



A STUDY TO ASSESS THE EFFECTIVENESS OF AROMATHERAPY MASSAGE WITH LAVENDER OIL ON PAIN AND SLEEP AMONG PATIENTS ADMITTED IN SICU, GIMSR HOSPITAL,VISAKHAPATNAM

Nursing

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ABSTRACT

Background: Pain is a subjective experience of multi- dimensional nature. The pain matrix has been coined to theories the highly intricate network that involves the interplay of various neurophysiological and psychosocial attributes in modulating the perception of pain and individual's response to interventions. Analgesic medication remain the mainstay for management of pain. Various medication produce pain relief by interacting and central nervous system, the selection of appropriate analgesics agents based on the few decades , there has been a growing interest in the role of emotion and cognition in pain perception. Neuroimaging studies had identified several cortical and subcortical of pain and associated emotional responses. Aromatherapy massage helps muscles indulge into deep relaxation thus healing of the body of the day to day tension. It also relieves water retention , stimulates the lymphatic system improves the immune system and gets rids of the body toxins naturally. The body needs aromatherapy massage as often as possible. It is a great therapy for tension , fatigue or injury. Even though aromatherapy is commonly used and has been practiced for centuries , few high qualities empirical reviews have examined its effectiveness in reducing pain. A database search revealed often focus on the reduction of psychological symptoms such as depression and anxiety or to seek to measure the increase of patient satisfaction. **Materials And Methods:** In this study 60 post-operative patients admitted in SICU were included, 50 each in experimental and control group. Convenient sampling technique was adopted for the study. Tool used in this study was categorized in 3 sections i.e. demographic variables , numerical pain rating scale to assess the level of post-operative pain among SICU patients and sleep quality scale. **Result:** It was analyzed by using descriptive and inferential statistics. Findings revealed that In the pre-test of the experimental group, 17(56.67%) had moderate pain, 7(23.33%) had mild pain and 6(20%) had severe pain whereas in the post test, 20(66.66%) had no pain, 8(26.7%) had moderate pain and 2(6.7%) had mild pain. In the pre-test of the control group, 20(66.67%) had moderate pain, 6(20%) had mild pain and 4(13.33%) had severe pain whereas in the post test, 19(63.33%) had moderate pain, 6(20%) had severe pain and 5(16.67%) had mild pain. In the pre-test of the experimental group, 11(36.67%) had mild and moderate sleep disturbance and 8(26.663%) had severe sleep disturbance whereas in the post test, 26(86.67%) had good sleep, 2(6.67%) had severe sleep disturbance and 1(3.3%) had mild and moderate sleep disturbance. In the pre-test of the control group, 14(46.67%) had mild sleep disturbance, 10(33.33%) had moderate sleep disturbance, 5(16.67%) had severe disturbance and 1(3.33%) had good sleep whereas in the post test, 12(40%) had mild sleep disturbance, 9(30%) had moderate sleep disturbance, 7(23.33%) had severe Sleep disturbance and 2(6.7%) had good sleep. The present study of pre-test mean difference score was 4.06 and mean difference percentage was 40.6%. The calculated paired 't' test value of $t = 13.422$ was found to be statistically significant at $p < 0.001$ level. This clearly indicates that Aromatherapy on relief of pain administered among SICU patients in the experimental group was found to be effective in reducing the level of pain in the post test. In the pre-test mean difference score was 21.67 and mean difference percentage was 25.8%. The calculated paired 't' test value of $t = 9.199$ was found to be statistically significant at $p < 0.001$ level. This clearly indicates that Aromatherapy on improving the sleep quality administered among SICU patients in the experimental group was found to be effective in reducing the sleep disturbance thereby improving the sleep quality among the SICU patients in the post test. There was no significant association between post-operative patients pain in the selected demographic variables. There was significant association between occupation and posttest level of sleep in selected demographic variables of at value of $P < 0.01$ during aromatherapy massage

KEYWORDS

INTRODUCTION

Pain is a subjective experience of multi- dimensional nature. The pain matrix has been coined to theories the highly intricate network that involves the interplay of various neurophysiological and psychosocial attributes in modulating the perception of pain and individual's response to interventions. Analgesic medication remain the mainstay for management of pain. Various medication produce pain relief by interacting and central nervous system, the selection of appropriate analgesics agents based on the few decades , there has been a growing interest in the role of emotion and cognition in pain perception. Neuroimaging studies had identified several cortical and subcortical of pain and associated emotional responses.

In intensive care units , the physical conditions of patients are monitored to following their survival function , special treatment is applied and complex devices are used in those areas that require considerable attention. (Demin and Dramali 2002). These patients are exposed to a variety of stimuli from the ICU environment over which they have no control. Therefore , ICU patients are faced with problems such as sensory input and sensory deprivation (Sewing and Ovayolu 2011). Movement and restriction in body posture as well as social isolation lead to sensory deprivation in critically ill patients, while human voices and intubation may represent painful interfere caused by sensory overload. Both sensory inputs in intensive care units patients may result in problems such as decreased cognitive function, irritability , aggression , disruptions in the sleep-wake cycle which are associated with symptoms of disorientation and are reported to lead to the development of ICU syndrome (Dedeli and Akyol , 2005, Frisk

and Nodstrom , 2003).

