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A Quasi experimental study to evaluate the effectiveness of foot massage in reducing pain among postoperative patients, undergone abdominal surgery in a selected hospital, Mangalore

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ABSTRACT:

Background: Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. Management of postoperative pain relieves suffering and leads to earlier mobilization. Better post-operative pain management shortens hospital stay, reduces hospital costs and increases patient satisfaction. Foot massage have been really effective in passing the energy from these reflex points to the organs they are associated with. Though both the hands and feet are vital for performing massage, the focus is laid majorly on the feet.

Objectives: To assess the effectiveness of foot massage in reducing pain among postoperative patients, undergone abdominal surgery in a selected hospital

Method: After taking consent, a pre-test was conducted on 30 post-operative patients to assess the pain scale score using Numerical pain scale score. A Quasi experimental pre-test, Post test control group, experimental group design is chosen. Intervention Foot massage was given for 15 patients in experimental group.15 patients in control group just received analgesics. Post-test was conducted to assess the effectiveness of foot massage.

Results: Post-test post-operative pain score (5.2 ±1.4) was lower than the mean pre-test score (8.4±0.952). The calculated t value (t_{14}=10.267, p=<0.05) was greater than the table value (t_{14}=2.15) at 0.05 level of significance.

Conclusion: The Foot massages are effective in reducing Post-operative pain in patients, who had abdominal surgeries.

Key Words: Effectiveness, Foot massage, post-operative, abdominal surgery

INTRODUCTION:

Pain after abdominal surgery delays the discharge of the patient from the hospital. The health care cost increases because of longer hospital stays, and the negative effect of pain, results in the patient's loss of productivity.

Management of postoperative pain relievers suffering and leads to earlier mobilization. Better post-operative pain management shortens hospital stay, reduces hospital costs and increases patient satisfaction. Alternative medicine or complementary medicine is any practice that is put forward as having the healing effects of medicine.

The practice of foot massage has a long history. Even the ancient cultures upheld a tradition of massaging the feet to improve wellbeing. Foot massage have been really effective in

passing the energy from these reflex points to the organs they are associated with. Though both the hands and feet are vital for performing massage, the focus is laid majorly on the feet.

OBJECTIVES:

The objectives of the study are:

- To assess post-operative pain in control group and experimental group.
- To assess the effectiveness of foot massage in reducing post operative pain in experimental group.
- To find out the association between post operative pain and selected baseline variables of experimental group.

VARIABLES:

It refers to the characteristics or an attribute of a person or objects with in population under study.

Baseline variable: The variables are Age, Gender, Occupation, Use of other Remedial measures, Past abdominal surgery, Type of present surgery, Type of incision, Type of analgesics client is receiving (from records).

Independent variable:-

in this study the independent variable is foot massage.

Dependent variable:

in this study dependent variable is post operative pain

HYPOTHESIS:

The hypothesis will be tested at 0.05 level of significance.

H_1: There will a significant difference between pre-test and post-test post operative pain scores in experimental group.

H_2: There will be significant difference between post-operative pain score of experimental group and control group after foot massage.

H_3: There will be significant association of the post-operative pain scores with selected baseline variables in experimental group

SAMPLING CRITERIA

1) **INCLUSION CRITERIA**
   a) Post operative patients who can understand Kannada or English.
   b) Who are willing to participate in the study.
   c) Who are available during the time of data collection.
   d) Post operative patients with Pain score greater than 3 as measured by Numerical pain rating scale.
2) **EXCLUSION CRITERIA S**

a) Post operative patients, who were seriously ill.
b) Post operative patients, who developed any complications like vomiting, confusion, drowsiness, deep vein thrombosis.

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c) Post operative clients, who had previous foot injuries like diabetic foot ulcers, fractures.
d) Post operative clients, who were with intellectual or cognitive impairment and communication problems including dyslexia, blindness, deafness and mental retardation.

