

7-1-2015

Complementary therapies for patients undergoing cardiac surgery: an evidence based literature review

Ramesh C Mr
MCON, MAHE, Manipal, rameshmsn08@yahoo.com

Baby S. Nayak Dr
MCON, MAHE, Manipal, baby.s@manipal.edu

Vasudev Baburaya Pai Dr
MCON, MAHE, Manipal

Nitin T. Patil Dr
KMC MAHE, Manipal

Follow this and additional works at: <https://impressions.manipal.edu/mjnhs>



Part of the [Nursing Commons](#)

Recommended Citation

C, Ramesh Mr; Nayak, Baby S. Dr; Pai, Vasudev Baburaya Dr; and Patil, Nitin T. Dr (2015) "Complementary therapies for patients undergoing cardiac surgery: an evidence based literature review," *Manipal Journal of Nursing and Health Sciences*: Vol. 1: Iss. 2, .

Available at: <https://impressions.manipal.edu/mjnhs/vol1/iss2/11>

This Review Article is brought to you for free and open access by the MAHE Journals at Impressions@MAHE. It has been accepted for inclusion in Manipal Journal of Nursing and Health Sciences by an authorized editor of Impressions@MAHE. For more information, please contact impressions@manipal.edu.

Complementary therapies for patients undergoing cardiac surgery: an evidence based literature review

Cover Page Footnote

We greatly acknowledge all the authors of the original research articles that have been found useful to write this review article and extend our thanks to the Manipal University's health sciences library for providing facilities to retrieve relevant studies from various online databases.

Complementary therapies for patients undergoing cardiac surgery: an evidence based literature review

Ramesh C¹, Baby S Nayak², Vasudev Baburaya Pai³, Nitin T Patil⁴,
Anice George², Linu Sara George², Elsa Sanatombi Devi²

1) PhD Scholar, Manipal College of Nursing Manipal, Manipal University

2) Professor Manipal College of Nursing Manipal, Manipal University

3) Associate Professor, Kasturba Medical College, Manipal University, Manipal

4) Assistant Professor, Kasturba Medical College, Manipal University, Manipal

Abstract

Background: Cardiovascular diseases (CVD) are increasing rapidly and have become a major health problem worldwide. India, a developing country, is facing the same issue now and has the epidemic of coronary artery disease (CAD). Stress and poor lifestyle habits are identified as well-known risk factors contributing to the development of CVD in many patients. Patients with cardiovascular disease who do not respond to routine medical treatment will have to go through cardiovascular surgeries. **Purpose:** To identify various complementary therapies and update their clinical effectiveness among patients following cardiac surgery. **Methods:** We searched PubMed, Medline, CINAHL, Science Direct, Google Scholar, Scopus, Cochrane library, Indmed, Medind databases for identifying the relevant studies and retrieved available literature. The descriptive synthesis was done. **Conclusion:** Utilization of complementary therapies as adjuvant therapy in the post-operative period will be a promising intervention to reduce anxiety, pain, duration of hospital stay, use of sedative drug, and to promote relaxation, satisfaction and speedy recovery. The evidence is emerging that complementary therapies are the most important aspects of promoting healing experiences among patients following cardiovascular surgery. Further research is required to strengthen the evidence. **Clinical Implications:** Complementary therapies have many non-invasive techniques that are cost-effective. They are simple with fewer side effects when compared to drugs. Recent research shows that these therapies reduce the various risk factors and also improve postoperative outcomes in patients following cardiac surgery.

Key words: Complementary Therapies, Cardiac Surgery, Postoperative Outcomes, Evidence Based Practice, Review.

INTRODUCTION

Cardiovascular diseases (CVD) are becoming a major health problem globally. Cardiovascular disease is the main reason for more than 25% deaths in India. It has been estimated that by next 15 years, cardiovascular diseases will increase drastically in India and that India will have more than 50% of the global burden of cardiovascular disease. In developing countries, coronary artery disease (CAD) and stroke have become the prominent cause of mortality (Gupta, Joshi, Mohan, Reddy, & Yusuf, 2009). If the patients with cardiovascular disease are not responding to medical treatment will have to undergo cardiovascular surgeries.

