

Therapeutic Back Massage on the Quality of Sleep among Hospitalized Patients with Sleep Pattern Disturbances

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Abstract: Introduction: During hospitalization sleep of person can easily be changed by illness or hospital routines. Promoting rest and sleep is integral to the profession of nursing. A study was conducted to assess the effectiveness of therapeutic back massage on the quality of sleep among hospitalized patients with sleep pattern disturbances in K.G hospital, Coimbatore. **Objectives:** 1) Assess sleep pattern of experimental and control group 2) Administer therapeutic back massage to experimental group. 3) Re-assess quality of sleep after therapeutic massage on experimental group. 4) Compare effectiveness of therapeutic back massage between experimental and control group. 5) Associate the findings with selected demographic variables. **Methodology:** Research approach used was quantitative; design was quasi experimental-Pretest-posttest control group. The sample size was 40 hospitalized patients, selected by purposive sampling. Data was collected using semi-structured scale for assessing sleep habit and Richards Campbell sleep questionnaire to assess the quality of sleep before and after the intervention of back massage for 3 days. **Results:** In experimental group pretest sleep score, 2(10%) of them had inadequate sleep and 18(90%) of them had poor sleep. In control group 7(35%) of them had inadequate sleep and 13(65%) of them had poor sleep. In third day of posttest 4(20%) of them had adequate sleep, 16(80%) of them had fairly adequate sleep in experimental group. While comparing posttest sleep score between the groups, calculated value of 'Z' > tabulated value of 'Z' at 5% level of significance. **Conclusion:** This shows that the back massage was effective in improving quality of sleep in hospitalized patients with sleep pattern disturbance. Based on these findings, nurses can adopt back massage as a simple nursing intervention to promote the well-being and to prevent complications of sleep deprivation. **Key words:** Effectiveness, Therapeutic back massage, Quality of sleep, Patients Sleep pattern disturbance

Date of Submission: 11-11-2019

Date of acceptance: 27-11-2019

I. Introduction

Sleep is a basic human need^[1]. Sleep disturbances occur in about 12% to 25% of the general population and are often associated with situational stress, illness, aging, and drug treatment^[2]. The sleep of hospitalized patients is likely to be frequently interrupted by treatment schedules, hospital routines, and roommates, which singularly or collectively alter the sleep-wake cycle^[3]. Disturbed sleep has multiple negative effects including altered immune function, altered metabolic and endocrine function, altered wound healing, etc^[4].

Non-pharmacological interventions are gaining popularity among all fields of medicine^[5]. Slow-stroke back massage has been traditionally used by nurses to promote relaxation and sleep. The promotion of non-pharmacological sleep interventions among patients to be a promising move forward with the expectation of nurses to work closely with their patients to assess, review and meet individual sleep needs^[6]. Approximately 5 to 10 minutes of massage inhibits the sympathetic nervous system and induces the relaxation response, reducing heart rate, respiratory rate, muscle tension, and oxygen consumption. Slow-stroke back massage can decrease pain and anxiety, and promote sleep^[7].

Tamsin Lane and Linda Anne East had done a descriptive study to assess factors which disturb sleep and describing patients' experiencing sleep disturbance. Seventeen patients participated in the study, showing a response rate of 71%. Environmental factors were found to be strongly correlated with sleep disturbance with a Pearson's coefficient of +0.795. Personal factors were also found to be correlated with sleep disturbance although, with a Pearson's coefficient of +0.590, not as strongly as environmental factors. This study revealed that environmental noise, pain and tension were most likely to disturb the sleep of surgical patients^[8].

Gaston R. has done a descriptive study to assess the sleep quality, sleep loss and long term blood sugar levels, as measured by Hb A1C in the blood. 161 African American with type II diabetes were interviewed for this study. This study concludes that sleep duration and quality are significant predictors of HbA1c levels^[9].

