Effectiveness of Slow Back Massage on Quality of Sleep among ICU Patent's

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Abstract: *Touch therapy for human being is a wonderful and therapeutic gift in this era of continuous stress, tension and sickness. Massage is an art of touch with bare hands. It is considered as an important therapy in Indian system of Medicine for pain, muscle pull and some of the orthopaedic conditions and especially in palliative care. Considering the importance of touch in nursing and incorporating cheap and acceptable complementary therapies is essential for broadening the scope of nursing.Aim: To assess the effectiveness of slow stroke back massage on quality of sleep among patients admitted in ICU. Material and Methods: A study was conducted using non-equivalent pre-test post-test control group design in the year 2011 -12. .60 samples, between age group of 25 to 70 years were selected and divided into two groups, control group and experimental group. The quality of sleep of all the samples was assessed by Modified Groninger's sleep quality assessment scale and recorded with checklist. After routine night nursing care, the intervention was done for 10 to 12 minutes on experimental group and the control group was not given massage. This was done for three consecutive nights and every morning quality of sleep of all the samples was assessed and recorded. Findings: The majority of the samples were exposure to massage therapy. However due to sickness and environment in ICU they were not able enjoy quality sleep. The massage therapy was helpful in inducing sleep and improving the quality of sleep. CONCLUSION: There were significant differences on the quality of sleep before and after slow stroke back massage. This shows that there was gradual improvement in the sleep quality after back massage on 3 consecutive days. The back massage has effect on quality of sleep among ICU patients.*

Keywords*: Massage therapy, Quality of sleep

1. Introduction

Sleep is a behavioral state characterized by the temporary suspension of the state of watchful consciousness. Sleep and rest are basic human needs essential to all individual's physical and psychological well-being. About one third of our lives spent in sleeping. The purpose of sleep is a mystery; however it is necessary to health and a sense of well-being. A lack of sleep will quickly cause irritability, grogginess, the inability to make decisions or follow through with cognitive functions. It will cause hallucinations, dozing off during activities and even throughout the day, etc. A continued lack of sleep can contribute to weight gain, anxiety, depression, lethargy and fatigue. These inevitabilities clearly show the importance of sleep. Although one day of sleep deprivation is not fatal, it will indeed cause alterations in mood, physical well-being, and overall cognitive function. Severe sleep deprivation can ultimately lead to death. There are several measures like massage therapy, music therapy, pharmacotherapy, bright light therapy, behavior therapy and Yoga etc. to treat sleeplessness, of which the therapeutic massage is considered one of the effective methods used to induce sleep.

Therapeutic massage is an ideal way to deal with stress and health disorders naturally. A massage provides both physical and emotional wellness. The massage sessions can vary from single sessions to a regular massage for a short span, over a period of time. Therapeutic massage is usually rendered to treat certain health conditions, boost overall immunity or as a distressing mechanism. Therapeutic massage provides varied benefits such as improved blood circulation, release of

endorphins that reduce pain, speedy recovery from injuries or chronic illness and improvement in sleep [1].

Therapeutic massage employs various features such as use of essential or aromatherapy oils, different types of strokes and massage technique to help the person receiving the massage achieve the expected benefits from massage. Massage techniques vary from a single type to a combination of different strokes. The key movements in massage are effleurage (stroking), petrissage (kneading), percussion, and friction and vibration techniques to relieve the stressed muscles. [1]

The three main physical effects of therapeutic massage are release of muscle tension, increased blood circulation and initiation of relaxation response. The release of muscle tension will improve balance and co-ordination, resulting in more restful sleep and lesser the need for pain medication. The increased circulation will improve nutrition to the tissues and will remove waste products from tissues, reduce swelling, improve skin tone, and relieve dryness and itching and favours speedy healing etc. Therapeutic massage is an ideal way to deal with stress and health disorders naturally. A massage provides both physical and emotional wellness. The massage sessions can vary from single sessions to a regular massage for a short span, over a period of time. Therapeutic massage is usually rendered to treat certain health conditions, boost overall immunity or as a distressing mechanism. Therapeutic massage provides varied benefits such as improved blood circulation, release of endorphins that reduce pain, speedy recovery from injuries or chronic illness and improvement in sleep.

