A Study to Evaluate the Effectiveness of a Structured Teaching Programme on Yogasanas to Prevent the Risk of Cardiovascular Diseases among Patients Having Hypertension in Selected Hospital at Mangaluru

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ABSTRACT

Background of the study

Cardiovascular diseases are a leading cause of death in the world. Hypertension is one of the commonest risk factors for almost all different cardiovascular diseases, including coronary artery disease, left ventricular hypertrophy, and cardiac arrhythmias. Overall, the prevalence rate of hypertension in different European countries appears to be around 30-45% of the general population. The prevention of cardiovascular disease and treatment recommendations should be emphasized among those who have hypertension.

Objectives of the study

- To assess the pre-test and post-test level of knowledge regarding *yogasanas* among patients having hypertension to prevent the risk of cardiovascular diseases.
- To evaluate the effectiveness of a structured teaching programme on knowledge regarding *yogasanas* to prevent the risk of cardiovascular diseases among patients having hypertension.
- To find an association of post-test knowledge scores regarding *yogasanas* with selected socio-demographic variables like age, gender, marital status, education, occupation, family income, type of family, co-morbid illness, dietary pattern, and habit of regular exercise.

Methods

The quantitative research approach was adopted to evaluate the effectiveness of a structured teaching programme. The investigator selected a quasi-experimental one-group pre-test and post-test design. A simple random sampling technique was used to select 60 patients having hypertension admitted to specialized wards.

The knowledge level regarding *yogasanas* was assessed through a self-prepared semi-structured knowledge questionnaire by an interview method. A structured teaching programme regarding *yogasanas* was demonstrated by the investigator and a booklet was distributed to the patients. Post-test was conducted after a week using the same tool.

Results

In the pre-test majority of the patients had inadequate knowledge 42(70%) and 18(30%) had a moderate level of knowledge. When compared to the pre-test in the post-test majority of the patients had gained adequate knowledge 50(83%) and moderate knowledge 10 (17%). It was found that a demonstration of *yogasanas* was useful to the patients having hypertension.

The effectiveness of a structured teaching programme regarding *yogasanas* was evaluated using paired 't' test and the obtained value was 26.20 which was greater than the table value at a p<0.05 level of significance. Hence it was concluded that the structured teaching programme regarding *yogasanas* to prevent the risk of cardiovascular diseases among patients having hypertension was effective.

Interpretation&Conclusion

The study concluded that the post-test knowledge level of patients having hypertension was improved after undergoing structured teaching programme regarding selected *yogasanas* technique to prevent the risk of cardiovascular diseases among patients having hypertension. The overall findings of the study showed that the structured teaching programme was effective in improving the knowledge level regarding *yogasanas* of patients having hypertension to prevent the risk of cardiovascular diseases.

Keywords: Effectiveness; structured teaching programme; *yogasanas*; patients with hypertension; cardiovascular diseases.

INTRODUCTION

The WHO data on non-communicable disease [NCDs] in the year 2021 stated that non-communicable diseases are chronic condition of longer duration that accounts for 41 million (71%) death worldwide, prevalent in low and middle-income countries accounting for 31.4 million global death, the most prevalent NCDs were COPD, DM, HTN, CVDs, and cancer.

Cardiovascular diseases are the leading cause of death worldwide accounting for 17.9 million fatalities; with risk factors like older age group people affecting between the age group of 30-69 years which accounts for 15 million death, and unhealthy lifestyle habits like tobacco chewing account for 7.2 million deaths every year including second-hand smoke, excess salt, and sodium intake causes 4.1 million deaths and lack of physical exercise causes 3.3 million deaths, the metabolic changes in the body such as raised blood pressure, overweight, hyperglycaemia, and hyperlipidaemia play a vital role in causing a risk of 19% of NCDs in the global population.