Mc Dowell J A has done a prospective study to determine whether a non pharmacological approach to treat sleep disturbances in hospitalized patients was feasible and effective. A total of 539 patients older than 70 years were selected for this study. The sleep protocol included back rubs, warm drinks and relaxation music. As

the number of portions of sleep protocol increased then the quality of sleep also improved. The sleep protocol had a stronger association with quality of sleep ($p=.75$, $p=.001$) than did sedative hypnotic medications ($p=.07$, $p=.45$). The study concludes that there was a significant reduction in the number of sedative hypnotic medications usage after the non pharmacological interventions^[10].

Williams, T I has done a study among twelve children with autism and learning difficulties in a residential school using repeated measure design. Aroma therapy massage was given for three nights using lavender oil. The children were checked every thirty minute throughout the night to determine the time taken to sleep, the number of awakenings and the sleep duration. Three nights were compared to the fourteen nights when the massage therapy was not given. Repeated measures analysis revealed no difference in any of the nights, without massage therapy. The result suggests that massage therapy with lavender oil have beneficial effects on sleep patterns of children with autism^[11].

Sangeeta MacCune has done a quasi experimental study to determine the effect of back massage in quality of sleep. Consecutive sampling technique was used for selecting samples of 30 patients each for experimental as well as control group. The subjects in the experimental group had good sleep of 73.3%, whereas sleep quality deteriorated in the 36.7% subjects and 63.33% subjects slept for more than 5 hours at night. This study concludes that Back massage is perceived by patients as soothing, relaxing and effective sleep-inducing measure^[12].

Regi Varghese has done a comparative study to assess the effectiveness of Therapeutic Back massage and Music therapy on the quality of sleep among hospitalized patients with inadequate sleep in Fr. Muller Medical College. The sample consisted of 15 subjects (Group I who were given back massage) and 15 subjects (Group II – who were given music therapy) were selected by purposive sampling technique. The subjects with inadequate sleep were selected by using an interview schedule. Fifteen subjects were given Back Massage. After 15 days Group II subjects were selected & given Music therapy in the same manner. The study concludes that back massage therapy is more effective than music therapy to promote the quality of sleep^[13].

II. Material And Methods

This study was conducted in the medical wards of K.G. Hospital, Coimbatore. K.G. Hospital is a multi specialty hospital I August 2010. A total 40 adult subjects (both male and females) of 30-80, years were for in this study.

Study Design: Quasi experimental study

Study Location: This was a multispeciality hospital based study done in medical wards of K. G. Hospital, Coimbatore, Tamil Nadu.

Study Duration: August 2010(4 weeks)

Sample size: 40 patients.

Sample size calculation: Purposive sampling technique was adopted for this study. The number of patients admitted in the medical wards of K. G. Hospital was 150. Keeping this baseline data, aggregate sample size was determined by using Mahajan's formula as follows: Sample size, $n = 4pq/L^2$. The population for the study is 150. Target population of the study is 100. According to this the investigator adopted to have 40 samples for the study.

Inclusion criteria:

1. Patients who were having inadequate sleep for 1-2 days after hospitalization.
2. Patients who could speak Tamil or English

Exclusion criteria:

1. Unconscious patients
2. Patients who are taking analgesics or sedation
3. Post operative patients like abdominal surgeries, thoracic surgeries, and orthopedic surgeries.

Data collection instruments: The tool consisted of:

Section –A: It consist of demographic data such as age, gender, number of days stayed in hospital and present diagnosis

Section –B

TOOL I: Scale for general pattern of sleep containing 10 questions for the selection of samples with sleep pattern disturbance. The total score is 19. The score was categorized in to: Adequate sleep: <9, Fairly adequate sleep: 9-14, Inadequate sleep: 15-1.

TOOL II: Richards Campbell sleep questionnaire to assess the quality of sleep of the hospitalized patients with sleep pattern disturbances. The state items of the Richards Campbell sleep questionnaire measured the quality of sleep among hospitalized patients with sleep pattern disturbances.

