

Music Interventions as a Complementary Therapy in Post Coronary Artery Bypass Graft
Surgery to Improve Pain Outcome with Mozart Melodies.

Abstract

Objective:

To evaluate the use of Mozart melodies in enhancing the effect of analgesics in the management of acute pain in patients, who have undergone coronary artery bypass graft surgery. The study would attempt to compare Mozart melodies to Beethoven melodies in this aspect. The factor of gender in the utility of Mozart melodies to enhance the effect of analgesics would also be utilized.

Relevance:

Previous studies have covered the aspect of the use of music in acute pain management in patients, who have undergone coronary artery bypass graft surgery. This study would augment those findings. No studies have been conducted on the relevance of Mozart melodies in this aspect, and this study would provide input for this, and its use in the control of acute pain. Gender comparative studies on the utility of music in the management of acute pain are also not available, and this study would provide information on that aspect.

Theoretical Support:

The middle range theory of pain and the use of nonpharmacological means as an adjunct to analgesics in the management of acute pain is the basis of this research study.

Literature Review:

Literature reviewed shows that the use of music as an adjunct to analgesics has been explored previously, but the quantity of the research is limited, and many aspects still remain to be explored. The utility of Mozart melodies is one of them.

Methodology:

Sample size is fifty post-operative coronary artery bypass graft surgery patients. All the rights of the human subjects would be adhered to in the study. Color coded Mozart music and blank CDs will be used. Data will be collected on a questionnaire and statistical means would be employed to provide the findings of the study.

Overview

The issue related to acute pain in patients that have been subjected to different surgical procedures has for long been a problem. Inadequate pain management remains a pervasive clinical problem in these patients, leading to physiological, psychological, and financial consequences. The unrelieved acute pain in patients is responsible for morbidity, and longer stay of the patients in the hospitals. The slower healing rates, higher complication rates, anxiety, sleeplessness, increased suffering, and lowered quality of life seen in these patients is believed to be a result in the deficiency of acute pain relief. There are also economic consequences, because of the longer hospitalization required that are associated with acute pain.

Background

The efforts of several organizations that have been concerned with the issue have led to pain being considered as the fifth vital sign that requires monitoring. Evidence-based guidelines to monitor and manage pain have been forthcoming from these concerned organizations like the American Pain Society, the Agency for Healthcare Research and Quality, and the Oncology Nursing Society. The Standards of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) gives patients the right to appropriate assessment and management of pain.

The problem refuses to go away, and concern still remains, as there is evidence to indicate that the issuing and distribution of these guidelines have not led to any substantial difference in the assessment and management of acute pain in patients, who have undergone surgery. The lack of attention being paid to the assessment and management of acute pain is causing pressure to build for this to be declared as a medical error, and be given similar attention as with other medical errors.

There are several reasons for the persistence of the problem in the care of acute pain in postoperative patients, and putting these patients at greater risk. The concentration of the postoperative care has remained on the monitoring of urine output, blood pressure, respiration, and temperature. There is difficulty in changing this attitude. The patients themselves lack information, and the clinicians are likely to misjudge the intensity of acute pain. The use of analgesics in the management of acute pain has limitations, and cannot be overused for fear of side effects. Finally, nonpharmacological interventions that could help in relieving acute pain are grossly underused in postoperative patients with acute pain. It is in this context that the use of music therapy as a means to assist in the management of acute pain assumes significance. (*Sherwood et al, 2003*).

Purpose of the Research

The purpose of this study is to determine whether the effect of Mozart music assists in the management of acute pain in postoperative coronary artery bypass graft surgery.

Research Question

Music therapy is a nonpharmacological means to addressing the issue of management of acute pain in postoperative patients. *Do Mozart melodies enhance the effect of analgesics*

in the management of acute pain in patients who have undergone coronary artery bypass graft surgery?

This research will answer the following questions:

1. Do Mozart melodies have any role in the management of acute pain in postoperative Coronary Artery Bypass Graft surgery patients?
2. Do Mozart melodies enhance the effect of analgesics in the management of acute pain in postoperative Coronary Artery Bypass Graft surgery patients?

Hypothesis

There are various kinds of music. The music classifications range from classical to several kinds of popular music forms. Different kinds of music could have different kinds of effect on individuals. The effect may depend upon age, gender and ethnicity.

Relevance

There are previous studies that have been done on the relevance of musical interventions in the management of acute pain in postoperative patients. There are studies too that have looked into the usefulness of music therapy in acute pain management in patients who have undergone coronary artery bypass graft surgery. Most of these studies have indicated the usefulness of musical interventions. This study in the will reinforce these findings on the relevance of music therapy, as an adjunct to analgesics in the management of acute pain in post-operative coronary bypass graft surgery care.