METHODOLOGY:

Research Approach: Evaluative Approach.
Research Setting: District Govt. Wenlock Hospital, Mangalore.
Population: Post operative patients who have undergone abdominal surgery
Sample: 30 post operative patients (15 experimental and 15 control group) in the selected hospital at Mangalore
Sampling Procedure: Purposive sampling

METHOD OF DATA COLLECTION:

- Prior permission for the study was obtained from concerned authority District Medical Officer.
- Self-introduction and purpose of the data collection was explained to the sample and informed consent was obtained.
- Samples were selected according to the inclusion criteria.
- The samples were chosen based on purposive sampling (15 in each group) for experimental and control group.
- Data was collected from 01/12/2015 to 30/12/2015 using the Standardized Numerical Pain Rating scale.
- Pretest data was collected on the first day and Foot massage was administered to the experimental group twice a day for 5 days (12 minutes to each foot), one to two hours prior to their pain relief medications.
- Post-test was conducted after five days of foot massage therapy on the sixth post operative day with same Numeric pain rating scale with in experimental group and without foot massage in control group.

RESULTS:

Distribution Of Pre-test Level Of Post-operative Pain in both Experimental and Control Group:

a)Distribution of pre-test level of post-operative pain in experimental group:

Pre-test level of post-operative pain was assessed by using Numeric pain rating scale and was analyzed using descriptive statistics.

n=15

Level of post-operative pain	Frequency (f)	Percentage (%)

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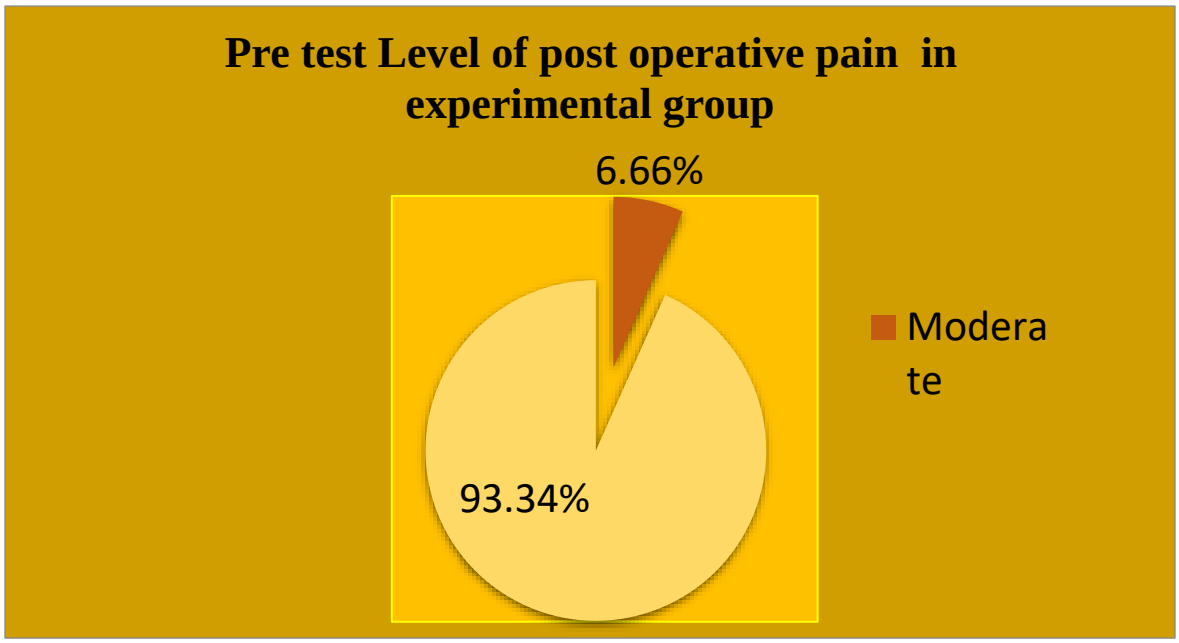
Mild	**0**	**0.00%**
Moderate	**1**	**6.66%**
Severe	**14**	**93.34%**



b)Pre-Test Level Of Post-Operative Pain in Control Group

Pre-test level of post-operative pain was assessed by Numeric pain rating scale and was analysed using descriptive statistics

n=15

Level of Post operative pain	Frequency(f)	Percentage(%)
Mild	**0**	**0.00%**
Moderate	**0**	**0.00%**