2. Need of the Study

Sleep disruption has been recognized as a complication of acute. It is characterized by reduced nocturnal sleep efficiency and altered sleep architecture with increased wakefulness and stage 1 Non–Rapid Eye Movement (NREM) sleep, together with reduced slow wave and rapid eye movement (REM) sleep. Sleep disruption in critically ill and mechanically ventilated patients may have a multi factorial cause. Acute illnesses are associated with abnormal sleep architecture. The ICU environment, in which loud noises and frequent care-related interruptions are prevalent, may interfere with continuity of sleep. Medications commonly prescribed for patient comfort also have marked effects on sleep. It is possible that dyssynchronous patient–ventilator interactions may result in sleep disruption.[2]

Stressors experienced by hospital patients include excessive noise, lack of sleep, social isolation, enforced immobility, and pain from procedures. Anxiety and stress during cardiac catheterization can lengthen the hospital stay and increase the use of sedative medication before and during the procedure [3]. Hamel's did a randomized clinical trial with 46 participants demonstrated that a 20-minute back massage successfully reduced blood pressure before cardiac catheterization and improves sleep [4]. When patients have higher postoperative mobility due to massage, they may also have fewer serious postoperative complications, as demonstrated by Mitchinson and his colleagues in a randomized controlled trial of 605 veterans undergoing major surgery at Department of Veterans Affairs hospitals. [5]

Massage therapy can produce a reaction response that creates a calm state and enhances the ability to rest, qualities that are so essential for healing to occur. [6] "The majority of studies show that back massage induces a physiological or psychological relaxation response and that it is not injurious for critically ill patients with heart disease". [7] Massage therapy is becoming more widely accepted in the medical community as a credible treatment for many types of back pain and insomnia and/or as an adjunct to other medical treatments. Research shows that massage therapy has several potential health benefits for back pain sufferers, including increased blood flow and circulation, which brings needed nutrition to muscles and tissues. This aids in recovery of muscle soreness from physical activity or soft tissue injury (such as muscle strain) and decreased tension in the muscles. This muscle relaxation can improve flexibility, reduce pain caused by tight muscles and even improve sleep. Increased endorphin levels--the "feel good" chemicals in the brain. This mood enhancer can ease depression and anxiety, which can help reduce pain and speed recovery--particularly important for those suffering from chronic back or neck problems [8].

Another study shows how critically ill patients reported having improved sleep patterns, both in the quality and quantity of sleep, due to slow stroke back massage compared to those who received only relaxation exercises. Many people report that they have much deeper and more restful sleep after receiving a massage or reflexology session [9].

Superficial stroking is reported to stimulate and relax mood, relieve anxiety, reduce muscle tension and facilitate regression of sensory analgesia. Stroking is often used as an introductory or closing technique during a massage routine. Its effect on arousal in reportedly dependent upon the speed of the stroke: a slow stroke may have a more relaxing effect whereas a fast stroke tends to stimulate [10].

One particular method of superficial stroking is known as the slow stroke back massage. The slow stroke back massage is a specific nursing protocol which consists of slow, gentle, rhythmical strokes using two hands simultaneously over the client approximately 5 centimeter out from the spine, from the crown of the head to the sacral area and has been used in nursing care since the mid 1960s. Several studies have used slow stroke back massage and have found it to be a successful nursing intervention for promoting relaxation and thus promoting sleep [11].