Complementary therapies are administering in addition to medical therapy in order to support care of patients and enhance their quality of life. Complementary therapy methods can be effective in controlling or preventing intensive care related complications including sleep disorder , pain and anxiety and also reducing physiological indicators such as pulse, blood pressure and respiration by stimulating sensory perception and creating a relaxation effect (Wilkision and Simpson , 2002).

Massage therapy and aromatherapy are among the most common complementary and alternative therapies (Burns et.al 2007). Aromatherapy , one of the complementary therapies commonly used by nurses , has been shown to commonly used by nurse , has been shown to lower blood pressure and heart rate ,as well as reduce pain and anxiety (Aken and Khorshid , 2007; Khorshid and Yapucu , 2005). One of the essential oils used in aromatherapy is lavender *Lavandula angustifolia* Mill (Lavender) is well known as a powerful aromatic and medical herb (Djenare et. al 2012). The active ingredients of essential oil of lavender can quickly be absorbed through skin and their sedative , antidepressants and muscular relaxant effects as well as their positive effects on their quality of sleep and feeling of wellbeing have shown (Gedney et.al. 2004; Ejder Apay et.al 2012). Lavender is a safe herb and no toxicity has been reported (Cavangah and Wilkison , 2002). Aromatherapy massage combines the positive effect of massage and aromatherapy , resulting in a complementary that is more effective than either method alone (Kuriyama et.al. 2005). As a treatment ,

aromatherapy massage focuses on controlling symptoms. The efficacy of aroma in reducing the development of illness and stress has been proven, resulting in improvements to health (Buckle, 2003).

Aromatherapy massage helps muscles indulge into deep relaxation thus healing of the body of the day to day tension. It also relives water retention, stimulates the lymphatic system improves the immune system and gets rid of the body toxins naturally. The body needs aromatherapy massage as often as possible. It is a great therapy for tension, fatigue or injury.

Even though aromatherapy is commonly used and has been practiced for centuries, few high qualities empirical reviews have examined its effectiveness in reducing pain. A database search revealed often focus on the reduction of psychological symptoms such as depression and anxiety or to seek to measure the increase of patient satisfaction. Many studies examining the use of aromatherapy in pain reduction focus on therapeutic massage rendering the isolated impact of essential oil without massage unclear.

Aromatherapy can be used for a variety of physical and emotional problems including stress, anxiety, depression, fatigue, pain, insomnia, coughs and colds, burns, scars tissues, digestive problems and skin disorders. Modern scientists have been doing researches on aromatherapy and they have proven its healing properties by using essential oils. (Keville and Green 2009).

Studies in 2017 using aromatherapy massage on sleep quality in a surgical intensive care unit. The experimental studies consists of 60 patients and were divided into experimental group and control group. The participants were postoperative patients, absents complications, who were unconscious and extubated. Results of these study showed that aromatherapy massage enhanced the sleep quality of patients in surgical intensive care unit and positive changes in their physiological parameters. (Penar Bilican et.al 2017).

Effective postoperative pain management continues to be a challenges clinical problem in surgeries, several studies have reported that postoperative pain management remain poor and that up to 80% of patients experience pain post-surgery. Inadequate management of postoperative pain can have profound implication and has been shown to increase morbidity and mortality as well as costs. Some of the negative clinical outcomes increased deep veins thrombosis, pulmonary embolism, pneumonia, poor wound healing, insomnia, chronic pain syndromes and demoralizations.

Aromatherapy is the practice of using natural oils extracted from flowers, stems, leaves, roots or other parts of a plant to enhance psychological and physical well-being. The essential oils can also be absorbed by travel through the skin, inhalation where by travel through the bloodstream and can promote whole body healing. Among the aroma oils, the lavender oil is the effective oil in reducing pain as well as discomfort. The potential positive impact of lavender oil on the patients physiological and psychological state, the goal of the study is to determine whether these positive properties is to determine whether these positive properties of lavender aromatherapy might improve postoperative course of patients who had surgeries. There was an effect of lavender oil on pain, nausea length of stay in the recovery room and satisfaction with pain control. However, patients who received lavender aromatherapy reported significantly higher satisfaction with pain control.

OBJECTIVES

1. To assess the level of pain and sleep quality among SICU patients in experimental and control group.
2. To assess the effectiveness of aromatherapy on relief pain and improving sleep experimental group.
3. To compare the pre test and post test pain scores among SICU patients in experimental and control group.
4. To compare the pre test and post test quality of sleep among SICU patients in experimental and control group.
5. To find out association between post test level of pain and sleep with selected demographic variables.

METHODS AND MATERIAL

A Quantitative research design was used to accomplish the objectives. Quasi experimental pre test post test control group design was used for this study. Study was undertaken on 60 patients admitted in SICU, 30

each in experiment and control group. Convenient sampling technique was adopted for the present study. The study was conducted at GIMSR hospital, Visakhapatnam. It is a 750 bedded super-speciality hospital with 10 SICU beds.

Description Of The Tool

SECTION A: Demographic Variables

It includes age in years, sex, religion, education, occupation, family income, personal habits, duration of hospitalization, marital status.

SECTION B: Numerical Pain Rating Scale To Assess The Level Of Post-operative Pain Among SICU Patients:

Numerical pain rating scale is used to assess the level of post-operative pain on the first day before massage and assess the pain level on the 3rd day of massage. It is a movable scale containing the pain score from 0-10. The patient will be asked to indicate the pain intensity as they experience at moment by marking at the point. The reading was noted based on the point at which the patient marked.

