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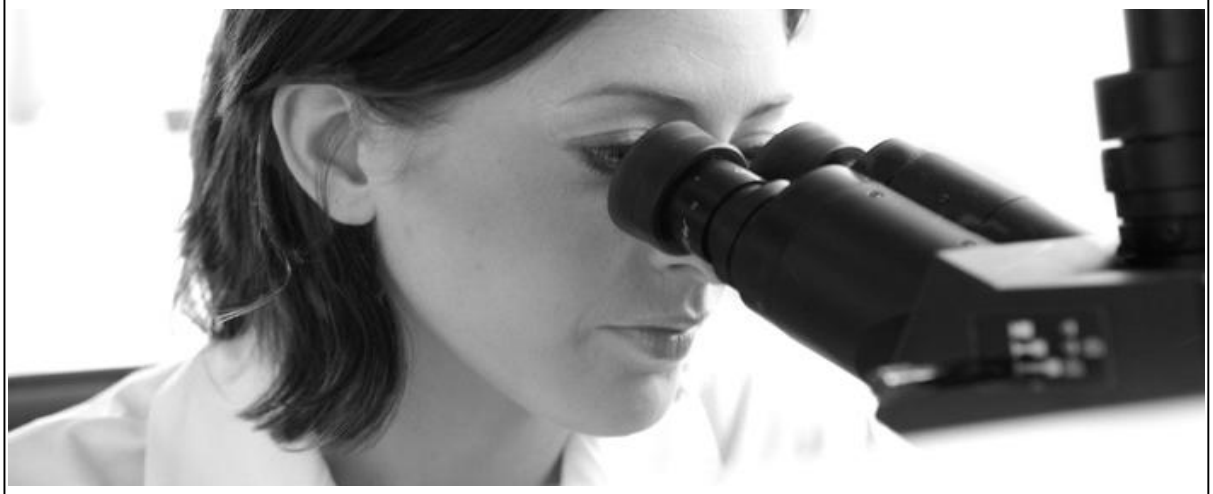

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REVIEW ARTICLE

EFFECT OF LAUGH THERAPY ON PATIENTS WITH HYPERTENSION. COIMBATORE, INDIA

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ABSTRACT

Objective: To evaluate the effects of laugh therapy on selected haemodynamic variable and psychological well-being of hypertensive patients.

Design: quasi experimental design.

Setting: Magalir Maruthava Maiyam Veeriamplayam, Coimbatore.

Sample: Forty patients from both male and female above the age of 18 diagnosed to have hypertension were selected for the study, of which 20 were assigned to the control group and 20 to the experimental group.

Conceptual Framework: Callistas Roy's Adaptation Model was used.

Outcome measures: Haemodynamic variables namely blood pressure pulse and mean arterial pressure were measured before each session of laugh therapy and after laugh therapy and recorded. Pretest score of psychological well-being using Modified Dupey's Psychological Well-being were obtained and at the end of laugh therapy post test scores were obtained.

Intervention: Laugh therapy techniques were practiced by the patients for 20-30 minutes by viewing the CD assisted laugh therapy prepared by investigartor. It was given at one session per day for 5 days.

Results: Subjects who received laugh therapy reported significant reduction in blood pressure of 125.15/82.2.25 mm of Hg than 140.50/91.50mm of Hg in control group, pulse 79.86 than87.6 in control group, MAP of 97.79 than 108.33 in control group and psychological well being score of 61.75 than 27.2 of control group respectively. There was no association between haemodynamic variable and demographic variables of age, sex and BMI.

Conclusion: The results supported that the incorporation of laugh therapy is one of the best alternative therapy to reduce hypertension and improve psychological well-being.

