

1 **A Study to Assess the Effectiveness of Pomegranate Juice on Blood Pressure Among**
2 **Hypertensive Patients Admitted in Selected Hospitals**

3

4 **Keywords:**

5 **Hypertension, Cardiovascular disease, Diabetes, Vascular complications, Blood**
6 **pressure, Cardiac output, Arterial distension, Lifestyle changes, Medicinal**
7 **interventions, Balanced diet.**

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9

10 **Abstract**

11 The uncontrolled lifestyle is a significant contributor to various diseases, including
12 hypertension, which is a major risk factor for cardiovascular diseases. The prevalence of
13 hypertension is notably higher in individuals with diabetes, and a significant portion of
14 hypertensive patients develop diabetes later. This coexistence increases the risk of vascular
15 complications. However, hypertension is a manageable condition that can be controlled
16 through medicinal interventions, exercises, and a balanced diet. Blood pressure, defined as
17 the pressure exerted on arterial walls during ventricular systole and diastole, is influenced by
18 factors such as cardiac output, arterial distension, and the volume, velocity, and viscosity of
19 blood.

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21 **INTRODUCTION**

22 Today, the uncontrolled way of life is the root cause of all sorts of miseries and many ill-fated
23 diseases to mankind. There are many diseases occurring because of changes in lifestyle
24 pattern and one among them is hypertension. Hypertension is important risk factors for
25 cardiovascular disease. The prevalence of hypertension is 1.5-2.0 times more in those with
26 diabetes, whereas almost one-third of the patients with hypertension develop diabetes later.
27 This coexistence presents an increased risk and can accelerate vascular complications.
28 Hypertension is manageable health condition and can be controlled by medicinal
29 interventions, exercises, and balanced diet. Blood pressure is defined as the pressure exerted
30 on the walls of the arteries during ventricular systole and diastole. It is affected by factors
31 such as cardiac output; distension of the arteries; and the volume, velocity and viscosity of
32 the blood.

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34 **NEED FOR STUDY**

35 Today, life has become so stressful that there is hardly any man who is not suffering any kind
36 of disease. Long working hours, unhealthy food habit, insufficient rest and sleep, tension and
37 stress, all leads to different health problems. High blood pressure is ranked as the third most
38 important risk factor for attributable burden of disease in South Asia (2010). Hypertension
39 (HTN) exerts a substantial public health burden on cardiovascular health status and

40 healthcare systems in India. The world Health Organization (WHO) estimates that 80percent
41 of the world population presently uses herbal medicine for some aspect of primary health
42 care. The nutritional analysis of Pomegranate juice showed that the juice contains: fibre-
43 7grams, protein 3 grams, 4 vitamin C- 30%, Vitamin K- 36%, Folate- 16%, Potassium 12% in
44 one cup many vitamins and minerals which helps in reducing blood pressure. The
45 pharmacological studies revealed that the plant possessed antioxidant, anti-inflammatory,
46 fight with prostate cancer, breast cancer, Lower blood pressure, help fight with joint pain,
47 Fungal & bacterial infection and many other effects. This Concludes that the chemical
48 constituents, nutritional, pharmacological, and therapeutic effects of Pomegranate can be
49 utilized in medical practice as a result of its safety and effectiveness.⁵ A study conducted in
50 UK on effects of pomegranate juice supplementation on pulse wave velocity and blood
51 pressure in healthy young and middle- aged men and woman. The sample size was 51
52 participants (30-50 years). Participants consumed 330ml/day of pomegranate juice or control
53 drink for 4weeks. Measurements were made at baseline and at four weeks. There was no
54 effect of the intervention on pulse wave velocity, there was a significant fall in systolic blood
55 pressure and diastolic blood pressure and mean arterial pressure. The fall in BP was not
56 paralleled by changes in concentration of serum angiotensin converting enzyme. It was
57 concluded that pomegranate juice supplementation has benefits for BP in the short term, but
58 has no effect on Pulse wave velocity.⁶ The theme for world health day (WHD) 2013 was to
59 reduce heart attacks and strokes. Keeping in line with the WHO Government of India
60 Country Cooperation Strategy, the WHD 2013 events in India were aimed at raising the
61 awareness amongst national policymakers, program managers and other stakeholders on the
62 need to strengthen the Indian health system to make it competent enough to respond to
63 hypertension and related comorbidities. ⁵ During his clinical experience period the
64 investigator came across a large number of patients, as well as several of his relatives and
65 neighbours suffering with hypertension. Estimation of 50% of patients discontinue the
66 medication within 1 year of beginning to take them, the reason for non-compliance being not
67 thoroughly understanding the significance of hypertension and its complications or dangerous
68 effects; unable to afford cost of medication; negligence and forgetfulness etc. This made the
69 investigator think of offering such clients an easier way of compliance, that is through
70 consumption of a fruit juice like pomegranate juice which is tasty, costeffective, easily
71 available & effective in reducing hypertension. The investigator felt that explaining the
72 potentially good effects of pomegranate juice would not only convenience the subjects of its
73 effects on hypertension, but also encourage subjects. to continue to comply simultaneously
74 with antihypertensive medication which hopefully could be decreased later.

