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Effect of Handgrip Isometric Exercise on Level of Blood Pressure among Hypertensive Patients at Selected Hospitals of City

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ABSTRACT
A study conducted on 'Effect of handgrip isometric exercise on level of blood pressure among hypertensive patients at selected hospitals of city'.
The research design selected for the present study was Quantitative Evaluatory Approach. Study was conducted at selected hospitals. In the present study the sample comprises of hypertensive patients that fulfill the inclusion criteria of the study. Sample consists of 60 hypertensive patients (Experimental group: 30 hypertensive patients. Control group: 30 hypertensive patients). Non probability convenient sampling technique was used to select the samples. Result indicates that there is remarkable improvement in the systolic as well as diastolic blood pressure level among hypertensive patients after handgrip isometric exercise.
Conclusion: In experimental group, average change in SYSBP was 2.8, 7.2 and 12.8 on day 1, day 4 and day7 respectively. In control group, average change in SYSBP was 1.8, 1.3 and 1.9 on day 1, day 4 and day7 respectively. The corresponding p-values were small (less than 0.05) for all the time points. Experimental group has significantly higher improvement in systolic blood pressure as compared to the control group. The handgrip isometric exercise was found to be significantly effective in reducing the systolic blood pressure among hypertensive patients.
In experimental group, average change in DIABP was 3, 6.3 and 11.3 on day 1, day 4 and day7 respectively. In control group, average change in DIABP was 1.1, 1.5 and 1.7 on day 1, day 4 and day7 respectively. The corresponding p-values were small (less than 0.05) for all the timepoints. It is evident that the experimental group has significantly higher effect in DIABP as compared to control group.

INTRODUCTION
Increasing prevalence of hypertension in developing countries is of great concern. According to a report from the World Health Organization (WHO 2010), there was an estimated 972 million people with hypertension in the year 2000. 65% lived in developing world with the number predicted to grow to 1.5 billion by 2025. The increasing prevalence is well reflected in the increase in cardiovascular disease mortalities. This is especially in developing countries with high illiteracy rates.

PROBLEM STATEMENT
'Effect of handgrip isometric exercise on level of blood pressure among hypertensive patients at selected hospitals of city'.

OBJECTIVES
1. Toassess the level of blood pressure before providing handgrip isometric exercise among hypertensive patients at selected hospitals.
2. To determine the effect of handgrip isometric exercise on level of blood pressure among hypertensive patients at selected hospitals of city.
3. To find association of pre intervention study findings with selected demographic variables.

REVIEW OF LITERATURE
a. Literature related to hypertension.
b. Literature related to effect of handgrip isometric exercise on level of blood pressure.

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HYPOTHESIS

Ho: There is no significant effect of handgrip isometric exercise on level of blood pressure among hypertensive patients at selected hospitals of city. (p=0.05)

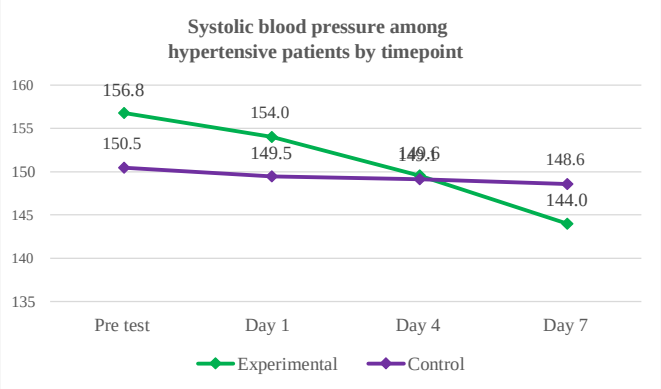
H1: There is significant effect of handgrip isometric exercise on level of blood pressure among hypertensive patients at selected hospitals of city. (p=0.05)

MATERIALS AND METHODS

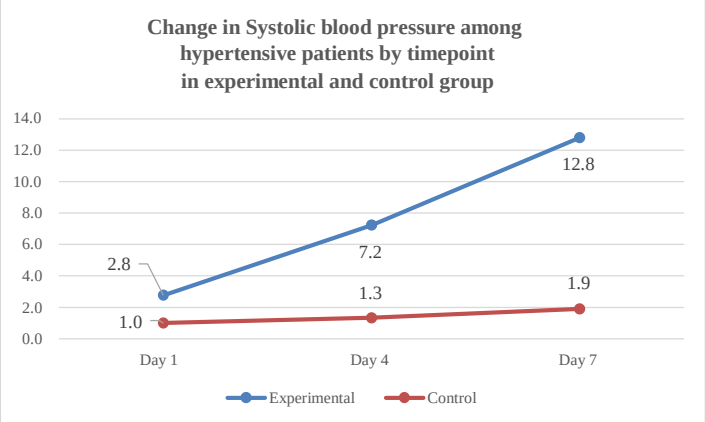
The research approach used for the study is Quantitative Evaluative Approach and Quasi-experimental Time Series Design is used for the study. Sixty samples (30experimental group and 30-control group) selected by using convenient sampling technique. Raw data was collected and entered in a master sheet for the statistical analysis. It was interpreted using descriptive and inferential statistics.

INTERPRETATION

Graph No: 1 Systolic blood pressure among hypertensive patients by timepoint.