Patients mark their quality of sleep in the ten point visual analogue scale in response to the Richard Campbell sleep questionnaire. The score ranges from 0-50. The sleep score was categorized in to: Adequate sleep: 0-12, Fairly adequate sleep: 13-24, Inadequate sleep: 25-37, Poor sleep: 38-50

Procedure methodology

The investigator selected the control group first and collected the demographic data by using a structured interview schedule. Then a scale for general sleep pattern was used to identify the samples with sleep pattern disturbance. After that quality of sleep was assessed by using Richard Campbell sleep questionnaire. The routine care was provided to the control group.

Then the investigator selected the experimental group and collected the demographic data by using a structured interview schedule. Then a scale for general sleep pattern was used to identify the samples with sleep pattern disturbance.

After the pre assessment was performed to know the quality of sleep using Richard Campbell sleep questionnaire. Then the investigator administered 15 minutes therapeutic back massage by using effleurage, petrissage, friction, kneading and frolement methods along with routine care before their bed time. For each sample the intervention was given for three days. The post assessment was performed at 7 am of the next day.

Back Massage Techniques

Step 1(Effleurage)

- Place the entire surface of the hands on both sides of lower spine. Begin massaging the sacrum using three firm circular motion
- Slowly move upwards towards the shoulder using firm circular motions.
- Move the hands across the shoulder blades towards the upper arm using a slow smooth stroke.
- Bring both hands simultaneously down towards the sacrum using smooth and light stroke.

Step 2(Petrissage)

- Lift and gently compress the tissue with thumb and fingers of both hands starting at the base of the spine on either side.
- Gently move upwards towards the neck.
- Continue across the shoulders.
- Continue downwards along each side of the sacrum.

Step 3(Friction)

- Make small circular strokes using the thumb on either side of the spine and slowly move upwards towards the neck.
- Bring the hands down towards the sacrum.

Step 4 (kneading)

- Pull the skin in opposite direction.
- Lift and stretch skin from the base of the spine to the shoulder areas.
- Bring the hands down towards the sacrum, by the same movements.

Step 5(Frolement)

- Lightly stroke the back using finger tip starting from the sacrum towards the neck and shoulder blade.
- Continue moving the fingers downwards, gradually lightening the pressure

End the massage by repeating the first step once again. Assisted the client to resume comfortable position.

Statistical analysis

Data analyzed on the basis of objectives and hypothesis by using descriptive and inferential statistics. The sleep scores in both groups analyzed in terms of frequency, percentage, mean and standard deviation. Paired 't' test used to compare the pre test and post test scores in experimental group. The comparison of experimental and control group post test scores determined using 'Z' test. Chi square was used for associating the findings with selected demographic variable.

