

## Effectiveness of warm water foot bath on quality of sleep among patients in a selected hospitals at Guntur Andhra Pradesh

**INTRODUCTION:** Cancer is a group of diseases characterized by the uncontrolled growth and spread of abnormal cells. If the spread is not controlled, it can result in death. Cancer is caused by both external factors like tobacco usage, infectious organisms, chemicals, radiation and internal factors like inherited mutations, hormones, immune conditions, and mutations that occur from metabolism. **AIM OF THE STUDY:** Aim of the study to assess effectiveness of warm water foot bath on quality of sleep among patients with cancer. **METHODOLOGY:** A true experimental pre test only control group design was carried out among 60 patients with cancer from American Oncology Institutions, Pedakakani, Guntur, Andhra Pradesh, selected by Simple Random Sampling Technique using Groningen Sleep Quality Scale (GSQS). The conceptual framework was adopted **Modified Widen Bach's Helping Art of Clinical Nursing Theory. PILOT STUDY AND DATA ANALYSIS:** Pilot study was conducted with twelve samples. The statistical value  $r=0.75$  shows, the tool was highly reliable, based on this the main study was conducted with the sample size 60 (Male 34, Female 26) **RESULTS:** It was identified that the mean value of quality of sleep among patients with cancer in the Experimental and Control group was 6.29 (SD=2.19) and 8.52 (SD=1.99) respectively with a mean difference - 2.26. The calculated 't' value 4.35 was found to be greater than the table value of 2.04 at 0.05 level of significance. Hence it shows that there is highly significant difference in the quality of sleep among patients with cancer after warm water foot bath in the Experimental group. **CONCLUSION:** Warm Water Foot Bath was found to be effective in inducing sleep patients with cancer. **KEY WORDS:** Effectiveness, warm water foot bath, quality of sleep, patients with cancer.

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### I. Introduction

*Yesterday I Dare To Struggle, Today I Dare To Win" -Bernadette Devilin*

#### 1.1. Background of the study:

He who has health has hope, and he who has hope has everything. A life without health is like a river without water. The secret of health for both mind and body is no to mourn for the past, worry about the future, or anticipate troubles but to live in the present. To keep body in good health is a duty otherwise we shall not be able to keep our mind strong & clear. Health is something that should be taken into serious consideration and also it become one of the most concerned issues of human being<sup>1</sup> Cancer is a group of diseases characterized by the uncontrolled growth and spread of abnormal cells. If the spread is not controlled, it can result in death. Cancer is caused by both external factors like tobacco usage, infectious organisms, chemicals, radiation and internal factors like hormones, immune conditions, and mutations that occur from metabolism<sup>2</sup> Warm water foot bath is local moist heat application. It is non invasive and easy to apply at home. Findings provide empirical support that a warm water foot bath in fatigue and insomnia problems of patients undergoing chemotherapy. It can be a non pharmaceutical method to help patients overcome fatigue and sleep problems during chemotherapy

**American Cancer Society (2018)** declares one third of cancer deaths are due to the 5<sup>th</sup> leading cause for behavioral and dietary risks such as high body mass index, less intake of fruits and vegetables, lack of physical activity, tobacco and alcohol addiction. Tobacco is the most important risk factor for cancer causing around the world 20% of cancer deaths and 70% of lung cancer deaths occurs globally. Cancer causing viral infections such as HBV/HCV and HPV are responsible for up to 20% of cancer deaths in low- and middle-income countries. It is expected that annual cancer cases will rise from 14 million in 2019 to 2022 within the next 2 decades<sup>4</sup>

#### 1.2. Need for the study

*"Water is life's matter and matrix, mother and medium. There is no life without water.-Gyorgyi. M.D.*

Sleep may not come easily to many cancer patients. People with cancer face not only the physical consequences of the disease and its treatment, but often tremendous emotional upheaval. Since physical illness

and psychological distress both predict insomnia, cancer patients may be prone to sleep difficulties. When cancer patients are surveyed about their concerns, sleep difficulty typically

