

Effectiveness of Warm Foot Bath on Quality of Sleep Among Cancer Patients Admitted in Selected Hospitals

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Abstract

Background: Cancer is now one of the top causes of death in India, after heart attack. Some of the world's highest incidences of cancer in found in India. Fatigue and sleep disturbance are two of most frequent side effects experienced by cancer patients. Medications use for people suffering from insomnia to get sleep but they cannot cure and prolonged use resulted in dependency but non pharmacological interventions give reliable and durable changes in the sleeping patterns of patients with cancer. *Objectives:* To assess the quality of sleep among cancer patients in experimental group and control group. To assess the effectiveness of warm foot bath on quality of sleep among cancer patients in experimental group. To compare quality of sleep among cancer patients in experimental and control group. To find out association between quality of sleep among cancer patients in experimental group and control group with selected demographic variables. *Methodology:* Quantitative research approach used for the study. Research design was quasi experimental nonrandomized control group design. And sampling technique was Non probability purposive sampling and sample size was 60 cancer patients (30 in each experimental group and control group). *Result:* Analysis reveals, in experimental group after warm foot bath mean score is 6.62 and in control group 10.13. Unpaired 't' test was used to calculate t value. The calculated t-value is 9.92. Which is higher than tabulated 't' value at 5 percent level of significance. Hence the research hypothesis H₁ accepted and null hypothesis H₀ is rejected. *Conclusion:* study conclude that there is significant difference between mean quality of sleep among cancer patients in experimental group and control group. Hence based on above cited finding it was concluded that the warm foot bath was effective for improving quality of sleep among cancer patients.

Keywords: Assess; Effectiveness; Warm foot bath; Quality of sleep; Cancer patient.

Introduction

Cancer is a disease distinguished by the uncontrolled growth of abnormal cells. If the growth and spread is remains uncontrolled, it can result in death. Cancer is occurring due to both external

and internal factors, in external tobacco, infectious organisms, chemicals, radiation and internal factors like, hormones, immune conditions, and mutations that occur from metabolism.¹ Insomnia is defined as a subjective complaint of inadequate nocturnal sleep. Insomnia commonly reported by cancer patients. Although alterations in sleep patterns are endemic in cancer patients but sleep problems are rarely assessed in patient evaluation. In cancer patient, poor quality of sleep disturbed daily routine, but unfortunately, most patients with cancer do not mention sleep problems unless explicitly asked. Most of the work related to sleep disorders in cancer patients focuses on insomnia

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and fatigue but there is evidence that other sleep disorders are also prevalent among cancer patients such as sleep disruption, insufficient sleep, restlessness, and diminished sleep duration And that they decrease quality of life of cancer patients.

Background of The Study

Cancer is the second leading cause of death globally, and responsible for an estimated 9.6 million death in 2018. Approximately 70% of death from cancer occur in low and middle-income countries. According to Indian council of medical research data on specific cancer burden in India in male most common cancer are mouth, pharynx, tongue, oesophagus, stomach and breast, cervix, oesophagus and oropharynx in female India recorded an estimated 3.99 million cancer cases in 2016.³ Cancer patient are at risk of sleep-wake disturbances resulting from demographic factor like female gender, emotional characteristics, depression related emotional stress, physical symptoms, cancer pain and hospitalization, impact of mastectomy, colostomy, financial burden, chemotherapy etc. and other pain, pruritis, anxiety, depression, night sweating all have impact on sleep wake cycle of cancer patients.³

Need of The Study

Cherian S. in December 2012 conducted a study on “effectiveness of footbath on sleep onset latency and relaxation among cancer patients”. Research design used for study was a quasi-experimental, and sample size was 40 by purposive sampling. The tool used were a baseline Performa, an observational checklist for sleep onset latency and relaxation rating scale. The data was analyzed by descriptive statistics, ANOVA, paired test, Karl Pearson correlation coefficient, and chi-square test.

