

# A Study to Assess the Effect of Hot Water Foot Bath Therapy on the Quality of Sleep among Elderly Patients Admitted in Hanagal Shree Kumareshwar Hospital and Research Centre, Bagalkot

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## ABSTRACT

**Background of the Study:** Sleep is the basic need of every human being and it is the universal biological process for all human beings. Sleep trouble is one of the most common current manifestations among elders.

### Objectives

- To assess the quality of sleep among elderly patients in both control and experimental group
- To determine the effectiveness of hot water foot bath therapy by comparing post interventional quality of sleep scores between experimental and control groups.

**Method:** True experimental research design with 2 group design was used. The total 50 subjects were selected through convenient sampling technique divided into 2 groups; 25 each as experimental and control groups assigned through simple randomized sampling. Data was collected by means of structured questionnaire by interview schedule and the tool used was PSQI tool. Data was analyzed by using descriptive and inferential statistical in terms of mean, frequency distribution, percentage, t test and Fisher's exact test.

**Results:** In overall pre-test mean scores was  $2.12 \pm 0.23$  (21.22%) in the experimental group and in the control group, overall pre-test mean score was  $1.18 \pm 0.337$  (11.88%). The pre test Knowledge score was not Statistically Significant between the Experimental and control group. T value ( $t=1.076$ ) was higher than p value (0.647):  $H_1$  is accepted hence hot

water foot bath therapy was effective. Fisher's exact test was revealed that with the pre and post test scores were statistically not significant in both the groups.

**Conclusion:** The study proved that hot water foot bath therapy on quality of sleep among elderly patients attending the OPD and IPD is scientific, logical and cost-effective strategy.

**Keywords:** Effectiveness, Quality of Sleep, foot bath therapy, elderly patients.

## INTRODUCTION

### "Sleep is the best meditation"

#### – Dalai Lama

The meaning of health has evolved over time. In keeping with the biomedical perspective, early definitions of health focused on the theme of the body's ability to function; health was seen as a state of normal function that could be disrupted from time to time by disease. An example of such a definition of health is: "a state characterized by anatomical, physiologic, and psychological integrity; ability to perform personally valued family, work, and community roles; ability to deal with physical, biological, psychological, and social stress".<sup>1</sup>

According to World Health Organization's 2015 report states that in India the aged population is expected around 20-25% of population by 2050,

relatively aged population will also increase, this will bring with a huge burden of sleep related health problems.<sup>2</sup>

Sleep is a cyclical process and it is repeated several times during the night. With aging sleep patterns tend to change finds harder time for falling asleep awakens more often during the night and earlier in the morning. Sleep difficulty is an annoying problem long term insomnia, accidents, depression, confusion and mental changes.<sup>3</sup>

Sleep disturbance is reported to be a significant problem for patients across older age people; a warm-water foot bath remedy is regional & moist warmth application. It is a non invasive and continent method to use it at home. That resulting assist provisional helps that warm-water foot bath therapy reduce the tiredness of elderly people. It is a non-pharmaceutical therapy to support people become tiredness & sleep disorder.<sup>4</sup>

Research done by Seyyedrasooli A. et.al in their study showed that footbath is effective in sleep quality of the elderly, decreases sleep latency, and increases efficient sleep duration.<sup>5</sup>

Footbath is a nursing intervention and non-pharmacological method that can help the elderly to relax and have a good feeling, but few studies have examined it in this aspect.<sup>6</sup>

Sleep is a physiological mechanism of regaining energy and recovering from fatigue, and it has an important role in people's health.<sup>7</sup>

## MATERIALS AND METHODS

**Study design:** It is a true experimental randomized control design conducted at HSK Hospital and research center, Bagalkot Karnataka.

**Setting of the study:** The study was conducted at HSK hospital and research center of Bagalkot Karnataka. The recruitment and data collection of participants was carried out in outpatient and inpatient department.

**Participants:** The sample consists of 50 elderly patients who are having low quality of sleep according to PSQI scores.

## Criteria for sample selection:

### Inclusion criteria:

- Elderly people aged above 50 years.
- Elderly people who all are willing to participate in the study.
- Elderly people admitted in medical and surgical wards.

### Exclusion Criteria:

- Patients who are critically ill and unable to participate in the study.
- Patients who are taking medication for sleep.
- Patients who are having lack of sensation in foot.
- Patients who are having more frequency of urination at night.

**Sample Size estimation:** The Sample size was calculated by using “power analysis”, the sample size was estimated by using the results (mean and standard deviation) of similar studies. The level of confidence was 95% ( $\alpha=5\%$ ) and  $\alpha=0.95$  The power of test was considered 80% The sample size was estimated by statistician was 70. Considering the attritions of data, the researcher enrolled 50 subjects. The elderly patients with disturbed sleep, who met the inclusion criteria were selected as samples and size was 50.

### Description of data collection tools

The data collection instruments were divided into 2 sections-

**Section 1- Baseline proforma:** It is an interview proforma consisting 8 items regarding baseline data of the subjects.

**Section 2:** It is based on sleep quality index, measuring the total quality of sleep, disturbances, in the means of physical and psychological impact. 10 questions relate to usual sleep habits during the previous month. The first section includes of 19 self-rated items and 5 questions rated by the bed partner roommate related to quality of sleep. 27 Questions, each question carries 1 mark each. It consists of past month sleep history.

**Global score:** All the 7 headings is considered as global score and given the range from 0-3. If its 0-6 it is considered as

good quality of sleep and 21 and more is considered as low quality of sleep.

