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To assess the effectiveness of laughter therapy on blood pressure among patients with hypertension at a selected village in Kondancherri

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Abstract

Laughter is a part of human behavior regulated by the brain, helping humans clarify their intentions in social interaction and providing an emotional context to conversation. Laughter is used as a signal for being part a group –it signals acceptance and positive interactions with others. Laughter is sometimes seen as contagious, and the laughter from others as a positive feedback. Hypertension HTN or HT, also known as high blood pressure HBP, is a long- term medical condition in which the blood pressure in the arteries is persistently elevated. High blood pressure typically does not cause symptoms. Long – term high blood pressure, however, is a major risk factor for coronary artery disease, stroke, heart failure, atrial fibrillation, peripheral arterial disease, vision loss, chronic kidney disease, and dementia. A quantitative one group pre-test and post-test research design was conducted among 60 hypertensive patients. Purposive sampling technique was used to select samples. Semi- Structured questionnaire was used to collect demographic data. The investigator explained the purpose of the study. Pre-test was performed for all study participants by semi structured questionnaire and anthropometric measurements were taken. Laughter therapy was administered to study participants with routine care. It was taught to them by demonstration to the experimental group. Then laughter therapy was practiced by them daily for 20 minutes at 7.20 am consecutively for 14 days in the playground. The study participants were subjected to a total of 14 sessions of laughter therapy for 14 days. The blood pressure was measured 15 to 20 minutes before and after the laughter therapy daily. The data were collected and analyzed. The result clearly infers there is significant improvement in the post test level of blood pressure at $p < 0.001$ level. This reveals there is a need for the non-pharmacological measures among the hypertensive clients to reduce the blood pressure level and its complication.

Keywords: Hypertension, blood pressure, laughter therapy

Introduction

Laughter is a part of human behavior regulated by the brain, helping humans clarify their intentions in social interaction and providing an emotional context to conversation. Laughter is used as a signal for being part a group –it signals acceptance and positive interactions with others. Laughter is sometimes seen as contagious, and the laughter from others as a positive feedback ^[1].

The study of humor and laughter, and its psychological and physiological effects on the human body, is called gelotology. Laughter has proven beneficial effects on various other aspects of biochemistry. It has been shown to lead to reductions in stress hormones such as cortisol epinephrine ^[2].

When laughing the brain also releases endorphins that can relieve some physical pain. Laughter also boosts the number of antibody –producing cells and enhances the effectiveness of T-cells, leading to a stronger immune system. A 2000 study found that people with heart disease were 40% less likely to laugh and be able to recognize humor in a variety of situations, compared to people of the same age without heart disease ^[3, 4].

Hypertension HTN or HT, also known as high blood pressure HBP, is a long- term medical condition in which the blood pressure in the arteries is persistently elevated. High blood pressure typically does not cause symptoms. Long –term high blood pressure, however, is a major risk factor for coronary artery disease, stroke, heart failure, atrial fibrillation, peripheral arterial disease, vision loss, chronic kidney disease, and dementia ^[5].

High blood pressure is classified as primary hypertension or secondary hypertension. About 90-95% of cases are primary, defined as high blood pressure due to nonspecific lifestyle and genetic factors. Lifestyle factors that increases the risk include excess salt in the diet, excess body weight, smoking, and alcohol use.

The remaining 5-10% of cases are categorized as secondary high blood pressure, defined as high blood pressure due to an identifiable cause, such as chronic kidney disease, narrowing of the kidney arteries, an endocrine disorder, or the use of birth control pills [6].

Blood pressure is expressed by two measurements, the systolic and diastolic pressures, which are the maximum and minimum pressures, respectively. For most adults, normal blood pressure at rest is within the range of 100-130 millimeters mercury (mmHg) systolic and 60-80 mmHg diastolic. For most adults, high blood pressure is present if the resting blood pressure is persistently at or above 130/80 or 140/90 mmHg. Different numbers apply to children. Ambulatory blood pressure monitoring over a 24-hour period appears more accurate than office-based blood pressure measurement [7].

The purpose of the study [1] To assess the blood pressure among patients with hypertension in kondancheri village [2]. To assess the effectiveness of laughter therapy on blood pressure among patients with hypertension [3]. To associate the effectiveness of laughter therapy among hypertensive patients in kondancheri village with the selected demographic variables.

Methods and Materials

A quasi experimental study was conducted to study the effectiveness of of laughter therapy on blood pressure among patients with hypertension at a selected village in Kondancherri. The formal permission was obtained from the authority of Kondanchery village in thiruvallur district. The participants for the main study were selected by purposive sampling technique. The data was collected in the following pattern. List of patients who had primary hypertension were obtained and the patients were selected based on the selection criteria. The investigator explained the purpose of the study. Pre-test was performed for all study participants

by semi structured questionnaire and anthropometric measurements were taken. Laughter therapy was administered to study participants with routine care. It was taught to them by demonstration to the experimental group. Then laughter therapy was practiced by them daily for 20 minutes at 7.20 am consecutively for 14 days in the playground. The study participants were subjected to a total of 14 sessions of laughter therapy for 14 days. The blood pressure was measured 15 to 20 minutes before and after the laughter therapy daily. The blood pressure was measured using calibrated sphygmomanometer and stethoscope. The same sphygmomanometer and stethoscope was used for all the subjects throughout the study. The sample characteristics and level of blood pressure were described using frequency and percentage. Chi square was used to associate the post-test level of blood pressure with the selected demographic variables.

