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A pre-experimental study to assess the effect of administration of pomegranate juice among pre-hypertensive men and women aged between 25-45

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Abstract

Hypertension sometimes arterial hypertension is a chronic medical condition in which the blood pressure in the arteries is elevated. Different therapeutic approaches are used among pre-hypertensive individuals to decrease the blood pressure such as yoga, meditations, divertional therapies and medicated nutritional supplements which include pomegranate juice administration. The Pomegranate is considered one of the alternative therapies for the treatment of hypertension. Pre-experimental one group pre testpost test only design was used to evaluate the effectiveness of pomegranate juice among pre hypertensive men and women aged between 25-45 years residing in village Kaleran. A purposive sampling was done to obtain sample 30. The first part of the tool was used to collect 9 items for obtaining information about the selected background factor such as age, sex, type of family, education, income, occupation, dietary pattern, habits, disease. Second part consist of observation sheet for screening of pre-hypertensive men and women aged between 25-45 years and observation sheet for evaluating the effectiveness of administration of pomegranate juice on pre-hypertensive patient by using sphygmomanometer. The data obtained is analyzed in terms of objective of the study using descriptive and inferential statistics. The findings showed that majority of pre hypertensive patients 10(33.34%) belonged to the age group 31-35 years and majority i.e. 16 (53.34%) of the subjects were males and maximum i.e.10 (33.34%) of patients were illiterate. Maximum i.e. 10(33.34%) of subjects were in private job. Majority of mean blood pressure readings in pretest was 131/83 mmHg and standard deviations was 4.59. But in posttest, mean blood pressure readings was 125/79 mmHg and standard deviation was 4.21. It means that blood pressure readings were decreased after the administration of pomegranate juice.

Keywords: Hypertension, blood pressure, therapeutic approaches, pomegranate juice, alternative therapies

Introduction

Hypertension (HTN) or high blood pressure, sometimes arterial hypertension, is a chronic medical condition in which the blood pressure in the arteries is elevated. This requires the heart to work harder than normal to circulate blood through the blood vessels. Blood pressure involves two measurements, systolic and diastolic, which depend on whether the heart muscle is contracting (systole) or relaxed (diastole) between beats. Normal blood pressure is at or below 120/80 mmHg. High blood pressure is said to be present if it is persistently at or above 140/90 mmHg. Hypertension is classified as either primary (essential) hypertension or secondary hypertension; about 90–95% of cases are categorized as "primary hypertension" which means high blood pressure with no obvious underlying medical cause. The remaining 5–10% of cases (secondary hypertension) is caused by other conditions that affect the kidneys, arteries, heart or endocrine system. Hypertension is reported to be the fourth contributor to premature death in developed countries and the seventh in developing countries.⁽¹⁾ Recent reports indicate that nearly 1 billion adults (more than a quarter of the world's population) had hypertension in 2000, and this is predicted to increase to 1.56 billion by 2025. Earlier reports also suggest that the prevalence of hypertension is rapidly increasing in developing countries and is one of the leading causes of death and disability in developing countries.

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Need for the study

Hypertension is reported to be the fourth contributor to premature death in developed countries and the seventh in developing countries. Recent reports indicate that nearly 1 billion adults (more than a quarter of the world's population) had hypertension in 2000, and this is predicted to increase to 1.56 billion by 2025.

Hypertension was the primary or secondary cause of death for 326,000 Americans in 2006, according to the Centers for Disease Control. Hypertension places you at higher risk of developing heart disease, stroke and kidney disease. Most positive research on pomegranate juice indicates that it may affect systolic pressure but not diastolic pressure. Systolic pressure measures the actual force of your heart pumping blood, while diastolic pressure measures the force of blood against your arterial walls.

Pomegranate juice therapy plays an important role in lowering blood pressure in different disease conditions. So need of this complementary therapy in reducing blood pressure among young individuals will help them to prevent further complications

The investigator in his own experience has noticed that many of young adults and adults are found to have pre hypertension during his experience in hospital as well as in community. So the investigator felt that pomegranate juice may help to reduce the pre hypertension and thereby reduce the individual suffering with hypertension and other cardiovascular problems. Hence, the investigator took up this study to assess the effectiveness of pomegranate juice administration on prehypertensive men and women in village Kaleran, District Shaheed, Bhagat Singh Nagar, Punjab.