Interpretation of Level of Post-Operative Pain

- 0 : no pain
- 1-3 : mild pain
- 4-7 : moderate pain
- >7 : severe pain

SECTION C: Sleep Quality Scale

Sleep Quality Scale is a table consists of 28 questions. Each questions was assessed by using four point Linkert Scale. The score was given as 0= "few", 1= "sometimes", 2= "often", and 3= "almost always". Total score ranges from 0 to 84.

Total score

Good sleep	0-20
Mild disturbance	21-35
Moderate disturbance	35-50
Severe disturbance	51-84

Testing of the tool

Content Validity

The tool was given to experts in the field of nursing and medicine for content validity. All comments and suggestion given by the experts were duly considered and correction was made.

Ethical Consideration

Due permission was sought from the hospital authority including ethical committee clearance report. Informed verbal consent was obtained from all the samples. Assurance was given for the confidentiality of the information given by samples. Routine care was not altered or withheld. Samples were allowed to withdraw from the study at any time.

Reliability

Reliability of tool was obtained by Spearman Brown Spilt haft technique. The reliability of Sleep Quality Scale was 0.92.

Data Collection Procedure

The formal permission got from the Principal, Researcher and Ethical committee of GIMSR, Visakhapatnam. The samples were selected by using non probability convenient sampling technique on the basis of selection criteria.

The investigator introduced herself to the post operative patients and established rapport with them during the data collection period. The participants were assured that no physical or emotional harm would be done to them during the course of the study. The investigator obtained an informed consent from each patients. Among 60 samples, 30 samples was considered as experimental group and remaining 30 samples as control group.

The post operative patients who were selected for the control group were assessed for level of post operative pain and sleep from the 1st day of post operative recovery from anaesthesia and routine care was given. On 3rd post operative day the level of post operative pain and sleep was reassessed by using same numerical pain rating scale and sleep quality scale. The demographic variables are collected by using structured interview schedule.

The post operative patients selected for the experimental group were assessed for the level post operative pain and sleep from the 1st day post operative recovery from the anaesthesia before aromatherapy massage

by using same numerical pain rating scale and sleep quality scale. The massage was given to the patient daily for 20 min at morning and afternoon for 3 days. At the end of the 3rd post operative day post test was conducted by using the same rating scale.

Data will be collected , arranged and tabulated. Independent 't' test will be used to find out the effectiveness of aromatherapy massage and chi-square will be used to associate level of pain and sleep among post operative patients with their demographic variables.

Plan for data analysis

RESULT

Table 1: Frequency And Percentage Distribution Of Demographic Variables Of SICU Patients In The Experimental And Control Group. N = 60(30+30)

Demographic Variables	Experimental Group		Control Group		Chi-Square value for homogeneity
	F	%	F	%	
Age					$\chi^2=0.456$, d.f=3 p=0.929, N.S
21 – 30 years	10	33.3	10	33.3	
31 – 40 years	8	26.7	9	30.0	
41 – 50 years	8	26.7	6	20.0	
Above 40 years	4	16.5	5	16.7	$\chi^2=0.067$, d.f=1 p=0.796 N.S
Gender					
Male	15	50.0	16	53.3	$\chi^2=0.267$, d.f=2 p=0.875 N.S
Female	15	50.0	14	46.7	
Religion					
Hindu	14	46.6	16	53.4	$\chi^2=15.539$ d.f=4 p=0.004 S**
Christian	8	26.7	7	23.3	
Muslim	8	26.7	7	23.3	
Educational status					
Illiterate	8	26.7	1	3.3	$\chi^2=8.643$ d.f=4 p=0.071 N.S
Primary	9	30.0	2	6.7	
Secondary	6	20.0	11	36.7	
Higher secondary	4	13.3	6	20.0	
Graduate	3	10.0	10	33.3	$\chi^2=3.640$ d.f=2 p=0.162 N.S
Occupation					
Student	4	13.4	0	0	
Unemployed	7	23.3	3	10.0	
Self employed	17	56.7	20	66.7	$\chi^2=4.356$ d.f=3 p=0.226 N.S
Labour	1	3.3	3	10.0	
Office worker	1	3.3	4	13.3	
Monthly income					
Rs.2000 – 5000	3	10.0	1	3.3	$\chi^2=0.635$ d.f=1 p=0.426
Rs.6000 – 10000	12	40.0	7	23.3	
Above 10000	15	50.0	22	73.4	
Personal habits					$\chi^2=0.000$ d.f=1 p=1.000
Smoking	3	10.0	6	20.0	
Tobacco chewing	2	6.7	1	3.3	
Alcohol	3	10.0	0	0	
Drug abuse	-	-	-	-	$\chi^2=1.535$ d.f=2 p=0.464 N.S
None	22	73.3	23	76.7	
Duration of hospitalization					
7 days	13	43.3	10	33.3	
>7 days	17	56.7	20	66.7	$\chi^2=0.464$ d.f=1 p=0.496
Type of family					
Nuclear family	19	63.3	19	63.3	
Joint family	11	36.7	11	36.7	$\chi^2=0.000$ d.f=1 p=1.000
Marital status					
Unmarried	12	40.0	9	30.0	
Married	18	60.0	20	66.7	
Widow	-	-	-	-	$\chi^2=0.000$ d.f=1 p=1.000
Divorced	-	-	-	-	
Separated	0	0	1	3.3	