Undergoing major cardiac surgery is a highly stressful experience for the patients and results in increased levels of anxiety. Stress due to fear, pain or discomfort after major cardiac surgery may have a negative effect which may influence the patient's coping abilities during their recovery and post-operative period (Gonzales, *et al.*, 2010).

Importance of this review

Complementary and alternative therapies have been used by the nurses for many years to alleviate anxiety, minimize or relieve pain and to promote the optimum level of well-being and comfort. These therapies are based on rigorous research

Ramesh C

PhD Scholar, Manipal College of Nursing Manipal, Manipal University, Udupi, Karnataka, India, Pin -576104.

Email: rameshmsn08@yahoo.com

evidence needed to be implemented in nursing care during the postoperative phase as a supplement to pharmacological management. Although analgesic drugs are helpful in reducing the pain, they have adverse effects that may contribute to further discomfort for the patients. There is a necessity for the nurses to identify therapeutic nursing interventions which could be very safe, effective and practically implementable by them to the patients following major cardiac surgery (Hattan, King, & Griffiths, 2002).

METHODS

We searched PubMed, Medline, CINAHL, Science Direct, Google Scholar, Scopus, Cochrane library, Indmed, Medind databases for identifying the relevant studies and available literature. Different combinations of search terms were used to collect available literature and retrieved relevant research studies. Search terms included were complementary therapies, alternative therapies, cardiac surgery, coronary artery bypass graft surgery, CABG, pain, anxiety, and postoperative outcomes. The descriptive synthesis was adapted to report the findings.

Predictors of pain and anxiety

Although cardiac surgery is very useful and essential, it is highly a stressful condition for patients. There are certain factors that influence anxiety during surgery such as anaesthesia-related issues, outcomes of surgery, pain, complications, fear of death, etc. Numerous researchers and clinicians consider that it is important to know about the predictors of anxiety and pain during the time of surgery to render targeted interventions for patients to overcome these predictors. The severity of anxiety and pain will differ among patients during major cardiac surgery. The level of anxiety will be higher in patients with critical states admitted into the emergency room for chest pain and informed that bypass surgery is scheduled for next day morning when compared to the patients at outpatient department for cataract surgery scheduled weeks in advance (Flory, Salazar, & Lang, 2007).

Complementary Therapies

Complementary therapies or alternative medicines are used as adjuvant therapy alongside the conventional medical management to enhance overall health and wellbeing of the patients. Examples of these therapies include yoga, massage therapy, progressive muscle

relaxation, acupuncture, acupressure, reflexology, aromatherapy, music therapy, guided imagery, and meditation. Normally, drugs are administered to manage anxiety and pain during pre and post-operative period, but growing research evidence shows the importance of complementary therapies in the post-operative period. These therapies are practiced to minimize pain, anxiety, duration of hospital stay, use of sedative drugs and to promote relaxation, sleep, satisfaction and well-being (Hart, 2009).

There has been a focus on complementary therapy or non-pharmacological techniques to manage or alleviate pain and anxiety in the recent years. Patients and family members as healthcare consumers are looking to seek a care in holistic approach by making use of alternative and complementary therapies to promote optimum level of health and sense of well-being. Complementary therapies or non-pharmacological methods have many non-invasive techniques that are cost-effective, simple with fewer side effects when compared to drugs (Wentworth, *et al.*, 2009).

Complementary therapies are believed to reduce anxiety and pain by arousing the relaxation through stimulation of mechanism of the parasympathetic nervous system. Additionally, to decrease tension and pain during the postoperative period after the surgery, complementary therapies intensively engage the patients and aid in speedy recovery (Vibhu, Kshetry, Carole, Henly, & Sendelbach, 2006). Complementary therapies are also supported by the British Medical Association as various indicators advocate that there is a significant rise in the use of alternative therapies over the recent years and growing interest in non-conventional therapies. It is estimated that one in every third adult uses some kind of complementary therapy in the United States of America (Antigoni & Dimitrios, 2009).

