Indian Journal of Holistic Nursing
Volume 12, Issue 1 - 2021, Pg. No. 17-22
Peer Reviewed & Open Access Journal

Research Article

Effect of Foot Massage in reducing Blood Pressure among Hypertensive Patients in selected Hospitals of Bhopal

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DOI: https://doi.org/10.24321/2348.2133.202107

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How to cite this article:
Dubey N. Effect of Foot Massage in reducing Blood Pressure among Hypertensive Patients in selected Hospitals of Bhopal. Ind J Holist Nurs. 2021;12(1):17-22.

Date of Submission: 2021-02-14
Date of Acceptance: 2021-03-11

A B S T R A C T

Background: The present study was conducted to assess the effect of foot massage in reducing blood pressure among hypertensive patients.

Methods: A quasi-experimental,time series research design was chosen. The sample size was 30 hypertensive patients. A self structured questionnaire was used to assess the knowledge of the respondents. The data were analysed with the help of descriptive and inferential statistics.

Result: There was a significant decline in the blood pressure of the participants after foot massage. The difference in their blood pressure before and after foot massage clearly shows that foot massage is helpful in reducing blood pressure among hypertensive patients.

Conclusion: The study has shown that foot massage is very effective for hypertensive patients and they can practice such a massage at home too.

Keywords: Foot Massage, Hypertensive Patients, Blood Pressure

Introduction

Touch treatment for human beings may be a brilliant and restorative blessing in this period of persistent stress, pressure, and affliction. Massage is the craftsmanship of touch, with fair the uncovered human hands. In response to patients' needs and changes in wellbeing care, medical attendants may add complementary treatments to their nursing practice.[1] Complementary treatments are non-traditional methods utilised for wellbeing advancement and restorative treatment for persistent and intense ailments, and palliative care.[2] These non-traditional approaches incorporate but are not constrained to restorative touch, fragrance based treatment, acupressure, reflexology, visualisation, and symbolism.[3]

Foot rub fortifies the nerve endings within the feet which invigorates the fringe anxious framework from where it continues to the central apprehensive framework and progresses to different parts of the brain. Eventually, the reaction is sent onto the engine framework which alters the body tone or general pressure level.[4]

Objectives of the Study

- Assess the pre-existing blood pressure of the patient
- Identify the effect of foot massage on reducing blood pressure
- Find out the association of mean blood pressure prior to foot massage among hypertensive patients with the selected demographic variables

Hypothesis

H_1: There will be a significant difference in the blood pressures measured pre and post foot massage.

H_2: There will be a significant association of mean blood pressure prior to foot massage among hypertensive patients with selected demographic variables.

Methods

Research Design

The research design used in this study is quasi-experimental, time-series design.

Independent Variable

In this study, the independent variable was foot massage.

Dependent Variable

In this study, the dependent variable was blood pressure.

Demographic Variables

There were 11 demographic variables including age of the patient, gender, religion, marital status, height and weight to calculate body mass index, occupation, diet, medication, and family history.

Setting

The study was conducted in RKDF Medical College, Hospital & Research Center, Bhopal. It is one of the teaching hospitals of Bhopal district in Madhya Pradesh. The hospital consists of 730 beds in total, out of which 120 beds are in medical wards.

Study Duration: 4 weeks.

Sample

A sample is a portion of the study that has been selected to represent the population of interest.[5]

Sample, in this study, consists of 30 hypertensive patients, subjected to intervention, i.e.application of foot massage.

Sampling Technique

The purpose of using a sampling technique is to increase representativeness and decrease bias and sampling error.

In this study, a total of 30 patients were selected by simple convenient sampling.

Inclusion Criteria

- Hypertensive patients who were above 35 years of age
- Patients who were in the first stage of hypertension
- Patients who were willing to participate in the study
- Hypertensive patients who were only on oral antihypertensive drugs

Exclusion Criteria

- Patients who were on intravenous antihypertensive drugs
- Unconscious, paraplegic, quadriplegic, hemiplegic, and burns patients
- Patients who were referred to physiotherapy

Ethical Consideration

The research problems and objectives were approved by the research committee. Due permission from concerned authorities was obtained. Informed consent was taken from the participants. Anonymity of patients was ensured. Confidentiality of the data was maintained.

Development and Description of the Tool

Based on the objectives of the study, the following tools were used:

Tool I: Demographic pro forma.

Tool II: Guidelines for foot massage.

Tool III: Blood pressure recording chart.

Sources Helpful in Preparation of the Tool

Review of literature from journals, online sources, books, and unpublished thesis, along with discussions with the experts, medical-surgical speciality nurses, and complementary therapy specialised nurses and statisticians enlightened and refined the investigator's ideas about the tool preparation.

Intervention

Sessions of 10 minutes of foot massage were given to hypertensive patients.