Musical intervention through the use of Mozart melodies in the management of acute pain, as such, is a fresh area of research. This study will offer an insight into the usefulness of Mozart melodies as an adjunct in the management of acute pain in postoperative coronary bypass graft surgery patients.

The relevance lies in that it would provide further evidence to the theories on pain, with particular significance to the middle range theory with its belief in the use of both pharmacological and non-pharmacological means in pain management.

This study would also have a relevance to the nursing profession as it is patients under their care that are in discomfort from pain and any means that benefit of assisting in pain management would be of great assistance in their care of the patients.

Theoretical Framework

Every year more than twenty three million surgical procedure are performed, and the pain that accompanies them receives inadequate treatment. (*Gottschalk & Smith 2001*). The rational approach to the management of acute pain lies in the understanding and utilization of the highest quality of evidence that is available. Acute pain management needs to advance, and for this the various intervention methods need to be examined as a whole, and in its parts. The introduction of anesthesia in 1846 led to surgery becoming free of pain. More than one hundred and fifty years have elapsed, and it is time that all means available are utilized to render postoperative free or at the least alleviate this suffering. (*Bertini, 2001*).

Pain Theories

There are several theories of pain, and the most significant are the gate control model, bio-behavioral model, and the middle range theory. The gate control model of pain attempts to explain pain response as a consequence of physiological evidence that pain perception involves pathways in the dorsal horn of then spinal cord, and these transmit noxious stimuli to the brain. The cognitive bio-behavioral model takes into consideration not just the patient's emotive and cognitive perception of pain, but also the role that environmental influences and physical factors on pain perceptions over a period of time. The middle-range theory is

embedded in the nursing profession, and focuses on acute pain management. This theory has basis in the belief that selected interventions contribute to a balance between the use of analgesics and its side effect. The possible interventions include providing adequate potent pain medication in association with pharmacological and nonpharmacological adjuncts, regular assessment of pain and side effects, added to it a process of intervention, reassessment and re-intervention, and finally teaching the patient, and setting the objectives in the relief of pain. This has led to the belief that for significant pain relief a combination of medication, relaxation, nursing intervention, and education are requisites. The middle range theory provides ample scope for the study of musical interventions in the management of acute pain, as it calls for relation of the patient, and music has the capacity to provide this relaxation for relief from pain. (*Hamrin, 2002*).

Mozart Effect

There has been some evidence from research that certain types of music, with particular emphasis on Mozart music, can improve the concentration levels, reasoning, and even the possibility of assisting the human body in healing itself. This phenomenon has been called the Mozart Effect.

There are however skeptics to the Mozart Effect and this arises from research that has negated the beneficial role of Mozart music. This debate would only end when sufficient research is undertaken to validate or negate the Mozart effect. (*Ciares & Borgese*).

Assumptions

This study assumes that there is significance to Mozart Effect and this effect could be extended to the field of pain management.

Limitations

This research study is limited to the content of the literature mentioned in the Literary References and the research undertaken. There is a limitation in the geographical coverage of the research. As such, the author makes no claim that the findings of this research study has universal application.

Definitions

Pain:

Pain is defined by the International Association for the Study of Pain (IASP) as, "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or defined in terms of such damage" (*Hamrin, 2002*).

Acute Pain:

Severe pain, which has a quick onset and remains for a short period of time.

Coronary Artery Bypass Graft Surgery:

This surgery is more commonly known as bypass surgery. It is used to repair or replace blocked coronary arteries to improve the supply of blood to the heart muscles. The surgery involves the use of a vein or a chest artery to create a bridge across the obstruction in the coronary artery.

Mozart Effect:

The phenomenon by which it is speculated that Mozart music, can improve the concentration levels, reasoning, and even the possibility of assisting the human body in healing itself.

Literature Review

The depth of the research conducted into the manner in which the human brain processes music remains insufficient. The area of the brain responsible for processing music is still not clear. (*The Musical Brain*).

In a study conducted on the value of music in reducing pain in elderly patients with chronic Osteoarthritis over a period of time of fourteen days. The test patients listened to music for twenty minutes every day, while the control group sat quietly during these twenty minutes. Difference in pain perception was monitored for these fourteen days. The study concluded that listening to music was an effective nursing intervention method to bring about reduction in the chronic pain of the elderly afflicted with Osteoarthritis. (*McCaffrey & Freeman, 2003*).