Patient's experience in complementary therapies

Complementary practitioners revealed that patients gain many psychological and personal benefits from complementary therapies. The following benefits were noted in nurse-led reflexology, aromatherapy and massage therapies: improved psychological well-being, reduced level of anxiety, enhanced sense of well-being and self-confidence, relief of stress and tension, facilitation of a positive experience, relief

from side effects such as pain, constipation, muscle tension, insomnia, oedema, headache and vomiting (Kilbey, 2005).

Available evidences of complementary therapies in cardiac surgery

Massage Therapy

Massage therapy helps in reducing tension and aids in relaxation and is widely accepted; massage therapy may be a powerful tool according to emerging research evidence which states that it is a useful intervention in reducing anxiety, pain, discomfort and duration of hospital stay postoperatively. Therapeutic massage stimulates the sensory receptor in the nervous system to activate the parasympathetic activity. A patient, who receives a therapeutic massage after the surgery, recovers soon and heals faster because it decreases adrenaline and cortisol results in reduced pain, improved sleep. Massage also increases the levels of serotonin and endorphin contributing to higher levels of growth hormone (Fritz, 2013).

Randomized controlled trials on patients following cardiac surgery concluded that there was a significant reduction in anxiety, muscular tension and pain, while there was improved satisfaction and relaxation in the postoperative period among patients who received the intervention (Braun, *et al.*, 2012)(Bauer, *et al.*, 2010).

Yoga and Meditation

Yoga has been recognized as a most beneficial complementary and alternative therapy, compared to the expensive pharmacological therapy. Yoga has been practiced for many centuries because of its therapeutic benefits in India. Yoga is being explored currently in the western countries due to its increased reputation among larger population. Yoga and meditation incorporate the body and mind for positive health and spiritual benefits, it comprises Asanas (Yogic exercise) Pranayama (Breathing exercises) and Dhyana (Meditation). Yoga stimulates the parasympathetic nervous system to work against the sympathetic system to balance the stress and reduce excessive stress (Sharma & Haider, 2012).

A randomized clinical trial evaluated the effect of pranayama on the incidence of post-operative pulmonary complications among patients undergoing CABG surgery. Results revealed that the patients assigned to pranayama therapy

demonstrated improved oxygenation and reduced post-operative complications (Bedi, Gupta, & Singh, 2010). Meditation has been identified as a very successful measure for reducing pain and anxiety and also it is the best way to promote relaxation. The practice of meditation contributes to the stability of haemodynamics among the patients during the post-operative period. Patients who practiced spiritual based medications had more comfortable stay and experience in the hospital. Meditation improves the recovery and minimizes pain, anxiety, suffering, and decreases the costs and stay in the hospital among the patients after surgery (Kiran, 2011).

Guided Imagery

Guided imagery is a method that guides the imagination. It is a healing practice in which an implementer uses descriptive language aimed to promote psychological benefits, frequently connecting numerous or all senses, in the mind of the listener. Imagination plays a significant role along with discussions with the person in this method. Guided imagery practice with patients undergoing cardiac surgery supports that it has potential benefits during the recovery from surgery.

A randomized controlled trial evaluated the efficacy of guided imagery on psychological outcomes among patients following CABG surgery. The study concluded that guided imagery is very pleasant and beneficial to the patients. It also concluded that it is worth exploring its potential benefits with a larger sample of the population undergoing cardiac surgery (Stein, *et al.*, 2010). Another randomized controlled trial reported that guided imagery, relaxation and foot massage appeared to be very effective complementary therapy for promoting psychological wellbeing among patients following coronary artery bypass graft surgery. Both the interventions were well accepted by the patients, there was a significant effect on the calmness scores (Griffiths, 2002).

Progressive Muscle Relaxation (PMR)

PMR is a method of learning to monitor and decrease the muscle tension. It was established in the early 1920 by American physician Edmund Jacobson. In this technique, each group of major muscles is slowly tensed and relaxed in sequence. It is a well-accomplished therapy for reducing psychological issues among patients with chronic health problems.