3. Review of Literature

3.1 Studies related to insomnia in critically ill patients

They concluded that sleep, as it is conventionally measured, was identified only in a subgroup of critically ill patients requiring mechanical ventilation and was severely disrupted. They proposed specific criteria to select patients for future studies to evaluate potential causes of sleep disruption in this population [12]. A longitudinal observational study The knowledge of insomnia predictors might help in planning preventive strategies to improve patients' global health status and quality of life [13]. Sleep deprivation and subsequent effects on health restoration have been documented in the literature. The purpose of this experimental pilot study was to examine the feasibility of implementing specific nursing interventions to promote sleep in hospitalized older adults. Experimental group patients identified preferences such as personal hygiene, awareness of normal bedtime, receiving a back rub, straightening bed linens, and receiving a bedtime snack. This pilot provides initial support for the feasibility and utility of implementing a sleep protocol in an acute care setting [14].

3.2 Studies related to effect of back massage in critically ill patients

Critically ill patients are deprived of sleep and its potential healing qualities, although many receive medications to promote sleep. No one has adequately evaluated holistic non pharmacological techniques designed to promote sleep in critical care practice. Descriptive statistics showed improved quality of sleep among the back-massage group. They concluded that back massage is useful for promoting sleep in critically ill older men [7].

A study was concluded that A combination of relaxation and imagery is effective in improving the sleep of the critically ill adult, with men responding immediately to relaxation and imagery with improved sleep, and women taking more time to respond to the intervention [15].

Recent publications have questioned the efficacy of therapeutic touch (TT). The focus of attention has been on

substantiating the existence of the recipient's energy field rather than on the physiologic and psychodynamic responses to TT. In this article the physiologic and psychodynamic responses during and following the administration of TT is described. The project involved the implementation of a time series design in which the physiologic and psychodynamic responses were measured. It is acknowledged that critical care environments are stressful for patients in terms of invasive medical and nursing procedures. Continuous bright lighting and excessive noise prohibits the potential for relaxation and sleep. Within this context, the control of confounding variables was not possible, and therefore not an object of concern in the study. Rather the responses to TT in the natural setting were of importance to discern. Statistical repeated measures analysis of variance (one way) indicated there was no significant difference between pre-, during and post-physiologic variables in response to TT. However psychodynamic responses demonstrated significant correlation in terms of relaxation and sleep. The non significance of physiologic change in variables pre-, during and post-administration of TT indicates critically ill patients remained physiologically stable. Significant correlations of psychodynamic responses demonstrated it is possible for critically ill patients to experience periods of relaxation and sleep in an otherwise stressful environment. TT was found to be a useful therapy to enhance relaxation and sleep in critically ill patients [16].

The efficacy of complementary and alternative therapies for sleep promotion in critically ill patients is largely unexamined. A number of studies, however, have shown that massage, music therapy and therapeutic touch promote relaxation and comfort in critically ill patients, which likely leads to improved sleep. Massage, music therapy, and therapeutic touch are safe for critically ill patients and should be routinely applied by ICU nurses who have received training on how to administer these specialized interventions. Environmental interventions, such as reducing noise, playing white noise such as ocean sounds, and decreasing interruptions to sleep for care, also are safe and logical interventions that ICU nurses should use to help patients sleep. Progressive muscle relaxation has been extensively studied and shown to be efficacious for improving sleep in persons with insomnia; however, progressive muscle relaxation requires that patients consciously attend to relaxing specific muscle groups and practice these techniques, which may be difficult for critically 11 patients. The review does not currently recommend aromatherapy and alternative sedatives, such as valerian and melatonin, for sleep promotion in critically ill patients because the safety of these substances is unclear. In summary, it was recommended that ICU nurses implement music therapy, environmental interventions, therapeutic touch, and relaxing massage to promote sleep in critically ill patients. These interventions are safe and may improve patient sleep, although randomized controlled trials are needed to test their efficacy. Aromatherapy and alternative sedatives require further investigation to determine their safety and efficacy [17].

Critically ill patients are deprived of sleep and its potential healing qualities, although many receive medications to promote sleep. The results support that back massage, as an alternative or adjunct to pharmacological treatment, is a clinically effective nursing intervention for the promotion of sleep [7]. Integrative therapies such as massage have gained support as interventions that improve the overall patient experience during hospitalization. Massage therapy may be an important component of the healing experience for patients after cardiovascular surgery [18].