Method of Data Collection

Examiner measured and recorded the blood pressure by utilising an advanced, calibrated, mechanised instrument. The participants were explained about foot massage in the beginning. Each foot was massaged for five minutes. The post-massage blood pressure was measured and recorded after 10 minutes. The massage was given twice a day - morning and evening. All the subjects were thanked for their interest and co-operation at the end of the data collection process. The information thus collected was compiled for examination.

Plan for Data Analysis

The plan for data analysis was as follows:

- The data were organised
- The data were analysed in terms of frequency, percentage, mean, and standard deviation
- Unpaired t-test was used to test the significant difference

Results

Table 1 shows that 43.33% of the participants were in the age group of 65 years and above, 30% were in the age group of 55-64 years, 16.67% were in the age group of 35-44 years, and 13.33% were in the age group of 45-54 years. 33.33% of the patients were male and the remaining (66.67%) were female. 53.33% of the respondents were

ISSN: 2348-2133
DOI: https://doi.org/10.24321/2348.2133.202107

Hindu, 33.33% were Muslim, 10% were Sikh, and 3.33% were Christian. It also shows that 80% of the study subjects were married, 16.67% were widowers, and 3.33% were separated. 23.33% of the respondents were employed in private companies, 10% were government employees, 53.33% were unemployed, and 13.33% had their business. The bodyweight of 40% of the participants was in the range of 51-65 kg, for 33.33% it was in the range of 66-80 kg, for 16.67% it was above 80 kg, and for 10%, it was below 50 kg. With regard to height, 50% of the subjects were in the range of 166-180 cms, 30% were above 180 cms, and 20% were in the range of 151-165 cms. The body mass index showed that 40% of the respondents were overweight, 30% were obese, 20% had normal weight, and 10% were underweight. The diet pattern showed that 66.67% of the study subjects were non-vegetarian and 33.33% were vegetarian. 80% of the patients were under medication and 20% were not using any medication. 63.33% of the patients had a family history of hypertension while 36.67% did not have any family history of hypertension.

Table 1.Frequency and Percentage Distribution of Demographic Variables

N = 30

Characteristics	Category	N	%
Age Group (in Years)	35-44	05	16.67
	45-54	04	13.33
	55-64	12	40
	65 and Above	09	30
Gender	Male	10	33.33
	Female	20	66.67
Religion	Hindu	16	53.33
	Muslim	10	33.33
	Christian	01	3.33
	Sikh	03	10.00
Marital Status	Single	0	0.00
	Married	24	80.00
	Widow	05	16.67
	Separate	01	3.33
Occupation	Private	07	23.33
	Government	03	10
	Unemployed	16	53.33
	Business	04	13.33
Body Weight (Kg)	Below 50	03	10.00
	51-65	12	40.00
	66-80	10	33.33
	Above 80	05	16.67
Height (Cm)	151-165	06	20.00
	166-180	15	50.00
	Above 180	09	30.00
Body Mass Index	Under weight	03	10.00
	Normal Weight	06	20.00
	Overweight	12	40.00
	Obesity	09	30.00
Diet	Vegetarian	10	33.33

ISSN: 2348-2133
DOI: https://doi.org/10.24321/2348.2133.202107

Diet	Non-Vegetarian	20	66.67
Medications	Yes	24	80.00
	No	06	20.00
Family History of HTN	Present	19	63.33
	Not Present	11	36.67

Table 2.Assessment of Effectiveness of Foot Massage in reducing Blood Pressure among Hypertensive Patients

N = 30

Day Shifts		Pre Massage		Post Massage						'F' Value
		Baseline		10 minutes		20 minutes		30 minutes		
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Day 1	M	149.50	6.04	144.10	6.70	140.75	9.09	137.15	8.8	40.007
	E	144.00	10.28	136.00	9.16	131.15	9.77	130.00	11.05	88.958
Day 2	M	142.50	8.73	138.50	8.40	134.10	8.7	132.85	10.23	40.388
	E	140.00	12.22	132.55	12.61	129.60	11.59	125.10	12.60	78.544
Day 3	M	139.60	8.33	136.50	8.59	134.10	8.06	129.85	11.24	50.388
	E	136.45	10.20	132.55	12.21	129.60	12.74	125.10	13.60	70.544
Day 4	M	135.30	9.99	131.45	10.52	128.45	10.90	122.65	13.088	60.061
	E	134.20	11.19	128.35	10.30	125.35	11.45	121.30	12.04	63.410
Day 5	M	133.30	9.69	129.53	10.25	128.45	10.30	122.65	13.08	55.615
	E	132.45	11.89	128.38	11.31	125.35	11.45	121.30	12.17	73.404
Day 6	M	130.60	8.33	127.50	8.79	125.10	8.7	122.85	10.23	58.882
	E	130.00	12.22	126.50	12.61	124.60	12.69	120.10	13.20	70.448
Day 7	M	129.30	9.09	126.05	10.32	124.45	10.90	122.65	13.088	62.616
	E	128.00	10.19	125.35	11.38	122.35	11.06	120.30	12.77	65.310