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76 OBJECTIVES

- 77 1. To assess the existing blood pressure levels among hypertensive patients in control and
78 experimental group admitted in selected hospitals.
- 79 2. To evaluate effectiveness of pomegranate juice on blood pressure levels admitted in
80 selected hospitals.
- 81 3. To compare the pre-test and post-test scores of intervention on blood pressure among
82 experimental groups.

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84 **HYPOTHESIS**

85 H0: There will be no significant effect of pomegranate juice on blood pressure among
86 hypertensive patients of experimental group admitted in selected hospitals.

87 H1: There will be significant effect of pomegranate juice on blood pressure among
88 hypertensive patients of experimental group admitted in selected hospitals.

89

90 **CONCEPTUAL FRAMEWORK**

91 For the present study conceptual framework Based on Modified Widenbach's
92 Helping Art Clinical Nursing Theory (1969)

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94 **DATA GATHERING PROCESS**

95 Data gathering means information that is systematically collected in the
96 course of the study. Before the actual data collection, the investigator had completed
97 the following formalities.

98 1. Requisition letter for conducting research study and brief details of study were
99 sent to the selected hospitals under the study.

100 2. Before initiating the research, permission was obtained from the concerned
101 authorities of the hospital.

102 3. The data collection was done. 40 subjects were selected using non-probability
103 purposive sampling. These subjects were selected on the bases of inclusion and

104 exclusion criteria and they were randomly assigned to the control group and
105 experimental group.

106 The investigator explained the brief details of the study to the subjects and
107 written informed consent were taken and confidentiality was assured to all the
108 hypertensive subjects to get their cooperation throughout the process of data
109 collection.

110 After sorting the subjects in both experimental group and control group
111 respectively, demographic data was collected from both the groups. In the
112 experimental group 200ml pomegranate juice was administered immediately after
113 pre-test in the morning for 5 days.

114 Observation was done 5th day by using WHO recommended blood pressure
115 category.

116 Routine treatment was administered to the subjects in control group.

117 **RESULT**

118 The analysis of the demographic data of the study samples gave an idea about
119 the general characteristics of the hypertensive patients admitted in selected
120 hospitals.

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123 The following are the major findings of the study.

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SECTION- I

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DEMOGRAPHIC DATA – HYPERTENSIVE PATIENTS

1. According to age, in the control group, 1(20%) were between 40-55years of age, (40%) were between 56-70 years of age, 1 (20%) were 71-85 years of age, and 1(20%) were between 86 and above years of age.

In the experimental group, 1(20%) were between 40-55years of age, 3 (60%) were between 56-70years of age and 1(20%) were between 86- above years of age.