**p<0.01, S – Significant, N.S – Not Significant

The table 1 shows that in the experimental group, most of the SICU patients, 10(33.3%) were aged between 21 – 30 years, 15(50%) were male and female respectively, 14(46.6%) were Hindus, 9(30%) had primary education, 17(56.7%) were self employed, 15(50%) had a monthly income of above Rs.10000, 22(73.3%) had no personal habits, 17(56.7%) had hypertension for >7days, 19(63.3%) belonged to nuclear family and 18(60%) were married. The table 1 also portrays that in the control group, most of the SICU patients, 10(33.3%) were aged between 21 – 30 years, 16(53.3%) were male and female respectively, 16(53.3%) were Hindus, 11(36.7%) had secondary education, 20(66.7%) were self employed, 22(73.4%) had a monthly income of above Rs.10000, 23(76.7%) had no personal habits, 20(66.7%) had hypertension for >7days, 19(63.3%) belonged to nuclear family and 20(66.7%) were married.

Table 2: Frequency And Percentage Distribution Of Pre-test And

Post Test Level Of Pain Among SICU Patients In The Experimental Group. n = 30

Pain	No Pain(0)		Mild (1 – 3)		Moderate (4 – 7)		Severe(>7)	
	F	%	F	%	F	%	F	%
Pretest	0	0	7	23.33	17	56.67	6	20.0
Post Test	20	66.66	2	6.7	8	26.7	0	0

The table 2 shows that in the pretest of the experimental group, 17(56.67%) had moderate pain, 7(23.33%) had mild pain and 6(20%) had severe pain whereas in the post test, 20(66.66%) had no pain, 8(26.7%) had moderate pain and 2(6.7%) had mild pain.

Table 3: Frequency And Percentage Distribution Of Pretest And Post Test Level Of Pain Among SICU Patients In The Control Group. n = 30

Pain	No Pain (0)		Mild (1 – 3)		Moderate(4 – 7)		Severe (>7)	
	F	%	F	%	F	%	F	%
Pretest	0	0	6	20.0	20	66.67	4	13.33
Post Test	0	0	5	16.67	19	63.33	6	20.0

The table 3 shows that in the pretest of the control group, 20(66.67%) had moderate pain, 6(20%) had mild pain and 4(13.33%) had severe pain whereas in the post test, 19(63.33%) had moderate pain, 6(20%) had severe pain and 5(16.67%) had mild pain.

Table 4: Frequency And Percentage Distribution Of Pre-test And Post Test Level Of Sleep Quality Among SICU Patients In The Experimental Group. n = 30

Sleep Quality	Good Sleep (0 – 20)		Mild Disturbance (21 – 35)		Moderate Disturbance (35 – 50)		Severe Disturbance (51 – 84)	
	F	%	F	%	F	%	F	%
Pretest	0	0	11	36.67	11	36.67	8	26.66
Post Test	26	86.67	1	3.33	1	3.33	2	6.67

The table 4 shows that in the pretest of the experimental group, 11(36.67%) had mild and moderate sleep disturbance and 8(26.66%) had severe sleep disturbance whereas in the post test, 26(86.67%) had good sleep, 2(6.67%) had severe sleep disturbance and 1(3.33%) had mild and moderate sleep disturbance.

Table 5: Frequency And Percentage Distribution Of Pretest And Post Test Level Of Sleep Quality Among SICU Patients In The Control Group. n = 30

Sleep Quality	Good Sleep (0 – 20)		Mild Disturbance (21 – 35)		Moderate Disturbance (35 – 50)		Severe Disturbance (51 – 84)	
	F	%	F	%	F	%	F	%
Pretest	1	3.33	14	46.67	10	33.33	5	16.67
Post Test	2	6.67	12	40.0	9	30.0	7	23.33

The table 5 shows that in the pretest of the control group, 14(46.67%) had mild sleep disturbance, 10(33.33%) had moderate sleep disturbance, 5(16.67%) had severe disturbance and 1(3.33%) had good sleep whereas in the post test, 12(40%) had mild sleep disturbance, 9(30%) had moderate sleep disturbance, 7(23.33%) had severe Sleep disturbance and 2(6.7%) had good sleep.

Table 6: Effectiveness Of Aromatherapy Massage On Relief Of Pain Among SICU Patients In The Experimental Group. n = 30

Test	Mean	S.D	Mean Difference & %	Paired 't' test value
Pretest	5.43	2.13	4.06 (40.6%)	t=13.422
Post Test	1.37	2.22		p=0.0001, S***

***p<0.001, S – Significant

The table 6 depicts that the pretest mean score of pain among SICU patients in the experimental group was 5.43±2.13 and the post test mean score of pain was 1.37±2.22. The mean difference score was 4.06 and mean difference percentage was 40.6%. The calculated paired 't' test value of t = 13.422 was found to be statistically significant at p<0.001 level. This clearly indicates that Aromatherapy on relief of pain administered among SICU patients in the experimental group was found to be effective in reducing the level of pain in the post test.