F(3,57) = 2.765 at p < 0.001, M-Morning, E-Evening

Table 3.Association of Blood Pressure prior to Foot Massage among Hypertensive Patients with the selected Demographic Variables

Demographic Variables		Pre Massage Systolic Blood Pressure		Table value	df	Chi-Square (χ^2)	Significance
		< Median 146	≥ Median 146				
Age (years)	35-44	02	06	7.82	3	7.953	P < 0.05 Significant
	45-54	06	03				
	55-64	13	08				
	65 and above	18	04				
Gender	Male	10	12	3.84	1	1.776	P > 0.05 Not Significant
	Female	24	14				
Religion	Hindu	10	15	7.82	3	2.474	P > 0.05 Not Significant
	Muslim	15	10				
	Christian	02	01				
	Sikh	03	04				

ISSN: 2348-2133
DOI: https://doi.org/10.24321/2348.2133.202107

Marital status	Single	0	01	7.82	3	2.596	P > 0.05 Not Significant
	Married	18	28				
	Widower	06	04				
	Separated	02	01				
Occupation	Private	04	08	7.82	3	17.024	P < 0.05 Significant
	Government	05	02				
	Self-employed	28	06				
	Business	02	05				
Weight (kg)	Below 50	01	04	7.82	7.82	8.843	P < 0.05 Significant
	51-65	18	04				
	66-80	15	04				
	Above 80	11	03				
Height (cm)	151-165	6	9	5.99	5.99	1.098	P < 0.05 Significant
	166-180	13	15				
	Above 180	5	12				
Body mass index	Under weight	1	4	7.82	3	13.963	P < 0.05 Significant
	Normal weight	3	8				
	Overweight	19	5				
	Obesity	15	5				
Diet	Vegetarian	08	14	3.84	1	2.583	P > 0.05 Not Significant
	Non-vegetarian	22	16				
Medication	Yes	25	21	3.84	1	1.490	P > 0.05 Not Significant
	No	5	9				
Family history of hypertension	Present	24	16	3.84	1	3.336	P > 0.05 Not Significant
	Not Present	07	13				

The data presented in Table 2, shows that the calculated 'F' value for blood pressure was greater than the tabulated 'F' value (2.765) on all seven days. Hence the hypothesis H_1 was accepted.

The above Table shows 3, that only a few demographic variables like age, occupation, weight, and body mass index had chi-square value higher than the table value.

Thus there was a significant association of mean blood pressure of the respondents prior to foot massage with these demographic variables, and hence our hypothesis H_2 was accepted.

Discussion

The main aim of the study is to assess the effectiveness of foot massage in reducing blood pressure among hypertensive patients.

From the study findings, it was found that there was a significant decrease in the blood pressure measurements between pre and post treatment at < 0.001 level of significance. This shows that there is a gradual reduction in the blood pressure after foot massage at 10, 20, 30 minutes time intervals. So it may be stated that foot massage is helpful in reducing blood pressure among hypertensive patients.

The study is supported by a related study done on hypertension by Kotruchin P et al.[7] A randomised clinical trial was conducted in this study to examine the effectiveness of foot reflexology in reducing BP and Heart Rate (HR). Similar to our study, the findings of this study too revealed that foot reflexology was effective in reducing blood pressure in hypertensive patients.

Recommendation and Nursing Implication

- The study can be done with larger samples for better generalisation
- Similar studies can be conducted in other settings too

ISSN: 2348-2133
DOI: https://doi.org/10.24321/2348.2133.202107

Nursing Practice

Complementary treatments are gaining popularity in wellbeing care. All available nursing practices are used by medical attendants to ensure that proper care is provided to individuals. Complementary procedures have proven to be helpful in the treatment of patients. Foot massage is one of such procedures, which has been shown to successfully decrease the blood pressure among hypertensive patients, and hence can be adopted by medical caretakers for the same purpose.

Nursing Administration

The procedure manual for foot massage can be prepared with pictures and written explanations and can be made available in each unit of the hospital as a ready reference for better understanding. Nurse administrators should also see that students and practising nurses are well equipped with the required knowledge and skill through in-service programmes. Nurses may be empowered with facilities to use complementary therapies. In-service education on applied theories in clinical practice based on evidence is important.

Conclusion

It is concluded from this study that blood pressure declines with the treatment of foot massage over10 minutes intervals. Hence it is evident that foot massage is very useful for hypertensive patients.

Confidentiality of Data

The feedback forms obtained from patients were kept confidentially. Only the principal investigator had access to these documents.

Funding: Self

Conflict of Interest: None

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ISSN: 2348-2133
DOI: https://doi.org/10.24321/2348.2133.202107