Effect of selected nursing interventions in promoting sleep of patients with congestive heart failure was studied by Pinto (2001) at KEM Hospital, Mumbai. The intervention group received back massage for 10 minutes and deep breathing exercise for 6 minutes and results of the study that 80% of the sample in the study group slept well and their quality of sleep in the control group only 50% slept well. The quality of sleep in the control group was 45% lower as compared to the study group [19].

3. 3 Studies related to effect of slow stroke back massage on quality of sleep

All studies using slow-stroke back massage and hand massage showed statistically significant improvement on physiological or psychological indicators of relaxation. The most common protocols were three-minute slow-stroke back massage and 10-minute hand massage. Physiological and psychological indicators suggest the effectiveness of slow-stroke back massage and hand massage in promoting relaxation in older people across all settings. Studies are needed to analyze the feasibility and cost effectiveness of massage to develop best practices for massage interventions in older people [20].

Another study explores the effect of slow-stroke back massages on anxiety and shoulder pain in hospitalized elderly patients with stroke. An experimental quantitative design was conducted, comparing the scores for self-reported pain, anxiety, blood pressure, heart rate and pain of two groups of patients before and immediately after, and three days after the intervention. The intervention consisted of ten minutes of slow-stroke back massage (SSBM) for seven consecutive evenings. One hundred and two patients participated in the entire study and were randomly assigned to a massage group or a control group. The results revealed that the massage intervention significantly reduced the patients' levels of pain perception and anxiety. In addition to the subjective measures, all physiological measures (systolic and diastolic blood pressures and heart rate) changed positively, indicating relaxation. The prolonged effect of Slow Stroke Back Massage was also evident, as reflected by the maintenance of the psycho-physiological parameters three days after the massage. The patients' perceptions of Slow Stroke Back Massage, determined from a questionnaire, revealed positive support for Slow Stroke Back Massage for elderly stroke patients. The authors suggest that Slow Stroke Back Massage is an effective nursing intervention for reducing shoulder pain and anxiety in elderly patients with stroke. From a nursing perspective, this nursing practice provides a challenge and an opportunity for nurses and family caregivers to blend alternative therapies with technology to provide more individualized and holistic patient care [21].

Slow Stroke Back Massage was associated with decreases in systolic blood pressure, diastolic blood pressure and heart rate and with an increase in skin temperature and improvement of sleep and relaxation. Slow Stroke Back Massage was shown to produce modest clinical, but statistically significant changes in vital signs which were indicative of relaxation. It is a cost-effective treatment which adds to the comfort of hospice clients [23].

4. Research Question

To Assess the Effectiveness of Slow Stroke Back Massage on Quality of Sleep among ICU Patients in Selected Hospitals, Jabalpur City (M.P)"

4.1 Objectives

- To assess the quality of sleep among experimental group and control group before and after slow stroke back massage.
- To find out the association between pre-test levels of quality of sleep and selected demographic variables among both the groups.

4.2 Assumptions

- Good sleep is essential for good health and recovery from illness
- Patients admitted in ICU have disturbed sleep.
- Slow Stroke Back Massage helps in improving the quality of sleep

5. Research Methodology

Research Approach experimental approach, Non Equivalent pretest-post-test control group design.

1. **Independent variable:** In this study the independent variable is Slow Stroke Back Massage.
2. **Dependent variable:** In this study the dependent variable was Quality of Sleep.

5.1 Setting of the Study

Study was conducted in a intensive care unit of hospitals of Jabalpur Hospital and Research Centre, Bhandari Hospital.

5.2 Population

The population of the present study comprises of ICU patients between age group 25-70 years.

5.3 Sample Size

The total sample size of present study consists of 60 patients comprising of 30 samples in experimental group and 30 samples in control group.

5.4 Sampling Technique

In this study, purposive sampling technique was adopted to select the subjects who have inadequate sleep.

5.5 Inclusion Criteria

Patients who are

- Admitted in the intensive care unit.
- Having inadequate sleep.
- between age group of 25-70years
- Who are conscious and able to communicate in English and Hindi.