Statement of Problem

A Pre-Experimental Study To Assess The Effect Of Administration Of Pomegranate Juice Among Pre-Hypertensive Men And Women Aged Between 25-45 Years Residing In Village Kaleran, District Shaheed Bhagat Singh Nagar, Punjab.

Objectives

1. Identify the pre-hypertensive men and women aged between 25-45 years after taking three consecutive readings of blood pressure with the help of manual sphygmomanometer in village Kaleran in Shaheed Bhagat Singh Nagar, Punjab.
2. Assess the level of blood pressure in pre-hypertensive men and women aged between 25-45 years before the administration of pomegranate juice.
3. Evaluate the effectiveness of pomegranate juice administration on pre hypertensive men and women aged between 25-45 years with the help of manual sphygmomanometer
4. Find the association between pre-hypertensive men and women aged between 25-45 years with the selected demographic variables.

Hypothesis

H1- There will be significant decrease in blood pressure reading after administration of pomegranate juice in pre-hypertensive men and women aged between 25-45 years as measured by manual sphygmomanometer.

Conceptual Framework

Conceptual framework based on Stufflebeam’s modified CIPP Model (2006)

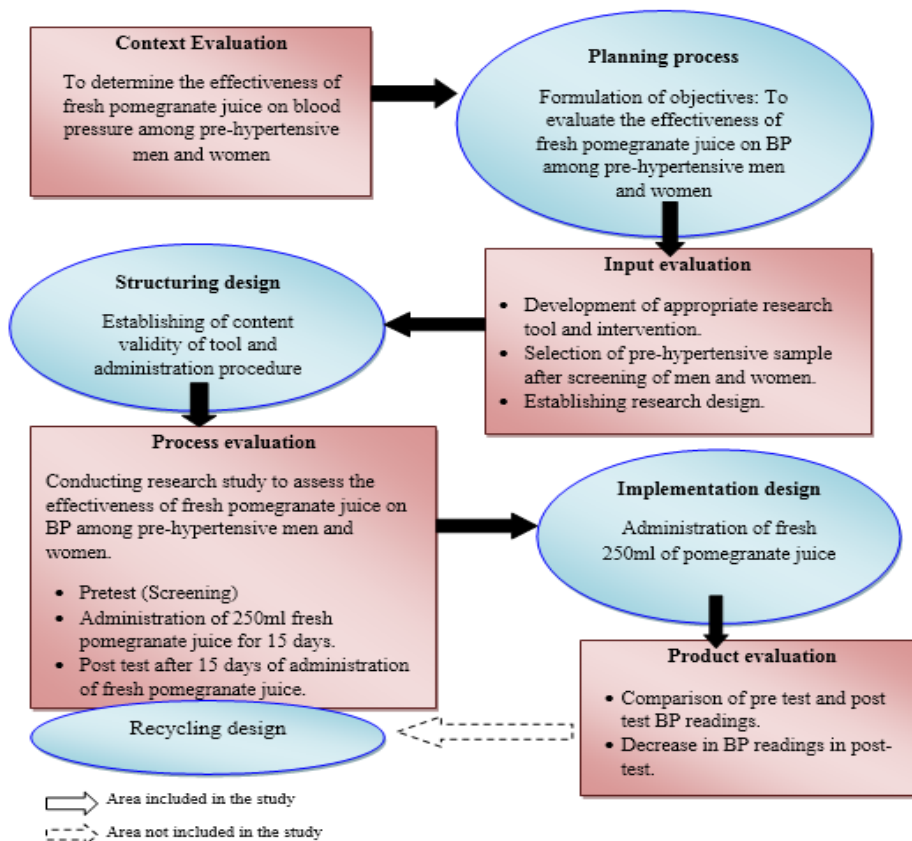


Fig 1: Conceptual framework based on Stufflebeam’s modified CIPP Model (2006)

Methodology



Fig 2: Schematic representation of study design.

