



A Pilot Study of the Impact of a Comprehensive Nursing Care Package on Hypertension in Patients at a Selected Hospital in Chennai

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ABSTRACT: Background: Hypertension ranks seventh on the list of factors that cause premature mortality in developing nations. The chronic nature of hypertension necessitates a comprehensive health system response that combines a skilled workforce, accessible technologies, and empowering individuals to take care of themselves. In India, there are an estimated 29.8 million individuals with hypertension, 16.1 million of whom live in cities and 13.7 million in rural areas. In Tamil Nadu, urban hypertension incidence was 32.6%, while rural hypertension prevalence was 23.4%. This indicates that 1.2 crore individuals in the state have high blood pressure. According to the Chennai Urban Rural Epidemiology Study (CURES), 17.1% of women and 23.2% of males in Chennai have hypertension. Aim: The purpose of this research was to evaluate the effects of a comprehensive nursing care package on patients' hypertension in a particular hospital in Chennai. Methods: A Quasi-Experimental pre-test, and post-test with a control group interrupted time series design was undertaken for the study. The samples for the study were the hypertensive clients who visited outpatient departments in Pavithra Hospital and Saravana hospital, Chennai, and the sample size for the study was 15 each for the experimental and control group Results: The comprehensive nursing care package is the lifestyle modification of hypertension which was given using Nurse-Led program, Counselling and Warm foot Bath therapy. SBP score is statistically significant different between pre-test and posttest-III ($F = 20.55$, $P \leq 0.001$). In experimental group was 14.22% Percentage Difference of SBP reduction score from baseline, whereas DBP reduction score from baseline was 17.36%. Conclusions: The Comprehensive Nursing Care Package reduces significantly SBP score among hypertensive patients. According to the study's findings, the comprehensive nursing care package was a successful intervention tool for enhancing the quality of life of hypertensive clients and had an influence on the background variables, such as lifestyle factors and biophysiological

variables, that were chosen. In order to enhance the quality of life of hypertensive clients, the research advised using the Comprehensive Nursing Care Package by Community Health Nurses, Nurse Educators, Nurse Administrators, Nurse Researchers, and Health Care Professionals.

Keywords: *Hypertension, lifestyle modification, Counselling, Warm foot Bath therapy, nursing care.*

INTRODUCTION

Hypertension is defined as sustained elevation of systemic arterial blood pressure. It is commonly due to increased peripheral resistance or increased cardiac output (Lim *et al.*, 2012). Hypertension affects around 1 billion people around the world. High blood pressure (HBP) is a major public health problem in India and its prevalence is rapidly increasing among both urban and rural populations. In fact, hypertension is the most prevalent chronic disease in India. Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths in India (Gupta *et al.*, 2004). The WHO rates HTN as one of the most important causes of premature death worldwide (Mackay *et al.*, 2004). Noncommunicable diseases (NCDs) are the world's leading cause of death, claiming more lives each year than all other causes combined. NCDs are the silent epidemic of the twenty-first century. It is the primary global source of death and disability. A rapid rise in the total number of middle-aged and older adults is being caused by population growth and longer life expectancies, which is also increasing the number of deaths from NCDs (World Health Statistics, 2012). A higher percentage (48%) is estimated to occur in individuals under the age of 70 in low and middle-income countries, where the majority (80%) of all NCD deaths (29 million) occur, as opposed to an estimated 26% in high-income countries and a global average of 44%. In assessing the effect of NCDs, such early mortality rates from NCDs are crucial. Cardiovascular diseases (CVD) are the leading cause of death in India among those under the age of 70, accounting for about half of all NCD-related fatalities.

This is largely due to a larger portion of the population adopting unhealthy lifestyles with decreased physical activity, increased stress levels, and excessive consumption of saturated fats and tobacco over the past few decades as a result of India's economic development and urbanisation. Due to advancements in medical care, the average life expectancy has increased; however, the rapidly ageing population is more susceptible to Cardio Vascular Disease and will therefore drive the rise of CVDs over the following few decades (WHO Global Status Report, 2010).