5.6 Exclusion Criteria

- Patients with phlebitis or cellulitis, blood clots, contagious skin conditions, eczema and other skin lesions, high fever, mental impairment.
- Patients on mechanical ventilators and unconscious

5.7 Data Collection Tool

The tool consists of;

- Socio-Demographic information Schedule.
- Modified Groningers Sleep Quality Scale to assess the sleep quality level of the ICU Patients.
- Observation Checklist to assess the sleep quality level of the ICU Patients.

5.8 Data Collection Procedures

The Main study was conducted by the investigator from 12th April to 15th May 2013 in Jabalpur Hospital and Research Centre and Bhandari Hospital, Jabalpur. A formal permission was obtained from the concerned authorities of the hospitals and from samples prior to the study. Keeping in mind the selection criteria, 60 ICU patients who are having sleep disturbances (30 each for experimental and control) were selected for the study. The investigator introduced her and explained the purpose of the study; consent was obtained from each patient. The demographic data was directly collected from the patients and also from hospital records. Investigator assessed the quality of sleep among ICU patients by using modified Groningen's sleep quality scale and observation checklist. The first 30 subjects were assigned to Experimental group and second 30 for Control group. A comfortable position was given to the patient followed by a ten minutes session of low stroke back massage between 8-9-pm for experimental group. The control group received only usual night time nursing care. The quality of sleep was assessed and recorded for each group. This was continued for three consecutive days.

5.9 Plan for data analysis

Analysis was done by using both descriptive and inferential statistics

6. Findings

6.1 Deal with distribution of subjects according to Socio demographic variable.

Majority of the patients 15(50%) in experimental group were in the age group of 56-70yrs, 9(30%) were in the age group of 41-45yrs, 6(20%) were in the age group of 25-40 yrs. In control group, the majority of the patients 13(43.3%) were in the age group of 56-70yrs, 12(40%) were in the age group of 41-45yrs, 5(16.7%) were in the age group of 25-40 yrs. while the majority of the patients 20(66.7%) in experimental group were female and 10(33.3%) were male. In Control group, the majority of the patients 16(53.3%) were female and 14(46.7%) were male. majority of the sample 26(86.7%) in experimental group are married and 4(33.3%) are unmarried. In control group, majority of the sample 23(76.6%) are married and 11(23.3%) are unmarried. majority of the sample 11(36.7%) in the experimental group are home makers, 7(23.3%) are self-employees, 5(16.7%) are Govt. employees , 4(13.3%) are labors, 3(10%) are private employees. In the control group, majority of the sample, 9(30.3%) are self-employees, 7(23.3%) are home makers, 5(16.7%) are labors, 5(16.7%) are private employees,4(13.3%) are Govt. employees. majority of the sample19 (63.3%) in the experimental group have monthly income above 10,000, 6(20%) have monthly income between Rs. 1000-5000, 5(16.7%) have monthly income between Rs.5000-10,000. In control group, majority of the sample 13(43.3%) have monthly income between Rs.5000-10, 000, 12(40%) have monthly income above 10,000, 5(16.7%) have monthly income between Rs 1000-5000.majority of the patients 24(80%) in the experimental group are medical condition and 6(20%) are surgical condition .In control group, majority of the patients 27(90%) are medical condition and 3(10%) are surgical condition. Most of the patients 25(83.3%) in the experimental group did not have any past history of sleep disorders and 5(16.7%) had past history of sleep disorders. In control group, majority of the patients 26(83.7%) did not have any past history of sleep disorders and 4(13.3%) had past history of sleep disorders. majority of the sample 28(93.3%) in the experimental group did not have previous exposure to alternative and complementary therapies and 2(6.7%) had previous exposure to alternative and complementary therapies. In the control group, majority of the sample 27(90%) did not have previous exposure to alternative and complementary therapies and 3(10) had previous exposure to alternative and complementary therapies. It deals with the analysis of data related to quality of sleep among experimental and control group in the experimental group majority 20(66.7%) patients had disturbed sleep, 10(33.7%) patients had moderate disturbed sleep and there was no sound sleeper (0). In experimental group posttest, majority 25(83.3%) patients had sound sleep, 5(16.6%) had moderate disturbed sleep and there was no disturbed sleeper. In control group pretest 15(50%) patients had disturbed sleep,15(50%)patients had moderate disturbed sleep and there was no sound sleeper(0).In control group posttest, 18(60%)patients had sound sleep,12(40%) had moderate disturbed sleep and there was no sound sleeper.

