

A Study to Assess the Effectiveness of Hot Water Foot Bath Therapy on Quality of Sleep Among Elderly Staying in Selected Old Age Home at Villupuram District, Tamilnadu

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ABSTRACT

Aim: to improve the quality of sleep among elderly.

Objectives: (i) to assess the pre-test & post-test quality of sleep among elderly people in the control and experimental group. (ii) to assess the effectiveness of hot water foot bath therapy on quality of sleep among elderly people in the experimental group. (iii) to compare the post-test quality of sleep among elderly people between control and experimental group. (iv) Find the association between quality of sleep among the elderly with their selected socio-demographic variables.

Methodology: A quasi experimental study was carried out to assess effectiveness of hot water footbath. 60 samples (30 control and 30 experimental group) were selected by using non probability purposive sampling technique. The Quality of sleep was assessed by using Modified Groningen Sleep Quality Scale.

Results: The finding of the study shows that the experimental group pre-test mean is 9.6 with the standard deviation of 3.3. the post-test mean is 6.13 with the standard deviation of 3.45. In control group pre-test mean is 9.57 with the standard deviation of 3.37. The post-test mean is 8.8 with the standard deviation of 3.69. In the experimental group pre-test mean and standard deviation values are 9.6 and 3.3 respectively. The post-test mean value is 6.13, standard deviation is 3.45; mean difference between pre and post-test is 3.47; standard error is 0.397 and paired 't' test value of experimental group is 8.71 which is highly significant.

Conclusion: The study concluded that hot water footbath therapy is effective in improving the quality of sleep among the elderly.

Keywords: Elderly, Modified Groningen Sleep Quality Scale, Hot Water Foot Bath Therapy.

INTRODUCTION

Sleep is the basic human need; it is a universal biological process common to all the people. A human spends about one-third of their lives asleep. We require sleep for more reasons: to cope with daily stresses, to prevent fatigue, to conserve energy, to restore the mind and body, to enjoy life more fully. Sleep can be defined as a normal state of altered consciousness during which the body rests; it is characterized by decreased responsiveness to the environment, and a person can be aroused from it by external stimuli.

The percentage of the elderly population is growing due to increased life expectancy and improved Socio-economic development. Surprisingly, in the World Health Organization's 2015 World Report on Ageing and Health, there is no mention of sleep disorders. In India, the aged population is expected to be around 20–25% of the population by 2050. By then, the elderly population would be more than 25% of the population in developed nations. It already exceeded 30% in Japan in 2017. The increase in the aged population will bring with it a huge burden of sleep-related health problems. Although aging is a global phenomenon, little data are available on regional trends in sleep-related problems.

The importance of sleep for the overall health and well-being of the elderly has been increasingly recognized.

Psychiatrists, neurologists, and geriatricians, general practitioners should have sound knowledge about the changing pattern of sleep from infancy to old age. Additionally, the sleep problems faced by the elderly, and the consequences of inadequate and inappropriate sleep in determining the quality of their life, have gained recognition recently. It is widely believed that social participation is the key to healthy aging. However, data from the US National Social Life, Health, and Aging Project has shown that older adults with greater social participation slept better, but increasing social participation did not improve sleep.

Hot water foot bath therapy (HWFBT) one of the hydrotherapeutic measures, which improves warmth, promotes muscle relaxation, relieves pain, dilates blood vessels and promotes circulation, relaxes the connective tissue and provides a soothing and healing effect. HWFBT is said to treat the underlying infection by activating the WBCs and immune system. Hot application to the skin increases the oxidation of the toxins and increases the blood flow through the peripheral vessels. It also increases the ability of the phagocytes to destroy the germs and detoxify the blood. The beneficial effect of increased blood flow to the tissue includes the facilitation of drainage and the "wash-out" effect, purging the tissue of debris and by-products of tissue injury.

Warm application to the foot causes the congested blood to flow towards distant parts of the body and is brought to the dilated vessels of the foot and leg. When HWFBT applied for 10-15 minutes the vessels in the feet start expanding and get improved circulation, neutralizing acid and killing bacteria and relieving aches tiredness and fever. The improved blood circulation resets the hypothalamic set points by heat transfer from higher heat area to lower heat area.

STATEMENT OF THE PROBLEM

"A study to assess the effectiveness of hot water foot bath therapy on quality of

sleep among elderly staying in selected old age home at Villupuram district, Tamilnadu".

OBJECTIVES

- ❖ To assess the pre-test & post-test quality of sleep among elderly people in the control and experimental group.
- ❖ To assess the effectiveness of hot water foot bath therapy on quality of sleep among elderly people in the experimental group.
- ❖ To compare the post-test quality of sleep among elderly people between control and experimental group.
- ❖ Find the association between quality of sleep among the elderly with their selected socio-demographic variables.