For 24% of CVD deaths and 57% of all strokes, hypertension is the primary cause. Additionally, it has been determined that hypertension is the third-leading source of Disability Adjusted Life Years and the top risk factor for mortality (International Heart Protection Summit, 2011).

In the case of hypertension, the amount of unknowable morbidity outweighs the amount of known morbidity. According to reports, hypertension ranks eighth among factors that cause early deaths in developing nations. According to a 2012 study from the Indian Journal of Medical Science (IJMS), 1.56 billion adults, or nearly 1 billion adults, or more than 25 percent of the world's population, were estimated to have hypertension in 2000 (Rajeev *et al.*, 2010).

Hypertension (HTN) exerts a substantial public health burden on cardiovascular health status and healthcare systems in India (Leeder *et al.*, 2004, Srinath *et al.*, 2005). The prevalence of hypertension ranges from 20-40% in urban adults and 12-17% among rural adults (Srinath *et al.*, 2005). The number of people with hypertension is projected to increase from 118 million in 2000 to 214 million in 2025, with nearly equal numbers of men and women (Noncommunicable diseases, 2011). It is predicted to be increased nearly 1 billion adults, and 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 (Kearney *et al.*, 2005).

The Chennai Urban Rural Epidemiology Study (CURES, 2012) revealed that 20% of the population (men-23.2% and women-17.1%) are hypertensive in Chennai. The long-term nature of hypertension demands a comprehensive health system response that brings together a trained workforce with appropriate skills, affordable technologies and empowerment of people for self-care, all over a sustained period of time (Deepa *et al.*, 2005).

According to the Indian Journal of Medical Specialties (2012), the overall prevalence of hypertension was reported to be 19.1% (males 19.6% and females 18.5%) in rural Tamil Nadu. Maximum age-specific prevalence of hypertension was 40% in individuals under 60 years old.

In order to provide comprehensive health care services and thereby lessen the impact of chronic diseases like hypertension, the WHO Global Action Plan Expected Outcome 2013-2020 suggests collaborating with Non-Governmental Organizations (NGOs) (WHO Zero Draft - Global Action Plan, 2005).

The anti hypertensive drugs impair the client's quality of life and tasks of daily living by causing fatigue, vertigo, and sexual dysfunction. The long-term nature of hypertension necessitates a complete health system reaction that combines over time a skilled workforce, affordable technologies, a consistent supply of medicines, referral systems, and the empowerment of people to take care of themselves. In light of the aforementioned considerations, the investigator felt that it was necessary to evaluate the quality of life (QoL) of hypertensive patients in order to rule out the effects of the disease and assess the efficacy of a Comprehensive Nursing Care package that focuses on three aspects of human life: the cognitive (through information, education, and communication), affective (through counseling), and physical (through warm foot baths). The secondary level of healthcare practices for successful hypertension management will be framed using these evidences.

Aim of this study to assess to an estimation of pre and post-test levels of Blood pressure practices before and after the comprehensive nursing care package to the patients with hypertension in the experimental and control group by using a sphygmomanometer and semi-structured questionnaire. The objective of this study is

- To assess the pre and post-test levels of hypertension among patients in the control and experimental group.
- To assess the effectiveness of a comprehensive nursing care package on hypertension among patients in the control and experimental group.
- To compare the effectiveness of a comprehensive nursing care package on hypertension among patients within and between the control and experimental group.
- To find out the association of posttest level of hypertension among patients with selected demographic variables in the experimental group.

MATERIAL AND METHODS

The study was carried out for a period of four months (January to May 2021) and the study population was all hypertensive patients. This pilot study was conducted to refine the methodology for larger samples. The settings of the study were Pavithra Hospital for the experimental group and Saravana hospital for the control group. 30 samples were selected as samples for the study. Prior to the data collection informed consent was obtained from each sample

Research design: Quasi-Experimental pre-test, post-test with control group interrupted time series design

Research approach: Quantitative Research Approach

Sampling technique: Non-Probability – Purposive sampling technique

Inclusive Criteria:

1. Clients who had been medically diagnosed with Hypertension, with 2 years of chronicity.
2. Clients who seeks hypertension management services from Pavithra Hospital and Saravana hospital

Exclusive Criteria:

1. Patients with co-morbid conditions and other systemic disorders such as diabetes, hypo- and hyperthyroidism, bronchial asthma, stroke, cardiovascular disease, and renal failure.
2. Patients who were getting any other forms of healthcare, such as physiotherapy and alternative therapies.

