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IMPACT OF CONSUMING WATERMELON ON SYSTOLIC AND DIASTOLIC PRESSURES OF HYPERTENSIVE PATIENTS (30-55 YEARS) FROM EDAPPADI TALUK, SALEM DISTRICT

Varshini S*[1], A. Jebakumari Sutha[1], P. Priscilla[1]

[1*]Ganga College of Nursing, (Affiliated to the Tamil Nadu, Dr. MGR Medical University), Chennai, Tamil Nadu, India.

ABSTRACT

Aim and objective: To assess the pre test and post test level of blood pressure among hypertensive patients in experimental and control group and to evaluate the effectiveness of watermelon consumption on hypertensive patients among experimental group. **Materials and Methods:** Quantitative approach, two group pre test and post test experimental design was adopted to Impact of consuming watermelon on systolic and diastolic pressures of hypertensive patients (30-55 years) from Edappadi taluk, Salem district (90 samples. In experimental group 45 and control group 45 samples between age group of 30-55 years from Edappadi Taluk, Salem district who fulfilled the inclusion and exclusion criteria. Non probability purposive sampling technique was used to select the samples A structured questionnaire was used to collect their general information and sphygmomanometer was used to check the pre-test and post-test blood pressure. The hypertensive patients in experimental were given two cups of ripped watermelon before lunch for 60 days. **Results:** The results were in experimental group calculated mean value for systolic blood pressure in pre test is 149.96 and SD is 6.9802. In post test mean value is 143.77 and SD is 5.923 their difference is 29. In control group calculates mean value for systolic blood pressure in pre-test 150.03 and SD is 6.5993. In post-test mean value is 156.43 and SD is 7.477 their difference is 29. In control group calculated mean value for diastolic blood pressure in pre-test 94.26 and SD is 3.40. In post-test mean value for diastolic blood pressure 95.17 and SD 3.1514 their difference is 29. The post test blood pressure for hypertensive clients for experimental group the mean post test systolic was 6.19± 0.4031 diastolic was 2.63± 0.4472. Calculated 't' value for systolic blood pressure 5.95 and diastolic blood pressure 3.334 at $p<0.01$ level. **Conclusion:** The result was evident that watermelon was effective in reducing blood pressure among hypertensive patients.

KEYWORDS

Blood pressure, Hypertensive patients, Watermelon consumption and Effectiveness.

Author for Correspondence:
Varshini S,
Ganga College of Nursing,
(Affiliated to the Tamil Nadu, Dr. MGR Medical University), Chennai, Tamil Nadu, India.

Email: varshinisharma98@gmail.com

INTRODUCTION

Hypertension is called a "silent killer". Most people with hypertension are unaware of the problem because it may have no warning signs or symptoms. For this reason, blood pressure must be measured regularly. An estimated 1.13 billion people worldwide have hypertension, most (two-thirds) living in low- and middle-income countries. In 2015,

1 in 4 men and 1 in 5 women had hypertension. Fewer than 1 in 5 people with hypertension have the problem under control. Hypertension is a major cause of premature death worldwide. One of the global targets for non-communicable diseases is to reduce the prevalence of hypertension by 25% by 2025[1].

Every 10 Indians suffer from increased blood pressure. Recent days Anti Hypertension medicines are available to reduce the blood pressure. These drugs alone cannot control the blood pressure. Adjuvant therapies are plays important role in controlling blood pressure[2]. Hypertension is a major risk factor for the development of cardiovascular disease (CVD). It has a great impact on stroke and end-stage renal failure. It is also one of the important contributing factors for the development of coronary heart disease (CHD)[3].

Statement of the study

"Impact of consuming watermelon on systolic and diastolic pressures of hypertensive patients (30-55 years) from Edappadi taluk, Salem district"

Objectives

To assess the pre-test level of blood pressure in hypertensive patients among the experimental and control group.

To administrate the watermelon consumption for hypertensive patients among the experimental group.