Result: shows that there is significant difference between pre and post intervention on sleep onset. Conclusion—the study showed that footbath is effective for sleep onset latency and relaxation. In various studies the prevalence of these disorders varies widely though rates are always higher in patients with cancer compared with the general population or control group.⁴

By reviewing all the study, researcher found that sleep disturbances is very common problem among cancer patients. In clinical experience researcher found that cancer patient has more sleep disturbances than normal patients and very few research study has been done to improve sleep

quality among patients suffering from cancer so researcher is interested to find out the whether the warm foot bath is effective or not for cancer patients to improve sleep quality. As warm foot bath is non pharmacological and cost effective for patient so researcher is interested in conducting the study on effectiveness of warm foot bath on quality of sleep among cancer Patient.

Statement of the Problem

An experimental study to assess effectiveness of warm foot bath on quality of sleep among cancer patients admitted in selected hospitals of the city

Objectives

1. To assess the quality of sleep among cancer patients in experimental group and control group.
2. To assess the effectiveness of warm foot bath on quality of sleep among cancer patients in experimental group.
3. To compare quality of sleep among cancer patients in experimental group and control group.
4. To find out association between quality of sleep among cancer patients in experimental group and control group with selected demographic variable

Operational Definition

- *Assess:* In this study, assess refers to evaluate sleep quality.
- *Effectiveness:* In this study, effectiveness means, the desired change brought by warm foot bath
- *Warm foot bath:* In this study, it refers to the immersion of feet into water at 40-44°C for 15 minutes at bed time
- *Quality of sleep:* In this study, it refers to subjective feeling of the patient regarding duration of sleep, depth of sleep and how well they rested during previous night as assessed by Groningen sleep quality scale.
- *Cancer patient:* In this study it refers to the adult patients who are diagnosed with any type of cancer suffering from sleep disturbances, and who are admitted in the selected hospitals of the city

Delimitation

This study is delimited to cancer patients admitted in selected hospitals of the study and suffering from poor quality of sleep.

Hypothesis

Will be tested at 0.05 level of significance

H₀₁: There will be no significant difference in quality of sleep among cancer patients in experimental group and control group

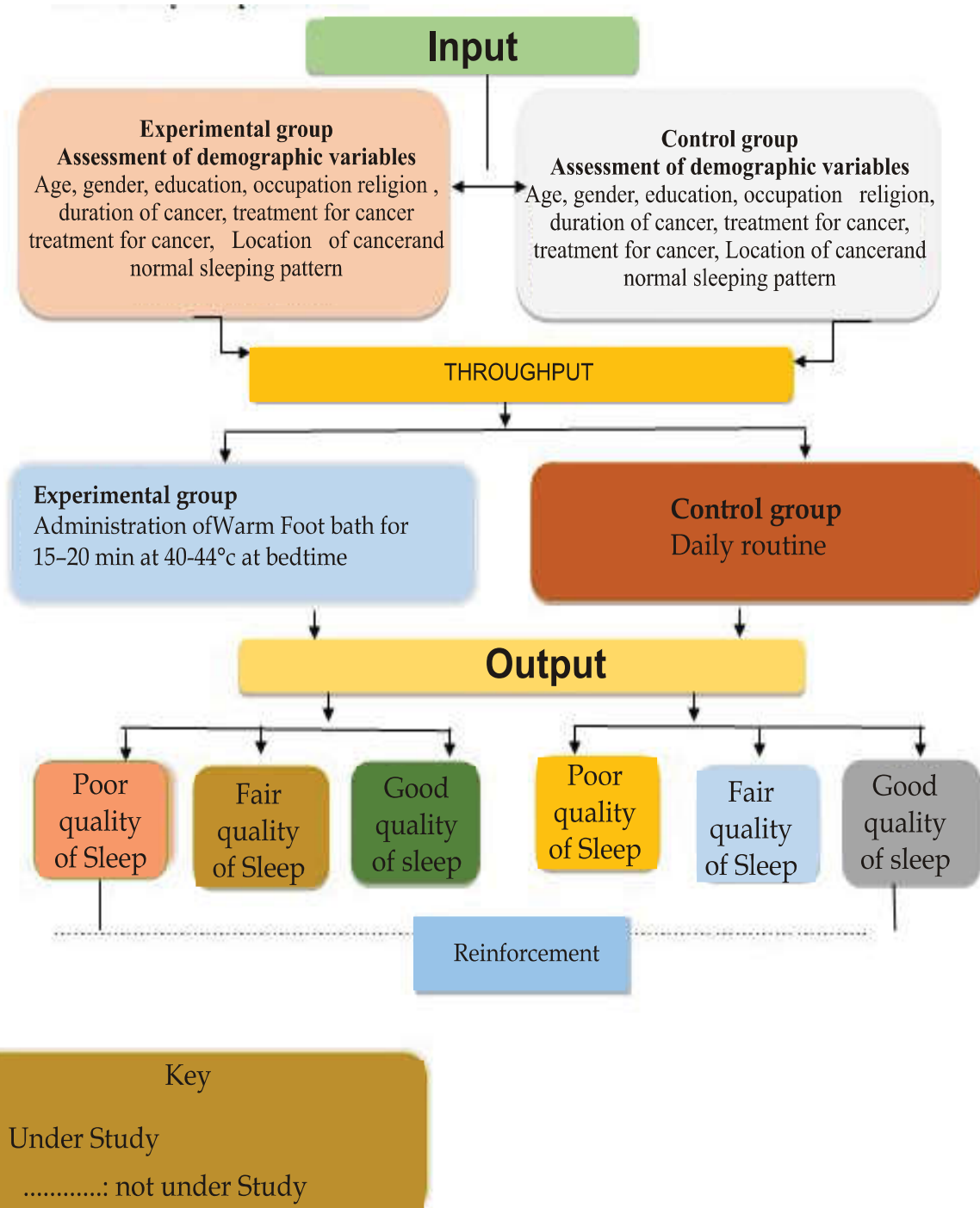
H₁: There will be significant difference in quality of sleep among cancer patients in experimental group and control group