Comprehensive nursing care package:

The Comprehensive nursing care package compiled by the investigator and administer Nurse-Led program on lifestyle modification of hypertension which includes an overview of the disease, Medical Management, Nutrition, Exercise, follow-up, complications, and prevention, and was executed by group teaching method with the help of power-point presentation and pamphlets which lasts for 30 minutes.

Counselling - The investigator provided counseling for 20-30 minutes with various steps according to Nano-Skill Model. (Dr. Sundar Wilson, Director of Anugraha, Dindigul.)

Warm foot Bath therapy- The procedure where is feet are immersed in the tub filled with water at the temperature of 90°F-95°F for 20 mins. The Investigator will demonstrate the warm foot bath to the clients and instruct the client to adhere to the warm foot bath every day. A practice tracker diary will be maintained for compliance. Pretest was performed to assess the level of blood pressure using a sphygmomanometer in both groups before the implementation of the comprehensive nursing care package. For the experimental group, the investigator has given a comprehensive nursing care package for each patient along with the hospital routine. Posttest was performed once in 4 weeks 3 times, to assess the level of blood pressure for both groups. The pilot study shows the feasibility of conducting the main study and the analysis and interpretation of the data show a $p < 0.05$ value which was statistically significant and shows the effectiveness of the comprehensive nursing care package.

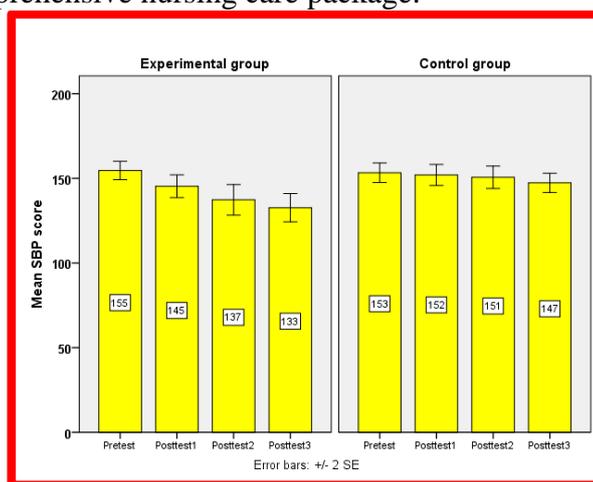


Fig. 1. Simple bar diagram with 2 standard error shows The SBP score among experiment and control group

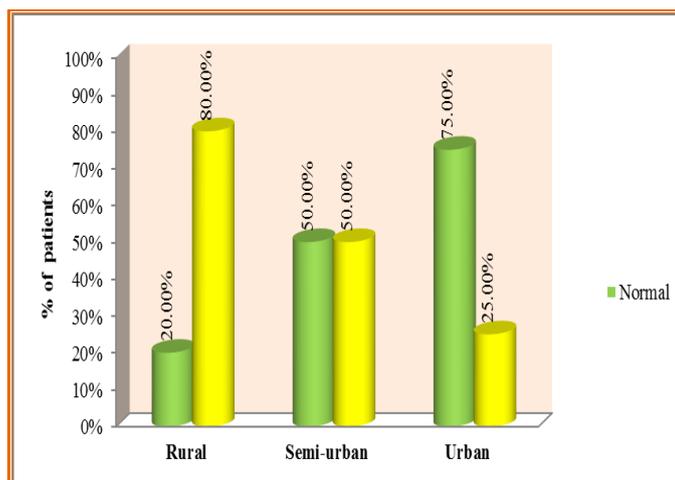


Fig. 2. Association between post-test level of SBP and Patients place of residence in experimental group

statistical analysis of data:

The data was collected from 15 hypertensive clients in the experimental and 15 in the control group. The data obtained was coded and edited to fit in to the master sheet. The data were analyzed by using descriptive and inferential statistics. Mean, percentage, and standard deviation were used to explain the demographic variables. Paired “t” test and Repeated measures ANOVA. An unpaired “t” test was used to assess the effectiveness of the comprehensive nursing care package between the experimental and control group. The Chi-square test was used to measure the association of demographic variables in the experimental and control group.

