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Effectiveness of abdominal breathing exercise on blood pressure regulation among primary hypertensive patients

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Abstract

Background: Hypertension is one among the other leading causes of cardio vascular disease. Blood pressure in the arteries elevate persistently in hypertension. Hypertension is a silent killer as it is often symptom free.

Methodology: A pre-experimental; one group pre-test post-test design was used. 20 Primary hypertensive patients at selected hospitals were selected by using convenient sampling technique. The effect of abdominal breathing exercise on blood pressure regulation among primary hypertensive patients was determined by using Joint National Committee sub classification of hypertension.

Findings: In pre-test; 20 [100%] had borderline blood pressure; none of them had optimal or normal blood pressure. In post-test among primary hypertensive patients; majority 11 [55%] were having optimal level of blood pressure, 6 [30%] were having normal level of blood pressure, 3 [15%] were having border line of blood pressure after abdominal breathing exercise. The statistical paired t-value is 17.1 which was significant at $p > 0.05$ level of significance. The findings revealed that there abdominal breathing exercise is effective in controlling blood pressure among primary hypertensive patients.

Conclusion: The study concluded that the abdominal breathing exercise was effective in regulation of blood pressure among Patients with primary hypertension.

Keywords: Abdominal breathing exercise; blood pressure regulation, primary hypertensive patients

Introduction

The major cause of cardiovascular disease is hypertension. Blood pressure in the arteries elevate persistently in hypertension. Hypertension is silent killers as it is symptom free^[1]. In developed countries hypertension is the fourth leading cause of death and seventh leading cause of death in developing countries. Among adults population hypertension increased from 594 million in 1975 to 1.13 billion in 2015 in low and middle income countries. The global target is to reduce premature death due to hypertension, a non-communicable disease by 33% between 2010-2030^[2].

In the last 30 years hypertension has increased from 650 million to 1.28 billion among the adult population aged between 30-79 years^[3].

Globally, an estimated 26.4% approximately 972 million people has hypertension and the prevalence is expected to rise to 29% by 2025^[4]. An African country has the highest prevalence 27% of hypertension and America has the lowest prevalence 18% of hypertension^[5]. In India; the prevalence of hypertension in urban population is 25% and 10% in rural population. There was a major difference in prevalence of hypertension among urban and rural population^[6].

India has shown the prevalence of hypertension to 25% in urban and 10% in rural people in India. Significant differences in hypertension prevalence were noted between rural and urban^[7]. In screening non-communicable diseases among 90 lakhs population; 40.7% were diagnosed as hypertensive. The prevalence of age adjusted hypertension in Telangana state was 45.4% in 2017-18 out of which 51.0% were men and 39.7% were women^[8].

Objectives

1. To identify primary hypertension patients.
2. To evaluate the effectiveness of abdominal breathing exercise on regulation of blood pressure.

3. To associate the relationship between level of blood pressure and selected demographic variables.

Methodology

Research approach

Quantitative research approach was used to determine the effectiveness of abdominal breathing exercise in blood pressure regulation among primary hypertensive patients.

Research design

A pre-experimental; one group pre-test post-test design was used to assess the effectiveness of abdominal breathing exercise in blood pressure regulation among primary hypertensive patients.

Sampling technique and sampling size

40 Primary hypertensive patients were selected by using non-probability convenient sampling technique.

Criteria for sample selection

Inclusive criteria

- Primary hypertensive patients aged between 30-60

- years.
- Primary hypertensive patients who are willing to participate in the study.
- Both male and female primary hypertensive patients were included.

Exclusion criteria

- Uncontrolled hypertension cases
- Use of any hypertensive drugs.
- Pregnant women.
- Primary hypertensive patients who are not willing to participate in the study.

Validity and reliability of the tool

Validity of structured questionnaire consisting of socio-demographic data was obtained from the experts in the field of nursing and medical sciences. The reliability of the tool was obtained by using test re-test method. Karl Pearson’s Correlation Co-efficient was used to determine the r value which was 0.82.