**Indian Council of Medical Research (ICMR) (2018)** As per the data of ICMR about 48,000 patients out of them 20,235 in Telangana and 28,082 in Andhra Pradesh at Visakhapatnam died from various types of cancer. The number of cancer cases is increasing with every passing year in the two Telugu states. Mortality rates are also high with about 50 per cent cancer patients succumbing to the disease. It was estimated that about 17 percent of cancer patients approach hospitals with end stage cancer. India would have about 1.73 million new cancer cases 0.88 million cancer related deaths by 2020. One out of eight men may possibly contract cancer. One out of nine women has the possibility of developing cancer in her lifetime. Over 7.36 lakh people may succumb to the disease in 2016. The figure is likely to reach 8.8 lakh by 2020.<sup>12</sup>

Here the need for complementary therapy like biofeedback, aromatherapy, relaxation techniques, herbal remedies, massage, acupuncture, meditation and exercise emerge. Footbath is one of the effective methods for inducing sleep. Thermoregulation exhibits powerful interaction with sleep. By considering the factors stated above, the researcher is interested to select warm footbath in order to improve the quality of sleep among patients with cancer.

### **1.3. STATEMENT OF THE PROBLEM**

A Study To Assess The Effectiveness Of Warm Water Foot Bath On Quality Of Sleep Among Patients With Cancer In Selected Hospitals At Guntur District, Andhra Pradesh.”

### **1.4. OBJECTIVES OF THE STUDY**

- To assess the quality of sleep among patients with cancer before and after administration of warm water foot bath.
- To evaluate the effectiveness of warm water foot bath on quality of sleep among patients with cancer by comparing pre and post test scores.
- To determine the comparison between the post test scores on quality of sleep among patients with cancer and their selected demographic variables in control and experimental group.

### **1.5. HYPOTHESES**

**H<sub>1</sub>:** There will be a significant difference on quality of sleep among patients with cancer after administration of warm water foot bath at 0.05 level of significance.

**H<sub>2</sub>:** There will be comparison between pre test scores regarding quality of sleep among patients with cancer and selected demographic variables at 0.05 level of significance.

### **1.6. ASSUMPTIONS**

- Warm water foot bath has an influence on quality of sleep
- Warm water foot bath has no potential side effects on patients with cancer
- Warm water foot bath is a simple and cost effective measure to improve the quality of sleep among patients with cancer
- Patients with cancer may have basic knowledge on Warm water foot bath.
- Warm water foot bath will stimulate blood circulation, re – energize, reduce inflammation and keep self relaxed and induces the sleep.

### **1.7. Delimitations**

The study is limited to patients with patients with cancer in a selected Hospital, Guntur

### **1.8. Operational definitions**

**Effectiveness:** It refers to the change in the quality of sleep after administration of warm water foot bath.<sup>18</sup>

**Warm water foot bath:** It refers to the immersion of feet and ankle at a temperature ranging from 40 °c - 44 °c for 10 minutes at bed time for 5 consecutive days in order to assess the quality of sleep on first and fifth day.<sup>19</sup>

**Quality of sleep:** It refers to subjective feeling of the patient regarding duration of sleep, depth of sleep and how well they rested previous night at assessed by Groningen sleep quality scale.<sup>20</sup>

**Patients with cancer:** It refers to the adult patients who are diagnosed with all type of cancers and who admitted in the hospital for 5 days.<sup>21</sup>

## II. Review Of Literature

In order to accomplish the goal of the present study the reviews have been organized under the following headings

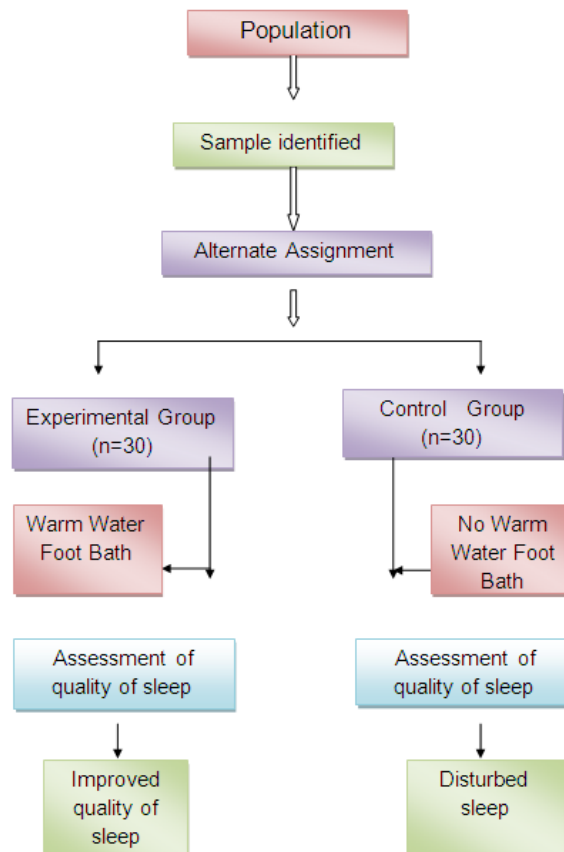
Review of literature related to prevalence of cancer

