

EFFECTIVENESS OF TWIN THERAPEUTIC APPROACHES ON PAIN AND ANXIETY AMONG PATIENTS FOLLOWING CARDIAC SURGERY

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Abstract:

The study was conducted to assess the effectiveness of twin therapeutic approaches on pain and anxiety among patients following cardiac surgery. An evaluative approach with quasi experimental design was used for the study. 40 samples were selected by non probability convenience sampling technique. Intervention of Naadichudhi Pranayams and Instrumental music was given as twin therapeutic approaches for the samples in the study group. The present study was conducted in Sri Ramachandra Hospital, Chennai, India. The collected data were analyzed using descriptive and inferential statistics. A significant difference was found between pre test and post test in level of pain and anxiety ($P < 0.001$). The study findings showed that the twin therapeutic approaches were very effective in reducing the pain and anxiety. There was no association found between level of pain and anxiety with demographic variables.

Keywords : Twin therapeutic approaches, Pain, Anxiety, Cardiac Surgery.

Introduction :

The heart starts beating from the fourth week of intra uterine life, the human heart beats 100,000 times a day and pumps 5 liters of blood throughout the body covering 60,000 miles of cardiovascular system to nourish the living tissue. Due to many risk factors, people are developing many cardio vascular diseases. Cardiovascular disease is the leading cause of morbidity and mortality in the developing and developed countries.

WHO (2002) estimated that 45 million patients of coronary artery disease are in India and one fifth of deaths has occurred due to coronary artery disease. By the year 2020, it will account for one third of all deaths.

In order to manage this dreadful disease, medical field has discovered many newer therapeutic measures keeping in pace with the modern technology. The advent of Cardio Pulmonary Bypass

(CPB), availability of durable prosthetic cardiac valves, off-pump Coronary artery bypass graft (CABG) and the current trends in the surgical techniques guaranteed the improved quality of life following cardiac surgery.

Anxiety related to surgery and its outcome increases pain perception and the vise – versa. Pain can adversely affect the physiological as well as the psychological recovery following a surgery. Hence relief of pain and reduction of anxiety remain the major aspects of nursing practice.

Need for the study

Joachim (2006) reported that about 8,00,000 coronary bypass procedures are presently performed every year worldwide, and in India Kasliwal (2006) stated that 25,000 open heart surgeries are being performed every year. Even though there is a vast advance in surgical technique, the anxiety and post operative pain remains unavoidable.

Managing post operative pain continues to be one of the most complex and challenging task encountered by nurses. Nurses are available round the clock to the patients. Hence they are in an excellent position to make significant and

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unique contribution to the patient's pain management. To attain post operative pain control, it is important to incorporate alternative methods of pain management besides administering the routine medication.

Nurses need empirically tested pain relieving methods that is simple and rapid in action. Relaxation techniques are found to decrease pain by reducing anxiety and muscle tension. Many investigations experimented the effectiveness of various relaxation techniques either single or in combination

The combination of music and jaw relaxation is more often tested than other combinations. In an attempt to provide nurses a comprehensive less time consuming relaxation technique, which is easily learned and easily taught, the investigator intended to try the twin therapeutic approaches combining pranayama and music

Statement of the Problem

A study to assess the effectiveness of twin therapeutic approaches on pain and anxiety among patients following cardiac surgery at Sri Ramachandra Hospital, Porur, Chennai

Objectives of the study

- F Assess the level of pain and anxiety among patients following cardiac surgery
- F Determine the effectiveness of twin therapeutic approaches on pain and anxiety among patients following cardiac surgery
- F Associate the selected demographic variables with level of pain and anxiety among patients following cardiac surgery

Review of literature

An experimental study conducted to assess the effect of pranayama on patients following cardiac surgery in a cardiac care centre in Calcutta. A total of 100 samples were selected for the study, 50 in experimental and 50 in control group. The patients were explained about the pranayama prior to the surgery. After 48 hours of removal of ventilator, the patients were asked to perform pranayama for 10

minutes. They identified the yoga breathing technique as a remarkable post surgery recovery with significant decrease in pain level among the experimental group than the control group

An evaluative research determined the effect of relaxation on pain among post operative cardiac patients in cardiac critical care unit, California. A total of 56 samples were selected for the study assigning 28 samples for each group, interventional and non interventional group respectively. Breathing technique was given as an intervention and found a significant decrease in pain level, heart rate and blood pressure in the interventional group than the non interventional group.