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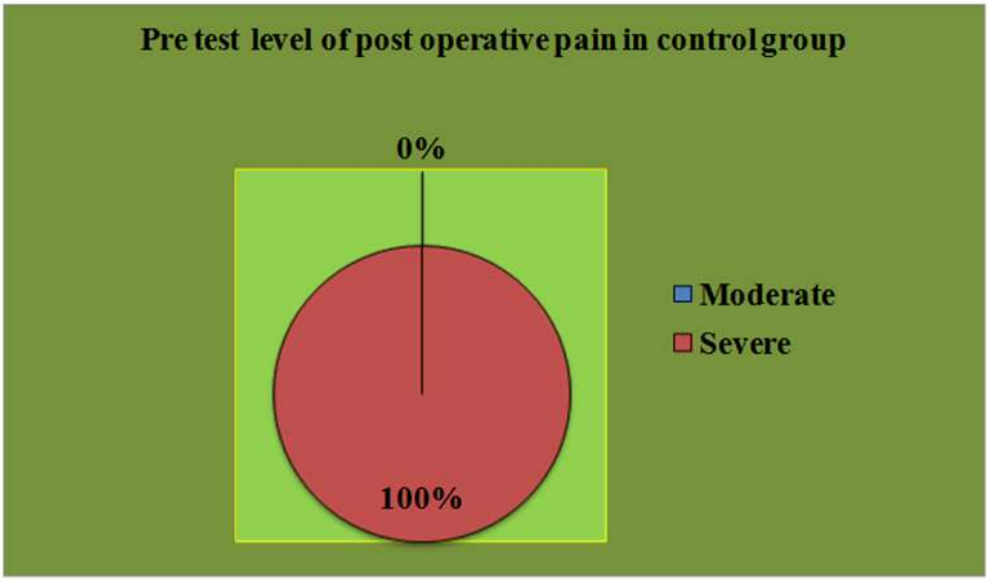
Severe	**15**	**100%**



C) COMPARISON OF PRE-TEST AND POST-TEST SCORES OF EXPERIMENTAL GROUP

To compare the pre-test scores of experimental groups, frequency and percentage distribution of sample according to the level of post-operative pain in experimental group is calculated.

n=15

Post-operative pain	EXPERIMENTAL GROUP			
	Pre-test pain scores		Post-test pain scores	
	(f)	(%)	(f)	(%)
Mild pain	0	0.00%	2	13.34%
Moderate pain	1	6.66%	10	66.66%

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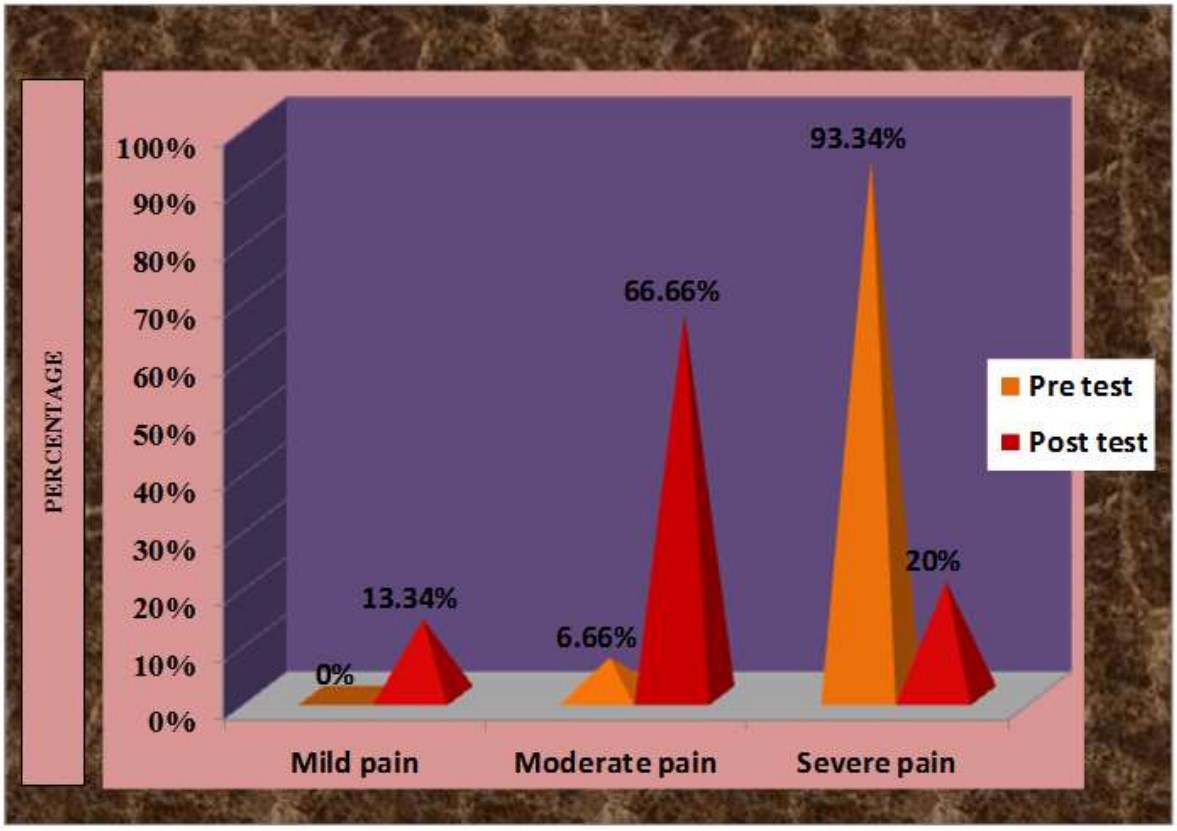
Severe pain	14	93.34%	3	20%