Table 7: Comparison Of Pretest And Post Test Level Of Pain Among SICU Patients In The Control Group. n = 30

Test	Mean	S.D	Mean Difference & %	Paired 't' test value
Pretest	5.87	1.93	0.74 (7.4%)	t=3.832
Post Test	5.13	1.63		p=0.001, S***

***p<0.001, S – Significant

The table 7 depicts that the pretest mean score of pain among SICU patients in the control group was 5.87±1.93 and the post test mean score of pain was 5.13±1.63. The mean difference score was 0.74 and mean difference percentage was 7.4%. The calculated paired 't' test value of t = 3.832 was found to be statistically significant at p<0.001 level. This clearly indicates that there was a significant difference and reduction in the level of pain in the post test among SICU patients in the control group.

Table 8: Effectiveness Of Aromatherapy On Improving Sleep Quality Among SICU Patients In The Experimental Group. n = 30

Test	Mean	S.D	Mean Difference & %	Paired 't' test value
Pretest	42.70	13.04	21.67 (25.8%)	t=9.199 p=0.0001, S***
Post Test	21.03	11.98		

***p<0.001, S – Significant

The table 8 depicts that the pretest mean score of sleep quality among SICU patients in the experimental group was 42.70±13.04 and the post test mean score of sleep quality was 21.03±11.98. The mean difference score was 21.67 and mean difference percentage was 25.8%. The calculated paired 't' test value of t = 9.199 was found to be statistically significant at p<0.001 level. This clearly indicates that Aromatherapy on improving the sleep quality administered among SICU patients in the experimental group was found to be effective in reducing the sleep disturbance thereby improving the sleep quality among the SICU patients in the post test.

Table 9: Comparison Of Pretest And Post Test Level Of Sleep Quality Among SICU Patients In The Control Group. n = 30

Test	Mean	S.D	Mean Difference & %	Paired 't' test value
Pretest	38.77	14.02	2.33 (2.77%)	t=1.596
Post Test	41.10	13.25		p=0.121, N.S

N.S – Not Significant

The table 9 depicts that the pretest mean score of sleep quality among SICU patients in the control group was 38.77±14.02 and the post test mean score of sleep quality was 41.10±13.25. The mean difference score was 2.33 and mean difference percentage was 2.77%. The calculated paired 't' test value of t = 1.596 was not found to be statistically significant. This clearly indicates that there was no significant improvement in the sleep quality in the post test among SICU patients in the control group.

Table 10: Comparison Of Pretest And Post Test Level Of Pain Among SICU Patients Between The Experimental And Control Group. N = 60(30+30)

Test	Group	Mean	S.D	Mean Difference & %	Student Independent 't' test value
Pretest	Experimental Group	5.43	2.13	0.44 (4.4%)	t=0.827
	Control Group	5.87	1.93		p=0.412, N.S
Post Test	Experimental Group	1.37	2.22	3.76 (37.6%)	t=7.483
	Control Group	5.13	1.63		p=0.0001, S***

***p<0.001, S – Significant, N.S – Not Significant

The table 10 depicts that the pretest mean score of pain among SICU patients in the experimental group was 5.43±2.13 and the mean score of pain in the control group was 5.87±1.93. The mean difference score was 0.44 and mean difference percentage was 4.4%. The calculated student independent 't' test value of t = 0.827 was not found to be statistically significant. This clearly indicates that there was no significant difference in the pretest level of pain among SICU patients between the groups.

The table 10 also depicts that the post test mean score of pain among SICU patients in the experimental group was 1.37±2.22 and the mean score of pain in the control group was 5.13±1.63. The mean difference score was 3.76 and mean difference percentage was 37.6%. The calculated student independent 't' test value of t = 7.483 was found to be statistically significant at p<0.001 level. This clearly indicates that there was significant difference in the post test level of pain among SICU patients between the groups. This clearly infers that Aromatherapy on relief of pain administered among SICU patients in the experimental group was found to be effective in reducing the level of pain than the SICU patients in the control group who had undergone normal hospital routine measures.

Table 11: Comparison Of Pretest And Post Test Level Of Sleep

Quality Among SICU Patients Between The Experimental And Control Group.

Test	Group	Mean	S.D	Mean Difference & %	Student Independent 't' test value
Pretest	Experimental Group	42.70	13.04	3.93 (4.68%)	t=1.125 p=0.265, N.S
	Control Group	38.77	14.02		
Post Test	Experimental Group	21.03	11.98	20.07 (23.89%)	t=6.155 p=0.0001, S***
	Control Group	41.10	13.25		

***p<0.001, S – Significant, N.S – Not Significant

The table 11 shows that the pretest mean score of sleep quality among SICU patients in the experimental group was 42.70±13.04 and the mean score of sleep quality in the control group was 38.77±14.02. The

Table 12: Association Of Post Test Level Of Pain Among SICU Patients With Their Selected Demographic Variables In The Experimental n=30