Results and Discussion

Table 1: Level of blood pressure among primary hypertensive patients

Level of Blood pressure	Pre-test		Post-test	
Optimal	0	0	11	55
Normal	0	0	6	30
Border	20	100	3	15

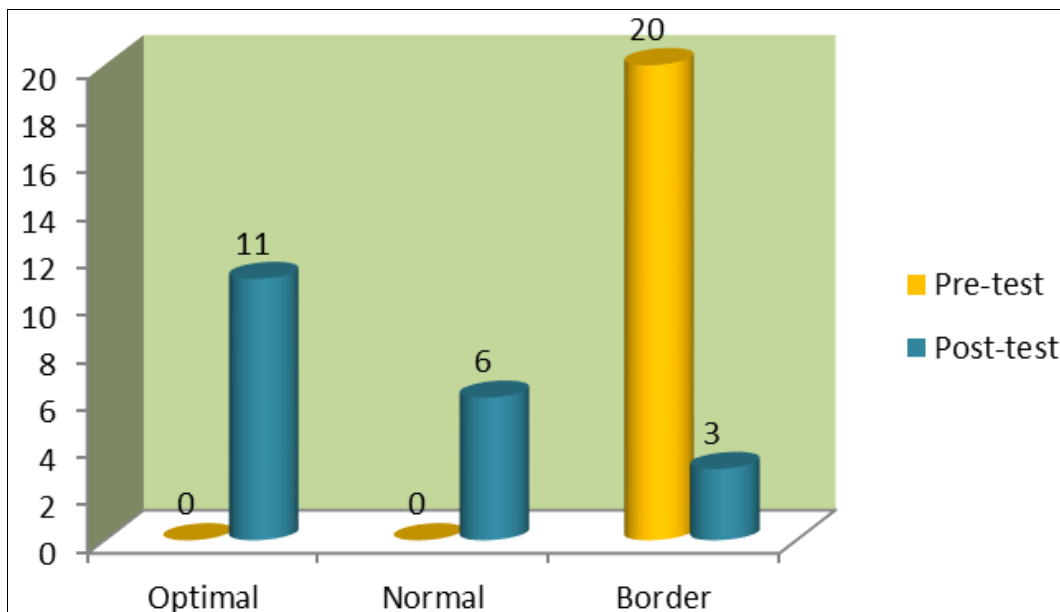


Fig 1: shows percentage distribution of levels of blood pressure among primary hypertensive patients. In pre-test; 100% (20) had borderline blood pressure; none of them had optimal or normal blood pressure. Whereas in post -test 55% (11) had optimal blood pressure; 30% (6) had normal blood pressure and 15% (3) had border blood pressure.

Table 2: Association between level of blood pressure and selected demographic variables N=20

S. No	Demographic variables	Optimal		Normal		Borderline		Degree of freedom	Chi-square
		n	%	n	%	n	%		
1	Age in years								
	a. 31-40 years	1	5	1	5	3	15	4	
	b. 41-50 years	3	15	3	15	0	0		12.13*
	c. 51-60 years	7	35	2	10	0	0		
2	Gender								
	a. Male	10	50	2	10	3	15	2	8.04*
	b. Female	1	5	4	20	0	0		
3	Socioeconomic class								
	a. Upper class	0	0	0	0	0	0	4	10.05*
	b. Uppermiddle	0	0	2	10	2	10		
	c. Lower middle	9	45	2	10	0	0		
	d. Upperlower	2	10	2	10	1	5		
	e. Lower	0	0	0	0	0	0		
4	Type of work								
	a. Sedentary	6	30	0	0	0	0	4	10.18*
	b. Moderate	3	15	5	25	1	5		
	c. Heavy work	2	10	1	5	2	10		
5	Type of diet								
	a. Vegetarian	9	45	6	30	1	5	2	5.60 ^{NS}
	b. Non vegetarian	2	10	0	0	2	10		
6	Habits								
	a. Smoking	3	15	3	15	0	0		
	b. Alcoholism	2	10	1	5	0	0	6	7.13 ^{NS}

Interpretation *-Significant at 0.05 level **- Significant at 0.01 level NS-Not significant

There was a significant association between blood pressure levels with respect to the age, gender, socio economic class, type of work, family history of hypertension at 0.05 level of significant determined by using chi square test. The findings were supported by a study conducted by Gautaam *et al.*, (2019) ^[10] who stated that prevalence of hypertension was found to be 30.5% in urban slum of Maharashtra. The prevalence of hypertension were statistically significant with respect to age, sex, education, occupation at $p < 0.05$ level of significance ^[9].

A cross sectional study conducted by Liew SJ *et al.*, (2019) ^[9] on prevalence of hypertension with respect to socio demographic variables also stated that younger age, male and low educational level have a significant correlation with uncontrolled hypertension ^[10].

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