A quantitative study was conducted to assess the effects of music therapy on physiological and psychological outcomes among patients who underwent cardiac surgery in Northwestern hospital, USA. A total of 86 patients were selected for the study, assigning 43 samples in two groups. An audio taped instrumental music was given as an intervention for 20 minutes for the first group and other diversions for the second group. Results showed that there was a significant reduction in pain and anxiety level of patients in the first group than the second group.

Materials and Methods :

Research Design

Quasi experimental design was used for present study

E - O1 x O2

C - O1 O2

E – Experimental Group

O1 – Pre test

O2 – Post test

C – Control Group

X – Twin approaches consist of Pranayama and Instrumental Music

Research Setting

The study was conducted in the Cardiology Department at Sri Ramachandra Hospital, Porur, Chennai, which is a multi specialty Hospital with 2500 beds and accreted with JCAI

and NAAC ('A' Grade 3.52). The cardiology department consists of Medical and surgical cardiac critical care units, general wards with female and male sections and private wards with single and shared rooms. Cardiac critical care units have 40 beds in total, general wards have 65 beds in total, private wards have 20 single rooms and semi private wards have 20 rooms. Patients get admitted here for investigation and treatment

Population

Population of the study were patients both male and female who underwent cardiac surgery in the department of cardio thoracic vascular surgery at Sri Ramachandra Hospital, Porur, Chennai

Sample, Sample Size and Sampling technique

Sample of the study were patients both male and female who underwent cardiac surgery and who fulfilled the inclusion and exclusion criteria. The sample size was forty, the control and study group consists of 20 subjects in each group. Non probability convenience sampling technique was used to select the samples.

Data Collection Tool

Data collection tool were consisted of three parts

Part I – Demographic Variables

Part II – Huskisson's 1934 Numerical pain rating scale is otherwise called marked visual analogue

Part III – Spielherger's State Trait Anxiety Inventory (STAI)

Data Collection Process

The investigator got prior oral consent from the subjects. Explanation of the procedure and its rationale was given to the subjects. A calm environment was provided to the subjects by providing privacy and restriction of visitors. Two days prior to the surgery subjects were selected and baseline state and trait anxiety was assessed. Then naadi chudhi pranayama was taught and demonstrated to the subjects of the study group for two evenings prior to the surgery. Naadichudhi Pranayama and instrumental music was given as intervention for three consecutive post operative days from day three to day five. Each day the morning intervention was given one hour prior to

administration of analgesics, then after 11 hours the evening intervention was given for the study group. The duration of intervention was for 25 minutes, five minutes of pranayama and 20 minutes of instrumental music. The investigator assessed the level of state anxiety on the third post operative day morning before the intervention, then on the fifth post operative day after the evening intervention the level of state anxiety was assessed. From the third post operative day till the fifth post operative day pre and post test level of pain was assessed in the morning and evening before and after the intervention. Performance of twin therapeutic approaches was guided and supervised by the investigator

Statistical Analysis

Descriptive statistics (frequency, percentage, mean, standard deviation) and inferential statistics (paired t-test, independent t-test and chi-square) were used to analyze the data and to test the hypothesis

Results :