Pyramid diagram showing pre-test and post-test level of post-operative pain in the experimental group



Range, mean, median and SD of pre-test and post-test post operative pain score of experimental group

n=15

Group		Range of scores	Mean	Median	SD
Experimental group	Pre test	6-10	8.4	8	0.952

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	Post test	3-8	5.2	5	1.4

The data shows that, in the experimental group the mean post-test score (5.2 ± 1.4) were less than that of mean pre-test score (8.4 ± 0.952).

Mean, standard deviation, mean difference and t-value of pre-test and post-test post operative pain scores in experimental group

n=15

Test	Effectiveness			
	Mean score	SD	Mean difference	t-value
Pre test	8.4	0.952	3.2	10.267
Post test	5.2	1.4		

Data in the table shows that the mean post-test post operative pain score (5.2 ±1.4) was lower than the mean pre-test score (8.4±0.952). The calculated t value (t_{14}=10.267, p=<0.05) was greater than the table value (t_{14}=2.15) at 0.05 level of significance. Hence the null hypothesis was rejected and research hypothesis is accepted.

Comparison of pre-test and post-test score of control group

To compare the pre-test and post-test scores of control group, frequency and percentage distribution of sample according to the level of post-operative pain in control group is as follows

n=15

Level of post operative pain	**Control group**			
	Pre test		Post test	
	(f)	(%)	(f)	(%)

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Mild pain	0	0%	0	0%
Moderate pain	0	0%	6	40%
Severe pain	15	100%	9	60%

Pyramid diagram showing pre-test and post-test level of post-operative pain in the control group

Range, mean, median and SD of pre-test and post-test post operative pain scores of control group.

The data shows that, in the control group the mean post-test post operative pain score (7.066±1.436) was almost similar to the mean pre-test post operative pain score (8.67±0.814).

Group	Range of score	Mean	Median	SD

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Control group	Pre test	8-10	8.67	8	0.814
	Post test	4-10	7.066	7	1.436

COMPARISON OF POST-TEST SCORES OF EXPERIMENTAL & CONTROL GROUP

To compare the post-test scores of experimental and control group, frequency and percentage distribution of sample according to the level of post operative pain in both groups is calculated.

Level of post operative pain	Experimental group		Control group	
	Post test		Post test	
	(f)	(%)	(f)	(%)
Mild pain	2	13.34%	0	0%
Moderate pain	10	66.66%	6	40%
Severe pain	3	20%	9	60%

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CONICAL DIAGRAM SHOWING POST-TEST LEVEL OF POST OPERATIVE PAIN IN THE EXPERIMENTAL AND CONTROL GROUP

Mean, SD, mean difference and t-value of post-test post operative pain score in experimental group and control group.

