Research Article

EFFECTIVENESS OF JACOBSON'S PROGRESSIVE MUSCLE RELAXATION THERAPY TO REDUCE BLOOD PRESSURE AMONG HYPERTENSIVE PATIENT

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ABSTRACT

Hypertension is a silent killer disease. It is an ice floe. It is one of the risk factor for cardiovascular diseases. A Quasi- Experimental study was conducted to assess effectiveness of Jacobson's progressive muscle relaxation therapy to reduce blood pressure among hypertensive patient. The study was conducted in a Medical Society. A sample of 50 patients with hypertension was selected using non probability purposive sample technique and then group of 25 samples randomly assigned in the experimental and control group. The pre-test was taken using a sphygmomanometer on the first day of interaction. Following the pre-test subjects randomly start Jacobson's Progressive Muscle Relaxation therapy, for a period of seven days once in a day. The post-test blood pressure level measured on the seventh day of interaction. In order to assess the pretest and posttest blood pressure level among experimental and control group Wilcoxon test was used. The mean posttest of systolic blood pressure score 129.12 is lower than pretest score 143.92. The mean posttest diastolic blood pressure score 86.48 is lower than pretest diastolic blood pressure 98.16 in experimental group. The "u" test value of systolic blood pressure (u =0.50000, p<0.05) showed that there was a highly significant difference between pretest systolic blood pressure and posttest systolic blood pressure. The "u" test value of diastolic blood pressure (u=2.00000, p<0.05) showed that there was a highly significant difference between pretest diastolic blood pressure and posttest diastolic blood pressure. The results clearly indicate that Jacobson's progressive muscle relaxation therapy is effective in reducing blood pressure.

INTRODUCTION

Hypertension is a silent killer disease. It is an ice floe. It is one of the risk factor for cardiovascular diseases. Hypertension is defined as a persistent elevation of the systolic blood pressure at a level of 140 mm Hg or higher and diastolic pressure at a level of 90 mm Hg or higher.1

Modifiable risk factors of hypertension are diabetes, stress, obesity, nutrients and substance abuse. Stress increases peripheral vascular resistance and cardiac output and stimulate sympathetic nervous system activity and it leads to hypertension.1 Prolonged blood pressure elevation gradually damages blood vessels throughout the body, particularly in target organs such as the heart, kidneys, brain andeyes.2

Blood pressure is controlled in two ways that is short term control and long term control. This monitoring is performed by baroreceptors. Baroreceptors are special receptors that detect changes in the blood pressure. Baroreceptors are found within the walls of aortic and carotid sinuses.

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A rise in blood pressure in these arteries stimulates baroreceptors, increasing their input to cardiovascular center. The cardiovascular center responds by increasing parasympathetic nerve activity to the heart; this slows the heart down. At the same time, sympathetic stimulation to the blood vessels is inhibited, causing vasodilation. The net result is fall in systemic blood pressure.[3]

Need for the study

Worldwide, 7.6 million premature deaths (about 13.5% of the global total) were attributed to high blood pressure. About 54% of stroke and 47% of ischemic heart disease worldwide were attributable to high blood pressure.[4] Total deaths due to cardiovascular diseases were 9.1 million in developing countries and 1.5 million in India.[5]

A Randomized controlled trial was conducted by Subhash M Khatri, R.M. Singaravelan RM, HaiderNaeemRomi on Effectiveness of Jacobson's Relaxation Technique in Hypertension. The study was conducted at Department of Physiotherapy, Pravara Rural Hospital, Loni, Maharashtra state, India from 5th July 2010 to 30th August 2011.56 subjects with hypertension were selected. Subjects were

randomly treated with medications along with Jacobson's relaxation technique under supervision or only medications for three weeks. Their pre and post intervention blood pressure was measured in supine with digital blood pressure monitor for further analysis. Result showed that the average reduction in blood pressure was significantly greater in subjects treated with Jacobson's relaxation technique along with medications as compared to only medications. The Conclusion was Jacobson's relaxation technique can be used as an adjunctive intervention in the treatment of hypertension.[6]

As a researcher based on the Literature review, it was felt that assessing the effectiveness of Jacobson's progressive muscle relaxation therapy is helpful to reduce blood pressure and to improve health of hypertensive patients.

Problem statement

Effectivenessof Jacobson's progressive muscle relaxation (JPMR) therapy to reduce blood pressure among hypertensive patient

Objectives of the study

1. To assess pretest blood pressure level among experimental and control group.
2. To assess posttest blood pressure level among experimental and control group.
3. To compare pretest and posttest blood pressure level among experimental and control group.
4. To find out the association between posttest blood pressure level and demographic variable among experimental and control group.

Hypothesis

H_0: There will be no significant difference between mean pretest and posttest level of blood pressure among experimental group at 0.05 level of significance.

The Conceptual Framework

The conceptual framework of the study is based on modified General System theory by Ludwig Von Bertanlanffy (1968).

RESEARCH METHODOLOGY

A quantitative research approach with quasi experimental research design (Non-Equivalent Pretest Posttest control group) was used for the study. Research study was conducted from 29th May 2017 to 30th June 2017 in a Medical Society. The sample size considered for the study was 50 hypertensive patients (Experimental group: 25 and Control group: 25). The technique adopted for this study was Non Probability Purposive Sampling.

TOOLS: the tool consisted of three sections.
Section A:

This section includes assessing demographic variables, which includes age, gender, height, weight, BMI, education, occupation, family history, habits, dietary pattern, duration of hypertension, knowledge about JPMR.
Section B:

This section includes blood pressure measurement data sheet validated by experts to assess level of blood pressure of hypertensive patient.
Section C:

This section includes checklist validated by experts to assess blood pressure among hypertensive.