Review of literature related to quality of sleep among patients with cancer

Review of literature related to effectiveness of warm water foot bath.

Review of literature related to effect of warm water foot bath on quality of sleep among patients with cancer.

## III. Methodology



**Figure No.2: Schematic Representation of Research Design Process**

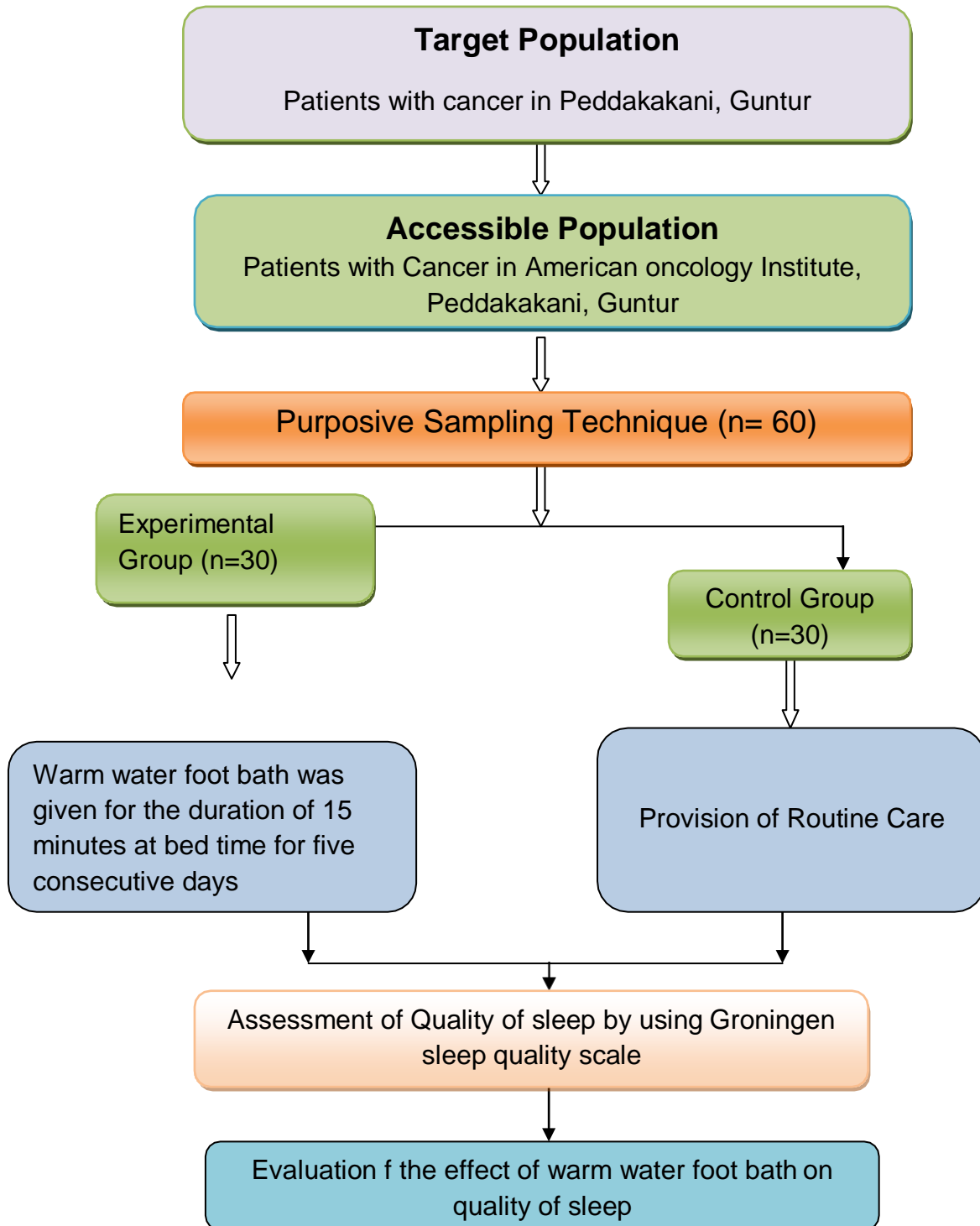


Figure No. 3: Schematic Representation of Research Design

### 3.4. Criteria for sampling selection

#### 3.4.1. Inclusion criteria

The sample includes who are

- Clients with no pain and mild pain as measured by using numerical pain rating scale.
- Clients without nausea & vomiting and mild nausea/ vomiting as measures by using nausea and vomiting score.

### **3.4.2. Exclusion criteria**

*The sample excludes who are*

- Clients who are unconscious and critically ill.
- History of taking medications that have undergone surgery patients with cancer.

### **3.5. Development and description of tool**

The demographic variables and clinical variables were framed by using the expert opinion and the literatures and following tools were used for the data collection.

Part-I: Demographic variables and clinical variables

Part-II: Groningen Sleep Quality Scale

*Part-I: Demographic variables and clinical variables*

A demographic variable consists of sample No, age, gender, ward, educational status, occupation, and monthly income.

Clinical variables consists of diagnosis, family history of cancer, co-morbid illness, number of chemotherapy cycles, number radiation cycles, laboratory findings, techniques used for sleeping at home and influencing factors that affect the sleep.

*Part-II: Groningen Sleep quality scale*

This tool was developed in Groningen by Mulder-Hajonides Van Der Meulen et.al in 1980. The outcome measure was quality of sleep and it is assessed by using the fourteen item Groningen sleep quality scale 1980. GSQS scores range from 0-14 a higher score indicating a lower subjective quality of sleep. These statements are related to patients feeling about the difficulty in falling asleep, sleep fragmentation duration of sleep and early morning awakening.

