



A comparative study to assess the effectiveness of foot soak on decreasing blood pressure for hypertension clients with and without hypertensive medication

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ABSTRACT

Hypertension is one of the primary source of death and incapacity among grown-ups. Hypertension is an inert issue in numerous individuals as it has a long asymptotic stage. The difficult itself has no clinical signs and indications until organ harm has occurred. Hypertension is the most well-known condition requiring deep-rooted medicate treatment in the western world. The National Heart, Lung and Blood Institute of USA has assessed that half of the individuals with hypertension are unconscious of the condition. The present study aims are to assess the effectiveness of foot soak on decreasing blood pressure for hypertension clients with and without hypertensive medication in a selected community area. The quasi-experimental design was used as a research design. Convenient sampling technique was used to select samples. A semi-structured interview was used to collect demographic data, and the BP chart was used to monitor the blood pressure of the patients. For the patients in the experimental group, foot soak was given. After 20 mins, BP was checked and noted in BP graph. The investigation results show that after the organization foot soak there was a noteworthy decrease in the post-test level of systolic BP and diastolic BP among hypertensive patients with and without hypertensive drug was highly significant at $p < 0.001$ level. Foot soak is the simple and financially savvy approach to decrease pulse among hypertensive patients with and without hypertensive prescription.



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is because of quick progress in ways of life driving diminished physical movement, changing eating regimens and expanded tobacco use. This pattern is available in all classifications of social orders rich, poor, created and creating nations. Destitution, brutality, fast social and financial changes, absence of instruction, lacking or all-out missing of wellbeing administrations add to much increment in instances of cardiovascular sicknesses, diabetes, malignancy as they do in AIDS and malaria. Hypertension is one of the primary source of death and handicap among grown ([Stokes et al., 1989](#); [Macmahon et al., 1990](#)).

INTRODUCTION

In many places of the world, non-communicable diseases have gotten a significant pestilence. This

Hypertension is an idle issue in numerous individuals as it has a long asymptotic stage. The difficult itself has no clinical signs and indications until organ harm has occurred ([O'Brien et al., 2003](#)). Hyperten-

sion is the most widely recognized condition requiring deep-rooted sedate treatment in the western world. The National Heart, Lung and Blood Institute of USA has assessed that half of the individuals with hypertension are unconscious of the condition (Frisoli *et al.*, 2011). 'Silent killer, it is said that they are deep and dangerous. High blood pressure somewhat a kind to such a situation and if left undetected and untreated, it results in stroke, heart attack and heart failure, retinal damage and Nephrosclerosis (Wassink *et al.*, 2007).

Indian Journal of Medical Research reported that approximately one billion people worldwide have high blood pressure, and this number is expected to increase to 1.56 billion by the year 2025. That translates to about one out of every four adults being affected with hypertension. Now India is the country which has most people with high blood pressure in the world. Over ten crores of Indian adults presently suffer from hypertension (Masriadi and Eha, 2019). American Heart Association (2017) has stated that 28.6% of the US population and hypertension. Hypertension prevalence has also been increasing in other countries and estimated that 972 million people in the world were suffering from this problem. Incidence rates of hypertension range between 3% and 18%, depending on the age, gender, ethnicity, and body size of the population studied. Despite advances in hypertension treatment, control rate continue to be suboptimal. Programs that improve hypertension control areas and prevent hypertension and urgently needed. Thompson estimated that 60 million Americans have hypertension and an additional 25 million have borderline hypertension. Half of those affected by borderline hypertension due to unawareness of it. Death rates because of cardiovascular diseases are 45% higher in black men than a white man and 67% higher for black women than for white women among hypertensives (Dahlöf *et al.*, 1991).