Results and Discussion

Section A: Sample characteristics

Among the samples 25(41.7%) were in the age group of 25 – 35 years, 36(60%) were female, 37(61.7%) were Hindus, 24(40%) had high school education, 25(41.6%) were non-vegetarian, 24(40%) had an income of Rs.5001 – 7500 per month, 36(60%) had the habit of consuming alcohol, 23(38.3%) were not doing exercise and 30(50%) were married.

Section B: Assessment of level of blood pressure among hypertensive clients.

The findings of the study depicts that the pretest mean score of systolic BP was 146.67±12.54 and the post test mean score was 125.63±10.49. The calculated paired ‘t’ test value of t = 10.756 was found to be statistically highly significant at p < 0.001 level. (Table 1).

Table 1: Frequency and percentage distribution of level of blood pressure (Systolic BP) among patients with hypertension.

N = 60

Systolic BP	Normal (<120)		Prehypertension (120 – 139)		Stage I Hypertension (140 – 159)		Stage II Hypertension (≥160)	
	No.	%	No.	%	No.	%	No.	%
Pretest	0	0	7	11.67	35	58.33	18	30.0
Post Test	18	30.0	26	43.33	16	26.67	0	0

The study findings portrays that the pretest mean score of diastolic BP was 95.93±7.48 and the post test mean score was 80.52±10.59. The calculated paired ‘t’ test value of t =

8.606 was found to be statistically highly significant at p < 0.001 level. (Table 2)

Table 2: Frequency and percentage distribution of level of blood pressure (Diastolic BP) among patients with hypertension.

N = 60

Diastolic BP	Normal (<80)		Prehypertension (80 – 89)		Stage I Hypertension (90 – 99)		Stage II Hypertension (≥100)	
	No.	%	No.	%	No.	%	No.	%
Pretest	0	0	10	16.67	29	48.33	21	35.0
Post Test	20	33.33	22	36.67	18	30.0	0	0

The study findings is supported by Sivasubramanian Ramakrishnan et.al, (2019) conducted a study on “Prevalence of hypertension among Indian adults”. It is a national level survey was conducted with fixed one-day blood pressure measurement camps across 24 states and union territories of India among 180,335 participants. Overall prevalence of hypertension was 30.7% (95% confidence interval was 30.5, 30.9) and the prevalence among women was 23.7% (95% was 23.3, 24). It is concluded that there is

a high prevalence of hypertension, with almost one in every three Indian adult affected [8].

Section C: The effectiveness of laughter therapy on blood pressure among patients with hypertension

The findings of the study depicts that the pretest mean score of systolic BP was 146.67±12.54 and the post test mean score was 125.63±10.49. The calculated paired ‘t’ test value

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It portrays that the pretest mean score of diastolic BP was 95.93 ± 7.48 and the post test mean score was 80.52 ± 10.59 . The calculated paired 't' test value of $t = 8.606$ was found to be statistically highly significant at $p < 0.001$ level.

The present study is supported by Punitha Josephine S, Jemmi Priya conducted a study on "The effectiveness of laughter therapy on blood pressure among 50 patient with hypertension" A quantitative research approach of pre-experimental one group pre and post-test design was used for this study. The distribution of level of blood pressure in pre and post-test disclosed that all the 50 (100%) study group participants had Stage I systolic and diastolic hypertension in the pre-test whereas in post-test 45 (90%), had pre-hypertension systolic and diastolic, only 5 (10%) had Stage I systolic and diastolic hypertension. There was a statistically significant difference between pre- and post-test systolic and diastolic blood pressure within study group participants at level $p < 0.001$. This study findings implied that laughter therapy was effective to sustain the blood pressure within the optimal level among patients with hypertension [9].

Section D: To associate the effectiveness of laughter therapy among hypertensive patients in kondancheri village with the selected demographic variables

The study findings shows that the demographic variables age, physical activity and marital status had shown statistically significant association with post test level of BP (Systolic) at $p < 0.05$ level and the other demographic variables had not shown statistically significant association with post test level of BP (Systolic) among patients with hypertension.

It also states that the demographic variable education had shown statistically significant association with post test level of BP (Diastolic) at $p < 0.05$ level and the other demographic variables had not shown statistically significant association with post test level of BP (Diastolic) among patients with hypertension.

Conclusion

Laughter therapy is an effective intervention to reduce the blood pressure among patients with hypertension. Since hypertension is a chronic disease, the regular practice of laughter therapy helps the patients with hypertension to sustain the blood pressure within normal limit throughout their survivorship. This will reduce the complications related to hypertension and cost of health care.

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Authors contribution

All the authors actively participated in the work of the study. All authors read and approved the final manuscript.

Conflicts of interest

The authors declare no conflicts of interest.

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