H₀₂: There will be no significant association

between the quality of sleep among cancer patients in experimental group and control group with selected demographic variables. H₂: There will be significant association between the quality of sleep among cancer patients in experimental group and control group with selected demographic variables.

Ethical Aspect:

The study proposal was accepted by ethical committee of the institution. Permission was



obtained by the concern authorities before conducting study. Consent later was obtained by individual sample after explaining them the research process in their own language. Confidentiality regarding the samples information were maintained by using code number by investigator.

Review of Literature:

The literature review has been organized under the following heading.

- Literature related to incidence of cancer
- Literature related to quality of sleep among patients with cancer.
- Literature related to effectiveness of foot bath in general
- Literature related to effectiveness of foot bath in cancer patient Literature related to effectiveness of foot bath in cancer patient.

Conceptual Framework:

The conceptual framework used for the present study is "Modified Roy's adaptation model"⁶

Methodology

Research approach: Quantitative approach

Research design: Quasi experimental non randomized control group design.

Setting: Rashtrasant Tukdoji Maharaj cancer hospital, Nagpur and Baraskar clinic and Research Centre, Nagpur.

Variable

- *Independent variable:* Warm foot bath
- *Dependent variable:* Quality of sleep
- *Demographic variables:* It includes age, gender, education, occupation, religion.

Population

- *Target population-*It includes cancer patients who are admitted in hospital.
- *Accessible population:* It includes cancer patients admitted in selected hospitals and available at the time of data collection.

Sampling

- *Sample size:* 60
- *Sampling technique:* non-probability purposive sampling technique used.

Sampling criteria

- *Inclusive criteria:*

Inclusive criteria was, cancer patients who are:

1. Above 18 yr. of age.
2. Suffering from poor quality of sleep.
3. Willing to participate in the study.
4. Available at the time of data collection

- *Exclusion criteria*

Exclusive criteria was, cancer patients who are:

1. Unconscious and critically ill
2. Taking medication for sleep
3. Suffering from peripheral vascular disease, hyposensitivity, foot ulcer, neuropathy etc.