Foot soak treatment is a non-invasive, financially savvy technique utilized for the decrease of circulatory strain. It is promptly accessible, easy method that can be applied to any individual without thought of time and spot. This type of treatment requests no unique gadgets or requirements. After the individual involved with the network territory and in the wake of checking on the related writing, the agent wanted to lead an investigation to assess the adequacy of foot douse on circulatory strain among hypertensive patients with and without drugs. Examiner was keen on the ramifications of foot soak among hypertensive patients to diminish the raised circulatory strain. Such mediations will assist with decreasing hypertension in some

patients (WHO, 2000). A purpose of the study (1) to assess the level of blood pressure among hypertensive clients with and without hypertensive drugs. (2) To find the effectiveness of foot soak on decreasing blood pressure among hypertensive clients. (3) To compare the post-test level of blood pressure among hypertensive clients with and without medication. (4) To find an association of the level of blood pressure with selected demographic variables.

MATERIALS AND METHODS

A quantitative methodology with quasi-experimental research design research was utilized to lead the investigation in Sevvapet town, Thiruvallur. 60 tests were chosen by convenience sampling technique. The inclusion criteria for test choice was patients with hypertension beneath the age gathering of 60 years, with the determination for a time of under five years, who were happy to take part in the study, who are on with and without oral antihypertensive medications, who can understand English or Tamil. The exclusion criteria for the samples are patients with hypertension who are following some other unwinding methods, who are mentally unstable, who having hypertension with other related diseases. Informed consent was obtained before the investigation. The purpose of the study was explained to the samples with written informed consent was obtained from them. The demographic data were collected using a structured questionnaire. The blood pressure was checked using a sphygmomanometer and recorded in the BP chart before the intervention. Then clients in experimental group 1 and experimental group 2 were given foot soak. After 20 mins, the blood pressure was assessed among both experimental groups. This was continued for five days, and BP was recorded in the BP chart. The data were analyzed using descriptive and inferential statistics. The sample characteristics were described using frequency and percentage. Pearson's co-relation coefficient was used to assess the effectiveness of foot soak. Chi-square used to associate the post-test level of blood pressure with the selected demographic variables.

RESULTS AND DISCUSSION

Section A: Sample characteristics

The demographic details show that most of the hypertensive clients with hypertensive drugs, 14(46.7%) were in the age group of 51 – 60 years, 15(50%) were male and female respectively, 18(60%) were married, 9(30%) had primary education, 11(36.7%) were self-employed, 12(40%) had

an income of Rs.5,001 – 7,500, 17(56.7%) belonged to a nuclear family, 30(100%) were living in a rural area, 17(56.7%) were non-vegetarian, 15(50%) had the habit of smoking, 17(56.7%) were doing the sedentary type of physical activity, 17(56.7%) had practised regular exercise, 22(73.3%) had hypertension for 5 – 10 years, 21(70%) had no family history of hypertension, 30(100%) were on regular treatment, 15(50%) had diabetes mellitus as associated illness and 22(73.3%) were on medication for 5 – 10 years.

The demographic details show that most of the hypertensive clients without hypertensive drugs, 13(43.3%) were in the age group of 41 – 50 years, 16(53.3%) were male, 25(83.3%) were married, 15(50%) had primary education, 10(33.7%) were self-employed and private job respectively, 13(43.4%) had an income of Rs.5,001 – 7,500, 17(56.7%) belonged to a nuclear family, 30(100%) were living in a rural area, 25(83.3%) were non-vegetarian, 10(33.3%) had the habit of consuming alcohol, 13(43.3%) were doing moderate physical activity, 25(83.3%) had not practised regular exercise, 18(60%) had hypertension for <5 years, 21(70%) had no family history of hypertension, 30(100%) were on regular treatment, and 15(50%) had diabetes mellitus as associated illness.

Section B: To assess the level of blood pressure among hypertensive clients with and without hypertensive drugs.