INTRODUCTION

Stress has become a part of life in the 21st century. Nearly seventy percent of the diseases have their roots in stress. Nervous breakdowns, high blood pressure, depression, heart disease and ulcers are on the rise. There are many ways to remove the stress. But one of the best and cheapest medicine available at our own hands is laughter. Laughter is one of the great ways to destress. Laughter harmonises all the sense organs in a moment of total concentration. There is no human being who never wishes to laugh. (Mumbai Today, 2002). It is a simple form of stress busting and very effective self care tool. (Steven, 1991). Kalavathy *et al* (2000) states that hypertension is one of the important cause of mortality and morbidity in the elderly in India. Nearly 60-80% of the elderly population has high blood pressure for which early identification and adequate treatment of hypertension is of prime necessity. The American Accreditation Health Care Commission (2004) reports that inadequately controlled hypertension is the major factor for the higher mortality rate from heart disease. It adds on further stating that nearly one billion people world wide have hypertension. Less than half of these people are on medication and only half of this group have their blood pressure under control with such agents. Therefore people think of alternative approaches to control their hypertension irrespective of medical treatment . Laugh therapy is now recognized as one of the suitable alternative therapy in lowering hypertension. A hundred laugh a day is equal to 10minutes of morning jogging or workout on a rowing machine or 15 minutes on a stationery exercise making it a excellent aerobic workout. (Mumbai Today 2002) In addition to it laughing 15 minutes a day help to create an emotional balance and train the brain to think

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happier and in more positive ways.(Scally, 2004)

Need for the Study

According to India Express Bureau (2004) 4 in every 10 Indian's suffer from high blood pressure. Hence, health experts are now advocating alternate therapies like relaxation and humour therapy to treat it rather medicines alone. Around 5.3 lakh Indians die of hypertension related coronary disease every year and the figure is likely to double each year. It has been found in a study from Northern India that incidence of hypertension increased from 3.98 per cent in 1963 to 26.78 in 2000 among men while the incidence rate role from 6.647 per cent to 27.65 per cent among women. In this 21st century the attention is focused on alternative therapies like relaxation, meditation, laugh therapy, aroma therapy along with pharmacological management.

The investigator during the clinical experience found that more number of hypertensive patients were visiting the hospital who had poor psychological well-being too. Many articles and reports provide generalized statements on the benefits of laugh therapy in various disorders. Hence forth the investigator was motivated to create an empirical evidence on the efficacy of laugh therapy in hypertension and psychological well-being. This will also provide a sound scientific base principle for implementing this laugh therapy as a nursing intervention for hypertensive patients clients to provide a holistic care. With this motive the investigator embarked a rigorous research to test the efficacy of laugh therapy on selected haemodynamic variables and psychological well-being of hypertensive patients.

Statement Of The Problem

Effect of Laugh Therapy On Selected Haemodynamic Variables And Psychological Well- Being of Patients With Hypertension at Magalir Maruthuva Maiyum, Veeriampalayam, Coimbatore.

Objectives Of The Study

1. To assess selected haemodynamic variables and psychological well being of patients with hypertension before and after laugh therapy.
2. To compare the selected haemodynamic variables of hypertensive patients who receive laugh therapy with those who do not receive laugh therapy.
3. To compare the changes in psychological well being of hypertensive patients who receive laugh therapy with those who do not receive laugh therapy.
4. To associate the selected demographic variables with changes in haemodynamic variables and psychological well being among experimental group.

METHODOLOGY

Research Approach

Experimental research approach was adopted for the study as it was intended to assess the effectiveness of effects of laugh therapy on selected haemodynamic variable and psychological well-being of hypertensive patients

Research Design

The present study was a quasi experimental study in nature as it involves manipulation and matched control without randomization.

Study Setting

The study was conducted at Magalir Maruthuva Maiyum, Veeriampalayam Ciombatore. This rural centre is an annexure of Kovai Medical Center and Hospital, a multisuper speciality hospital in Coimbatore. The rural centre runs with an outpatient department from 9:00am to 5:00 pm and adequately equipped to treat inpatients with minor ailments. About 40 patients in around Veeriampalayam, Kalapatti, Karuparayanpalayam visit the outpatient department everyday. Nearly 80 patients have been identified to have hypertension in that locality who visit the outpatient department for treatment.