Description of Tools

Section I. A - semi- structured questionnaire on demographic variable

Section I. B - Questionnaire on clinical data

Section I. C- Questionnaire on Normal Sleeping Pattern

Section -II: Modified Groningen sleep quality scale

Validity

Content and construct validity of tool was determined by 22 experts including medical surgical nursing subject and statistician.etc

Reliability

For reliability Parallel correlation coefficient formula was used. The questionnaire was said to be reliable if the correlation coefficient was more than 0.80. The correlation coefficient 'r' of the interview schedule was $r=0.93$. Hence the interview schedule was reliable.

Pilot Study

It was conducted on 12 cancer patients. and collected data was coded, tabulated and descriptive and inferential statistics used to analyze. The pilot study was feasible in terms of time, money and resources.

Data Collection

Data collection Main study was done by following steps

1. Permission obtained from the Higher Authorities of the Hospitals.
2. Purposive sampling technique was used to select the samples for both group from different hospitals.

3. Consent of the samples was taken and data is collected by questionnaire schedule on demographic variables, clinical data and data related to normal sleeping pattern in both experimental and control group.
4. Intervention of warm foot bath given to experimental group for consecutive six days in night. Post test conducted both in experimental and control group and quality of sleep is assessed by scale and observation checklist used for assessment of quality of sleep for 6 days in experimental and control group

Result

Section-I:

- A. Description on demographic variables of cancer patients in experimental and control group. (Table 1)
- B. Description of cancer patients according to clinical data in experimental and control group (Table 2)
- C. Description of Cancer patients according normal sleeping pattern (Table 3)

Table 1: showing the percentage wise distribution of cancer patients according to their demographic characteristics.

Demographic Variables	Experimental Group		Control Group	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Age in years				
18-30 years.	3	10%	0	0%
31-40 years.	7	23.3%	12	40%
41-50 years	10	33.3%	11	36.7%
51-60 years.	9	30%	6	20%
≥61 years	1	3.3%	1	3.3%
Gender				
Male	10	33.3%	13	43.3%
Female	20	66.7%	17	56.7%
Educational Level				
Primary	5	16.7%	4	13.3%
Secondary	9	30%	6	20%
Higher Secondary	9	30%	8	26.7%
Graduate	6	20%	8	26.7%
Post Graduate	1	3.3%	3	10%
Other	0	0%	1	3.3%
Occupation				
Laborer	3	10%	3	10%
Farmer	4	13.3%	4	13.3%
Service	8	26.7%	5	16.7%
Business	1	3.3%	6	20%
Unemployed	2	6.7%	0	0%
Others	12	40%	12	40%
Religion				
Hindu	27	90%	26	86.7%
Muslim	1	3.3%	2	6.7%
Christian	0	0%	0	0%
Buddhist	2	6.7%	2	6.7%
Others	0	0%	0	0%

Table 2: Table showing Percentage wise distribution of cancer patients according to their clinical data

Clinical Data	Experimental Group		Control Group	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
n = 30 n = 30				
Location of cancer				
Gastrointestinal	8	26.7%	3	10%
Reproductive	13	43.3%	18	60%
Genitourinary	0	0%	0	0%
Endocrinal	0	0%	0	0%
Head and Neck	8	26.7%	8	26.7%
Musculoskeletal	0	0%	0	0%
Neurologic	0	0%	0	0%
Respiratory	1	3.3%	0	0%
Skin	0	0%	0	0%
Hematologic	0	0%	1	3.3%
Other	0	0%	0	0%
Staging of Cancer				
Stage I	20	70%	26	86.7%
Stage II	9	26.7%	4	13.3%
Stage III	1	3.3%	0	0%
Stage IV	0	0%	0	0%
Duration of cancer				
Recently diagnosed	27	90%	25	88.3%
Less than 1 year	3	10%	4	13.3%
1-2 years	0	0%	0	0%
3-4 years	0	0%	1	3.3%
>4 years	0	0%	0	0%
Present line of treatment for cancer				
Surgery	11	37 %	14	44.7%
Chemotherapy	18	60 %	16	53.3%
Radiation Therapy	0	0%	0	0%
Other	1	3.3%	0	0%
Problem in falling sleep				
Yes	27	90%	28	93.3%
No	3	10%	2	6.7%