A research study evaluated the efficacy of PMR on anxiety and quality of life among patients undergoing CABG surgery and the study concluded that progressive muscle relaxation is an efficient intervention for the promotion of psychological well-being and quality of life (Dehdari, Heidarnia, Ramezankhani, Sadeghian, & Ghofranipour, 2009). An experimental research evaluated the effect of progressive muscle relaxation and guided imagery among patients following cardiac surgery or myocardial infarction. Results have shown that depression scores were significantly reduced in the experimental group and also suggested that more intensive sessions on this relaxation method may result in more positive outcomes (Collins, 1997).

Reflexology

Reflexology is a non-invasive alternative therapy involving the application of appropriate pressure without the use of oil or lotion to certain points and parts of the body, such as ear, hands and feet with specific thumb or finger. It can minimize the activity of sympathetic nervous system resulting in promotion of psychological well-being and relaxation.

Findings of randomized controlled trial on efficacy of foot reflexology reported a significant reduction in anxiety. The study results well documented that foot reflexology is a useful complementary therapy for alleviating anxiety (Nesami, *et al.*, 2014). Another study was conducted on the efficacy of foot reflexology on pain during the chest tube removal among patients undergoing heart surgery. The study concluded that foot reflexology is a beneficial nursing intervention to promote psychological wellbeing, speedy recovery without any complications with the least cost (Babajani, Darzi, Ebadi, Mahmoudi, & Nasiri, 2014).

Music Therapy

Music is a pleasurable source to alleviate suffering and sickness among many people and it has been used throughout history. Music is a complementary therapy often used as adjuvant therapy to the routine pharmacological method in managing the post-operative pain and anxiety. Music has been used to promote health and wellbeing among patients from a nursing perspective.

An experimental research study evaluated the efficacy of music on psychological outcomes and

physiological parameters among patients following cardiac surgery. Results revealed that there was a significant reduction in pain and anxiety in the patients who received intervention than who did not. The research concluded that music is very effective in reduction of pain and anxiety and positive effects on physiological parameters among patients undergoing cardiac surgery (Sendelbach, Halm, Doran, Miller, & Gaillard, 2006). A systematic review on the effect of music on postoperative pain reported that music therapy can be utilized as an effective adjuvant therapy for the management of postoperative pain among patients undergoing surgery (Engwall & Duppils, 2009).

Acupuncture

Acupuncture, a component of Chinese traditional medicine involves stimulation of specific points by the use of needles which is followed by application of manual pressure or electrical stimulation or laser light. It is based on the notion that balancing the flow of energy in the human body results in positive health benefits through various pathways. Many research studies suggest acupuncture does accomplish therapeutic health effects by arousing physiologic changes in the nervous system.

An experimental study on patients undergoing cardiovascular surgery concluded that there was a significant reduction in the incidence of post-operative nausea among patients who received this intervention than who do not (Korinenko, Vincent, Cutshall, Li, & Sundt, 2009). A study concluded that acupuncture is a very useful intervention in the post-operative pain management and it promotes speedy recovery among patients following surgery (Maimer, 2013).

Aromatherapy

Aromatherapy is a form of complementary therapy used for enhancing one's physical or psychological well-being by making use aromatic compounds such as plant materials, aromatic oils. Aromatherapy not only relieves stress but also promotes relaxation. Disorders such as depression, infections, insomnia, burns, and hypertension and a wide variety of physical and mental conditions can also be treated with aromatherapy.

A research study evaluated the effects of inhalation of lavender essential oil on the pain among patients

following open heart surgery and the study concluded that inhalation of lavender essential oil has no effect in reducing the pain, although the study had no positive results its worth to explore this intervention with a larger sample (Salamati, Mashouf, Sahbaei, & Mojab, 2014). Another study evaluated the efficacy of aromatherapy on blood pressure, anxiety, and sleep among patients following the percutaneous coronary intervention. This study concluded there was an effective reduction in anxiety level and also increased the quality of sleep among patients. Aromatherapy alone may be used as a useful nursing intervention to promote physical and psychological well-being among the patients (Cho, Min, Hur, & Lee, 2013).