Study Population

The population of the study included patients visiting the rural centre who were identified to have primary hypertension

Sample and Sample Size

Male and female patients visiting the rural centre who were identified to have primary hypertension and those who fulfill the criteria, where selected as sample. The sample size of the study was 40 patients out of which 20 patients were assigned to the control group and 20 were assigned to experimental group. The groups were matched for variables such as age and intake of antihypertensive agents.

Criteria for Sample Selection

The following were the criteria set for the selection of sample for this study.

Inclusion Criteria

1. Patients who were diagnosed to have primary hypertension with the blood pressure ranging from 140-180/90-110mm of Hg.
2. Both male and female those who were above the age of 20

Exclusion Criteria

1. Patients with coexisting disease like IHD, bronchial asthma, cerebrovascular accident, tuberculosis and other respiratory infections.
2. Patients with known psychiatric illnesses.
3. Patients with either visual or hearing impairment.

Sampling Technique

The samples who met the inclusion criteria during the data collection were selected using Convenient sampling technique

Procedure for Data collection

The data collection as planned, was done for a period of one month. The formal permission to conduct the study was obtained from the medical officer of Veeriampalayam Magalir Maruthuva Maiyam. The patients were selected on the basis of selection criteria. The data was collected in the following pattern. List of clients who had primary hypertension were obtained. The investigator established good rapport with the patients and the purpose of the study was explained to the subjects to ensure their cooperation.In the control group the pretest and post test measures of the haemodynamic variables were obtained for 5 days between 10-11 A.M. which was most convenient time for all the patients. The pretest score of psychological well being was obtained on day one and the posttest score was obtained on day five. The control group was on the routine treatment during this period. In the experimental group the haemodynamic variables were measured 15-20 minutes before and after laugh therapy. Each subject received 5 session of laugh therapy for 5 days. The blood pressure was measured using caliberated sphygmomanometer and stethoscope. The same sphygmomanometer and stethoscope was used for all the subjects throughout the study. The pulse was measured by palpating the left radial artery. The mean arterial pressure was measured using the derived formula. The pretest psychological well- being score was obtained on day one and the post test score was obtained on day five after the laugh therapy based on the responses to the questionnaire. During this period, the amount of anti hypertensive drugs and its half life period also was considered by the investigator recording the time of intake of the antihypertensive drug.

RESULTS

Background Variables

- The mean pretest measures of systolic BP was 141.35 and 142.70 in control and experimental group,. The 't' test for the mean difference of systolic blood pressure was 0.742 at df (28) which was not significant. The mean post test measure of systolic BP was140.5, 125.5 in control and experimental group respectively. The 't' test for the mean difference between systolic blood pressure of control and experimental group was 6.855 df (38) was highly significant at .01 level.
- The mean pretest diastolic blood pressure of control group was 92.1 and 93.1in experimental group.. The mean post test diastolic blood pressure measure in control group and experimental group was91.50 and 82.25 respectively. The 't' test value for the mean difference between the posttest measure of diastolic blood pressure of control and experimental group was 9.885at df (38)which was highly significant at 0.01 level.
- The mean pretest pulse measure of control was and experimental group was88. 9. The mean post test pulse measure of control group was 87.86and in experimental group was 79.86. The 't' value for the mean difference between posttest pulse of control and experimental group 8.145 at df (38) was highly significant at .0.1 level.
- The mean pretest mean arterial pressure of control group and experimental group was 110.03. The mean post test MAP measure of control group was 108.33 and experimental group was97.79. The 't' value for the mean difference between posttest measure of MAP of control and

Table 1 Frequency and Percentage Distribution of Samples with Demographic Variables