To evaluate the effectiveness of watermelon on hypertensive patients among the experimental group.

To assess the post-level of blood pressure in hypertensive patients among the experimental group and control group.

To determine the association of post-test level of blood pressure and behavioural lifestyle changes with their selected demographic variables in selected experimental and control groups.

Hypotheses

Null hypotheses

NH1: There will no significant difference between the levels of blood pressure among hypertensive patients after intake of watermelon.

NH2: There will be no significant association between the socio-demographic information and systolic and diastolic pressure of hypertensive patients.

Alternative hypotheses

AH1: There will be a significant difference between the levels of blood pressure among hypertensive clients after intake of watermelon.

AH2: There will be a significant association between the post-test level of blood pressure among hypertensive clients and their selected demographic variables.

MATERIAL AND METHODS

A quantitative approach was used for this study. The interventional study design was adopted to identify the influencing hypertensive patients on the age group of 30-55 years. Intervention or experimental studies differ from observational studies that investigator assign the exposure. They are used to determine the effectiveness of an intervention or effectiveness of a healthy service delivery. The research design selected for the present study was two group pre-test and post test experimental design. Non probability purposive sampling technique was used. The study was conducted on the hypertensive patients between the age group of (30-55 years). The total samples is 90. (In experimental group 45 samples and in control group 45 samples). The sample size was statistically determined using power calculations. The data collected over eight weeks. The researcher has provided 2 cups of watermelon to an experimental group and instructed them to take it before lunch for 60 days. Daily recorded sheet was provided for maintaining the daily intake. The control group was advised to continue the prescribed the regular medications as they followed.

Description of the tool

A semi structured questionnaire was prepared in both local languages for collecting the data from the patients. The tool consists of two sections:

Phase-I

Questionnaire

A pre-tested, Semi-Structured and validated questionnaire was provided in both English and local language-Tamil. The required information was elicited through the direct interview method. Questionnaires were provided personally by visiting the informants in their home.

It includes anthropometric measurements, clinical assessments, dietary assessment, food frequency, 24 hours recall.

Scoring Procedure

After consumption of watermelon the blood pressure level will categories as follows.

Phase-II

The phase -II consists of observation checklist of blood pressure.

Ethical consideration

The study objective, intervention and data collection procedures would approved by the research and ethical committee of the institution. Informed consent had obtained from the individual hypertensive patients in oral form. The hypertensive patients would have the freedom to leave the study at their own would without assigning any reason. The effectiveness of watermelon consumption, ill effects of hypertension, was explained to the hypertensive patients involved in the study.

Statistical Analysis

The data were analyzed for statistical significance by using the Statistical Package for Social Sciences (SPSS 14.0) software. The following statistical tools were used. Descriptive statistical was used to describe the demographic variables. Paired‘t’ test and unpaired‘t’ test was used to compare the pre test and post test level of blood pressure. The mean and standard deviation was used to find the difference in the blood pressure levels.

RESULTS AND DISCUSSION

Among the 90 samples, the majority of the hypertensive patients belongs to the age group of 30-40 with 53 percentage followed by the age group of 41-50 with 30 percentage and 17 percentage with age group of 51-55 years followed by the gender males with 58 percentage of the majority followed by females with the percentage of 42 belongs to the joint family with the percentage of 36. In education level the majority of the patients come under graduate and post graduate in the percentage of 41 followed by high school percentage of 22 and illiterate of 13 percentage. In occupation level the majority of the patients were shop owner with the 36 percentage followed by the unskilled worker of 26 percentage and their family monthly income were divided into seven categories the above table shows that majority of the patients monthly income is 15,000-20,000 followed by the percentage of 20 in the income of 10,000-15,000.