III. Result

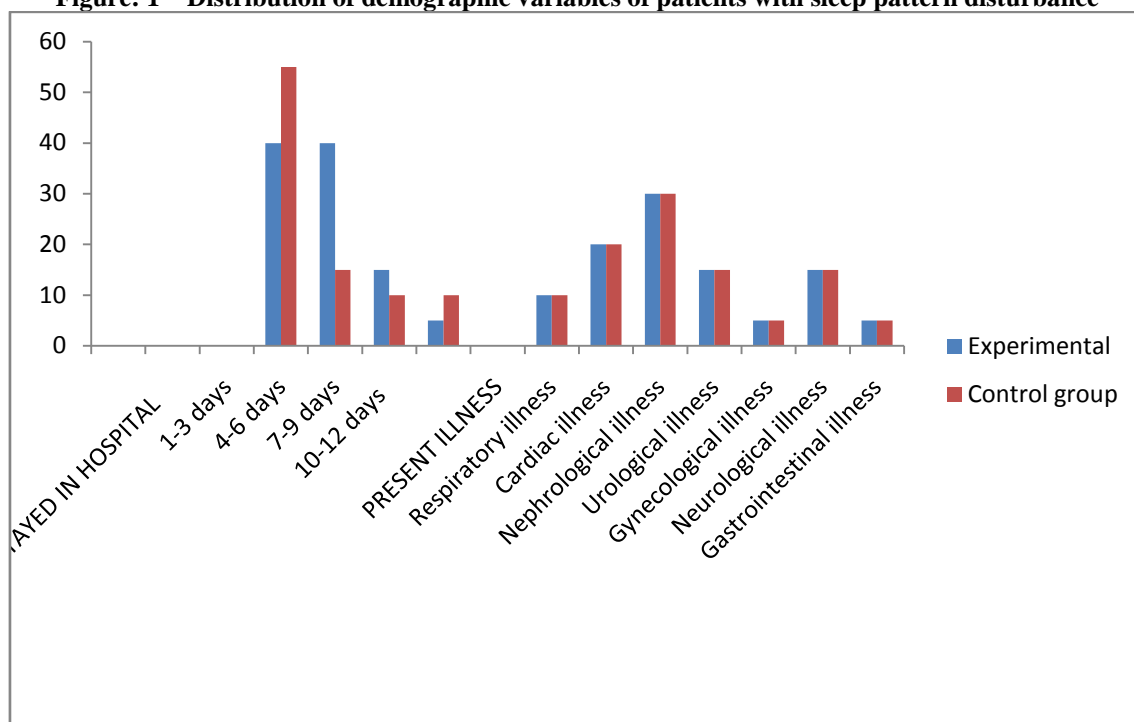
Section - 1

Distribution of demographic data of patients having sleep disturbance

Among 40 subjects the age of the subject, in experimental group, majority 8(40%) was between 71-80 years. In control group majority 9(45%) were between 41-50 years. With regard to sex in experimental group 11(55%) were males and 9(45%) were females. In control group 9(45%) were males and 11(55%) were females. With regard to number of days stayed in hospital, in experimental group majority 8(40%) were between 1-3 days and 4-6 days. In control group majority 11(55%) were between 1-3 days. With regard to present illness, in

experimental group majority 6(30 %) of them had nephrological illness. In control group majority 6(30%) of them had nephrological illness.

Figure: 1 Distribution of demographic variables of patients with sleep pattern disturbance



Section – 2

Distribution of general sleep pattern score in both the groups

In experimental group, general sleep pattern score 3(15%) of them had inadequate sleep, 17(85%) of them had fairly adequate sleep. In control group 1(5%) had inadequate sleep, 19(95%) of them had fairly adequate sleep.

Table 2 : Distribution of general sleep pattern score in both the groups.

Sl. No	Sleep score	Experimental Group		Control group	
		No	%	No	%
1	Inadequate Sleep (15-19)	3	15	1	5
2	Fairly Adequate sleep (9-14)	17	85	19	95
3	Adequate sleep (<9)	-	-	-	-

Distribution of pre test sleep score in both the groups

In experimental group pretest sleep score, 2(10%) of them had inadequate sleep and 18(90%) of them had poor sleep. In control group 7(35%) of them had inadequate sleep and 13(65%) of them had poor sleep.

Table 3:

Sl. No	Sleep score	Experimental group		Control group	
		No	%	No	%
1	Adequate sleep (0-12)	-	-	-	-
2	Fairly adequate (13-24)	-	-	-	-
3	Inadequate sleep (25-37)	2	10	7	35
4	Poor sleep (38-50)	18	90	13	65

Section 3: Distribution of pre test and post test sleep score within the experimental group

In first day of posttest 1(5%) had fairly adequate sleep, 15(75%) of them had inadequate sleep, 4(20%) of them had poor sleep in experimental group. In second day of posttest 3(15%) of them had fairly adequate sleep, 17(85%) of them had inadequate sleep in experimental group. In third day of posttest 4(20%) of them had adequate sleep, 16(80%) of them had fairly adequate sleep in experimental group.(Table 4)

Sl. No	Sleep score	Pre test		Post test					
				Day 1		Day 2		Day 3	
		No	%	No	%	No	%	No	%
1	Adequate sleep (0-12)	-	-	-	-	-	-	4	20
2	Fairly adequate (13-24)	-	-	1	5	3	15	16	80
3	Inadequate Sleep(25-37)	2	10	15	75	17	85	-	-
4	Poor sleep (38-50)	18	90	4	20	-	-	-	-

Comparison of pre test and post test sleep score within the experimental group

There is significant difference in the mean score of sleep pattern within the experimental group($t=2.09, p<0.05$). The results concluded that the back massage was not effective immediately after the intervention and it was effective after repeated intervention in improving the quality of sleep in hospitalized patients with sleep pattern disturbance.