S.No.	Characteristics	Control Group N = 20		Experimental Group N = 20	
		Frequency	Percentage	Frequency	Percentage
1.	Age in years				
	20-40	-	-	-	-
	41-60	13	65	13	65
	above 60	7	35	7	35
2.	Sex				
	Male	8	40	12	60
	Female	12	60	8	40
3.	Marital Status				
	Single	-	-	-	-
	Married	20	100	18	90
	Widow	-	-	2	10
4.	Educational Status				
	Illiterate	16	80	13	65
	Primary	4	20	7	35
	High School	-	-	-	-
	Collegiate	-	-	-	-
5.	Occupation				
	Health Professional	-	-	-	-
	Others	20	100	20	100
6.	Religion				
	Hindu	20	100	20	100
	Muslim	-	-	-	-
	Christian	-	-	-	-
	Others	-	-	-	-
7.	Income status per month in Rs.				
	< 2000	3	15	9	45
	2001-5000	13	65	11	55
	> 5000	4	20	-	-

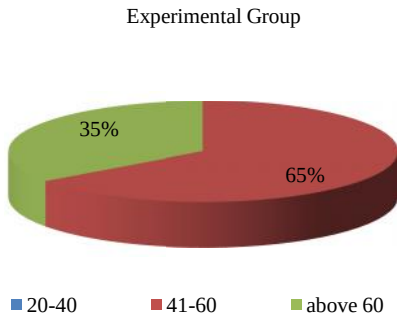

Figure 1 Distribution of Patients According to Age in Experimental Group

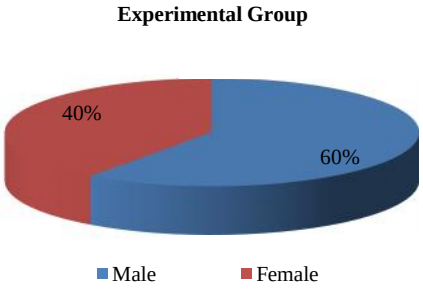

Figure 2 Distribution of Patients According to Age in Experimental Group

Table 2 Frequency and Percentage Distribution of samples with clinical variables

S.No.	Characteristics	Control Group N = 20		Experimental Group N = 20	
		Frequency	%	Frequency	%
1.	Record of BP (previous month record)				
	140-150/90-100	11	55	10	50
	151-160/101-110	9	45	10	50
	161-180/111-120	-	-	-	-
2.	Height in cm				
	145-150	6	30	3	15
	151-155	12	60	11	55
	156-160	2	10	6	30
3.	Weight in kg				
	35-45	-	-	-	-
	46-55	8	40	10	50
	56-70	12	60	10	50
4.	Body mass index				
	>18	-	-	-	-
	18-25	11	55	10	50
	<25	9	45	10	50
5.	Habit of Alcohol consumption(male alone)				
	Yes	-	-	-	-
	No	8	100	12	100
6.	Habit of smoking (male alone)				
	Yes	1	12.5	2	10
	No	7	87.5	10	90
7.	Intake of Medication				
	Antihyertensives	8	40	8	40
	Diuretics	-	-	-	-
	Nil	12	60	12	60
8.	Intake of contraceptive pills (female alone)				
	Yes	-	-	-	-
	No	12	100	8	100

Table 3 Description of the Pretest Measures of Haemodynamic Variables and Score of Psychological Well-being in the Control and Experimental group

S.No.	Group	N	Mean	S.D	't' value	Level of significance
1	Systolic blood pressure Control Group	20	141.35	7.541	0.742	N.S.
2	Experimental Group	20	142.7	3.0625		
1	Diastolic blood pressure Control Group	20	92.1	2.198	0.71	N.S.
2	Experimental Group	20	93.9	1.9973		
1	Pulse Control Group	20	88.9	2.6938	0	N.S.
2	Experimental Group	20	88.9	2.6938		
1	Mean Arterial Pressure Control Group	20	110.103	2.3323	0	N.S.
2	Experimental Group	20	110.103	2.3323		
1	Psychological Well Being Control Group	20	27.5	5.8448	0.192	N.S.
2	Experimental Group	20	27.2	3.8058		