- F Level of pain shows, in the study group 20 (100%) of them had moderate in the pre test and after the intervention all of them had mild pain in the post test.
- F In the control group, the level of pain was moderate 20 (100%) in both pre and post test.
- F The level of anxiety before the intervention shows that in the study group 20 (100%) of them had state anxiety and after intervention 18 (90%) of them had no anxiety and only 2 (10%) of them had anxiety
- F In the control group, there was no change in level of anxiety in third post operative day as well on the fifth post operative day.
- F The naadi chudhi pranayama and instrumental music were found to be effective. There was a significant reduction in pain and anxiety level at a 'P' level of <0.001 where as no reduction was found in the control group.
- F There was no significant association between demographic and clinical variables with the level of pain and anxiety in the study and control group

Discussion :

The study findings were discussed based on the objectives as follows: The first objective of the study was to assess the level of pain and anxiety among patients following cardiac surgery. Interviewing technique was used to assess the level of pain and anxiety. Percentage distribution of level of pain among patients following cardiac surgery, revealed that in the study group 20 (100%) of them had moderate pain in the pre test, after the intervention all of them had mild pain in the post test. In the control group 20 (100%) of them had moderate level of pain in both pre and post test without the intervention.

The level of state anxiety among patients following cardiac surgery revealed that in the study group, pre operative day anxiety was present in 20 (100%) of them. On the V post operative day 18(90%) of them had no anxiety and only 2 (10%) of them had anxiety. In the control group the pre operative and post operative day anxiety level revealed equal distribution of presence of anxiety at 20 (100%).

The second objective of the study was to determine the effectiveness of twin therapeutic approaches on pain and anxiety among patients following cardiac surgery in the post test. The comparison of pain score among patients following cardiac surgery in the pre and post test within the study and control group revealed that in the study group, it was observed that the pain intensity scores showed a marked reduction of mean pain score on the all three days of intervention. The independent 't' test value shown was very significant at $P < 0.001$ on all three days of intervention. Whereas in control group minimal reduction of pain level was seen and it was statistically insignificant

Third objective was to associate the selected demographic variables with level of pain and anxiety among patients following cardiac surgery. The association of level of anxiety between demographic and clinical variables reveals that in the study group there was no significant association between demographic and clinical variables with the level of anxiety.

Hypothesis :

There is a significant difference in pain and anxiety level among patients following cardiac surgery who receive twin approaches than who do not. The twin therapeutic approaches had effect in terms of reduction of pain and anxiety among post operative patients following cardiac surgery. Thus the stated hypothesis was accepted

Conclusion :

Nurses predominantly play a vital role of primary care giver in hospital setting for patients subjected to major cardiac surgeries. The nurses are well aware of the pain and anxiety experienced by patients after major cardiac surgeries. Hence the nurses have to implement non pharmacological interventions as music and yoga in order to reduce the level of pain and anxiety and promote the comfort of the patient. Nurses working in the general surgical wards neuro wards, renal wards and cardio thoracic wards come across post operative patients with pain and anxiety more frequently. Soon after the analgesic effect weans off for all post operative patients with pain the nurses can install the music and yoga as adjuvant to medication which can be made accessible to patients through the twin therapeutic approaches.

Recommendations

- F A similar study can be conducted as an experimental study with randomization.
- F This study can be replicated on a larger scale.
- F This study can be replicated on a specific gender.
- F A comparative study can be conducted using pranayama and relaxation music.
- F This study can be replicated with biophysiological parameters

The study can be done by maximizing time period of pranayama

Fig 1: Effect of twin therapeutic approaches on pain among patients following cardiac surgery in study and control group.

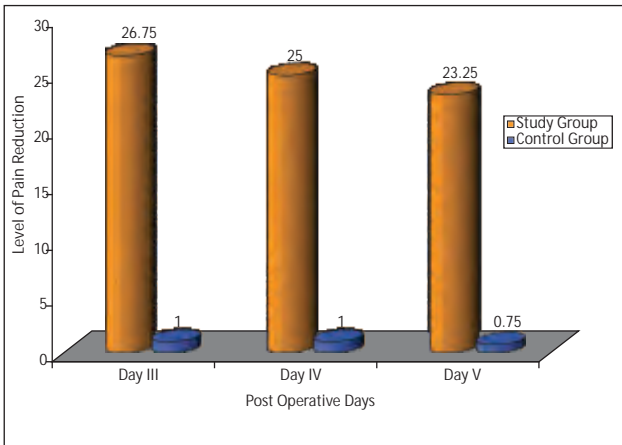


Fig 2 : Comparison of State Anxiety Among Patients Subjected To Cardiac Surgery Before and After the Intervention With in The Study and Control Group