RESULTS AND DISCUSSION

Socio-demographic characteristics of the respondents

The table 1 shows the demographic information of patients those who are participated for the following study. Table 1 showed that little 40% of the respondents belongs to age group 61 – 70 years. Most of the participants (57%) were male and the majority (50%) of the participants were married. 40% of the respondents had Higher Secondary, followed Primary school (27%) and 13.3% are Graduate level of education. 33% had family income range of Rs.30001-40000. 33% of participants are having smoking and alcohol consumption habits. 53.3% of study participants had family history of hypertension.

In Table 2 shows posttest-II, there is a significant difference in the level of SBP score between the experimental and control group of patients. Experimental group patients are having more normal levels of SBP scores than the control group. The significant P- value of 0.05 indicate, the level of SBP was not similar in both the groups

. In posttest-III, there is a significant difference in level of SBP score between experimental and control group of patients. Experimental group patients are having more normal level of SBP score than the control group. The significant P- values 0.01 indicates, the level of SBP were not similar in both the groups. Statistical significance difference between experiment and control group was calculated using chi square test.

Table 3 compares the level of DBP score between experimental and control group hypertensive patients. In posttest-II, there is a significant difference in level of DBP score between experimental and control group of patients. Experimental group patients are having more normal level of DBP score than control group. The significant P- values 0.01 indicates, the level of DBP

were not similar in both the groups. In posttest-III, there is a significant difference in level of DBP score between experimental and control group of patients. Experimental group patients are having more normal level of DBP score than control group. The significant P- values of 0.01 indicates, the level of DBP were not similar in both the groups. Statistical significance difference between the experiment and control group was calculated using chi square test. The table 4 describes the comparison of experimental and control group SBP score among hypertension patients in Pretest, Posttest-I, Posttest-II and Posttest-III.

The pretest SBP score, experimental group of patients are having 154.67 SBP score and control group of patients are having 153.33 SBP score, so the mean difference of SBP score is 1.33, this difference is small and it is not a statistically significant difference ($P > 0.05$).

The posttest-I SBP score, experimental group of patients are having 145.33 SBP score and control group of patients are having 152.00 SBP score, so the mean difference of SBP score is 6.67, this difference is large and ($P > 0.05$) not significant difference. The posttest-II SBP score, experimental group of patients are having 137.33 SBP score and control group of patients are having 150.67 SBP score, so the mean difference of SBP score is 13.33, this difference is large and it is a statistically significant difference ($P \leq 0.001$). Posttest-III SBP score, experimental group of patients are having 132.67 SBP score and control group of patients are having 147.33 SBP score, so the mean difference of SBP score is 14.67, this difference is large and it is a statistically significant difference ($P \leq 0.01$) level which indicated highly significant difference. The table 5 shows In experimental group, Repeated measures F-test analysis shows that, mean overall SBP score is statistically significant different between pre-test and posttest-III($F = 20.55$, $P \leq 0.001$). Therefore, we can conclude that a Comprehensive Nursing Care Package reduces significantly SBP score among hypertensive patients.

Similarly, in control group, Repeated measures F-test analysis shows that, mean overall SBP score is not statistically significant different between pre-test and posttest-III($F = 3.31$, $P \geq 0.05$). Therefore, we can conclude that a routine care not reducing SBP score significantly among hypertensive patients.

In Table 6 shows posttest-II, there is a significant difference in level of SBP score between experimental and control group of patients. Experimental group patients are having more normal level of SBP score than control group. The significant P- values 0.05 indicates, the level of SBP were not similar in both the groups

. In posttest-III, there is a significant difference in level of SBP score between experimental and control group of patients. Experimental group patients are having more normal level of SBP score than control group. The significant P- values 0.01 indicates, the level of SBP were not similar in both the groups. Statistical significance difference between experiment and control group was calculated using chi square test.