Table 4 Description of the pretest and posttest measures of haemodynamic variables and score of psychological well-being in experimental group

Systolic BP Measurement	N	Mean	S.D	't' value	Level of significance
Pre test	20	142.7	3.0625	18.42	0.01
Post test	20	125.15	4.9126		
Diastolic BP Measurement	N	Mean	S.D	't' value	Level of significance
Pre test	20	142.07	3.0625	8.559	0.01
Post test	20	82.25	2.6532		
Pulse Measurement	N	Mean	S.D	't' value	Level of significance
Pre test	20	88.9	2.6938	14.394	0.01
Post test	20	79.86	2.2110		
MAP Measurement	N	Mean	S.D	't' value	Level of significance
Pre test	20	110.1030	2.3323	14.934	0.01
Post test	20	97.79	4.3488		
Psychological well being score	N	Mean	S.D	't' value	Level of significance
Pre test	20	27.20	3.8058	35.639	0.01
Post test	20	61.25	3.670		

Table 5 Description of the post test measures of haemodynamic variables and scores of psychological well being in control and experimental group.

S.No.	Group	N	Mean	S.D	't' value	Level of significance
1.	Systolic BP Control Group	20	140.5	8.7268	6.855	0.01
2.	Experimental Group	20	125.15	4.9126		
S.No.	Group	N	Mean	S.D	't' value	Level of significance
1.	Diastolic BP Control Group	20	91.50	3.2363	9.885	0.01
2.	Experimental Group	20	82.25	2.6532		
S.No.	Group	N	Mean	S.D	't' value	Level of significance
1.	Pulse Control Group	20	87.86	3.7953	8.145	0.01
2.	Experimental Group	20	79.86	2.2110		
S.No.	Group	N	Mean	S.D	't' value	Level of significance
1.	MAP Control Group	20	108.33	2.1172	9.742	0.01
2.	Experimental Group	20	97.79	4.3488		
S.No.	Group	N	Mean	S.D	't' value	Level of significance
1.	PSWB Control Group	20	26.20	8.0889	21.800	0.01
2.	Experimental Group	20	61.25	3.670		

experimental group 9.742 at d6(38) was highly significant at 0.01 level.

- The mean pretest psychological well-being score of control group was 27.5 and experimental group was27.2. The mean score of posttest psychological well-being was 23.99 and experimental group was 22.97. The 't' test value for the mean difference between post test psychological well-being of control and experimental group 0.583 at d6(38) was highly significant at 0.05level.
- There was no significant association found in post test measures of blood pressure and psychological well-being with age, sex and body mass index in the experimental group

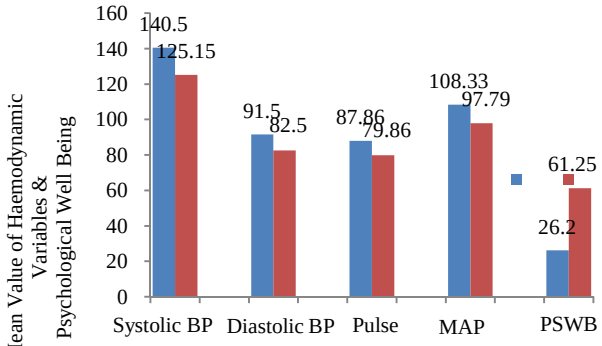

Figure-5 Distribution of Patients According to Comparison of Post Test Mean Score of Blood Pressure, Pulse, MAP & Psychological Well Being after Laugh Therapy Among Control and Experimental Group

Description about Association between Changes In Measures Of Haemodynamic Variables And Demographic Characteristics Such As Age, Sex

Table 6 Association between posttest measures of systolic and diastolic B.P in different age group in experimental group