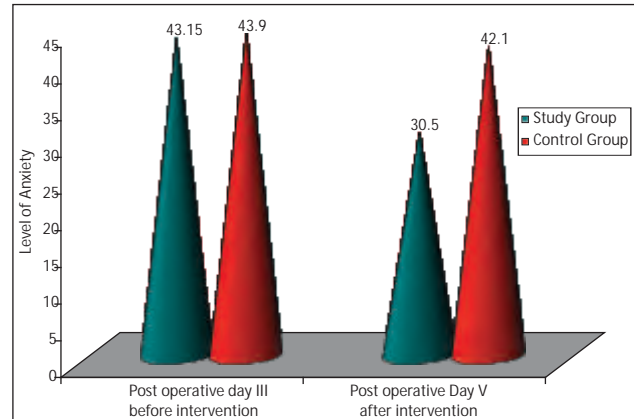


Table 1 : Effect of twin therapeutic approaches on pain among patients following cardiac surgery in study and control group (N=40).

Post operative Day		Study group			Control group		
		Mean	SD	Paired t test	Mean	SD	Paired t test
Day III	Morning	27.00	4.70	25.682 ***	1.00	3.08	1.453
	Evening	26.50	5.87	20.184 ***	1.00	4.47	1.000
Day IV	Morning	25.00	6.07	13.420 ***	2.00	4.10	2.179
	Evening	25.00	5.13	21.794 ***	0.00	3.24	0.000
Day V	Morning	23.50	4.89	21.476 ***	0.00	3.58	0.000
	Evening	23.00	4.70	21.877 ***	1.50	4.89	1.371

*** P< 0.001

This table reveals the effect of intervention on pain by comparing the study and control group. The mean score of pain reduction in the study group was 27.00 with standard deviation of 4.70 on the first day morning and in the evening the mean score was 26.50 with standard deviation of 5.87. The paired't' test proved that there is a statistically significant pain reduction at P<0.001 level whereas control group did not show any significant pain reduction. Similarly on the second day, the data revealed that there was a significant reduction as the mean in the study group was 25.0 with standard deviation of 6.07, paired't' test value was 13.420. On the same evening, the mean score for study group was 25.00 with standard deviation of 5.13 and paired t test value was 21.794

without any change in the control group.

Likewise on the third day, further reduction in pain was noticed as the mean score in the study group was 23.50 with standard deviation of 4.89 and paired't' test value was 21.476 and in the evening mean score was 23.00 with standard deviation of 4.70 and the paired't' test value was 21.87. In control group also very minimal decrease in the level of pain was seen in all three days of observations but it was statistically insignificant. This clearly indicates that the intervention has influenced the pain perception. The analysis of pain scores of control and study group applying paired't' test reveals a highly significant difference (P<0.001)

Table 2 : Effect of twin approaches on anxiety among patients following cardiac surgery in the study and control group (N=40).

Group	Test	State anxiety score		Difference between pre operative and V th post operative day		Paired 't' value
		Mean	S.D	Mean	S.D	Paired 't' value
Study group	Post operative day III before intervention	43.15	3.57	18.00	4.38	18.391***
	V th post operative day after the intervention	30.50	2.61			
Control group	Post operative day III before intervention	43.90	4.59	2.80	3.69	3.390
	V th post operative day after the intervention	42.10	3.95			

***P<0.001

This table shows that there is significant reduction in state anxiety with mean score of 18.00 in the study group. It also shows that there is only slight reduction of state anxiety

with a mean score of 2.80 in the control group. This table reveals that there is a statistically significant reduction of state anxiety'p' level<0.001 in study group than the control group.