Table 7, shows pretest DBP score, experimental group of patients are having 96.00 DBP score and control group of patients are having 96.67 DBP score, so the mean difference of DBP score is 0.67, this difference is small and it is not a statistically significant difference. It was confirmed using independent t test with the value of $t=0.22$ at $P > 0.05$ level which indicated not significant difference.

The posttest-I DBP score, experimental group of patients are having 88.67 DBP score and control group of patients are having 95.00 DBP score, so the mean difference of DBP score is 6.33, the value of $t=1.93$ at $P > 0.05$ level which indicated not significant difference.

The posttest-II DBP score, experimental group of patients are having 83.73 DBP score and control group of patients are having 94.33 DBP score, so the mean difference of DBP score is

10.60, this difference is large and it is a statistically significant difference $t=4.36$ at $P\leq 0.01$ level which indicated significant difference.

The posttest-III DBP score, experimental group of patients are having 79.33 DBP score and control group of patients are having 93.40 DBP score, so the mean difference of DBP score is 14.07, this difference is large and it is a statistically significant the value of $t=6.51$ at $P\leq 0.01$ level which indicated highly significant difference.

Table 8 shows In experimental group, Repeated measures F-test analysis shows that, mean overall DBP score is statistically significant different between pre-test and posttest-III($F = 26.33$, $P \leq 0.001$). Therefore, we can conclude that a Comprehensive Nursing Care Package reduces significantly DBP score among hypertensive patients.

Similarly, in control group, Repeated measures F-test analysis shows that, mean overall DBP score is not statistically significant different between pre-test and posttest-III($F = 3.12$, $P \geq 0.05$). Therefore, we can conclude that a routine care not reducing DBP score significantly among hypertensive patients.

Table9 compares the level of DBP score between experimental and control group hypertensive patients. In posttest-II, there is a significant difference in level of DBP score between experimental and control group of patients. Experimental group patients are having more normal level of DBP score than control group. The significant P- values 0.01 indicates, the level of DBP were not similar in both the groups. In posttest-III, there is a significant difference in level of DBP score between experimental and control group of patients. Experimental group patients are having more normal level of DBP score than control group. The significant P- values 0.01 indicates, the level of DBP were not similar in both the groups. Statistical significance difference between experiment and control group was calculated using chi square test.

DISCUSSION

Our results shown experimental group reduced 14.22% SBP score after comprehensive nursing care package whereas control group reduced only 3.91% SBP score with routine care. Also experimental group reduced 17.36% DBP score after comprehensive nursing care package whereas control group reduced only 3.28% DBP score with routine care.

Our study finding shows the association between level of SBP& DBP and None of the patient's demographic variables are significant except area of living. Medication Regular patients are having more normal value than others. It was calculated using chi square test.

The findings of the current research were consistent with those of WU et al., who assessed the impact of a community-based health promotion programme(Teaching program by DVD and Self-care booklet, Group support intervention by exercise and counselling session and telephone follow-up) on self-efficacy and self-care behaviours, health outcomes, and physical fitness among 60 hypertensive clients in Taiwan. The research discovered an improvement in high density lipoprotein cholesterol level ($t = 4.71$) and a significant reduction in waist circumference (mean, 2.20 cm). The mean score for physical exercise activity increased to 3.10, which led to an improvement in the mean score for self-care behaviour, which was 2.78. The community-based health promotion initiative worked well to keep the hypertensive clients' physical parameters stable (WU *et al.*, 2012).

The findings of the following study, conducted by Pimentel GD, et al. (2010) to evaluate the efficacy of short-term nutritional counselling among 33 Brazilian women, are consistent with those of the current study. They found that the intervention was successful in lowering BMI,

waist circumference, body weight, triglycerides, and blood pressure. They suggested particular counselling techniques to control hypertension (Pimental *et al.*, 2012).