Graph No: 2 Change in SYSBP among hypertensive patients in experimental and control groups.



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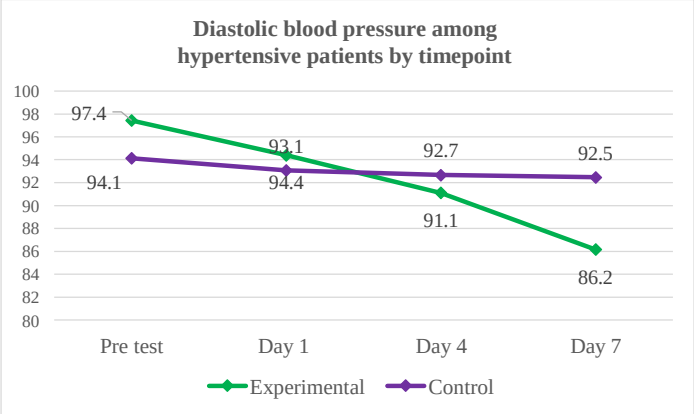
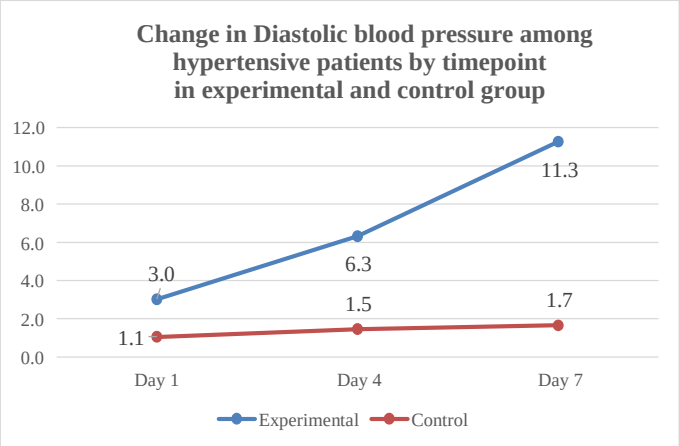
Graph No: 3 Diastolic blood pressure among hypertensive patients by time-point.



Graph No: 4 Comparison of change in DIABP among hypertensive patients in experimental and control groups.



Fisher's exact test for the association of SYSBP with selected demographic variables

Demographic variable		SYSBP		Pvalue
		Stage I	Stage II	
Age	41-50 years	18	10	0.599
	51-60 years	11	7	
	61-70 years	11	3	
Gender	Male	23	12	1.000
	Female	17	8	
Education	Illiterate	13	2	0.150
	Primary	9	8	
	Secondary & Higher secondary	14	6	
	Graduation and above	4	4	
Occupation	Unemployed	19	4	0.066
	Government employee	6	4	
	Private employee	12	6	
	Business & Others	3	6	

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Habits	Smoking	2	6	0.106
	Smoking, Tobacco chewing	1	0	
	Smoking, alcohol consumption	2	1	
	Tobacco chewing	22	6	
	Tobacco chewing, Alcohol consumption	2	0	
	Alcohol consumption	3	2	
	No bad habit	8	5	
Duration of hypertension	0 – 3 years	29	16	0.835
	4 – 6 years	10	4	
	7 – 10 years	1	0	
Any medication used for hypertension	Yes	18	9	1.000
	No	22	11	

Since all the p-values are large (greater than 0.05), none of the demographic variables was found to have significant association with SYSBP of hypertensive patients.

Fisher's exact test for the association of DIABP with selected demographic variables

Demographic variable		**DIABP**				**P-value**
		Prehypertension	**Stage I**	**Stage II**	**Stage III**	
Age	41-50 years	0	18	10	0	0.252
	51-60 years	0	13	4	1	
	61-70 years	1	11	2	0	
Gender	Male	1	25	9	0	0.790
	Female	0	17	7	1	
Education	Illiterate	1	11	3	0	0.919
	Primary	0	11	5	1	
	Secondary & Higher secondary	0	14	6	0	
	Graduation and above	0	6	2	0	
Occupation	Unemployed	0	17	6	0	0.398
	Government employee	0	8	2	0	
	Private employee	0	12	6	0	
	Business & Others	1	5	2	1	
Habits	Smoking	0	4	4	0	0.636
	Smoking, Tobacco chewing	0	1	0	0	
	Smoking, alcohol consumption	0	2	1	0	

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	Tobacco chewing	0	21	6	1	
	Tobacco chewing, Alcohol consumption	0	2	0	0	
	Alcohol consumption	1	3	1	0	
	No bad habit	0	9	4	0	
Duration of hypertension	0 – 3 years	0	32	12	1	0.549
	4 – 6 years	1	9	4	0	
	7 – 10 years	0	1	0	0	

Since all the p-values are large (greater than 0.05), none of the demographic variables was found to have significant association with DIABP of hypertensive patients.

CONCLUSION

As a lifestyle intervention physical activity and exercise can improve health through the management of blood pressure. Specifically isometric handgrip exercise has been prescribed as a lifestyle intervention to successfully reduce high blood pressure among hypertensive patients.

In the study analysis, the handgrip isometric exercise was found to be significantly effective in reducing the systolic and diastolic blood pressure among hypertensive patients.

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