2. Gender- wise distribution in the control group were 2(40%) males and 3(60%) females.

In the experimental group 1(20%) were males and 4(80%) were females.

3. According to parent/s with history of hypertension, in control group, 1 (20%) had paternal history of hypertension, 1 (20%) had maternal history of hypertension and 3 (60%) did not have any family history of hypertension.

whereas in experimental group, 1 (20%) had paternal history of hypertension, 2 (40%) had maternal history of hypertension and 2 (40%) did not have any family history of hypertension.

4. Type of diet in the study showed 4 (80%) were vegetarians and 1(20%) were mixed diet in the control group.

150 whereas there were in the experimental group, 2 (40%) were vegetarian and 3
151 (60%) were mixed diet.

152 5. According to weight, in control group, 3 (60%) weighed 40-50kg, 1 (20%)
153 weighed 51-60kg and 1 (20%) weighed 71-80kg.

154 In experimental group, 1 (20%) weighed 40-50kg, 3 (60%) weighed 51-60kg
155 and 1 (20%) weighed 71-80kg.

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SECTION -II

158 **Analysis of data findings related to the effectiveness of pomegranate juice on**
159 **blood pressure among hypertensive patients admitted in selected hospitals.**

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161 **Assessment of systolic blood pressure of experimental groups in terms of**
162 **means average**

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164 **Experimental Group**

165 The mean pre-test Systolic Blood Pressure was 168.5 with standard deviation
166 ± 8.75 and mean post-test Systolic Blood Pressure was 118 with standard deviation \pm
167 6.15.

168 The test statistics value of the paired t test was 22.80 with p value 0.0001.

169 The mean pre- test diastolic blood pressure was 99.5 with standard deviation
170 ± 7.59 and the mean post- test diastolic blood pressure was 79.5 with standard
171 deviation ± 6.04 .

172 The test statistics value of the paired t test was 11.25 with p value 0.0001.

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SECTION -III

175 **Analysis of data findings related to comparison of blood pressure among**

176 **hypertensive patients of control and experimental group.**

177 **Systolic blood pressure – experimental & control group**

178 the mean post-test Systolic Blood Pressure of control group was 143.5 with

179 standard deviation ± 7.45 whereas the mean post-test Systolic Blood Pressure of

180 experimental group was 118 with standard deviation ± 6.15

181 The test statistics value of the unpaired t test was 11.79 with p value 0.00.

182 Here p value less than 0.05, shows there was significant difference in the Systolic

183 Blood Pressure of the experimental and control group.

184 **Diastolic blood pressure- control & experimental group**

185 The mean post-test Diastolic Blood Pressure of control group was 87 with

186 standard deviation ± 7.32 whereas the mean post-test Diastolic Blood Pressure of

187 experimental group was 79 with standard deviation ± 6.04

188 The test statistics value of the unpaired t test was 3.53 with p value 0.00.

189 Here p value less than 0.05, shows there was significant difference in the Diastolic

190 Blood Pressure of the experimental and control group.

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192 **RECOMMENDATIONS**

193 On the basis of findings and the experiences while conducting the study the
194 following recommendation are offered for further research

- 195 • The same study can be replicated using large sample.
- 196 • Effectiveness of pomegranate juice can be compared with other
197 complementary therapies to find its effectiveness.
- 198 • A similar study can be conducted for longer duration.
- 199 • The same study can be conducted in different settings.

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201 **CONCLUSION**

202 The study concluded that the alternative treatment of hypertensive is to use
203 non pharmacological therapy. pomegranate is a natural fruit which has active and
204 efficacious compounds to lower blood pressure. It is cost effective, easy, simple and
205 palliative. The sample who consumed pomegranate juice felt it was tasty and made
206 difference in blood pressure. The researcher suggests to health workers in health
207 centres to improve non pharmacological management of pomegranate juice as
208 complementary therapy in patients with hypertension. Thus, pomegranate juice was
209 effective in reducing blood pressure in hypertensive patients.

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