In the socio economic status majority of the patients in lower economic status with 51 percentage and their anthropometric measurements were divided into height, weight, BMI. In the category of height the majority of the hypertensive patients were in the height of 161-165 cm with 36 percentages followed by the height of 156-160cm with 33 percentage and 150-155cm in 20 percentages and 166-170cm with 11 percentages and their weight the majority of the patients were in 60-70kg in the percentage of 36 and 70-80kg with 32 percentage and 50-60 with 20 percentage having a BMI classification the majority were in the range of obese class I with 35 percentage and overweight with 31 percentage followed by normal range with 21 percentage and 6 percentage were obese class II and 3 percent were obese class III. The family history of hypertension, the majority of the patients had hypertension from their father with 58 percentages.

Pre and post-test comparison of systolic and diastolic blood pressure among hypertensive patients in both experimental and control group. In experimental group calculated mean value for systolic blood pressure in pre test is 149.96 and SD is 6.9802. In post-test mean value is 143.77 and SD is 5.923 their difference is 29. In control group calculates mean value for systolic blood pressure in pre test 150.03 and SD is 6.5993. In post test mean value is 156.43 and SD is 7.477 their difference is 29.In control group calculated mean value for diastolic blood pressure in pre-test 94.26 and SD is 3.40. In post-test mean value for diastolic blood pressure 95.171 and SD 3.1514 their difference is 29**.**

According to the association of behavioural lifestyle changes comparison with age among hypertensive patients. There is a significant association between the sleeping hours (p=.049253*) and the habits of smoking (p =.022741*) with their age.

According to the association of behavioural lifestyle changes comparison with gender among hypertensive patients. There is a significant

association between the habits of smoking (p= .22741*), consuming fatty foods (p=.00001*), consuming processed foods (p=.002002*).

According to the association of behavioural lifestyle changes comparison with socio economic status among hypertensive patients. There is a significant association between the habits of smoking (p= .002002*).

The post-test blood pressure of experimental group and control group for hypertensive patients for experimental group the mean post-test systolic was 6.19 mean difference and SD± 0.4031 diastolic was 2.63 and SD 0.4472. Calculated 't' value for systolic blood pressure 5.95 and diastolic blood pressure 3.334 at $p<0.01$ level. It was evident that watermelon was effective in reducing blood pressure among hypertensive patients.

The association of the post test level of blood pressure of hypertensive patients with age shows the significance level of p=.22741* and the gender shows the significance level of p=.00025*, weight p =.002002*.

Discussion

This chapter deals with the discussion part according to the results, obtained from the statistical analysis based on the study. The present study aimed to impact of consuming watermelon on systolic and diastolic pressures of hypertensive patients (30-55 years) from Edappadi Taluk, Salem District.

The first, second and third objective was to assess the pre-test level of blood pressure in hypertensive patients among experimental group and control group and to administrate and evaluate the effectiveness of watermelon consumption among hypertensive patients in experimental group. Pre and post-test comparison of systolic and diastolic blood pressure among hypertensive patients in both experimental and control group. In experimental group calculated mean and standard deviation values for systolic and diastolic blood pressure in pre-test and post-test. In experimental group calculated mean value for systolic blood pressure in pre-test is 149.96 and SD is 6.9802. In post-test mean value is 143.77 and SD is 5.923 their difference is 29. In control group calculates mean value for systolic blood pressure in pre-test 150.03 and SD is 6.5993.In post test mean value is 156.43 and SD is 7.477 their difference is 29. In control group calculated mean value for diastolic blood pressure in pre-test 94.26 and SD is 3.40. In post-test mean value for diastolic blood pressure 95.171 and SD 3.1514 their difference is 29.