Sl. No	Sleep score	Pre test		Post test		Calculated value of 't'	Tabulated value of 't' at 5% level
		Mean	SD	Mean	SD		
1	DAY 1	40.6	3.54	33.6	4.28	0.65	2.09
2	DAY 2	33.6	4.28	26.55	4.06	8.35	
3	DAY 3	26.55	4.06	16.1	3.53	13.24	

Comparison of post test sleep score between the groups

When comparing the posttest sleep score between the groups, the calculated value of 'Z' is greater than the tabulated value of 'Z' at 5%level of significance.This shows that there is a significant difference in the quality of sleep between the experimental and control group.

Sl. No	Parameter	Experimental Group		Control group		Calculated value of 'z'	Tabulated value of 'z' at 5% level
		Mean	SD	Mean	SD		
1.	Sleep Score	16.1	3.53	39.5	4.03	4.87	1.96

IV. Discussion

Section 1

To assess the sleep pattern of experimental and control group

The findings of the study shows that majority of hospitalized patients had sleep pattern disturbance.In experimental group pretest sleep score, 2(10%) of them had inadequate sleep and 18(90%) of them had poor sleep. In control group 7(35%) of them had inadequate sleep and 13(65%) of them had poor sleep.

This points out the need for complimentary therapies like back massage to improve sleep pattern. This finding is supported by a study conducted by Chan Yuen Lee, et al., to assess the sleep pattern disturbance of hospitalized patients. The findings demonstrated that during hospitalization sleep pattern disturbance and deprivation

results in all informants who experienced dynamic changes in their sleeping patterns. The perceived sense of helplessness and public nature of the ward environment significantly interfered with sleep. The study concluded the importance of nursing practice for the focused sleep assessment of patients during admission into the ward^[14].

Section 2

To reassess the quality of sleep after therapeutic massage on experimental group

In this study in third day of posttest 4(20%) of them had adequate sleep, 16(80%) of them had fairly adequate sleep in experimental group.

The present study is supported by a study conducted by Regi Varghese that supports the benefits of massage therapy and music therapy for hospitalized patients having sleep pattern disturbance. The sample consisted of 15 subjects (Group I who were given back massage) and 15 subjects (Group II – who were given music therapy) were selected. The results concluded that back massage therapy was more effective than music therapy to promote the quality of sleep^[15].

Section 3

To compare the effectiveness of therapeutic back massage between experimental and control group

In this study when comparing the posttest sleep score between the groups, the calculated value of 'Z'(4.87) is greater than the tabulated value of 'Z' at 5% level of significance(1.96). This shows that there is a significant difference in the quality of sleep between the experimental and control group.

The present study is supported by a study in which the effects of selected nursing interventions in promoting sleep of hospitalized patients were measured. Pinto E M was conducted a study among forty patients. Nursing interventions of back massage and relaxation by rhythmic deep breathing were carried out on the study group. The findings showed that there was a significant difference in the quality and quantity of sleep between the experimental and control group. The patients in the study group slept better were less restless and gave higher verbal sleep scores than in the control group^[16].

The findings of the study have implications in nursing research, nursing service and nursing education.

- A comparative study can be conducted to see the effectiveness of individual massage techniques like effleurage, petrissage, friction, stroking and kneading.
- Nurses can make hospitalization as pleasant experience for the patients by reducing the sleep pattern disturbance after hospitalization through complimentary therapies such as back massage.
- Nursing education should stress on the healing potentials of massage therapy as it conveys a caring touch.(10)

V. Conclusion

Nurses traditionally have used back massage to promote relaxation, relieve discomfort, show caring and promote sleep. Although several investigators have conducted studies on the effect of back massage on relaxation and qualitative studies of patient's perceptions of back massage, not many studies are done to test the effect of back massage on sleep. Therefore this study may be considered important in providing empirical evidence for its effectiveness in improving sleep.