In a study conducted to investigate the effectiveness of music as an intervention for hospital patient the study demonstrated the effectiveness of music for the reduction of anxiety during normal care delivery. (*Evans, 2002*).

In a study involving the comparison of colorectal surgery patients, who listened to music, and those who did not listen to music, the results of the study showed that the listeners experienced half the postoperative anxiety and used half as much painkiller. (*Godbey & Wolfe, 1997*).

In a study on the effects of music on sensation and distress of pain in women during the active phase of labor, the women in the intervention group listened to soft music for The study recommended that nurses can provide soft music to women in labor to provide for greater relief in pain during the active phase, when the contractions are strong causing women to suffer. (*Phumdoung & Good, 2003*).

There is evidence to show the value of music in reducing pain in post-operative patients. In a study that investigated the effects of relaxation and music, and a combination of both on postoperative pain, the conclusion was that nurses could recommend with safety the use of these interventions to reduce pain on both postoperative days, and at both ambulation and rest. (*Good et al, 2001*).

There is also evidence to show that music has benefits in reduction of stress in patients with acute myocardial infarction. In a study to determine the use of relaxing music in reducing the stress response of patients admitted to the coronary care unit with a diagnosis of AMI, the conclusion was that relaxing music is an effective intervention to reduce physiologic and psychological stress in patients in critical care units with AMI. (*Lee, 2003*).

In a study to determine the effectiveness of non-pharmacological interventions to reduce this anxiety and pain, it was found that sedative music was more effective than scheduled rest and treatment in decreasing anxiety and pain in postoperative open-heart surgery patients during the first time chair rest. The study went on to suggest that such patients use sedative music as an adjunct to medication during chair rest. (*Voss et al, 2004*).

In another study to determine the effects of music interventions through music or music video on pain and sleep during the second and third day after the operation in ninety-six patients who had undergone coronary artery bypass graft surgery, the study found music useful in reducing pain, while music videos gave better sleep. (*Zimmerman et al, 1996*).

In a study that compared the effect of Mozart's Sonata for Two Pianos with Beethoven's Fur Elise on the frequency of interictal epileptiform discharges (IEDs) from EEG's with epilepsy centrotemporal spikes or "rolandic epilepsy", the study found that

Mozart music produced significant decreases in IEDs, in comparison to the control music of Beethoven. (Turner, 2004).

Research Design

A quantitative and qualitative assessment will be used to study the effect of Mozart music in reduction of pain in postoperative coronary bypass graft surgery patients. Measurement of pain will be on analogous basis taking into consideration the reduction in pain sensation felt by the patient.

Schedule

The research will be conducted over a period of six months starting from the May 1, 2006 to October 31, 2006.

Budget

The cost of the study is estimated to work out to \$2000.00. The cost includes material required for the survey, transportation and logistics, data collection and assimilation and any miscellaneous items.

Facilities

The facilities of the post-operative intensive care unit of the hospital selected would be needed as well as volunteers from the nursing professionals in charge of the intensive care unit.

Handling

Volunteers from the nursing professionals at the intensive care unit will undertake the data collection. Sufficient information and training on the project and what it aims to achieve

will be provided to the volunteers. Data collation, assimilation, and analysis will be done with assistance from the statistical unit at the hospital.

Sampling Plan

Patients in the intensive care units who have undergone coronary artery bypass graft surgery would be selected as suitable for the study.

Fifty such patients would be selected to make a convenient sample size.

Inclusion and Exclusion Criteria

The criteria for inclusion would be patients who have just undergone coronary artery bypass graft surgery and are in the intensive care unit.

The exclusion criteria would be any and all patients having total loss of hearing or suffering from impaired hearing.

Consent and Protection of Human Subjects

Approval for the study will be taken from the concerned University School of Nursing's Human Subjects Committee, as well as all Institutional Review Boards associated with the hospital. Only participants willing to be part of the study would be included. The participants will be provided a copy of the informed consent prior to filling out the survey, and a signed consent form will be secured from every participant.

Client confidentiality will be maintained by the use of coding for each volunteer. The coding information will be available only to the research team and the faculty committee members. Information will be secured by use of a locked file box kept in a secure area. On completion of the study the data sheets will be coded and presented as group data.

Methods

Mozart music CDs and blank CDs would be used. Differentiating would be by color-coding. Half the subjects would listen to Mozart music and the other half to blank CDs.

A questionnaire would be provided for recording the data on pain levels. The volunteers would be provided with the necessary information on how to fill up the data form. A member of the research team would be available to provide clarifications and provide assistance to the volunteers.

The data collected would be compiled and collated for analysis. Statistical means of T-test and chi square would be employed to arrive at the findings of the study.

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