Revathi S was conducted an experimental study. A total number of 30 hypertensive sample between the age group of 40-70 years. The research design used was one group pre-test post-test experimental. The samples were selected by a convenient sampling technique. The tool used to collect the data comprised 3 sections. Section I deals with demographic variables, Section II had questionnaires to assess the knowledge of hypertension, Section III had an observation checklist to assess the blood pressure level of hypertensive clients. The mean post-test systolic blood pressure was 132.22, SD 11.53, and the mean pre-test systolic blood pressure was 144.94, SD 12.35. The obtained value was 13.796. It was highly significant at 0.05 levels. It was inferred that the watermelon consumption was effective in reducing the blood pressure level. The mean post-test diastolic blood pressure was 86.83, SD 10.845 and the mean pre-test diastolic blood pressure was 94.25, SD 8.853. The obtained μ value was 5.492. It was significant at 0.05 levels. It was inferred that the watermelon consumption was effective in reducing the blood pressure level[4].

The fourth objective was to assess the post-test level of blood pressure in hypertensive patients in experimental group and control group. The post-test blood pressure of experimental group and control group for hypertensive clients for experimental group the mean post test systolic was 6.19 mean difference and SD± 0.4031 diastolic was 2.63 and SD 0.4472. Calculated 't' value for systolic blood pressure 5.95 and diastolic blood pressure 3.334 at $p<0.01$ level. Hence the alternative hypothesis is retained. It was evident that watermelon was effective in reducing blood pressure among hypertensive clients.

Prakash D was conducted an experimental study. A total number of 60 hypertensive samples to evaluate the effectiveness of watermelon on blood pressure among patients with hypertension attending

outpatient. In the experimental group during the pre-test, 46.7% of patients had prehypertension 13(43.3%) had stage I hypertension 3(10) % had stage II hypertension. The post-test blood pressure of experimental and control group patients for the experimental group the mean post-test systolic was 5.53 ±5.90 diastolic was 7.53±11.40. Calculated 't value for systolic blood pressure 4.137 and diastolic blood pressure 3.78 at p< 0.01 level is greater than table value (3.26)[5]. Hence the research hypothesis H1 is retained. It was evident that watermelon was effective in reducing blood pressure among hypertensive patients. There is a significant association found between systolic blood pressure and demographic variables of the experimental group. Hence the research hypothesis H2 is retained.

The fifth objective was to determine the association of post-test level of blood pressure and behavioural life style changes with their selected demographic variables in selected experimental group and control group. According to the association of behavioural lifestyle changes comparison with age among hypertensive patients. There is a significant association between the sleeping hours (p=.049253*) and the habits of smoking (p =.022741*) with their age. Hence the alternative hypothesis was accepted and null hypothesis was rejected.

According to the association of behavioural lifestyle changes comparison with gender among hypertensive patients. There is a significant association between the habits of smoking (p=.22741*), consuming fatty foods (p=.00001*), consuming processed foods (p=.002002*). Hence the alternative hypothesis was accepted and null hypothesis was rejected.

According to the association of behavioural lifestyle changes comparison with socio economic status among hypertensive patients. There is a significant association between the habits of smoking (p= .002002*). Hence the alternative hypothesis was accepted and null hypothesis was rejected.

The association of the post test level of blood pressure of hypertensive patients with age shows the significance level of p=.22741*,and the gender shows the significance level of p=.00025*, weight p=.002002*. Hence alternative hypothesis were accepted and null hypothesis were rejected.

RESULTS

Scoring Procedure: After consumption of watermelon the blood pressure level will categories as follows,

S.No	Category	Scoring
1	Normal	0
2	Pre- hypertension	1
3	Hypertension Stage I	2
4	Hypertension Stage II	3

Table No.1: Pre and post test comparison of systolic and diastolic blood pressure among hypertensive patients in both experimental and control group N=90

S.No	Blood pressure		Experimental group N=45			Control group N=45		
			Mean	SD	Df	Mean	SD	Df
1	Systolic	Pre-test	149.96	6.9802	29	150.033	6.5993	29
		Post-test	143.77	5.923		156.43	7.477	
2	Diastolic	Pre-test	94.167	3.2065	29	94.267	3.4032	29
		Post-test	91.53	3.148		95.171	3.514	