**Scoring:** The first question out of the fifteen does not count for the total score.

**One point :** If answer is true for question 2,3,4,5,6,7,8,11,13,14,15.

**One point:** if answer is false for question 9, 10, 12.

*Interpretation:*

**Total score -14**

**Score 0 to 5 :** undisturbed or uninterrupted sleep last night.

**Score 6 to 7 :** Disturbed sleep last night.

**Score 8 to 14:** indicating for sleep to night before.

### **Warm Water Foot Bath**

*Articles*

1. Steel basin
2. Jug
3. Lotion Thermometer
4. Covering sheet

*Procedure*

Explained the procedure to the patient and informed consent was obtained. The patient was asked to sit in a comfortable position and all the materials were assembled near the patient. The basin was filled with hot water. By using lotion thermometer the temperature of the water was checked. The temperature of the water was maintained between 40-44°C. Patients tolerance was checked by allowing them to touch the water by using their palms. Then the patient was instructed to immerse the foot till the ankles. The patient was covered with a sheet and warm foot bath was given for 15 minutes for five consecutive days. The temperature of the water was checked in between the procedure. Hot water was added when the water cools. The patient was instructed to dry the legs after the procedure.

#### IV. Data Analysis And Interpretation

This chapter deals with the analysis and interpretation of data collected from 60 patients with cancer. The aim of the study was to determine the effect of warm water foot bath on quality of sleep among patients with cancer at selected hospitals, in Guntur, Andhra Pradesh. A total number of 60 patients were selected by using purposive sampling technique. The total samples were alternatively assigned to the experimental group and control group. The experimental group received warm water foot bath and the control group received routine care. Quality of sleep was assessed using Groningen sleep quality score. Descriptive and inferential statistical methods were employed to organize and analyze the data.