Group	Mean score	SD	Mean difference	t-value
Experimental group	5.2	1.4236	1.866	3.5
Control group	7.066	1.436		

(tabulated value t_{28}=2.05 at 0.05 level of significance)

Data in the table shows that the mean post-test post operative pain score (5.2) after foot massage was lower than the mean pre-test score (8.4). The calculated t-value (t_{28}=3.5, p=<0.05) was greater than the table value (t_{28}=2.05) at 0.05 level of significance. Hence the null hypothesis was rejected and research hypothesis was accepted. This shows foot massage was effective in reducing post operative pain.

ASSOCIATION BETWEEN LEVEL OF POST OPERATIVE PAIN AND BASELINE VARIABLES

Baseline characteristics	**Df**	**χ^2**	**p value**	**Inference**
Age	1	0.156	3.84	NS

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Gender	1	0.016	3.84	NS
Occupation	1	0.156	3.84	NS
Use of remedial measures	1	0	3.84	NS
Past surgeries	1	76.7	3.84	S
Type of present surgery	1	4.79	3.84	S
Type of incision	1	0	3.84	NS
Type of analgesic use	1	73.016	3.84	S

S=significant, NS=not significant

(Table value of chi-square at 1 df with 5% level = 3.84)

The data presented in the calculated chi-square value is greater than that of table value (3.84) at 0.05 level of significance, hence the null hypothesis $H_0$3 can be rejected and concluded that there is significant association between past surgery, present surgery, type of analgesic use and post-operative pain.

DISCUSSION:

Management of acute post-operative pain has received keen attention in recent years with considerable concurrent advancement in the field. Despite this advancement, post-operative pain continues to be a challenge and is often inadequately treated, leading to patient anxiety, stress and dissatisfaction.

The present study was conducted to determine the effectiveness of foot massage for reducing post operative pain among 30 post operative patients at District Government Wenlock, Mangalore. After completion of foot massage, the post-test results of experimental group showed that majority (66.66%) of participants had moderate pain, (20%) had severe post operative pain and (13.33%) had mild post-operative pain in experimental group. In control group, without foot massage the post-test results showed majority (60%) of patients were having severe pain and others (40%) had moderate post operative pain.

The findings of the study is supported by An article "**Foot and hand massage as an intervention for postoperative pain" conducted by** Hsiao-Lan Wang, Juanita F Keck was published in "Pain Management Nursing : An official Journal of the American Society of Management Nursing" Journal in the year June 2004.The purpose of this pretest-post test design study was to investigate whether a 20-minute foot and hand massage (5 minutes to each extremity), which was provided 1 to 4 hours after a dose of pain medication, would reduce pain perception and sympathetic responses among postoperative patients. A convenience sample of 18 patients rated pain intensity and pain distress using a 0 to 10 numeric rating scale. They reported decreases in pain intensity from 4.65 to 2.35 ($t = 8.154$, $p < .001$) and in pain distress from 4.00 to 1.88 ($t = 5.683$, $p < .001$). Statistically significant decreases in sympathetic responses to pain (i.e., heart rate and respiratory rate) were observed although blood pressure remained unchanged. Hence it was

concluded that hand and foot massage was effective in reducing the postoperative pain in patients who have undergone abdominal surgeries.

CONCLUSION:

Pain is not an unavoidable consequence of surgery. In the majority of patients postoperative pain is preventable with adequate analgesics and by the appropriate use of newer techniques. Despite this, a number of surveys have shown a high prevalence of significant pain after surgery. The recognition of the inadequacy of postoperative pain management has prompted the development of corrective efforts by surgeons, anesthesiologists and pain management groups.

This study was done to assess effectiveness of foot massage to reduce post operative pain among post operative patients using foot massage. The samples were 15 patients for experimental group and 15 patients in control group. Pretest was done. Intervention Foot massage was given . After completion of foot massage, the post-test results of experimental group showed that majority (66.66%) of participants had moderate pain, (20%) had severe post operative pain and (13.34%) had mild post-operative pain in experimental group. In control group, without foot massage the post-test results showed that majority (60%) of samples had severe pain and others (40%) had moderate pain.

There was a significant association found between past surgery, present surgery, type of analgesic use and post-operative pain. But there was no association between Age, Gender, Occupation, other remedial measure use and type of incision. So the null hypothesis was rejected and research hypothesis was partially accepted.

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