Yoga is one of the effective complementary approaches it is a mind-body activity in which a person practices a sequence of body positions to improve muscle strength, flexibility, and body balance and stress. Emotional stress creates physical changes by producing hormones such as cortisol and adrenaline, which constricts the arteries, and causes high blood pressure, many evidence proved that *yogasanas* are effective in reducing the stress, improving body posture thus helps to prevent increased blood pressure

METHODS AND MATERIALS

A quantitative approach Quasi experimental one group pre-test-post-test design was used.Probability simple random sampling technique was used to assign the samples with lottery method. Pre-test assessment of knowledge was done by an interview method. The socio-demographic proforma and self-prepared semi-structured knowledge questionnaires regarding *yogasanas*were collected. After the pre-test assessment on the same day, a structured teaching programme regarding *yogasanas* were administered to the patients. After 15 minutes practice of warm-up exercises, the *yogasansas* like *tadasana, trikonasana, vakarasana, bhujangasana, vajrasana, sukhasana, makarasana* and *shavasana* were demonstrated for the duration of 30 minutes and each *yogasanas*were repeated for 4 times which consist of 5-6 steps. An information n booklet was distributed to the patients to practice *yogasanas* at home care settings. Post-test assessment was done by giving the same self-

prepared semi-structured knowledge questionnaires after 7 days of teachings to evaluate the effectiveness of *yogasanas* to prevent the risk of cardiovascular diseases among patients having hypertension.

To check the feasibility and acceptability of the approach to be used in larger scale a pilot study was conducted among smaller population which was feasible to conduct the main study. Then the main study was conducted among estimated sample and the intervention was administered.

RESULTS

- Distribution of the patients based on their age showed that among 60 samples, 38(63%) were more than 50 years of age, about gender males were 37(62%) more than the females, 54(90%) were married. Around 36(60%) patients had primary education, 22 (35%) of them were daily wagers, the majority of 22(37%) sample had a monthly income of 20,001-30,000, 36 (60%) patients lived in nuclear families,and the majority of the patients had hypertension with diabetes mellitus 36(60%). The data regarding dietary patterns reveals that among 60 samples, 49(82%) were consuming a mixed diet, and the majority of the patients 59(98%) were not practicing any kind of regular exercise.

- In the pre-test majority of the patients had inadequate knowledge 42(70%) and 18(30%) had a moderate level of knowledge. When compared to the pre-test in the post-test majority of the patients had gained adequate knowledge 50(83%) and moderate knowledge 10(17%). It was found that demonstration of *yogasanas*was useful to patients having hypertension

- Regarding the overall pre-test and post-test scores, the mean and standard deviation of the post-test were increased which was 27.01 ± 3.25 and the mean score percentage was 90%, The enhancement between post-test and pre-test was 65 which depicts that the knowledge regarding *yogasanas*was improved. The calculated "t" value was 26.20 which was greater than the table value at a $p<0.05$ level. Therefore, in all aspects of knowledge, the structured teaching programme regarding *yogasanas* to prevent the risk of cardiovascular diseases among patients having hypertension was found to be effective. Hence the research hypothesis is H^1 was accepted.

Effectiveness of structured teaching programme on *yogasanas*to prevent the risk of cardiovascular diseases among patients having hypertension.

Table 1.1 reveal that in the pre-test knowledge scores majority of the patients 42(70%) had inadequate knowledge regarding *yogasanas*and 18(30%) had a moderate level of knowledge regarding *yogasanas*. After the structured teaching programme, there was a gradual increase in the level of knowledge which was seen in the post-test score, 50(83%) patients had gained adequate knowledge and 10(17%) had gained moderate knowledge. Therefore it was evident that the structured teaching programme regarding *yogasanas*was effective.

Sl.no	Level of knowledge	Pre-test		Post-test	
		No	Percentage %	No	Percentage %
1	Adequate	-	-	50	83