##### Section-I

#### 1. Frequency and Percentage distribution of demographic variables on quality of sleep among patients with cancer

n=60

S.no	Demographic variables	Experimental group		Control group	
		Frequency	Percentage	Frequency	Percentage
I	Age in years a.21-30 years	2	6.7	01	3.3
	b.31-40 years c.41-50 years	4	13.3	03	10.0
	d.51 and Above	9	30.0	15	50.0
		15	50.0	11	36.7
II	Gender				
	a. Male	17	56.7	20	66.7
	b .Female c.Transgender	13	43.3	10	33.3
III	Marital status				
	a. Married	18	60.1	23	76.7
	b. Single	4	13.3	04	13.3
	c. Divorced	4	13.3	03	10.0
	d. Widow/Widower	4	13.3	0	0
IV	Educational status				
	a. Illiterate	8	26.7	07	23.3
	b .Primary &High school	10	33.3	10	33.3
	c. Higher secondary	10	33.3	07	23.3
d. Graduation &above	02	6.7	06	20.1	
V	Occupation				
	a. Private job	2	6.7	03	10.0
	b. Unemployed	17	56.7	14	46.7
	c. Government job	6	20.0	09	30.0
d.Self employed	5	16.6	04	13.3	
VI	Monthly income a.Rs.5000-10,000/- b.Rs.10,000-20,000/- c.Rs.20,000-30,000/- d.Rs.30,000/- & above	8	26.7	04	13.3
		14	46.7	13	43.3
		4	13.3	09	30.1
		4	13.3	04	13.3
VII	Duration of present illness				
	a.Less than 1 year b.01- 10 years c.11-20 years	7	23.3	06	20.0
	d.21 years and above	17	56.7	19	63.3
		5	16.7	04	13.3
	1	3.3	01	3.4	
VIII	Family history				
	a. Yes	6	20.0	26	86.7
	b. No	23	76.7	04	13.3
c. If Yes specify	1	3.3	0	0	
IX	Diet				
	a. vegetarian	4	13.3	03	10.0
	b. Non Vegetarian	9	30.1	03	10.0
	c. Mixed	16	53.3	20	66.7
d. Liquid	01	3.3	04	13.3	

X	<b>Previous Source of Information regarding Cancer</b>	04	13.3	04	13.3
	a. Printed media	05	16.7	02	6.7
	b. Electronic media	13	43.3	16	53.3
	c. Health Personnel	08	26.7	08	26.7
	d. Family and Neighbors				

**Table : 2 Clinical variables among patients with cancer**

S. NO	CLINICAL VARIABLES	Experimental group		Control group	
		Frequency	Percentage	Frequency	Percentage
I	<b>Laboratory test</b>				
	a.CBC	01	3.3	06	20.0
	b.Culture	03	10.0	11	36.7
	c.Biopsy d.Any other	26	86.7	02	6.6
II	<b>Co morbid illness</b>				
	a.Hypertension	06	20.0	06	20.0
	b.Diabetes Mellitus	11	36.6	06	20.0
	c.Bronchial asthma d.Any other specify	02	6.8	07	23.3
III	<b>Number of chemotherapy</b>				
	a.0-5 cycle	13	43.3	12	40.0
	b.6-10cycles	14	46.7	12	40.0
	c.11-15 cycles	03	10.0	04	13.3
IV	<b>Hours of sleep per day</b>				
	a.Half an hour-1 hour	20	66.7	00	00
	b 2hours-4hours	09	30.0	15	50.0
	c.5hours-7 hours	01	3.3	15	50.0
V	<b>The following can result from not getting sleep</b>				
	a.Diarrohoea.	00	00	00	00
	b.Blurred vision	13	43.3	07	23.3
	c.Low grade fever d.All of the above	16	53.3	18	60.0
VI	<b>Techniques used to induce sleep at home</b>				
	a. Music and reading	07	23.3	07	23.3
	b.Home Gardening	07	23.3	07	23.3
	c.Meditations &Yoga	08	26.7	11	36.7
VII	<b>Any influencing factors</b>				
	a.Noise and light	08	26.7	05	16.7
	b. Stress and Pain	03	10.0	01	3.4
	c.Nausea and vomiting d.Any other, Specify	12	40.0	07	23.3
VIII	<b>History of insomnia</b>				
	a.Yes	11	36.7	01	3.3
	b.No	18	60.0	28	93.4
	c.If yes specify	1	3.3	01	3.3
IX	<b>Disorders &amp; chronic sleep loss linked which of the following</b>				
	a.Heart Disease b.stroke	10	33.3	04	13.3
	c.Highblood Pressure d.Any other specify	16	53.3	10	33.3
		04	13.4	16	53.4
	00	00	00	00	