Implications for clinical practice

Complementary and alternative therapies have been an important aspect of nursing care, and its utilization underlying the holistic philosophy. Complementary therapies have many non-invasive techniques that are cost-effective, simple with fewer side effects when compared to drugs. Nurses and clinicians are in a leading position to be frontrunners in the incorporation of complementary therapies inpatients following cardiac surgery to render holistic healthcare. There is increasing attention and recognition of complementary therapies in clinical practice among healthcare practitioners.

Recent research studies are stating that these therapies reduce the various risk factors and also improve postoperative outcomes in patients following cardiac surgery. It is also important to have further research on complementary therapies to focus on target interventions to promote physical, psychological wellbeing as well as to enhance speedy recovery among patients undergoing cardiovascular surgery.

CONCLUSIONS

There is emerging evidence that treatment of heart diseases necessitates care of the whole individual (mind, body and spirit). To efficiently accomplish this, there is necessity for use of a wide range of treatment options comprising the finest biomedical technological care along with the implementation of complementary therapies. The thought of surgery provokes anxiety, fear or a sense of stress for most patients. To minimize this, healthcare professionals should incorporate evidence-based

practice on utilising the most advantageous and safe complementary therapy remedies.

Utilization of complementary therapies as adjuvant therapy in the postoperative period will be a promising intervention to reduce anxiety, pain, duration of hospital stay, use of sedative drug, and to promote relaxation, satisfaction and speedy recovery. The research evidence is emerging that complementary therapies are the most important aspect of promoting healing experiences among patients following cardiovascular surgery. Further research is required to strengthen the evidence.

Sources of support: None

Conflict of interest: None declared

Source of support in form of grants: None

ACKNOWLEDGEMENTS

We greatly acknowledge all the authors of the original research articles that have been found useful to write this review article and extend our thanks to the Manipal University's health sciences library for providing facilities to retrieve relevant studies from various online databases.

REFERENCES

1. Antigoni, F, & Dimitrios, T (2009). Nurses attitude towards complementary therapies. *Health Science Journal*, 3(3), 149-157.
2. Babajani, S, Darzi, H B, Ebadi, A, Mahmoudi, H, & Nasiri, E (2014). The effect of foot reflexology massage on the level of pain during chest tube removal after open heart surgery. *Iran J Crit Care Nurs*, 7(1), 15-22.
3. Bauer, B A, Cutshall, S M, Wentworth, L J, Engen, D, Messner, P K, & Wood, C M (2010). Effect of massage therapy on pain, anxiety, and tension after cardiac surgery: A randomized study. *Complementary Therapies in Clinical Practice*, 16, 70-75.
4. Bedi, H, Gupta, A, & Singh, N (2010). Yoga breathing technique training to reduce postoperative pulmonary complications in stable patients undergoing elective CABG surgery : A randomized clinical trial. *56th Annual Conference of IACTS* (p. 53). New Delhi: IACTS.
5. Braun, L, Stanguts, C, Casanelia, L, Spitzer, O, Paul, E, Vardaxis, N, & Rosenfeldt, F (2012). Massage therapy for cardiac surgery patients