The results of the current research were discovered to be in agreement with those of Nolan RP, et al. (2012), who used a randomised controlled trial to evaluate the effectiveness of preventive electronic e-counselling in lowering cardiovascular risk factors in 387 patients. The hypertensive customers were randomly assigned to a 4-month programme of online counselling on a blood pressure action plan or to general online advice on maintaining a healthy heart. The research found that, compared to the general e-information on healthy heart living, the e-counselling message group had a higher decrease in systolic blood pressure (8.9 mmHg), pulse pressure (3.1 mmHg), and total cholesterol (0.24 mmol/l). These results demonstrated the effectiveness of online counselling in reducing coronary risk (Nolan *et al.*, 2012).

Bex SD, et al. (2011) assessed the efficacy of a clinical pharmacist-led hypertensive care management programme (counselling & education) among 473 hypertensive clients in Indiana. They demonstrated that both SBP and DBP dropped by 10.3 and 8.5 mmHg, respectively. According to the research, a hypertension treatment programme significantly lowered blood pressure. They additionally suggested using non-pharmacist run programmes to control the hypertension (Bex *et al.*, 2011).

Table 1: Demographic variables of study participants

Demographic variables		group			
		Experimental group(n=15)		Control group(n=15)	
		n	%	n	%
Age (in Years)	31-40	1	6.67%	0	0.00%
	41-50	1	6.67%	3	20.00%
	50-60	4	26.66%	4	26.67%
	61-70	6	40.00%	6	40.00%
	71-80	3	20.00%	2	13.33%
Gender	Male	8	53.33%	9	60.00%
	Female	7	46.67%	6	40.00%
Marital status	Married	9	60.00%	6	40.00%
	Unmarried	5	33.33%	7	46.67%
	Divorced	1	6.67%	2	13.33%
	Widower	0	0.00%	0	0.00%
	Others	0	0.00%	0	0.00%
Income/month	Rs. < 10000	4	26.67%	4	26.67%
	Rs.20001-30000	4	26.67%	4	26.67%
	Rs.30001-40000	5	33.33%	5	33.33%
	Rs.40001-50000	2	13.33%	2	13.33%
	Rs. >50001	0	0.00%	0	0.00%
Educational qualification	Non literate	1	6.67%	1	6.67%
	Primary school	4	26.67%	4	26.67%

	Elementary school	2	13.33%	2	13.33%
	High school	3	20.00%	3	20.00%
	Higher Secondary	3	20.00%	3	20.00%
	Graduate and above	2	13.33%	2	13.33%
Area of living	Rural	5	33.33%	4	26.67%
	Semi-urban	6	40.00%	7	46.67%
	Urban	4	26.67%	4	26.66%
Habits	Smoking	6	40.00%	4	26.67%
	Alcohol	5	33.34%	5	33.33%
	Tobacco chewing	2	13.33%	2	13.33%
	None of the above	2	13.33%	4	26.67%
Duration of the illness	2 – 3 yrs	8	53.33%	7	46.67%
	3 – 4 yrs	7	46.67%	5	33.33%
	4 – 5 yrs	0	0.00%	3	20.00%
	5 – 10 yrs	0	0.00%	0	0.00%
	>10 yrs	0	0.00%	0	0.00%
Is there any family history of hypertension?	Yes	8	53.33%	8	53.33%
	No	7	46.67%	7	46.67%
If yes, specify	Father	2	25.00%	2	25.00%
	Mother	4	50.00%	4	50.00%
	Siblings	2	25.00%	2	25.00%
	Others	0	0.00%	0	0.00%

Table 2: Distribution of Pretest, Posttest-I, Posttest-II, and Posttest-III Level of SBP score among Experiment and Control group of Diabetic patients

Assessment	Level of SBP	Group				Chi-square value	P value
		Experimental Group (n=15)		Control Group (n=15)			
		No.	%	No.	%		
Pretest	Normal	0	0.00%	0	0.00%	0.16	0.69 (NS) DF=1
	Pre high	4	26.67%	5	33.33%		
	High	11	73.33%	10	66.67%		