Demographic Variables	No Pain		Mild		Moderate		Chi-Square & p-value
	F	%	F	%	F	%	
Age							$\chi^2=6.656$ d.f=6
21 – 30 years	5	16.7	0	0	5	16.7	p=0.354 N.S
31 – 40 years	6	20.0	1	3.3	1	3.3	
41 – 50 years	5	16.7	1	3.3	2	6.7	
Above 40 years	4	13.3	0	0	0	0	
Gender							$\chi^2=2.800$ d.f=2
Male	12	40.0	1	3.3	2	6.7	p=0.247 N.S
Female	8	26.7	1	3.3	6	20.0	
Religion							$\chi^2=2.786$ d.f=4
Hindu	9	30.0	1	3.3	4	13.3	p=0.594 N.S
Christian	4	13.3	1	3.3	3	10.0	
Muslim	7	23.3	0	0	1	3.3	
Educational status							$\chi^2=4.615$ d.f=8
Illiterate	6	20.0	1	3.3	1	3.3	p=0.798 N.S
Primary	5	16.7	0	0	4	13.3	
Secondary	4	13.3	1	3.3	1	3.3	
Higher secondary	3	10.0	0	0	1	3.3	
Graduate	2	6.7	0	0	1	3.3	
Occupation							$\chi^2=6.221$ d.f=8
Student	2	6.7	0	0	2	6.7	p=0.623 N.S
Unemployed	5	16.7	0	0	2	6.7	
Self employed	12	40.0	2	6.7	3	10.0	
Labour	1	3.3	0	0	0	0	
Office worker	0	0	0	0	1	3.3	
Monthly income							$\chi^2=3.750$ d.f=4
Rs.2000 – 5000	2	6.7	0	0	1	3.3	p=0.441 N.S
Rs.6000 – 10000	8	26.7	2	6.7	2	6.7	
Above 10000	10	33.3	0	0	5	16.7	
Personal habits							$\chi^2=5.159$ d.f=6
Smoking	2	6.7	0	0	1	3.3	p=0.524 N.S
Tobacco chewing	2	6.7	0	0	0	0	
Alcohol	1	3.3	1	3.3	1	3.3	
Drug abuse	-	-	-	-	-	-	
None	15	50.0	1	3.3	6	20.0	
Duration of hospitalization							$\chi^2=0.170$ d.f=2
7 days	9	30.0	1	3.3	3	10.0	p=0.919 N.S
>7 days	11	36.7	1	3.3	5	16.7	
Type of family							$\chi^2=1.148$ d.f=2
Nuclear family	14	46.7	1	3.3	4	13.3	p=0.563 N.S
Joint family	6	20.0	1	3.3	4	13.3	
Marital status							$\chi^2=0.104$ d.f=2
Unmarried	8	26.7	1	3.3	3	10.0	p=0.949 N.S
Married	12	40.0	1	3.3	5	16.7	
Widow	-	-	-	-	-	-	
Divorced	-	-	-	-	-	-	
Separated	-	-	-	-	-	-	

N.S – Not Significant

Table 12 shows that none of the demographic variables had shown statistically significant association with post test level of pain among SICU patients in the experimental group.

mean difference score was 3.93 and mean difference percentage was 4.68%. The calculated student independent 't' test value of t = 1.125 was not found to be statistically significant. This clearly indicates that there was no significant difference in the pretest level of sleep quality among SICU patients between the groups.

The table 11 also shows that the post test mean score of sleep quality among SICU patients in the experimental group was 21.03±11.98 and the mean score of sleep quality in the control group was 41.10±13.25. The mean difference score was 20.07 and mean difference percentage was 23.89. The calculated student independent 't' test value of t=6.155 was found to be statistically significant at p<0.001 level. This clearly indicates that there was significant difference in the post test level of sleep quality among SICU patients between the groups. This clearly infers that Aromatherapy on improving the sleep quality administered among SICU patients in the experimental group was found to be effective in reducing the sleep disturbance and improving the sleep quality than the SICU patients in the control group who had undergone normal hospital routine measures.

Table 13: Association Of Post Test Level Of Sleep Among SICU Patients With Their Selected Demographic Variables In The Experimental Group. n = 30

Demographic Variables	Good Sleep		Mild Disturbance		Moderate Disturbance		Severe Disturbance		Chi-Square & p-value
	F	%	F	%	F	%	F	%	
Age									$\chi^2=6.260$
21 – 30 years	8	26.7	1	3.3	0	0	1	3.3	d.f=9 p=0.714 N.S
31 – 40 years	7	23.3	0	0	0	0	1	3.3	
41 – 50 years	7	23.3	0	0	1	3.3	0	0	
Above 40 years	4	13.3	0	0	0	0	0	0	
Gender									$\chi^2=4.154$
Male	14	46.7	1	3.3	0	0	0	0	d.f=3 p=0.245 N.S
Female	12	40.0	9	0	1	3.3	2	6.7	
Religion									$\chi^2=4.038$
Hindu	12	40.0	1	3.3	1	3.3	0	0	d.f=6 p=0.671 N.S
Christian	7	23.3	0	0	0	0	1	3.3	
Muslim	7	23.3	0	0	0	0	1	3.3	
Educational status									$\chi^2=16.923$
Illiterate	8	26.7	0	0	0	0	0	0	d.f=12 p=0.153 N.S
Primary	6	20.0	0	0	1	3.3	2	6.7	
Secondary	6	20.0	0	0	0	0	0	0	
Higher secondary	4	13.3	0	0	0	0	0	0	
Graduate	2	6.7	1	3.3	0	0	0	0	
Occupation									$\chi^2=26.415$
Student	3	10.0	1	3.3	0	0	0	0	d.f=12 p=0.009 S**
Unemployed	5	16.7	0	0	1	3.3	1	3.3	
Self employed	17	56.7	0	0	0	0	0	0	
Labour	1	3.3	0	0	0	0	0	0	
Office worker	0	0	0	0	0	0	1	3.3	
Monthly income									$\chi^2=5.827$
Rs.2000 – 5000	3	10.0	0	0	0	0	0	0	d.f=6 p=0.443 N.S
Rs.6000 – 10000	9	30.0	1	3.3	0	0	2	6.7	
Above 10000	14	46.7	0	0	1	3.3	0	0	
Personal habits									$\chi^2=1.678$
Smoking	3	10.0	0	0	0	0	0	0	d.f=9 p=0.996 N.S
Tobacco chewing	2	6.7	0	0	0	0	0	0	
Alcohol	3	10.0	0	0	0	0	0	0	
Drug abuse	-	-	-	-	-	-	-	-	
None	18	60.0	1	3.3	1	3.3	2	6.7	
Duration of hospitalization									$\chi^2=2.120$
7 days	11	36.7	0	0	1	3.3	1	3.3	d.f=3 p=0.548 N.S
>7 days	15	50.0	1	3.3	0	0	1	3.3	
Type of family									$\chi^2=2.506$ d.f=3 p=0.474 N.S
Nuclear family	17	56.7	0	0	1	3.3	1	3.3	$\chi^2=0.104$ d.f=2 p=0.949 N.S
Joint family	9	30.0	1	3.3	0	0	1	3.3	
Marital status									
Unmarried	11	36.7	1	3.3	0	0	0	0	
Married	15	50.0	0	0	1	3.3	2	6.7	
Widow	-	-	-	-	-	-	-	-	
Divorced	-	-	-	-	-	-	-	-	
Separated	-	-	-	-	-	-	-	-	