The study results on clients taking hypertension medication show that concerning systolic BP in the pretest, 26(86.67%) had stage 1 hypertension, and 4(13.33%) had pre-hypertension. In contrast, in the post-test, 18(60%) had stage 1 hypertension and 12(40%) had pre-hypertension. Whereas concerning diastolic BP in the pretest, 15(50%) had stage 1 and pre-hypertension respectively and whereas in the post-test, 22(73.33%) had pre-hypertension and 8(26.67%) had stage 1 hypertension. The study result on clients not taking hypertension medication shows that concerning systolic BP in the pretest, 25(83.33%) had stage 1 hypertension, and 5(16.67%) had pre-hypertension. In contrast, in the post-test, 15(50%) had stage 1 hypertension and pre-hypertension, respectively. Whereas concerning diastolic BP in the pretest, 20(66.67%) had pre-hypertension, and 10(33.33%) had stage 1 hypertension whereas, in the post-test, 22(73.33%) had pre-hypertension, 5(16.67%) had stage 1 hypertension, and 3(10%) were normal.

Section C: To find the effectiveness of foot soak on decreasing blood pressure among hypertensive clients.

The investigation result shows that the pretest means a score of systolic BP among hypertensive customers with hypertensive medications was 144.11 with standard deviation 5.21, and the post-test mean score was 140.15 with a standard deviation of 5.29. The determined matched 't' test estimation of $t = 32.916$ was seen as highly significant at $p < 0.001$ level and portrays that the pretest means a score of diastolic BP among hypertensive customers with hypertensive medications was 89.34 with standard deviation 2.63 and the post-test mean score was 87.38 with standard deviation 2.76. The determined combined 't' test estimation of $t = 26.085$ was seen highly significant at $p < 0.001$ level (Table 3).

The investigation result shows that the pretest means a score of systolic BP among hypertensive customers without hypertensive medications was 144.47 with standard deviation 4.08, and the post-test mean score was 138.23 with a standard deviation of 4.28. The determined combined 't' test estimation of $t = 20.311$ was highly significant at $p < 0.001$ level and states that the pretest means a score of diastolic BP among hypertensive customers without hypertensive medications was 88.44 with standard deviation 3.13 and the post-test mean score was 84.72 with standard deviation 4.15. The determined matched 't' test estimation of $t = 7.898$ was highly significant at $p < 0.001$ level (Table 1).

Ali Mohammadpour supports the present study, Atefeh Dehnoalian, JavadMojtabavi (2013) led a semi exploratory investigation to decide the impact of warm water foot splash, on systolic and diastolic blood pressures among 68 stroke patients utilizing arbitrary inspecting strategy. Test bunch got foot soak for 30 minutes. The outcomes indicated that the circulatory strain was altogether diminished among the investigation bunch in the wake of accepting the foot drench ($P < 0.05$). Thus it was presumed that there were beneficial outcomes of warm water foot douse on diminishing pulse in patients with stroke and could be utilized as an enhancement treatment (Parker *et al.*, 2018)(Table 2). This infers that after the administration foot soaks on decreasing blood pressure, there was a significant reduction in the systolic BP and diastolic BP among hypertensive clients with and without hypertensive drugs.

Section D: To compare the post-test level of blood pressure among hypertensive clients with and without medication.

The study result depicts that the post-test mean score of systolic BP among hypertensive clients with hypertensive drugs was 140.15 with standard deviation 5.29 and the post-test mean score among hypertensive clients without hypertensive drugs

Table 1: Comparison of pretest and post-test level of blood pressure among hypertensive clients with hypertensive drugs. N = 30

Blood Pressure	Test	Mean	SD	Paired 't' test Value
Systolic	Pretest	144.57	4.08	t = 20.311
	Post Test	138.23	4.28	p = 0.0001 S***
Diastolic	Pretest	88.44	3.13	t = 7.898
	Post Test	84.72	4.15	p = 0.0001 S***

***p<0.001, S — Significant

Table 2: Comparison of pretest and post-test level of blood pressure among hypertensive clients without hypertensive drugs. N = 30