Posttest-I	Normal	0	0.00%	0	0.00%	1.20	0.27 (NS) DF=1
	Pre high	9	60.00%	6	40.00%		
	High	6	40.00%	9	60.00%		
Posttest-II	Normal	3	20.00%	0	0.00%	7.13	0.05 (S) DF=2
	Pre high	10	66.67%	7	46.67%		
	High	2	13.33%	8	53.33%		
Posttest-III	Normal	7	46.67%	0	0.00%	10.67	0.01 (S) DF=2
	Pre high	6	40.00%	8	53.33%		
	High	2	13.33%	7	46.67%		

Table 3: Distribution of Pretest, Posttest-I, Posttest-II, and Posttest-III Level of DBP score among Experiment and Control group of hypertensive patients

Assessment	Level of DBP	Group				Chi-square value	P value
		Experimental Group (n=15)		Control Group (n=15)			
		No.	%	No.	%		
Pretest	Normal	0	0.00%	0	0.00%	0.68	0.41 (NS) DF=1
	Pre high	3	20.00%	5	33.33%		
	High	12	80.00%	10	66.67%		
Posttest-I	Normal	0	0.00%	0	0.00%	0.13	0.71 (NS) DF=1
	Pre high	7	46.67%	6	40.00%		
	High	8	53.33%	9	60.00%		
Posttest-II	Normal	4	26.67%	0	0.00%	9.05	0.01 (S) DF=2
	Pre high	9	60.00%	6	40.00%		
	High	2	13.33%	9	60.00%		
Posttest-III	Normal	6	40.00%	0	0.00%	14.25	0.01 (S) DF=2
	Pre high	9	60.00%	7	46.67%		
	High	0	0.00%	8	53.33%		

Table 4: Comparison of experimental and control group Mean SBP score During Pretest, Posttest-I, Posttest-II and Posttest-III

SBP score	Group				Mean Difference	Student independent t=test
	Experimental(n=15)		Control(n=15)			
	Mean	SD	Mean	SD		
Pretest	154.67	10.60	153.33	11.13	-1.33	t=0.33 P=0.74 DF=28 (NS)
Posttest-I	145.33	13.02	152.00	12.07	-6.67	t=1.45 P=0.16 DF=28 (S)

posttest-II	137.33	17.51	150.67	12.80	-13.33	t=2.38P=0.05* DF=28 (S)
Postttest-III	132.67	16.24	147.33	11.75	-14.67	

NS = Not significant P>0.05 is not significant S= significant DF=Degrees of Freedom P<0.05 significant .

Table 5: Comparison of mean SBP score During Pretest, Posttest-I, Posttest-II and Posttest-III among experimental and control group.

	<i>Pre-test</i>		<i>Posttest-I</i>		<i>Posttest-II</i>		<i>Posttest-III</i>		Mean difference	Oneway Repeated measures ANOVA F-test
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>		
Experimental	154.67	10.60	145.33	13.02	137.33	17.51	132.67	16.24	22.00	F=20.55 p=0.001 *** (S)
Control	153.33	11.13	152.00	12.07	150.67	12.80	147.33	11.75	6.00	F=3.31 p=0.09 (NS)

NS = Not significant P>0.05 is not significant S= significant DF=Degrees of Freedom P<0.05 significant

Table 6: Distribution of Pretest, Posttest-I, Posttest-II and Posttest-III Level of SBP score among Experiment and Control group of Diabetic patients

Assessment	Level of SBP	Group				Chi-square value	P value
		Experimental Group (n=15)		Control Group (n=15)			
		No.	%	No.	%		
Pretest	Normal	0	0.00%	0	0.00%	0.16	0.69 (NS) DF=1
	Pre high	4	26.67%	5	33.33%		
	High	11	73.33%	10	66.67%		
Posttest-I	Normal	0	0.00%	0	0.00%	1.20	0.27 (NS) DF=1
	Pre high	9	60.00%	6	40.00%		
	High	6	40.00%	9	60.00%		
Posttest-II	Normal	3	20.00%	0	0.00%	7.13	0.05 (S) DF=2
	Pre high	10	66.67%	7	46.67%		
	High	2	13.33%	8	53.33%		