Table 3: showing percentage wise Distribution of Cancer patients according their normal sleeping pattern

Quality of sleep	Experimental Group		Control Group	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
n = 30 n = 30				
Normally how long does it take you to fall sleep?				
0-15 min	1	3.3%	2	6.7%
16-30 min	14	46.7%	23	76.7%
31-45 min	13	43.3%	4	13.3%
>45 min	2	6.7%	0	3.3%
Normally how many hours of sleep you usually get in nights?				
2-4 hours	25	83.3%	20	66.7%

Cont...../-

5-7 hours	5	16.7%	10	33.3%
8-10 hours	0	0%	0	0%
>10 hours	0	0%	0	0%
Do you have any other illness that interfere with sleep?				
Yes	24	80%	16	53.3%
No	6	20%	14	46.7%
If yes then specify illness?				
n = 24	n = 16			
Pain	20	80%	3	10%
Emotional Stress	04	13.34%	5	16.7%
Gastrointestinal disturbances	0	0%	8	26.7%
Genitourinary disturbances	0	0%	0	00%
Obstructive Breathing	0	0%	0	0%
Restless leg syndrome	00	0%	0	0%
Other	00	0%	0	0%
n =30	n =30			
Which sleep inducing environment you prefer to fall sleep?				
Dark Room	23	76.7%	14	46.7%
Soft music	3	10%	1	3.3%
Cold room temperature	0	0%	0	0%
Warm room temperature	0	0%	0	0%
Silence	2	6.7%	10	33.3%
Other	1	3.3%	5	17%

Section II

Description on quality of sleep among cancer patients (pre-test)

Table 4: Table showing the frequency and percentage distribution on quality of sleep among cancer patient in experimental group and control group (pretest)

Quality of sleep	Experimental group		Control group	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Good (0-5)	0	0%	0	0%
Fair (6-10)	10	33.3%	16	53.3%
Poor(11-14)	20	66.7%	14	46.7%
Mean	11		10.1	
S.D.	2.12		2.24	

Section III

Description on quality of sleep among cancer patients in experimental and control group (posttest)

Table 5: Table showing the frequency and percentage distribution on quality of sleep among cancer patients after warm foot bath in experimental group and control group(Posttest)

Quality of sleep	Experimental group		Control group	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Good (0-5)	12	40%	0	0%
Fair (6-10)	18	60%	19	63.3%
Poor(11-14)	0	0%	11	36.7%
Mean	6.62		10.13	
S.D.	2.45		2.15	

Section IV

Description on the comparison post test score on quality of sleep among cancer patients in experimental group and control group. (Table 6) shows that warm the table shows the comparison of post test score on quality of sleep among cancer patients in experimental and control group. The Mean score in experimental group is 6.62 and standard deviation is 2.45. In control group the mean score is 10.13 and standard deviation is 2.15. values of mean score and standard deviation are compared and unpaired t- test was use dat 5% level of significance. The tabulated value for n=58 degree of freedom is 2.00. The calculated t-value is 9.92. The calculated 't' value is higher than the Tabulated 't' value at 5 percent level of significance which is

statistically acceptable level. Hence the research hypothesis H_1 is accepted and null hypothesis H_0 is rejected. Thus, it is statistically interpreted that there is a significant difference in quality of sleep among cancer patients in experimental group and control group. It foot bath is effective on improving quality of sleep among cancer patients in experimental group

Section V

Description on association of post test score with selected demographic variables. Analysis reveals that, no association were found with age, gender, education, occupation, and religion of cancer patients in either of the two group.