HYPOTHESIS

H1 - There will be a significant improvement in the quality of sleep after hot water foot bath therapy among elderly staying in selected old age home.

H2 - There will be a significant association between qualities of sleep with their selected socio-demographic variables of elderly staying in selected old age home.

MATERIAL AND METHOD

A Quasi-experimental pre-test and post test control group design was adopted for the study. The study was conducted at 2 old age homes, Annai Karunalaya Social Welfare Association, at Tindivanam and Krupalaya Palliative Care Center at Konnagiapalaya, Villupuram. 60 samples (30 control group and 30 experimental group) were selected by using non probability purposive sampling technique. Quality of sleep was assessed by using Modified Groningen Sleep Quality Scale.

On the first day of data collection, demographic data were collected for both the experimental and control group. The pre-test quality of sleep was assessed by using the Modified Groningen Sleep Quality Scale among the elderly in both groups. After the pre-test hot water foot bath was administered by the researcher for 15 minutes at bedtime for elderly clients in the experimental group for seven consecutive

days. The control group is allowed to do routine daily living activities without hot water footbath. The post-test was done on the seventh day to assess the quality of sleep in the experimental group and control group by using the same Modified Groningen Sleep Quality Scale.

RESULT AND DISCUSSION
ASSESSMENT OF THE PRE AND POST-TEST QUALITY OF SLEEP AMONG THE ELDERLY IN THE CONTROL AND EXPERIMENTAL GROUP.

Table-1: Frequency and percentage distribution of pre-test quality of sleep among the elderly in the control and experimental group. N= 60

Quality of sleep	Control group		Experimental group	
	N	N%	N	N%
Poor sleep	18	60	16	53.4
Disturbed sleep	7	23.3	10	33.3
Good sleep	5	16.7	4	13.3

Table-1 Shows that in the control group among 30 samples 18 (60%) had poor sleep, 7 (23.35) had disturbed sleep and 5 (16.7%) had good sleep. In experimental group among 30 samples, 16 (53.3%) had poor sleep, 10 (33.3%) had disturbed sleep and 4 (13.3%) had good sleep.

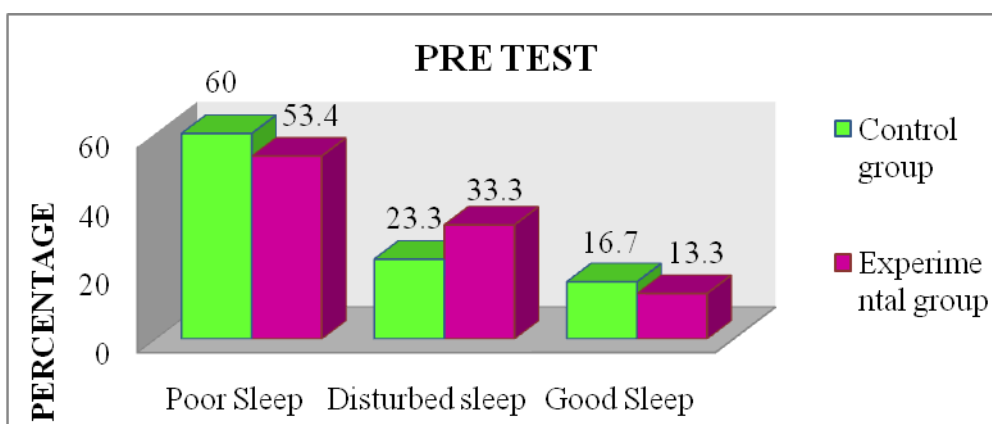


Figure 1: Shows the pre-test quality of sleep among the elderly in the control and Experimental group.

Table-2: Frequency and percentage distribution of post-test quality of sleep among the elderly in the control and experimental group. N= 60

Post test	Control group		Experimental group	
	N	N%	N	N%
Poor sleep	14	46.7	6	20
Disturbed sleep	9	30	7	23.3
Good sleep	7	23.3	17	56.7

Table-2. Shows that in the control group among 30 samples poor sleep 14 (46.75), disturbed sleep 9 (30%) and in good sleep 7 (23.3). In experimental group among 30 samples 6 (20%) had poor sleep, 7 (23.3%) had disturbed sleep and 17 (56.7%) had good sleep.