Blood Pressure	Test	Mean	SD	Paired 't' test Value
Systolic	Pretest	144.5	4.08	t = 20.311
	Post Test	138.2	4.28	p = 0.0001 S***
Diastolic	Pretest	88.44	3.13	t = 7.898
	Post Test	84.72	4.15	p = 0.0001 S***

***p<0.001, S — Significant

Table 3: Comparison of the post-test level of blood pressure between hypertensive clients with and without hypertensive drugs. N = 60(30+30)

Blood Pressure	Knowledge	Mean	SD	Student Independent 't' test Value
Systolic	With hypertensive drugs	140.15	5.29	t = 1.539
	Without hypertensive drugs	138.23	4.28	p = 0.129 N.S
Diastolic	With hypertensive drugs	87.38	2.76	t = 2.924
	Without hypertensive drugs	84.72	4.15	p = 0.005 S**

**p<0.01, S - Significant

Table 4: Association of the post-test level of blood pressure among hypertensive clients with hypertensive drugs with their selected demographic variables. N = 30

Demographic Variables	Chi-Square & p-value	
	Systolic BP	Diastolic BP
Physical activity	c2=1.961	c2=8.824
Sedentary	d.f=2	d.f=2
Moderate	p = 0.375	p = 0.012
Heavy	N.S	S*
Present		
Absent		

*P<0.05, S — Significant, N. S — Not Significant

was 138.23 with standard deviation 4.28. The calculated student independent 't' test value of $t = 1.539$ was not found to be statistically significant which infers that there was no significant difference in the post-test level of systolic BP between clients with and without hypertensive drugs and also depicts that the post-test mean score of diastolic BP among hypertensive clients with hypertensive drugs was 87.38 with standard deviation 2.76 and the post-test mean score among hypertensive clients without hypertensive drugs was 84.72 with standard deviation 4.15. The calculated student independent 't' test value of $t=2.924$ was found to be statistically highly significant at $p<0.01$ level (Table 3).

The present study is supported by Lee, Hyeon-Soon, Kim, Dong-Oak (2012) led a semi exploratory investigation to analyze the impacts of warm water foot soak and foot massage on the circulatory strain, heart rate and blood lipid level among 71 older fundamental hypertensive patients, Korea. The trial bunch I (24 people) experienced warm water foot soak, test bunch II (27 people) experienced foot back massage and control gathering (20 people) followed standard treatment to gauge the impacts. The systolic circulatory strain ($p<.05$), the diastolic circulatory strain ($p<.05$), and the beat rate ($p<.01$) of exploratory gathering I and II after mediating individually with warm water foot soak and foot rub for about a month and a half fundamentally diminished, then the benchmark group, yet the blood lipid level indicated no marked contrast among three gatherings ($p>.05$). It was inferred that both foot soak and foot massage had beneficial outcomes to diminish the circulatory strain and heartbeat rates among hypertensive patients Malarvizhi (2019). This infers that after the administration foot soak on decreasing blood pressure, there was a significant reduction in the post-test level of diastolic BP between hypertensive clients with and without hypertensive drugs.

Section E: Association of the level of blood pressure with selected demographic variables.

The result shows that none of the demographic factors had demonstrated a significant relationship with the post-test level of systolic pulse among hypertensive patients with hypertensive medications. It shows that the demographic variable physical action had indicated a measurably critical relationship with the post-test level of diastolic circulatory strain among hypertensive patients with hypertensive medications at $p<0.05$ level and the other demographic factors had indicated a significant relationship with the post-test level of diastolic circulatory strain among hypertensive patients with hypertensive medications (Table 4).

CONCLUSION

This indicates that warm water foot soak is effective among hypertensive clients with or without hypertensive medication and the effectiveness is more significant among clients taking hypertension medication. It is one of the cheapest, easy and effective way to reduce blood pressure.

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The authors declare that they have no funding support for this study.

Conflicts of Interest

The authors declare no conflicts of interest for this study.

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