RESULTS AND INTERPRETATIONS

Analysis and interpretation of data are based on data collected through blood pressure measurement data sheet, using descriptive and inferential statistics.

Characteristics of demographic variables of hypertensive patients

In experimental group, with regard to age majority 7 (28%) of them belongs to 46 -50 years and 7 (28%) belongs to 51-55 years. With regard to gender majority 13(52%) belongs to female. With regard to BMI 15(60%) belongs to normal. With regard to education 11(44%) were graduates. With regard to occupation majority 10(40%) were house wife. Data shows that 10(40%) patient's grandparent had same disease. Data depicts that 14(56%) had no any bad habits. With regards to diet 16(64%) were vegetarian. 10(40%) patients were having hypertension from 0-2 years.

In control group, with regard to age majority 7 (28%) of them belongs to 40-45 years and7 (28%) belongs to 50-60 years. With regard to gender majority 13(52%) belongs to male. With regard to BMI 15(60%) belongs to normal. With regard to education 11(44%) were graduates. With regard to occupation majority 12(48%) were house wife. Data shows that 9(32%) patient had no family history. Data depicts that 12(48%) had no any bad habits. With regards to diet 14(56%) were vegetarian. 10(40%) patients were having hypertension from 0-2 years.

Assessment of pretest and posttest blood pressure level among experimental and control group.

In order to assess the pretest blood pressure level among experimental and control group Wilcoxon test was used. The mean posttest of systolic blood pressure score 129.12 is lower than pretest score 143.92. The mean posttest diastolic blood pressure score 86.48 is lower than pretest diastolic blood pressure 98.16 in experimental group.

Mean, Standard Deviation, Wilcoxon test of posttest blood pressure level among experimental and control groupn=50

	Group	Mean	Standard Deviation	Wilcoxon Test	P Value
Experimental Group	Pretest SYSTOLIC	143.92	12.94	4.383	<0.001 (S)
	Posttest SYSTOLIC	129.12	8.64		
	Pre DIASTOLIC	98.16	9.81	4.383	<0.001 (S)
	Post DIASTOLIC	86.48	5.92		
Control Group	Pre SYSTOLIC	142.96	8.25	1.342	0.18 (NS)
	Post SYSTOLIC	142.56	7.89		
	Pre DIASTOLIC	102.32	11.00	1	0.317 (NS)
	Post DIASTOLIC	102.16	11.15		

Comparison of pretest and posttest blood pressure level among experimental and control group

In order to compare the pretest blood pressure level among experimental and control group Man Whitney U test was used. The mean difference in systolic blood pressure level of experimental group 14.80±5.72 is higher than systolic blood pressure level of control group 0.40±1.42. The mean difference in diastolic blood pressure level of experimental group 11.68±6.85 is higher than diastolic blood pressure level of control group 0.16±0.80. Further to know the statistical significance between pretest and posttest blood pressure level

among experimental and control group Man Whitney U test was computed. The "u" test value of systolic blood pressure (u =0.50000, p<0.05) showed that there was a highly significant difference between pretest systolic blood pressure and posttest systolic blood pressure. The "u" test value of diastolic blood pressure (u=2.00000, p<0.05) showed that there was a highly significant difference between pretest diastolic blood pressure and posttest diastolic blood pressure. Hence we reject our $1H_0$ hypothesis.

Mean of posttest blood pressure level among experimental and control groupn=50

	Experimental	Control	Man Whitney U Test	P value
Difference in SBP	14.80±5.72	0.40±1.42	0.50000	<0.001
Difference in DBP	11.68±6.85	0.16±0.80	2.00000	<0.001

Association between posttest blood pressure level and demographic variables among hypertensive patient

To determine the level of association between posttest blood pressure level and selected demographic variables (age, gender, education, occupation, family history, habit, diet, hypertension diagnosed) in experimental and control group. In the present study it was found that there was no statistically significant association between posttest blood pressure level and selected demographic variable except family history, habits.

CONCLUSION

Those clients who had hypertension require effective alternative therapy for reducing blood pressure level. Nursing students should be encouraged to teach various aspects of management about hypertension under supervision during training period. This study will create awareness among the nursing fraternity regarding the importance of inclusion of relaxation techniques in the curriculum of nursing students, which leads to the contribution of scientific knowledge, academic growth and development of students.

References

1. Black Joyce M, Hawks Jane H.Medical-Surgical Nursing.8[th]ed. India. Elsevier; 2010. P.1290-1306.
2. Brunner & Suddarth's. Medical-Surgical Nursing, 13[th]ed.Philadelphia: Lippincott Williams and Wilkins.P:862-864.
3. Waugh A, Grant A. Ross and Wilson Anatomy and Physiology in Health and Illness.12th ed.London. Elsevier; 2014.P.96-99,225,345.
4. Kishore J, Gupta N, Kohli C, Kuma N. Prevalence of Hypertension and Determination of Its Risk Factors in Rural Delhi. Integrated Blood Pressure Control 2013; 6: 111-117. https://www.ncbi.nlm.nih.gov/pmc/articles/ PMC3753877/pdf/ibpc-6-111.pdf
5. A Laxmaiah *et al*. Socio-economic & demographic determinants of hypertension & knowledge, practices & risk behaviour of tribals in India. *Indian Journal of Medical Research*.2015; 141(5):697-708. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC451077 1/
6. Khatri S M, Singaravelan R M, HaiderNaeemRomi. Effectiveness of Jacobson's Relaxation Technique in Hypertension. *International Journal of Health Science and Research.* 2012;1(2):16-21. http://www.ijhsr.org/ currentissue_html_2.htm

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