**Table 5:** Comparison on quality of sleep among patients with cancer in experimental and control group

S.NO	QUALITY OF SLEEP	No. of Patients							
		Experimental Group				Control Group			
		First day		Fifth day		First day		Fifth day	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage

1	Normal sleep	0	00	26	86.66	0	00	2	6.67
2	Disturbed sleep	0	00	4	13.34	0	00	0	00
3	Poor sleep	30	100	0	00	30	100	28	93.33

**Table 6:** Comparison on sleep quality scores among patients with cancer in experimental and control group

S.NO	SLEEP QUALITY SCORE	No. of Patients							
		Experimental Group				Control Group			
		First day		Fifth day		First day		Fifth day	
		Frequency	Percentage %	Frequency	Percentage %	Frequency	Percentage %	Frequency	Percentage %
1	0-5	0	00	26	86.66	0	00	0	00
2	6-7	0	00	04	13.34	0	00	0	00
3	8-14	30	100	00	00	30	100	30	100

## V. Summary, Discussion, Implications, Limitations, Recommendations, Conclusion

### 5.1 Nursing Implications

The findings of the study have several implications for nursing education, nursing practice, nursing administration and research. The implications which have been made in the present study are of vital concern to the professional practitioners, nurse, educators in the hospitals.

#### 5.6.1 Nursing Education

- The nursing curriculum should include the warm footbath as a complementary therapy, since warm water foot bath is effective in improving the quality of sleep among patients with cancer.
- Nurse educators need to have knowledge and awareness on warm footbath, as it is an effective measure to improve the quality of sleep.
- Steps should be taken to include the assessment of sleep among patients with cancer to meet their need.

#### 5.6.2 Nursing Administration

- Nurse administrators can motivate the nurses to assess the sleep among patients with cancer and provision of warm footbath to improve their quality of sleep.
- Nurses can update the knowledge about various complementary therapies which are useful for clinical practice through in-service and continuing education.

#### 5.6.3 Nursing Practice

- The nurse working in the hospitals should be trained to assess the quality of sleep and identify the disturbance in quality of sleep among patients with cancer and its consequences and the implementation of warm footbath to improve the quality of sleep as adjunctively to other pharmacological treatment to promote comfort and well being and a faster recovery.

#### 5.6.4 Nursing Research

- The study has tested the effectiveness of warm footbath in improving the quality of sleep among patients with cancer. There is a great need of research to be conducted in the areas of sleep disorders among patients with cancer.
- Non pharmacological nursing interventions like warm footbath. The nursing research need to focus more on the evidence based and holistic practice through understanding the various techniques that can bring improvement in quality of sleep among patients with cancer.
- The nursing research is intended to offer, up to date suggestions in implementing warm footbath as one



of the nursing intervention and thus it is an affordable and effective way for improving the quality of sleep.

## **5.2 Limitations**

The study was limited to:

- The sample size of present study was only 60 patients with cancer hence generalization of the findings was limited.
- Study results are confined to a selected hospitals in Guntur which is possibly decrease credibility of the study.
- In this study control group has no intervention so the samples expressed their feelings.

## **5.3 Recommendations**

Based on the study findings following recommendations were drawn:

- The findings of the study serve as a basis for the student nurses to conduct future studies regarding warm water foot bath.
- Student nurses can practice in the clinical areas this procedure for all the patients with cancer in order to induce sleep.
- The study can be replicated in different settings with larger samples for the generalization of the findings.

## **VI. Conclusion**

Cancer has a reputation as deadly disease. People with cancer often undergo physical and an emotional disturbance due to their diagnosis of cancer. Disturbed sleep has functional consequences as it has been associated with poor quality of life. Non-Pharmacological interventions such as complimentary treatments produce reliable changes in sleep patterns among patients with cancer. Warm water foot bath gives a good sleep, by relaxing body and mind. According to the present study conducted, warm water foot bath resulted in improved quality of sleep among patients with cancer. This indicates that warm water foot bath is an important non pharmacological method to enhance the quality of sleep among patients with cancer.

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