- a randomized trial. *The Journal of Thoracic and Cardiovascular Surgery*, 144(6), 1453-9.
6. Cho, M-Y, Min, E S, Hur, M H, & Lee, M S (2013). Effects of Aromatherapy on the Anxiety, Vital Signs, and Sleep Quality of Percutaneous Coronary Intervention Patients in Intensive Care Units. *Evidence-Based Complementary and Alternative Medicine*, 1-6.
 7. Collins, J (1997). Effects of relaxation intervention in phase II cardiac rehabilitation. *Heart and Lung*, 26, 31-44.
 8. Dehdari, T, Heidarnia, A, Ramezankhani, A, Sadeghian, S, & Ghofranipour, (2009). Effects of progressive muscular relaxation training on quality of life in anxious patients after coronary artery bypass graft surgery. *Indian J Med Res*, 129(5), 603-8.
 9. Engwall, M, & Duppils, G S (2009). Music as a Nursing Intervention for Postoperative Pain: A Systematic Review. *Journal of PeriAnesthesia Nursing*, 24(6), 370-383.
 10. Flory, N, Salazar, G, & Lang, E. (2007). Hypnosis for acute distress management during medical procedures. *Intl J Clin Exp Hypnosis*, 55, 303-17.
 11. Fritz, S (2013). *Mosby's Fundamentals of Therapeutic Massage*. Philadelphia: Mosby Publications.
 12. Gonzales, M, Ledesma, C, McAllister, C, Perry, L, Dyer, L, & Maye, C (2010). Effects of Guided Imagery on Postoperative Outcomes in Patients Undergoing Same-Day Surgical Procedures: A Randomized, Single Blind Study. *AANA Journal*, 78(3), 181-187.
 13. Griffiths, P (2002). The impact of foot massage and guided relaxation following cardiac surgery: a randomized controlled trial. *Issues and Innovations in Nursing Practice*, 37(2), 199-207.
 14. Gupta, R, Joshi, P, Mohan, V, Reddy, K, & Yusuf, S (2009). Epidemiology and causation of coronary heart disease and stroke in India. *Heart British Medical Journal*, 94, 16-26.
 15. Hart, J (2009). Complementary therapies before and after surgery. *Alternative and Complementary Therapies*, 15(4), 184-188.
 16. Hattan, J, King, L, & Griffiths, P (2002). The impact of foot massage and guided relaxation following cardiac surgery: a randomized controlled trial. *J Adv Nurs*, 37(2), 199-207.
 17. Kilbey, J (2005). The use of complementary therapy in nursing practice. *Nursing Times*, 101(18), 26-27.
 18. Kiran, U (2011). Effects of meditation on recovery after coronary artery bypass surgery. *Journal of Preventive Cardiology*, 1(2), 85-87.
 19. Korinenko, Y, Vincent, A, Cutshall, S, Li, Z, & Sundt, T (2009). Efficacy of acupuncture in prevention of postoperative nausea in cardiac surgery patients. *Ann Thorac Surg*, 88(2), 537-42.
 20. Maimier, A (2013). Objectifying Acupuncture Effects by Lung Function and Numeric Rating Scale in Patients Undergoing Heart Surgery. *Evidence-Based Complementary and Alternative Medicine*, 1-7.
 21. Nesami, M B, Shorofi, S A, Zargar, N, Sohrabi, M, Baradari, A G, & Khalilian, A (2014). The effects of foot reflexology massage on anxiety in patients following coronary artery bypass graft surgery: A randomized controlled trial. *Complementary Therapies in Clinical Practice*, 20, 42-47.
 22. Salamati, A, Mashouf, S, Sahbaei, F, & Mojab, F (2014). Effects of Inhalation of Lavender Essential Oil on Open-heart Surgery Pain. *Iranian Journal of Pharmaceutical Research*, 13(4), 1257-61.
 23. Sendelbach, S, Halm, M, Doran, K, Miller, E, & Gaillard, P (2006). Effects of music therapy on physiological and psychological outcomes for patients undergoing cardiac surgery 2006. *J Cardiovasc Nurs*, 21(3), 194-200.
 24. Sharma, M, & Haider, T (2012). Yoga as an Alternative and Complementary Treatment for Hypertensive Patients: A Systematic Review. *Journal of Evidence-Based Complementary & Alternative Medicine*, 17(3), 199-205.
 25. Stein, T, Olivo, E, Grand, S, Namerow, P, Costa, J, & Oz, M (2010). A pilot study to assess the effects of a guided imagery audiotape intervention on psychological outcomes in patients. *Holistic Nursing Practice*, 24(4), 213-22.
 26. Vibhu, R, Kshetry, Carole, L, Henly, S, & Sendelbach, S (2006). Complementary Alternative Medical Therapies for Heart Surgery Patients: Feasibility, Safety, and Impact. *Annals of Thoracic Surgery*, 81, 201-6.
 27. Wentworth, L, Briese, L, Timimi, F, Sanvick, C, Bartel, D, & Cutshall, S (2009). Massage Therapy Reduces Tension, Anxiety, and Pain in Patients Awaiting Invasive Cardiovascular Procedures. *Journal of Progress in Cardiovascular Nursing*, 24, 155-161.