**p<0.01, S – Significant, N.S – Not Significant

Table 13 shows that the demographic variable occupation ($\chi^2=26.415$, $p=0.009$) had shown statistically significant association with post test level of sleep quality among SICU patients in the experimental group at $p<0.01$ level and the other demographic variables had not shown statistically significant association with post test level of sleep quality among SICU patients in the experimental group.

DISCUSSION

The First Objective Of The Study Was To Assess The Level Of Pain And Sleep Quality Among SICU Patients In Experimental And Control Group.

In the pretest of the experimental group, 17(56.67%) had moderate pain, 7(23.33%) had mild pain and 6(20%) had severe pain whereas in the post test, 20(66.66%) had no pain, 8(26.7%) had moderate pain and 2(6.7%) had mild pain. In the pretest of the control group, 20(66.67%) had moderate pain, 6(20%) had mild pain and 4(13.33%) had severe pain whereas in the post test, 19(63.33%) had moderate pain, 6(20%) had severe pain and 5(16.67%) had mild pain. In the pretest of the experimental group, 11(36.67%) had mild and moderate sleep disturbance and 8(26.66%) had severe sleep disturbance whereas in the post test, 26(86.67%) had good sleep, 2(6.67%) had severe sleep disturbance and 1(3.33%) had mild and moderate sleep disturbance. In

the pretest of the control group, 14(46.67%) had mild sleep disturbance, 10(33.33%) had moderate sleep disturbance, 5(16.67%) had severe disturbance and 1(3.33%) had good sleep whereas in the post test, 12(40%) had mild sleep disturbance, 9(30%) had moderate sleep disturbance, 7(23.33%) had severe Sleep disturbance and 2(6.7%) had good sleep.

Tewodros Eyob Woldehaimonot et.al 2014:

A prospective cross sectional study was conducted on post operative pain management among surgically treated patients. 252 post operative patients were conducted during Feb 13 to April 30, 2012. American pain society patient outcome questionnaire was used to assess the pain experience of patients. The aim of this study was to assess the processes and outcomes of pain management in surgical wards of Jimma University Specialized Hospital, Ethiopia. Incidence of post operative pain was 91.4% and remain high over 3 measurements ($p<0.05$) and 80.1% patients are under treated. The mean pain intensity and pain interference on functional status were 6.72 ± 1.44 and 5.61 ± 1.13 on a 10 point numerical rating scale respectively, both being strongly correlated ($r=0.86$; $p<0.001$). The study has high satisfaction with pain management, the majority of patients were inadequately and appropriately treated.

The second objective of the study was to assess the effectiveness of aromatherapy on relief pain and improving sleep experimental group

The present study of pre-test mean score of pain among SICU patients in the experimental group was 5.43 ± 2.13 and the post test mean score of pain was 1.37 ± 2.22 . The mean difference score was 4.06 and mean difference percentage was 40.6%. The calculated paired 't' test value of $t = 13.422$ was found to be statistically significant at $p < 0.001$ level. This clearly indicates that Aromatherapy on relief of pain administered among SICU patients in the experimental group was found to be effective in reducing the level of pain in the post test. In the pre-test mean score of sleep quality among SICU patients in the experimental group was 42.70 ± 13.04 and the post test mean score of sleep quality was 21.03 ± 11.98 . The mean difference score was 21.67 and mean difference percentage was 25.8%. The calculated paired 't' test value of $t = 9.199$ was found to be statistically significant at $p < 0.001$ level. This clearly indicates that Aromatherapy on improving the sleep quality administered among SICU patients in the experimental group was found to be effective in reducing the sleep disturbance thereby improving the sleep quality among the SICU patients in the post test.