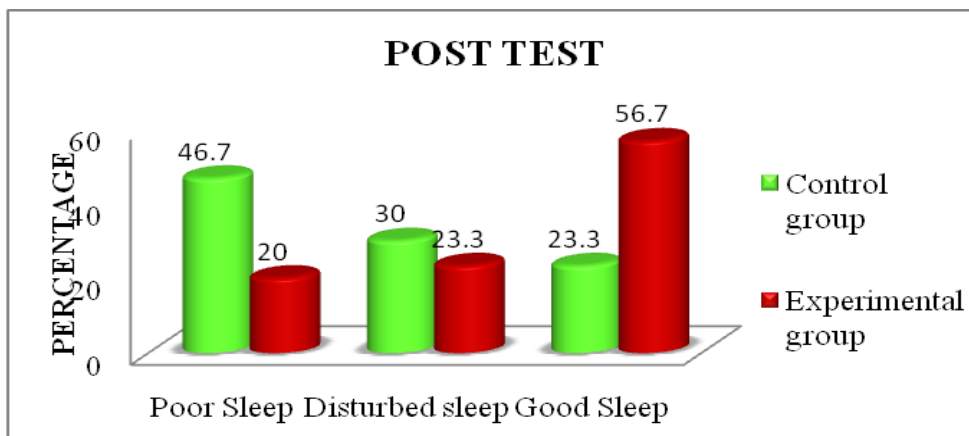


Figure-2: shows the post-test quality of sleep among the elderly in the control and Experimental group.

EFFECTIVENESS OF HOT WATER FOOT BATH IN QUALITY OF SLEEP AMONG THE ELDERLY IN THE EXPERIMENTAL GROUP.

Table-3: Effectiveness of hot water foot bath on quality of sleep among the elderly in the Experimental group.

Experimental group	Pretest		Post-test		Mean difference	Standard error	95% confidence interval of the difference		't' Value
	Mean	Standard deviation	Mean	Standard deviation			Lower	Upper	
	9.6	3.3	6.13	3.45			3.47	0.397	

(p<0.05)

Table-3: Reveals that the experimental group pre-test mean and standard deviation values are 9.6 and 3.3 respectively. The post-test mean value is 6.13, standard deviation is 3.45; mean difference between pre and post-test is 3.47; standard error is 0.397 and paired 't' test value of experimental group is 8.71 which is highly significant indicates that there is improvement in quality of sleep after hot water footbath among the elderly. Hence hypothesis H₁ is accepted.

COMPARISON OF QUALITY OF SLEEP AMONG THE ELDERLY IN THE CONTROL AND EXPERIMENTAL GROUP.

Table-4: Comparison of post-test quality of sleep among the elderly in the control and experimental group

Post-test quality of sleep	Control group		Experimental group		Mean difference	Standard Error	't' Value
	Mea n	Standard deviation	Mea n	Standard deviation			
	8.8	3.69	6.13	3.45			

(p<0.05)

Table-4. Shows that the post-test mean difference between the control and experimental group is 2.67 with the standard error of 0.28. The 't' value of post-test quality of sleep is 9.525. Hence it indicates the hot water footbath improves the quality of sleep among the elderly.

DISCUSSION

Major findings of the study:

The first objective of the study was to assess the pre and post-test quality of sleep among the elderly in the control and experimental group.

In the control group pre-test quality of sleep is among 30 samples 18 (60%) were in poor sleep, 7 (23.35) were in disturbed sleep and 5 (16.7%) were in good sleep. In post-test among 30 samples 14 (46.75) were in poor sleep, 9 (30%) were in disturbed sleep and 7 (23.3) were in good sleep. the pre-test mean is 9.57 and the standard deviation is 3.37. The post-test mean is 8.8 and the standard deviation is 3.69

In experimental group pre-test quality of sleep is among 30 samples 16 (53.3%) were in poor sleep, 10 (33.3%)

were in disturbed sleep and 4 (13.3%) were in good sleep. In post-test among 30 samples 6 (20%) were in poor sleep, 7 (23.3%) were in disturbed sleep and 17 (56.7%) were in good sleep. The pre-test mean is 9.6 and the standard deviation is 3.3. The post-test mean is 6.13 and the standard deviation is 3.45.

The second objective of the study is to assess the effectiveness of hot water foot bath therapy on the quality of sleep among elderly people in the experimental group. The experimental group pre-test mean and standard deviation values are 9.6 and 3.3 respectively. The post-test mean value is 6.13, the standard deviation is 3.45; a mean difference of pre and post-test is 3.47; standard error is 0.397 and paired 't' test value of the experimental group is 8.71 which is highly significant indicates that effect of hot water foot bath improves the quality of sleep. There is an improvement in the quality of sleep after a hot water footbath among the elderly. Hence hypothesis H₁ is accepted.

The third objective of the study is to compare the quality of sleep among

elderly people between control and experimental group

The post-test mean difference between the control and experimental group is 2.67 and the standard error is 0.28. The t value of the post-test quality of sleep is 9.525. Hence it indicates the hot water footbath improves the quality of sleep among the elderly.