**Data Collection:** Data collection was done from 07-04-2021 to 25-05-2021 at HSK Hospital Bagalkot.

**Independent variable:** Hot water foot bath therapy.

**Dependent variable:** A sleep disturbance.

**Extraneous variable:** Age, sex, Occupation, Education qualification, Family history, Personal habits,

**Statistical Analysis:** The tabulation of data in terms of mean, median and standard

deviation to analyze the pre-test and post test Quality of sleep index score. Independent 't' test will be used to assess the effectiveness between two groups. Chi square test will be used to compare the quality of sleep in experimental and control group on 7<sup>th</sup> day (post test).

**Ethical Consideration:** Ethical clearance certificate was obtained from B.V.V.S Sajjalashree Institute of Nursing Sciences, institutional ethical committee. Written consent was obtained from each participant.

## RESULTS

Table No 1: Frequency and Percentage Distribution of Sample According to Demographic Variables in Experimental and Group and Control Group.

Sl. no	Demographic variables	Experimental group		Control group	
		N=25	P=100%	N=25	P=100%
<b>1</b>	<b>Age</b>				
	45-55 years	9	30%	12	40%
	56-65 years	12	40%	9	30%
	66-75 years	9	30%	9	30%
<b>2</b>	<b>Gender</b>				
	Male	9	30%	21	70%
	Female	21	70%	9	30%
<b>3</b>	<b>Occupation</b>				
	Farmer	12	40%	6	20%
	2)Business	3	10%	9	30%
	3)Teacher	9	30%	12	40%
	4)Housewife	6	20%	3	10%
<b>4</b>	<b>Marital status</b>				
	Married	18	60%	21	70%
	Unmarried	3	10%	3	10%
	Widow	9	30%	6	20%
<b>5</b>	<b>Economic status</b>				
	1) High class	6	20%	6	20%
	2)Middle class	21	70%	18	60%
	3)Low class	3	10%	6	20%
<b>6</b>	<b>Stay with family</b>				
	1)Staying with children	12	40%	9	30%
	2)Staying alone	3	10%	12	40%
	3)Staying spouse	6	20%	3	10%
	4)Staying with family	9	30%	6	20%
<b>7</b>	<b>Habits</b>				
	1)Smoking	18	60%	3	10%
	2)Gutka	9	10%	6	20%
	3)Alcohol	9	30%	21	70%

Table no 2: Findings of PSQI Scale of Sleep Habits Score in Both Groups According to the Pre Test and Post Test. N=50

Interventions days	Group	Sample size(n)	Mean	Standard deviation (SD)	Standard error(S.E)
Day 1(pre test)	Experimental	25	10.64	2.01	0.48
	Control	25	11.76	1.58	0.32
Day 7(post test)	Experimental	25	4.4	1.322	0.314
	Control	25	9.92	1.97	0.39

Revealed that the mean PSQI Scores of Experimental and Control group in pre test (1<sup>st</sup> day) are 10.64 and 11.76 respectively. In the experimental group the mean post test PSQI Score (7<sup>th</sup> day) was 4.4 whereas in the control group was 9.92

respectively. This shows that there is a significant increase in the quality of sleep among elderly patients in the control group (0.32-0.39) when compared to experimental group (0.48-0.314).

**Table no 3: Comparison between the PSQI Scores of quality of sleep among elderly patients in experimental and control group on Pre- Test (day 1) by using Karl Pearson Chi-square test. N=25, Df = 1**

Global Score (pretest)	Experimental	Control
No difficulty (0-7)	24	1
Moderate (8-14)	1	23
Severe(15-21)	0	1

Chi square test  $\chi^2 = 1$   
T=3.84 p value < 0.05 (S)

Note: - (NS)-Statistically not significant.

Table 3 reveals that  $X^2$ calculated value (1) is more than  $X^2$  tabulated value (3.84). Hence  $H_1$  is accepted. There is a significant association between the mean pre test PSQI Scores of quality of sleep among elderly patients and mean pre test PSQI Scores of quality of sleep among elderly patients in control group at 0.05 level of significance.

**Table 4: Comparison between the PSQI Scores of quality of sleep among elderly patients in experimental and control group on Post- Test (day 7) by using Karl Pearson Chi-square test. N=25, Df -4**

	Experimental	Control
No difficulty	24	1
Moderate	1	23
Severe	0	1
<b>Total</b>	<b>25</b>	<b>25</b>

Chi square test  $\chi^2 = 42$ .  
T=3.96 p value < 0.05 (S)

Note: - (S) – Statistically significant.

Table 4: reveals that  $X^2$ calculated value (42) is more than  $X^2$  tabulated value (9.49). Hence  $H_1$  is accepted. There is a significant association between the mean post test PSQI Scores of quality of sleep among elderly patients and mean post test PSQI Scores of quality of sleep among elderly patients in control group at 0.05 level of significance.

**Table: 5 Comparison of Post test global score of quality of sleep among patients in experimental group and control group. N=25**

Group	Mean	SD	Std. Error	Mean difference	SD Difference	Paired T value	Table Value
Experimental group	4.4	1.322	0.314	5.52	0.65	11.12	2.06
Control group	9.92	1.97	0.39				

Table 5: reveals that *paired T test* calculated value (11.12) is less than paired test tabulated value (2.06). Hence  $H_2$  is accepted. There is a significant association between the mean post test PSQI Scores of quality of sleep among elderly patients in experimental group at 0.05 level of significance

**Limitations of the study:** The present study was limited to 50 elderly patients with low quality sleep at patients admitted in HSK hospital and research center. It was a single blind study conducted by a single investigator

## CONCLUSION

The study proved that hot water foot bath therapy on quality of sleep among elderly patients attending the OPD and IPD is scientific, logical and cost-effective strategy.

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**Conflict of Interest:** None

**Source of Funding:** None

**Ethical Approval:** Approved

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