Mizrak Sahin et.al 2020:

A study was conducted on effect of aromatherapy massage with lavender oil on post operative pain levels of patient who underwent gynaecologic surgery. This study was a randomised, placebo – controlled study. The sample consists of 3 groups of patient that is experimental group, massage application with lavender oil ($n=15$), a placebo group, massage application with ultrasound gel ($n=15$) and control group ($n=15$). Pain levels of the patient in the experimental and placebo group were evaluated with a Verbal Rating Scale at 30min and 3rd hrs after application. The VRS score of the 3 groups did not show a significant difference in terms of group and time interaction ($p=.221$). However, there was a significant difference in VRS scores between the experimental and control group at 30 min after the massage ($p=.036$). The difference was caused by the lower pain level of the group, which had massage with lavender oil (2.66 ± 8.9) compared with the control group (3.80 ± 1.01).

Third objective of the study was to compare the pre-test and post-test pain score among SICU patients in experimental and control group.

The pre-test mean score of pain among SICU patients in the experimental group was 5.43 ± 2.13 and the mean score of pain in the control group was 5.87 ± 1.93 . The mean difference score was 0.44 and mean difference percentage was 4.4%. The calculated student independent 't' test value of $t = 0.827$ was not found to be statistically significant. This clearly indicates that there was no significant difference in the pre-test level of pain among SICU patients between the groups. In the post test mean score of pain among SICU patients in the experimental group was 1.37 ± 2.22 and the mean score of pain in the control group was 5.13 ± 1.63 . The mean difference score was 3.76 and mean difference percentage was 37.6. The calculated student independent 't' test value of $t = 7.483$ was found to be statistically significant at $p < 0.001$ level. This clearly indicates that there was significant difference in the post test level of pain among SICU patients between the groups. This clearly infers that Aromatherapy on relief of pain administered among SICU patients in the experimental group was found to be effective in reducing the level of pain than the SICU patients in the control group who had undergone normal hospital routine measures.

Sabah A.Ahmed et.al 2019: A study was conducted on the effect of aromatherapy massage on post-operative sleep pattern among school age children. A quasi experimental research design was utilized. 100 samples were collected from school age children who were suffering from post operative poor sleep. They were divided in to two groups experimental group (50 children who received aromatherapy massage) and control group (50 children who received routine care). The study shows that they were statistical significant difference between the two groups in pre-test, first post-test and second post-test mean score (11.66 ± 2.54 , 9.50 ± 0.97 and 5.80 ± 0.70) respectively. The study concluded that aromatherapy massage with lavender oil may be effective therapeutic for post-operative sleep pattern.

The Fourth Objective Of The Study Was To Compare The Pre-test And Post-test Quality Of Sleep Among SICU patients in experimental and control group

The pre-test mean score of sleep quality among SICU patients in the

experimental group was 42.70 ± 13.04 and the mean score of sleep quality in the control group was 38.77 ± 14.02 . The mean difference score was 3.93 and mean difference percentage was 4.68%. The calculated student independent 't' test value of $t = 1.125$ was not found to be statistically significant. This clearly indicates that there was no significant difference in the pre-test level of sleep quality among SICU patients between the groups. In the post test mean score of sleep quality among SICU patients in the experimental group was 21.03 ± 11.98 and the mean score of sleep quality in the control group was 41.10 ± 13.25 . The mean difference score was 20.07 and mean difference percentage was 23.89. The calculated student independent 't' test value of $t = 6.155$ was found to be statistically significant at $p < 0.001$ level. This clearly indicates that there was significant difference in the post test level of sleep quality among SICU patients between the groups. This clearly infers that Aromatherapy on improving the sleep quality administered among SICU patients in the experimental group was found to be effective in reducing the sleep disturbance and improving the sleep quality than the SICU patients in the control group who had undergone normal hospital routine measures.

Zeynep Karaman Ozlu et.al 2017:

A study was conducted on effect of aromatherapy massage on the sleep quality and physiological parameters of patients in a surgical intensive care unit. The sample of this study consisted of 60 patients who were divided into in to two groups as experimental group and control group including 30 patient in each one. The study tool used that Richards – Campbell Sleep Scale and the results indicated that experimental group had a mean score of 53.80 ± 13.20 , the control group had a mean score of 29.08 ± 9.71 . The study concluded that aromatherapy massage enhanced the sleep quality of patients in SICU.

The Fifth Objective Of The Study Was To Find The Out Association Between Post-test Level Of Pain And Sleep With Selected Demographic Variables

The chi-square test was done on post operative patients pain and there was no significant association between the selected demographic variables like age, gender, religion, educational status, occupation, monthly income, personal habits, duration of hospitalization, type of family and marital status and in sleep also there is was no significant association between the selected demographic variables like age, gender, religion, educational status, monthly income, personal habits, duration of hospitalization, type of family and marital status.

CONCLUSION

This study revealed that there is highly significance of administration of aromatherapy massage in relieving pain and inducing sleep pattern. The findings related to decrease the level of pain in the experimental group post test score was 1.37 ± 2.22 (40.6%) in comparison to pre test score 5.43 ± 2.13 . The post test score of sleep quality in experimental group showed significant effective by the post test score 21.03 ± 11.98 (25.8%) difference. And in the comparison between pre test and post test level of pain score difference was achieved by 7.4% at $p < 0.001$ level in experimental group which is highly effective and the pre test post test sleep quality score difference was achieved by 23.89% at $p < 0.01$ level in experimental group and is highly effective. The association level of post test level of pain with their selected demographic variables was not significant. The association of post test level of sleep quality with selected variable occupation was significant at level $p < 0.01$. In the other demographic variables did not showed any significant with the quality of sleep.

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