References :

- Aiten and Smith, Text book of anesthesia, 3rd edition, 1996; pp.31-32, Churchill Livingstone, New York
- An Marriner Tomey, Text book of Nursing theorist and their work, 4th edition, 1998; pp. 351-363, Mosby publication, Missouri, US
- Ash Burn and Rice, The management of pain, 1998; pp:66-67, Churchill Livingstone, New York
- Barnason, S, The effects of music intervention on anxiety in the patient after undergoing coronary artery bypass grafting. Journal of heart lung, 1995; Vol 24(2), pp124-32. Mosby
- Bezert Scroll, Level of pain and anxiety among patients following cardiac surgery. Journal of cardiac critical care nursing, 2003; Vol 32(3), pp56-58.
- Bregual, M.A, Relationship of pre operative anxiety to post operative pain. Journal of nursing research, 1971; Vol 20(2) pp57-8.
- Broscious, S.K, An intervention for pain during chest tube removal after open heart surgery. American journal of critical care nursing, 1999; Vol 54(6), pp 410-5.
- Braunwald, Text book of heart disease, 5th edition, 2000; pp22-24. Prism books ltd, Bangalore
- Buffum, M.D, A music intervention to reduce anxiety before vascular angiography procedures. Journal of American Heart Association, 2006; Vol 24(3), pp68-73.
- Christianson, P.J. and Kennedy, J.C., Theoretical framework and conceptual models. Nursing process application of conceptual model, 4th edition, 1992; Mosby publication. Philadelphia
- Desmond, Text book of cardiology, 8th edition, 2004; Elsevier publication, Philadelphia
- Enas, K. J, Relative risk of hospitalization for CAD in India Vs other Asians and whites in the U.S.A. Indian heart journal, 1997; Vol 14(3), pp105-113
- Gaillard, P, Effects of music therapy on physiological and psychological outcomes of patients undergoing cardiac surgery. Journal of cardiovascular nurse, 2006; Vol 21(3), pp194-200
- Good, M. Effects of relaxation and music on post operative pain, a review. Journal of advanced nursing, 2001; Vol 24(5), pp905-14.
- Hamel, W.J, The effects of music intervention on anxiety in the patient waiting for cardiac catheterization. Journal of intensive critical care unit, 2001; Vol 17 (5), pp 279-85
- Hertzog, M. Sedative music reduces anxiety and pain during chair rest after open heart surgery. Journal of pain, 2004; Vol 12(1-2), pp197-203.
- Ikonomidou, E. Effects of music on vital signs and post operative pain. Journal of advanced clinical nursing, 2004, Vol 80(2), pp269-74.
- Jyostna, Evaluation of patient with pain hospital today. Journal of advanced clinical nursing, 2000; Vol 66(4) pp23-4.
- Joachim, Incidence of coronary by pass procedures in every year worldwide. Journal of heart lung, 2006; Vol 37(5) pp22-24
- Kasliwal, Incidence of open heart surgeries in india, Indian heart journal, 2006; Vol 22(3) pp34-35
- Kirkilin and Baratt, Text book of cardiac surgery, 3rd edition, 2001; pp34-36. Churchill Livingstone, Birmingham
- Locsin, G. The effect of music on the pain of selected post operative patients. Journal of advanced clinical nursing, 1981 Vol 6(1), pp19-25.
- Marica, Managing pain the fifth vital sign, Nursing Journal of north America, 2000; Vol 35(2), pp 375-76
- Miller & Perry, P.A. Relaxation technique pain in patients undergoing heart surgery. Journal of heart lung, 1995; Vol 26(3), pp112-4.
- Smyth, K.A, Effect of music intervention on noise annoyance, heart rate, and blood pressure in cardiac surgery patients. Journal of critical care nursing, 1997; Vol 6(3), pp183-91.