Table No.2: Effectiveness of watermelon consumption on blood pressure among hypertensive patients in experimental and control group N=90

S.No	Blood pressure		Experimental group n=45		Control group n=45		T value	DF
			MD	SD	MD	SD		
1	Systolic	Pre-test	6.19	0.4031	-6.397	0.7188	5.95**	58
2	Diastolic	Post-test	2.63	0.4472	-0.904	0.2500	3.334**	

**1% level of significance

Table No.3: Association of behavioral and lifestyle characteristic of hypertensive patients N=90

S.No	Variables	Age				
		30-40 years (%)	41-50 years (%)	51-55 years (%)	Total (%)	Chi square
Sleeping hours						
1	8 hours	9(10%)	5(6%)	2(2%)	16(18%)	X^2=9.5242 p =.049253*
2	<8 hours	21(23%)	18(20%)	12(13%)	51(57%)	
3	>8 hours	18(20%)	4(4%)	1(1%)	23(25%)	
	Habits of smoking					
4	Yes	38(42%)	21(23%)	12(13%)	71(78%)	X^2=13.698 p =.022741*
5	No	9(10%)	6(7%)	3(3%)	18(20%)	
If yes, how often?						
6	1 packets	38(42%)	22(24%)	12(13%)	72(80%)	
7	2 packets	5(6%)	4(4%)	2(2%)	11(12%)	
8	3 packets	2(2%)	2(2%)	2(2%)	6(7 %)	

* 5% level of significance

Table No.4: Association of Behavioural and lifestyle characteristic of hypertensive patients and their comparison with gender N=90

S.No	Habits of smoking	Age			
1	Yes	42(47%)	0	42(47%)	X^2=14.698 p=.022741*
2	No	10(10%)	38(42%)	48(53%)	
If yes, how often?					
3	1 packets	38(42%)	0	38(42%)	
4	2 packets	8(9%)	0	8(9%)	
5	3 packets	6(7%)	0	6(7%)	
Consuming processed foods					X^2=25.0546 p =0.002002*
6	Yes	45(50%)	20(22%)	65(72%)	
7	No	7(8%)	18(20%)	25(28%)	
If yes, which time?					
8	Daily	9(10%)	14(16%)	23(26%)	
9	Weekly	29(32%)	8(9%)	37(41%)	
10	Monthly	14(16%)	16(18%)	30(33%)	

*5% level of significance

Table No.5: Association of Behavioural and lifestyle characteristic of hypertensive patients and their comparison with socio economic status N=90

S.No	Variables	Socio economic status				
	Habits of smoking	Lower	Upper lower	Lower middle	Total %	Chi- square
1	Yes	38(42%)	6(7%)	8(9%)	52(58%)	
2	No	10(11%)	9(10%)	19(21%)	38(42%)	
If yes, how often?						
3	1 packets	12(13%)	6(7%)	2(2%)	20(22%)	X^2=27.0536 p =.002002*
4	2 packets	11(12%)	8(8%)	5(6%)	24(27%)	
5	3 packets	2(2%)	3(3%)	2(2%)	7(8%)	

* 5% level of significance

LIMITATIONS

The study is limited to do the intervention among hypertensive patients.

Data collection period is limited to 8 weeks only.

CONCLUSION

This study was to impact of consuming watermelon on systolic and diastolic pressure of hypertensive patients (30-55 years) from Edappadi taluk, Salem district.

The result showed that the watermelon is effective in reducing blood pressure in patient with hypertension when compared to control group having only medications.

There is a significant association between their post-test levels of blood pressure with their selected demographic variables.

SOURCE OF SUPPORT

None

CONFLICTS OF DECLARED

None declared.

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CONTRIBUTORS

VS: Conceptualization of the study, collection, analysis of the data, writing the manuscript, finalized the manuscript and will act as the guarantor of the paper; **JS, PP:** Edited and critically evaluated the manuscript.

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