significance. Therefore the null hypothesis (H_{04}) is accepted and research hypothesis is rejected.

Table 8: Unpaired ‘t’ test to test the significant difference in the mean posttest Depression scores between intervention and control group n=30+30

Depression	Mean	Mean Difference	SD	t value
Intervention Group	4.0	4.2	1.57	14.44
Control Group	9.30	0.07	1.26	

Maximum Score 15 $t_{(58)}$ =2.00, p<0.05=significant

Data presented in Table 8 reveals that computed‘t’ value (14.44) is higher than the table value (t_{58}=2.00) at 0.05 level of significance. Hence the null hypothesis (H_{05}) is rejected and research hypothesis is accepted. It can be inferred that the Laughter Yoga was effective in reducing depression among the elderly.

Table 9: Unpaired ‘t’ test to test the significant difference between the mean QOL scores between intervention and control group n=30+30

QOL	Mean	Mean Difference	SD	t value
Intervention Group	273.30	66.97	27.11	14.93
Control Group	163.56	0.01	29.76	

Maximum Score 15 $t_{(58)}$ =2.00, p<0.05=significant

Data presented in Table 9 reveals that computed‘t’ value (14.93)is higher than the table value (t_{58}=2.00) at 0.05 level of significance. Hence the null hypothesis (H_{06}) is rejected and research hypothesis is accepted. It can be inferred that the Laughter Yoga was effective in enhancing QOL of elderly.

Conclusion

Old age is the last chapter of a man’s life. It’s usually considered as an association with deterioration of all physical, isolation from social, psychological factors, economic, and other activities. The aging process has an influence on the functioning of societies and also in its development. In our country nowadays there is rapid modernization and urbanization and fast depleting traditional family practices due to which the quality of life of elderly is affected [10].

The purpose of this study was to determine the effect of Laughter Yoga on depression and QOL among elderly

residing in selected geriatric homes. According to the results of this study, a period of Laughter Yoga is one of the best, low-cost, safe, and non-invasive interventions that decrease the level of depression of the elderly by increasing endorphin and improving mood. Therefore, it is necessary that this treatment program be used to improve the QOL of the elderly.

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