Table 6: The table show the comparison post test score on quality of sleep among cancer patient in experimental group and control group

Group statistics										
Group	n	Mean	Median score	S. D	Std. error Mean	Calculated 't' value	Tabulated value	't'	Df	P value
Experimental group	30	6.62		2.45	0.44	9.92	2.00		58	<0.05
Control Group	30	10.13		2.15	0.39					

Mean median score of quality of sleep in experimental and control group**Fig 2:** Bar diagram representing comparison of Mean median score of quality of sleep in experimental and control group.

Discussion

Phillip A, carried out a study on effect of foot bath on sleep quality among cancer patients. The sample size was 58 divided in experimental and control group. the effect of warm foot bath on quality of sleep among patients with cancer was assessed by Groningen sleep quality scale. Phillips A had given intervention of foot bath at bed time for 5 consecutive days to experimental group. Assessment on sleep quality scores among cancer patients after warm foot bath in experimental group On fifth day shows, 23 (82.1%) patients had normal sleep, 4 (14.3%) patients had disturbed sleep and 1 (3.6%) patient had poor sleep. In the control group, 2 (7.15%) patients had normal sleep, 8 (28.57%) patients had disturbed sleep and 18 (64.28%) patients had poor sleep. The effect of warm footbath on sleep quality among cancer patients in the experimental and control group on fifth day shows , the mean score of quality of sleep and standard deviation in the experimental group on fifth day is 3.96 and 1.7 respectively and in the control group is 8.07 and 1.70 respectively with mean difference of -4.11.that is found to be greater than the table value of 3.46 at 0.0001 level of significance. The result shows highly significant difference in the quality of sleep among cancer patients after warm foot bath. In present study, Finding shows that in experimental group after warm foot bath 12(40%) had good quality of sleep, 18(60%) had fair quality of sleep and none of the cancer patients had poor quality of sleep The mean median score on quality of sleep is 6.62 and standard deviation is 2.45. In control group, 11 (36.67%) had poor quality of sleep, 19(63.3%) had fair quality of sleep and none of the cancer patients had good quality of sleep. The mean median score on quality of sleep is 10.13 and standard deviation is 2.15. Mean median score and standard deviation values are compared and unpaired t- test is used at 5percent level of significance. The tabulated value for n=58 degree of freedom is 2.00. The calculated t-value is 9.92 The calculated 't' value is higher than tabulated 't' value at 5% level of significance which is statistically acceptable level of significance. Hence the research hypothesis H_1 is accepted and null hypothesis H_{01} is rejected. Thus, it is statistically interpreted that there is a significan't difference in quality of sleep among cancer patients in experimental group and control group. It shows that warm foot bath is effective on improving quality of sleep among cancer patients.

Conclusion

After the detailed analysis, this study have following conclusion that there is significant difference in quality of sleep in cancer patients in experimental group and control group It shows that warm foot bath is effective on improving quality of sleep among cancer patients

Implications of The Study

Nursing practice

In nursing clinical practice this research will help as independent nursing intervention to reduce insomnia in cancer patients. This will help nurses in giving palliative care to cancer patients. This can also help other patients who is suffering from sleep disturbance. This technique can be used by cancer patients in home to alleviate sleep disturbance

Nursing education

The results can be used by nursing teachers as an informative illustration for nursing students while teaching palliative care to cancer patients suffering from sleep disturbance Other researcher may utilize the suggestion and recommendation for conducting further studies.

Nursing research

The tool, technique and review of literature can provide an avenue for further research studies. It certainly increases the body of knowledge and can be used as reference material for the future. The suggestions and recommendations can be utilized by other investigator for conducting further research studies in the same area.

Nursing administration

She/ He should communicate this knowledge to the clinical staff and ensure practice of use warm foot bath to reduce insomnia in cancer patients

Limitations

- The sample size was small to generalize the findings of the study. The study was conducted only on admitted patients.
- Only plain water is used for warm foot bath. Any medicine to clean foot could have been used

Recommendations

- A similar study can be replicated on a large number of populations for a generalization.
- A similar study can be done using one group

pretest post-test only design.

- A similar study can be conducted using warm foot bath in experimental group and other alternative like foot reflexology therapy for control group.

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