N=60

2	Moderate	18	30	10	17
3	Inadequate	42	70	-	-
	TOTAL	60	100	60	100
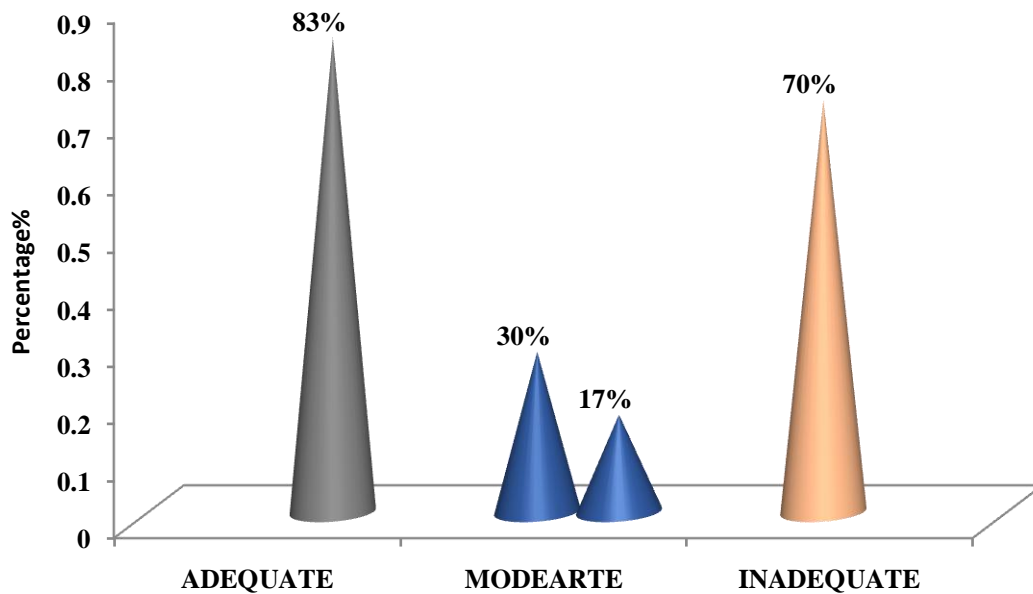
Table 1.2 depicts the standard deviation of the post-test which was 3.25 and the mean score percentage was 90% when compared to the standard deviation of the pre-test which was 5.47and the mean score percentage was 25. The mean difference of both post-test and pre-test was 19.53. The enhancement between post-test and pre-test was 65 which depicts that the knowledge regarding *yogasanas*was improved. The calculated 't'value was 26.20 which was greater than the table value at a $p<0.05$ level. Therefore, the structured teaching programme regarding *yogasanas*to prevent the risk of cardiovascular diseases among patients having hypertension was effective. Hence the research hypothesis H_1 was accepted.

N=60

Sl.no	Variables	Mean	Standard deviation	Mean score %	Mean difference	Enhancement	't' value
1	Pre-test	7.48	5.47	25			
2	Post-test	27.01	3.25	90	19.53	65	26.20
	Total	34.49	8.72	57.5			
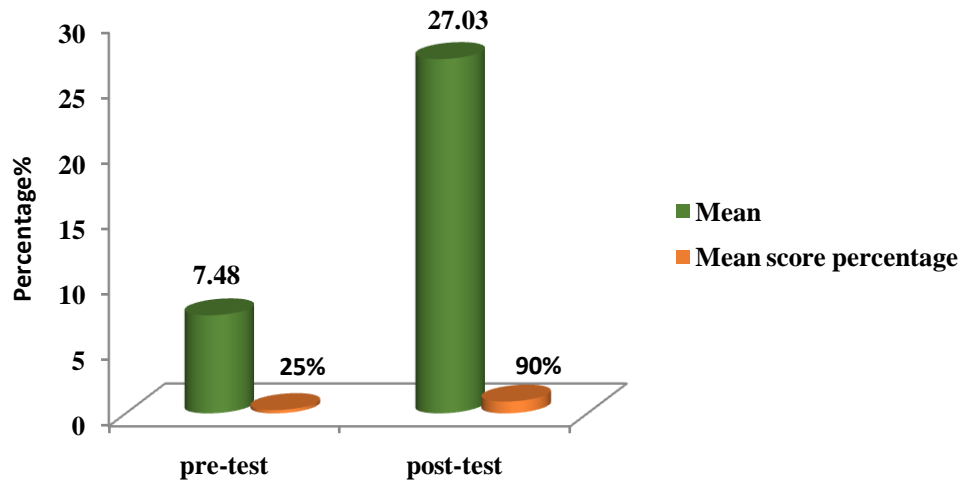
- There was no significant association found between socio-demographic variables with post-test knowledge. Hence the research hypothesis H_2 was rejected and null hypothesis H_0 was accepted.