In experimental group, the pre-test mean score was 7.20 and S.D was 3.40. The post-test mean score was 21.28 and S.D was 3.55.This indicates, there were improvements in the sleep quality level of the ICU patients. In control group, the pre-test mean score was 9.07 and S.D was 4.26.The post-test mean score was 8.79 and S.D was 2.44. This indicates, there were no improvements in the sleep quality level of the ICU patients.

Description of difference between pre-test and post-test sleep quality score of experimental group

	Experimental Group				*Control Group*			
	Mean	S.D	t	P	Mean	S.D	t	P
Pretest	7.20	3.40	18.4	.012	9.07	4.26	.4360	.612
Post test	21.28	3.55			8.79	2.44		

Data in the above table, shows higher mean post-test knowledge score (x2=21.28) with that of the mean pre-test knowledge score (x1 =21.28). The computed' value ('t'=18.4) is higher than the table value ('t'= 2.05, P< 0.05). So the research hypothesis was accepted at 0.05 level of significance, that is, the mean difference between pre and post-test knowledge score was a true difference and not a chance difference. This indicates the significant effectiveness of back massage on improving the quality of sleep among experimental group.

The association between pretest sleep qualities score of patients with demographic variables in experimental group is statistically tested by applying chi-square test. In experimental group, the variables marital status, family income, diagnosis, past history of sleep disorders and previous exposure to alternative and complementary therapies are found significant. Another variable are not significant.

7. Discussion

The present study showed that the majority of the patients are 56-70 years (46.70%) in both experimental and control group. Most of the subjects were females 66.7% and 53.3%in experimental and control groups respectively. This is supported by the study conducted by Kaye AD ETAL [22]. AGE AND SEX Study conducted a Tucson Epidemiologic study, in order to determine the prevalence of reported sleep disturbances in a general adult population and the relationship of these complaints to age, gender. At least one symptom of disturbed sleep was present in 41.4 percent of all subjects. Women generally reported a significantly higher prevalence of both disorders of initiating and maintaining sleep (DIMS) and nightmares (NM) (p less than .001). Before age 64 years, the prevalence of complaints of excessive daytime sleepiness (EDS) among men and women were similar. However, the frequency of EDS was significantly higher in men than women after age 64 years... They conclude that, in the general adult population, sleep disorder symptoms increase with age and usually are greater in women.

8. Marital Status, Occupation and Family Income

Kelly [22] conducted a study: Who sleeps better? Socioeconomic differences in reports of sleep disturbance. Results indicate that individuals with higher socioeconomic status and education levels sleep better than those of lower socioeconomic status. Findings show that 26% of individuals earning less than $10,000 a year reported sleep problems, whereas only 8% of those earning $75,000 or more annually reported sleep problems. People who were employed reported the best sleep, followed by those who were retired, homemakers and students. Of the individuals who were unemployed for less than a year, 32% reported sleeping problems; 52 % of people who were unable to work due to injury, illness or disabilities reported sleep problems. Married people slept better than single individuals; those who were separated had the worst sleep.

9. Conclusion

From the study findings it is concluded that there is significant differences on the quality of sleep before and after slow stroke back massage. This shows that there is gradual improvement in the sleep quality after back massage on 3 consecutive days. The present study also proved that there was a significant difference on the quality of sleep between experimental and control group. So it may be stated that the back massage has effect on quality of sleep among ICU patients.