The fourth objective of the study is to find the association between quality of sleep among the elderly with their selected socio-demographic variables.

In this study, there is no significant association between the quality of sleep with selected demographic variables in the control group and the experimental group. Hence the hypothesis H_2 is rejected.

CONCLUSION

The study concluded with the result that the experimental group paired 't' test value of the experimental group is 8.71 which is highly significant indicates that the effect of a hot water foot bath improves the quality of sleep. There is an improvement in the quality of sleep after a hot water bath among the elderly after hot water footbath. The comparison of post-test quality of sleep in control and experimental group mean the difference between the control and experimental group is 2.67 and the standard error is 0.28. The t value of the post-test quality of sleep is 9.525. Hence it indicates the hot water footbath improves the quality of sleep among the elderly. The study reveals that hot water foot bath therapy is effective in improving the quality of sleep among the elderly. It is beneficial cost-effective which can be low resource settings.

BIBLIOGRAPHY

- Allehe Seyyedrasooli (2013). Effectiveness of footbath on level of fatigue among elderly, it was conducted by a blinded randomized clinical trial on 50 old men. *Journal of Caring Sciences*: 2(4): 305-311
- Arshpreet Kaur C. Naveen Kumar (2017) Effectiveness of Warm Water Foot Bath on Quality of Sleep among Hospitalized

Patients, *International Journal of Health Sciences & Research*, Vol.7; Issue: 10; October 2017.

- Crystal Jayllene A. (2018) Effects of Footbath in Improving Sleep Quality Among Filipino Elderly from a home-for-the-aged institution in NCR Philippines, *Journal of Social Health* Volume 1 Issue 1, February 2018, Article page no 31-55.
- de Almondes KM, Costa MV, Malloy-Diniz LF, Diniz BS. The relationship between sleep complaints, depression, and executive functions on older adults. *Front Psychology* 2016; 7: 1–8.
- Gulia K. K, Radhakrishnan A, Kumar VM. Approach to sleep disorders in the traditional school of Indian medicine. *Complementary and alternative medicine*. In: Chokroverty S, ed. *Sleep Disorders Medicine*, 4th edn: Springer Science Business Media, New York, 2017; 1221–1231.
- Hyun-Joo Kim, Kyeong-Yae Sohng (2016) The effects of footbath on sleep among the older adults in nursing home: A quasi-experimental study, *Complementary Therapies in Medicine*, Volume 26, June 2016, Pages 40-46
- Indrajeet Singh Gambhir (2014) a hospital-based study on insomnia in the elderly patients presenting to the geriatric clinic of the Sir Sunderlal Hospital of the Institute of Medical Sciences, Banaras. *Journal of Clinical Gerontology & Geriatrics*, 2014.
- Kamalesh K. Gulia, and Velayudhan Mohan Kumar, Sleep disorders in the elderly: a growing challenge, *Psycho geriatric the official journal of Japanese Psycho geriatric society*, 2018; 18: 155–165.
- Keisuke Suzuki, Masayuki Miyamoto, Koichi Hirata (2016) Sleep disorders in the elderly: Diagnosis and management, *journal of general and family medicine*, 2017; 18:61–71.
- Muhammad Azwan Azri (2016), Sleep Quality among Older Persons in Institutions, a cross-sectional study, *Procedia - Social and Behavioral Sciences* 234 (2016) 74 – 82.
- S. Jose Amala Anilda (2013) Effectiveness of Hot Water Foot Bath on Level of Fatigue among Elderly Patient, *International Journal of Science and Research (IJSR)* ISSN (Online): 2319-7064.

- Sobha George et.al (2018), a community based cross sectional Study on sleep quality and associated psychosocial factors among elderly in a rural population of Kerala, India, *International Journal of Community Medicine and Public Health*, Feb;5(2):526-531
- Tel, H. (2013). Sleep quality and quality of life among the elderly people. *Neurology, Psychiatry and Brain Research*, 19(1), 48 – 52.
- Tognoni, G., Maestri, M., Salvati, N., Fabbrini, M., Borghetti, D., & Murri, L. (2010). Sleep disturbances in elderly subjects: an epidemiological survey in an Italian district. *Acta Neurologica Scandinavica*, 122(6), 389–97.
- World Health Organization (WHO). World Report on Ageing and Health 2015; Geneva: WHO, 2015. Published by World Health Organization Press: Geneva, Switzerland.
- Yang (2010). Effectiveness of warm water foot bath on relieving fatigue among elderly who are receiving chemotherapy. *Journal of Cancer Nursing*, 33: 454- 460.

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