Results

Major Findings

- Majority of pre hypertensive patients 10(33.34%) belonged to the age group 31-35 years and minimum 6(20%) of pre hypertensive patients belong to the age group 25-30years.
- Majority i.e. 16 (53.34%) of the subjects were males and 14 (46.66%) were females.
- Majority i.e. 16 (53.34%) of the subjects belongs to family of nuclear type and 14 (46.66%) of the subjects belongs to family of joint type.
- Maximum i.e. 10 (33.34%) of patients were illiterate and minimum 6(20%) were having educational level of primary and graduation.
- Majority i.e. 12(40%) of subjects were having monthly income of Rs.10, 000-15,000 and minimum 4(13.33%) were having monthly income of Rs. 15,000-20,000.
- Maximum i.e. 10(33.34%) of subjects were in private job and minimum 5(16.66%) of subjects belong to unemployed/housewives.
- Majority i.e. 11(36.67%) of the subjects were vegetarian and non-vegetarian and minimum 8 (26.66%) were egetarian.
- Majority i.e. 17(56.66%) of the subjects were having no bad habits and only 1(3.33%) was taking drugs and was having tobacco.
- Majority i.e. 14(46.66%) of the subjects were suffering from any other diseases and minimum 1(3.33) were suffering from kidney disease.

Table 2: Pre test assessment of the level of blood pressure in pre hypertensive men and women aged between 25-45 years before the administration of pomegranate juice.

N = 30

Criterion scale	(SBP)		Criterion scale	(DBP)	
BP-mmHg.	no.	%	BP (mmHg.)	no.	%
120-125	2	6.67	70 – 75	0	0
126 - 130	15	50	76 – 80	12	40
131 - 135	5	16.66	81 – 85	11	36.67
136 - 140	8	26.67	86 – 90	7	23.33

Table 3: Post test to evaluate the effectiveness of pomegranate juice administration on pre hypertensive men and women aged between 25-45 years.

N=30

Criterion scale	(SBP)		Criterion scale	(DBP)	
BP-mmHg.	no.	%	BP (mmHg.)	no.	%
120-125	13	43.33	70 - 75	4	13.33
126 - 130	15	50	76 - 80	22	73.34
131 - 135	2	6.67	81 - 85	4	13.33
136 - 140	0	0	86 - 90	0	0

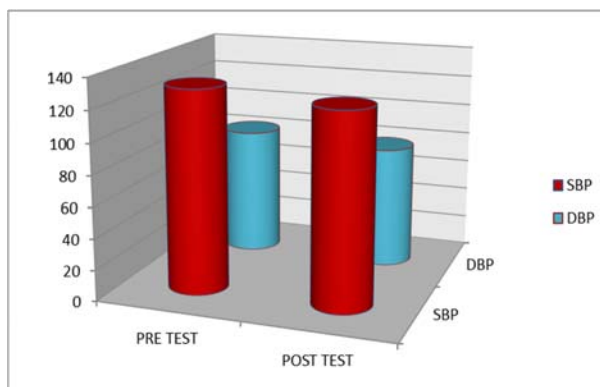


Fig 3: Comparison of pre test and post test blood pressure readings to assess the effectiveness of before and after the administration of pomegranate juice on pre hypertensive men and women

Findings related to find the association between pre hypertensive men and women aged between 25-45 years with the selected demographic variables

- In pre test and post test 41-45 years had highest pre test mean blood pressure reading (133/85mmHg,127/81 mmHg) and minimum pre test and post test mean blood pressure reading between age 25-30 years had (128/83mmHg,124/77mmHg).Hence it was concluded that age variable had no impact on blood pressure and non significant association with pre hypertensive men and women aged between 25-45 years before and after the administration of pomegranate juice at 5 % level of significance.
- Male sample had highest pre test mean blood pressure reading (132/84mmHg,126/79mmHg) and female sample minimum pre test and post test mean blood pressure readings (129/82mmHg,124/78mmHg).It was concluded that gender had no significant association with pre hypertensive men and women aged between 25-45 years.
- The sample belonging to joint family had highest pre test mean blood pressure reading 132/83mmHg and minimum sample belonging to nuclear family had 129/83mm Hg but in the post test sample belonging to

joint family had highest post test mean blood pressure readings 127/79 mmHg and minimum sample belonging to nuclear family had 124/79mmHg. It was concluded that sex had significant association with pre hypertensive men and women aged between 25-45 years before and after the administration of pomegranate juice.