10. Future Scope

10.1 Nursing Practice

The findings of this study regarding effectiveness of back massage for improving sleep indicates that there is a need to administration of back massage to improving sleep quality level among ICU patients. To make the health care workers, especially nurses and doctors aware of it by in service education programme and interdisciplinary collaboration. Complementary therapies are gaining popularity and finding more substantial place in health care. Holistic nursing regards and treats the mind, body and spirit of the client. Nurses use holistic nursing interventions such as relaxation therapies, simple touch and massage. Such interventions affect the whole person and are effective economical, non-invasive non pharmacological complements to medical care. Back massage are one of the sources that nurses can adopt in the patient care, which through this study has been proved to improve quality of sleep among ICU Patients. Theories like that of King's Goal attainment theory, on whose theory this study based its conceptual framework can be applied in practice set up. There by increasing evidence based practice and this practice enhance the autonomous role of nursing intervention. Touch used during the intervention improves the nurse patient relationship, attaining higher level of co-operation from both the nurse and the patient. There is a need to implement the research findings in the clinical field, so as to avoid the wide gap between research studies and clinic practices.

10.2 Nursing Education

Nursing education is developing rapidly in India and nurse from our country can be found all over the world providing care and education. The education curriculum must include imparting knowledge about the use of various audio-visual aids and teaching strategies. Several implications can be drawn from the present study for nursing education. A curriculum incorporating the recent trends and demands of the changing society is needed for the progress of nursing education. The nursing curriculum of medical-surgical nursing include learning experience for the students to assess, plan, implement and evaluate nursing intervention based on back massage to improve the quality of sleep patter .Various complementary therapies including Low Stroke Back massage is already included in the nursing curriculum, which also can be given importance to use as alternative therapy in patients with insomnia. The nurse educators have the additional responsibilities to update themselves with the changing trends. The back massage procedure manual can be provided as ready reference for the students, nurse educators and practicing nurses. Post graduates must implement and emphasis on clinical application of nursing theories based on evidence as in this study.

10.3 Nursing Administration

As a part of administration, the nurse administrator plays a vital role in educating clients and student nurses. To bring about any changes in nursing, administrator should take the responsibilities and take up the challenges, which will improve ,standard of nursing care. Effective strategies to improve the understanding of complementary therapies especially the back massage should be considered by a nurse administrator when designing the materials, policies, forms and procedures for obtaining effective, economical, non-invasive non pharmacological complements to nursing care. The procedure manual for back massage can be prepared with pictures and written explanations and can be made available in each unit of the hospital as a ready reference for better understanding. The nurse administrator should also see that the student and practicing nurses are well equipped with the knowledge and skill through in-service programmes. Nurses may be empowered with facilities to use the complementary therapies. In-service educations on applied theories in clinical practice based on evidence are important for autonomy and professional image.

10.4 Nursing Research

Nursing research is an essential part of nursing as it uplifts the profession and develops new nursing norms and a body of knowledge. It is important to conduct studies which test the effectiveness of complementary therapies in order to add to the evidence based practice in nursing. There is need for promoting research based practice and use of evaluation methods to measure the effectiveness of care to maintain quality and cost effectiveness. This study is an investigation into the area of complementary therapies, which has contributed to the body of knowledge in nursing field. Health care research studies needs to concentrate on the importance of complementary therapies. Many more research studies could be done to assess and compare the

effectiveness of complementary therapies in various disease conditions. Research can also focus on specific areas like pain, physiological and psychological parameters, relaxation and assess the impact of foot and back massage. Similar studies in this area can be done, so that interventions based on the study findings can be provided for improving the cost effectiveness, and quality care. There is still a lot of scope for exploring more on this area taking variety of patients with different disease processes.

11. Limitations of the Study

The study findings could not be generalized because of the following reasons:

1. The study was confined to a specific geographical area (Jabalpur), which imposes limits to any larger generalization.
2. The sample was selected only from ICU.
3. The sample size was relatively small, thus restricting the statistical inferences of results..
4. The study was conducted within a limited time of period of 4 weeks.
5. After the third day of treatment no follow up was made of the selected samples.

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