References

- [1]. Jogindra Vati, Karobi Das and Mohinder Pal Sharma, *Sleep distractors and patients' perceptions*, Nurs J India 2008 Feb;99(2):31-2
- [2]. Retrieved from <https://www.pubfacts.com/detail/18472490/Sleep-distractors-and-patients-perceptions>
- [3]. Sleep Disorders, Health Professional Version, PDQ Supportive and Palliative Care Editorial Board. Published online: March 10, 2016. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK66032/>
- [4]. Sateia MJ, Pigeon WR: Identification and management of insomnia. Med Clin North Am 88 (3): 567-96, vii, 2004. [PubMed]
- [5]. Boonstra L, Harden K, Jarvis S, et al.: Sleep disturbance in hospitalized recipients of stem cell transplantation. Clin J Oncol Nurs 15 (3): 271-6, 2011. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/21624862>
- [6]. Lee K A, Impaired Sleep. In: Carrieri – Kohlman V, Lindsey A M, West C M Editors, Pathophysiological Phenomena in Nursing, 3rd Edition, St. Louis: Saunders; 2003, page no 363-385
- [7]. Mc Dowell J A, L C Mion, J J Lydon and S K Inouye, A Non Pharmacological Sleep Protocol For Hospitalized Older Patients, Journal Of American Geriatric Society, Volume 46, Issue 6, June 1998, Pages 700-705. Retrieved from <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1532-5415.1998.tb03803.x>
- [8]. Floyd J A, Annual Review of nursing research(1999), volume 17, page 27-56
- [9]. Ferrell-Torry AT, Glick OJ. The use of therapeutic massage as a nursing intervention to modify anxiety and the perception of cancer pain. *Cancer Nurs*. 1993 Apr; 16(2):93-101. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/8477405>

- [10]. Tamsin Lane, Linda Anne East (2008). Sleep disruption experienced by surgical patients in an acute hospital. *British Journal of Nursing*, (26 Jun). 17(12): 766 – 771. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/18825852>
- [11]. Gaston R. (2007). Lack of sleep linked to increased risk of high blood pressure. *Archives of gerontology and geriatrics*:30(1):7-15. Retrieved from http://www.medscape.com/viewarticles/530242_7
- [12]. McDowell JA, Mion LC, Lydon TJ, Inouye SK. A nonpharmacologic sleep protocol for hospitalized older patients. *J Am Geriatr Soc*. 1998 Jun;46(6):700-5. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/9625184>
- [13]. Williams, T I. Evaluating effects of aroma therapy massage on sleep in children with autism: *Oxford Journals*;3(3). Retrieved from <http://ecam.oxfordjournals.org/cgi/content/full/3/3/373> Mac Cune S, Effect of back massage on sleep among post-operative CABG and valve replacement patients. *Nurs J India*. 2010 Apr;101(4):86-8. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/21053666?report=abstract>
- [14]. Chau Yuen Lee I, Lisa P.L. Low and Sheila Twinn, Older Patients' Experiences of Sleep in the Hospital: Disruptions and Remedies, *The Open Sleep Journal*, 2008, 1, 29-33, Volume 1. Retrieved from <https://pdfs.semanticscholar.org/adf2/b986ef6f6649acc349f385462babb943899a.pdf?ga=2.39367395.157784834.1572776533-1747514364.1569257365>
- [15]. Regi Varghese (2005), A comparative study on the effectiveness of therapeutic back massage and music therapy on the quality of sleep among hospitalized patients with inadequate sleep in fr. muller medical college - hospital, mangalore, Unpublished, M.sc Nursing dissertation submitted to RGUHS, Bangalore
- [16]. Pinto MEA. A study to determine the effect of selected nursing intervention in promoting sleep of patients with congestive heart failure (published Master in Nursing dissertation, University of SNDT, Bombay, 2001)

Mrs. Salini.K "Therapeutic Back Massage on the Quality of Sleep among Hospitalized Patients with Sleep Pattern Disturbances" .IOSR Journal of Nursing and Health Science (IOSR-JNHS), vol. 8, no.06, 2019, pp. 19-24.