Posttest-III	Normal	7	46.67%	0	0.00%	10.67	0.01 (S) DF=2
	Pre high	6	40.00%	8	53.33%		
	High	2	13.33%	7	46.67%		

DF= Degrees of freedom S= significant NS= not significant , P>0.05 not significant P≤0.05 significant

Table 7: Comparison of experimental and control group Mean DBP score During Pretest, Posttest-I, Posttest-II and Posttest-III

DBP score	Group				Mean Difference	Student independent t-test
	Experimental(n=15)		Control(n=15)			
	Mean	SD	Mean	SD		
Pretest	96.00	8.28	96.67	8.16	-0.67	t=0.22 P=0.82 DF=58 (NS)
Posttest-I	88.67	10.60	95.00	6.87	-6.33	t=1.93 P=0.06 DF=58 (S)
posttest-II	83.73	7.59	94.33	5.56	-10.60	t=4.36P=0.01** DF=58 (S)
Postttest-III	79.33	7.04	93.40	4.52	-14.07	t=6.51 P=0.001*** DF=58 (S)

NS = Not significant P>0.05 is not significant S= significant DF=Degrees of Freedom P<0.05 significant

Table 8: Comparison of mean DBP score During Pretest, Posttest-I, Posttest-II and Posttest-III among experimental and control group.

	<i>Pre-test</i>		<i>Posttest-I</i>		<i>Posttest-II</i>		<i>Posttest-III</i>		Mean difference	Oneway Repeated measures ANOVA F-test
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>		
Experimental	96.00	8.28	88.67	10.60	83.73	7.59	79.33	7.04	22.00	F=26.33 p=0.001* ** (S)
Control	96.67	8.16	95.00	6.87	94.33	5.56	93.40	4.52	3.27	F=3.12 p=0.11 (NS)

Table 9: Distribution of Pretest, Posttest-I, Posttest-II and Posttest-III Level of DBP score among Experiment and Control group of hypertensive patients

Assessment	Level of DBP	Group	Chi-	P
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		Experimental Group (n=15)		Control Group (n=15)		square value	value
		No.	%	No.	%		
Pretest	Normal	0	0.00%	0	0.00%	0.68	0.41 (NS) DF=1
	Pre high	3	20.00%	5	33.33%		
	High	12	80.00%	10	66.67%		
Posttest-I	Normal	0	0.00%	0	0.00%	0.13	0.71 (NS) DF=1
	Pre high	7	46.67%	6	40.00%		
	High	8	53.33%	9	60.00%		
Posttest-II	Normal	4	26.67%	0	0.00%	9.05	0.01 (S) DF=2
	Pre high	9	60.00%	6	40.00%		
	High	2	13.33%	9	60.00%		
Posttest-III	Normal	6	40.00%	0	0.00%	14.25	0.01 (S) DF=2
	Pre high	9	60.00%	7	46.67%		
	High	0	0.00%	8	53.33%		

DF= Degrees of freedom S= significant NS= not significant P>0.05 not significant P≤0.05 significant

CONCLUSIONS

According to the study's findings, a complete nursing care package that included a Nurse-Led programme, counselling, and warm foot bath therapy was an efficient intervention strategy for lowering both systolic and diastolic blood pressure. In order to improve the blood pressure variables among hypertensive clients, the study advised community health nurses, nurse researchers, nurse administrators, nurse educators, and healthcare workers to use the Comprehensive Nursing Care Package.

LIMITATIONS OF THE STUDY:

The limitations of this study include a small sample size and a study population limited to Chennai. It is necessary to conduct research throughout India.

FUTURE SCOPE

The promising hybrids identified in this study can be exploited commercially to increase silk quality and quantity with increase in production of cocoon.

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Author Contributions Statement:

Parimala S has been the main in the conception and research design creation. Panneerselvam Periasamy has made the critical analysis and final reviewing of the manuscript. Arockiamary Ignasimuthu have conducted the research; collect the research data, made it procession, and formed the manuscript. All of the authors have read and approved the final variant of the manuscript before its presentation in the Edition

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