Characteristics	Systolic BP				Diastolic B.P				Level of significance
Age (in years)	N	Mean	S.D	't' value	N	Mean	S.D	't' value	
41-60	6	124.66	5.853	0.395	6	82.33	3.829	0.608	NS
above 60	14	126.142	4.588		14	82.85	2.143		

Table 7 Association between posttest measures of psychological well-being in different age group in experimental group

Characteristics Age (in years)	N	Mean	S.D	't' value	Level of significance
41-60	6	60.833	2.994	0.390	NS
above 60	14	61.571	4.164		

Table 8 Association between posttest measures of systolic and diastolic B.P in different gender in experimental group

Characteristics	Systolic BP				Diastolic B.P				Level of significance
Sex	N	Mean	S.D	't' value	N	Mean	S.D	't' value	
Male	8	122.75	4.399	2.485	8	80.75	1.488	3.306	NS
Female	12	127.66	4.292		12	84.00	2.486		

Table 9 Association between posttest scores of psychological well-being in different gender in experimental group

Characteristics Sex	N	Mean	S.D	't' value	Level of significance
Male	8	59.25	3.240	2.178	N.S.
Female	12	62.58	3.423		

Table 10 Association between posttest measure of systolic and diastolic BP in different BMI in experimental group

Characteristics	Systolic BP				Diastolic B.P				Level of significance
Body mass Index	N	Mean	S.D	't' value	N	Mean	S.D	't' value	
18-25	10	127.2	4.211	1.407	10	82.8	2.485	0.164	NS
<25	10	124.2	5.266		10	82.6	2.951		

DISCUSSION

- The first objective was to assess the selected haemodynamic variables and psychological well being of patients with hypertension before and after laugh therapy. The mean score of pretest and posttest mean arterial pressure in control group was 110.13, 108.33 and 110.13, 97.79 respectively in experimental group. The mean pretest and posttest score of psychological well-being in control group was 27.5, 26.20 and 27.2, 61.25 respectively in experimental group
- The second objectives of the study was to compare the selected haemodynamic variables of hypertensive patients who receive laugh therapy with those who do not receive laugh therapy. In the present study the 't' value for the mean difference in the post test scores of systolic blood pressure, diastolic blood pressure, pulse and MAP in control and experimental group are 6.885, 9.885, 14.8 and 9.742 respectively at ($p<0.01$) which is highly significant. These findings are attributed to the effect of laugh therapy . The above findings strongly implies that laugh therapy is effective in lowering blood pressure pulse and mean arterial pressure.
- The third objectives of the study was to compare the changes in psychological well-being of hypertensive patients who receive laugh therapy with those who do not receive laugh therapy. The mean post test score of psychological well being was 26.20 and 61.25 in control and experimental group. The 't' test analysis showed higher level of significance as the't' value was 21.80 at ($p<0.01$). The mean pre test and post test score of psychological well being in experimental group was 27.20 and 61.25. The obtained 't' value was 35.639 at ($p<0.01$) which was highly significant. . The statistical evidence of the study can be strongly attributed to the effect of laugh therapy. Thus the finding implies that laugh therapy is effective in improving the psychological well being of the subjects.
- The fourth objective is to find out the association between selected demographic variable with changes in haemodynamic variables and psychological well being in the experimental group. The present study revealed that age, sex BMI had no significant influence in the haemodynamic variables and psychological well being..

CONCLUSION

Bittman (2001), neurologist ,cites research which found that laughter can diminish levels of cortisol, stress hormone that are responsible for triggering elevated blood pressure, heart rate and a host of other stress related responses. To add on a Brazilian health centre is treating patients suffering from stress depression, hypertension, diabetes with laugh therapy. The study findings also provide the statistical evidence which clearly indicates that laugh therapy is one of the best alternative therapy used to lower blood pressure and improve the psychological well-being of hypertensive patients. Blood pressure, pulse and mean arterial pressure were significantly reduced among patients those who received laugh therapy.

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