Association between post-test knowledge scores of patients with socio-demographic variables.
Table 2.1 Association between post-test knowledge score with socio-demographic variables.

Data presented in table 4.1 shows that there was no significant association found between socio-demographic variables with post-test knowledge scores. Hence the research hypothesis H_2 was rejected and null hypothesis H_0 was accepted.

N=60

Variables	Adequate	Moderate	Df	Chi-square Value(X^2)	Inference
Age in years					
18-30	0	1			
31-40	3	0	6	6.538	NS
41-50	14	4			
More than 50 years	33	5			
Gender					
Male	31	6			
Female	19	4	4	0.013	NS
Transgender	0	0			
Marital status					
Married	45	9			
Unmarried	5	1	6	0	NS
Widow/Widower	0	0			
Divorced/Separated	0	0			

Education					
No formal education	9	1			
Primary education	28	8			
Secondary education	13	1	6	2.021	NS
Graduated/Post/Doctorate	0	0			
Occupation					
Homemaker	14	4			
Business	16	3			
Daily wager	19	2	8	2.810	NS
Professional	1	1			
Family income					
<15,000	14	2			
15,001-20,000	16	4	6	0.7672	NS
20,001-30,000	20	3			
>30,000	1	0			
Type of family					
Joint family	22	2			
Nuclear family	28	8	6	1.99	NS
Extended family	0	0			
Single parent family	0	0			
Co-morbid illness					
Diabetes mellitus	30	2			
CVA	3	8	6	6.99	NS
Renal disorders	5	0			
If others specify	12	0			
Dietary pattern					
Vegetarian	10	1			
Non-vegetarian	20	9	4	0.5562	NS
Mixed diet	0	0			
Does have the habit of regular exercise					
Yes	1	0	1	0.528	NS
No	49	0			

S=Significant, NS=Not Significant

DISCUSSION

- Overall pre-test and post-test scores, the mean and standard deviation of the post-test were increased which was 27.01 ± 3.25, and the mean score percentage was 90% when compared to the pre-test. The mean difference of both post-test and pre-test was 19.53. The improvement was enhanced to 65, indicating that knowledge regarding *yogasanas* was adequate. The calculated 't' value was 26.20 which was greater than the table value at a $p<0.05$ level. Therefore, the structured teaching programme regarding *yogasanas* to prevent the risk of cardiovascular diseases among patients having hypertension was effective. Hence the research hypothesis H_1 was accepted.

  The present study is supported by a quasi-experimental study that was conducted to measure the effects of *yoga* emphasizing breathing techniques practiced in sitting positions among 47 patients using a simple random sampling technique. The result of the study showed a decrease in BMI (1.6%), total cholesterol (7.7%), high-density lipoprotein (HDL) cholesterol (8.7%), and fasting serum lipid levels (44.2%). The study concluded that the practice of *yoga* was effective in improving the modifiable risk factors of cardiovascular diseases.[54] The findings of the present study showed that the knowledge regarding *yogasanas* was found to be effective in preventing the risk of cardiovascular diseases.

- The Chi-square test was used to assess the association between post-test knowledge scores with socio-demographic variables such as age, gender, education, marital status, occupation, type of family, family income, dietary pattern, and habit of regular exercise. There was no significant association found between socio-demographic variables with post-test knowledge. Hence the research hypothesis H_2 was rejected and null hypothesis H_0 was accepted.

- The present study is supported by a quasi-experimental study that was conducted to evaluate the effectiveness of *yoga* therapy and physical exercises on blood pressure among adults with hypertension at Nanchiyampalayam, Dharapuram. The purposive sampling technique was used to select 60 samples, 30 in the experimental group and 30 in the control group. There was a significant association between blood pressure value with demographic variables like age, gender, education, and occupation but diet, and habit of doing exercise had no significant association with blood pressure. The study concluded that physical exercises and *yoga* therapy were beneficial and there was a significant reduction in blood pressure among adults in the experimental group.[59] The findings of present study found that there was no significant association between post-test knowledge scores with socio-demographic variables.

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