- The sample who had educational status illiterate had highest pre test mean blood pressure reading 133/83mmHg and minimum who had educational status graduation had 129/82mmHg. The sample who had educational status illiterate had highest post test mean blood pressure readings 127/79 mmHg and minimum primary had 124/78mmHg. It was concluded that education variable had no significant association with pre hypertensive men and women aged between 25-45 years before and after the administration of pomegranate juice.
- The sample who had income 5,001-10,000 had highest pre test mean blood pressure reading 135/83mmHg and minimum 15,001-20,000 had 128/83mmHg. The sample who had income 5,000-10,000 had highest post test mean blood pressure readings 129/78 mmHg and minimum 15,001-20,000 had 123/79mmHg. It was concluded that income variable had significant association with pre hypertensive men and women aged between 25-45 years before and after the administration of pomegranate juice.
- The samples who were laborer had highest pre test mean blood pressure reading 135/84mmHg and minimum none had 127/83mmHg. The sample who were laborer had highest post test mean blood pressure readings 129/78 mmHg and none had 122/80mmHg. It was concluded that occupation variable had significant association with pre hypertensive men and women aged between 25-45 years before and after the administration of pomegranate juice.
- The sample who was non-vegetarian and vegetarian had highest pretest mean blood pressure reading 131/83mmHg and minimum vegetarian was 130/84mmHg. The sample who was non-vegetarian had highest post test mean blood pressure readings 127/78 mmHg and minimum had 125/78mmHg. Hence it was concluded that diet variable had no significant association with pre hypertensive men and women aged between 25-45 years before and after the administration of pomegranate juice.
- The sample who was drug abuser had highest pre test mean blood pressure reading 138/88mmHg and minimum alcohol was 129/83mmHg. The sample who was tobacco had highest post test mean blood pressure readings 132/80 mmHg and minimum alcohol had 125/78mmHg. Hence it was concluded that habits variable had no significant association with pre hypertensive men and women aged between 25-45 years before and after the administration of pomegranate juice.
- The sample who had no disease had highest pre test mean blood pressure reading 132/84mmHg and minimum the sample who had kidney disease had 126/80mmHg. The sample who had any other had highest post test mean blood pressure readings 126/80 mmHg and minimum the sample who had kidney disease had 120/80mmHg. Hence it was concluded that disease variable had no significant association with pre

hypertensive men and women aged between 25-45 years before and after the administration of pomegranate juice

Conclusion

The mean blood pressure readings in pre test was 131/83 mmHg and standard deviations was 4.59 and post test mean blood pressure readings was 125/79 mmHg and standard deviation was 4.21. The $t_{\text{calculated}}$ value for total pre test blood pressure readings and post test blood pressure reading was 4.473. It shows the difference in the pre test and post test is significant difference. It means that blood pressure readings was decreased after the administration of pomegranate juice. H_1 was accepted because $t_{\text{calculated}}$ value was 4.473 which was greater than t_{table} value 1.96 at 0.05 level of significance, so H_1 accepted. Therefore the administration of pomegranate juice was useful in decreasing the blood pressure of pre hypertensive men and women aged between 25-45 years

Recommendations

In view of the findings and limitations of the present study, following recommendations are offered for further research:

- The study can be repeated on large scale to validate and generalize the findings.
- On regular basis health education should be given to pre hypertensive patients regarding effect of pomegranate juice on blood pressure.
- Education can be given to health professional especially nurses on how pomegranate juice decrease blood pressure among pre hypertensive patients who are the sources of knowledge for patients.
- True experimental study can be conducted to assess the effectiveness of pomegranate juice among pre hypertensive men and women.

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