EFFECT OF MUSIC THERAPY ON ANXIETY AMONG PATIENTS UNDERGOING CARDIAC CATHETERIZATION AT SELECTED HOSPITAL, COIMBATORE.

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In Partial Fulfillment of the Requirement for the

Award of the Degree of

MASTER OF SCIENCE IN NURSING

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This is to certify that the dissertation entitled **"Effect of Music Therapy on Anxiety among Patients Undergoing Cardiac Catheterization at Selected Hospital, Coimbatore"** is a bonafide work done by **Jayalalitha. G, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences** in partial fulfillment of the University rules and regulations for award of **M.Sc. Nursing Degree** under my guidance and supervision during the academic year **2016.**

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Abstract

Music is believed to act as a stimulus distracting and diverting feelings of anxiety, stress, and fear thereby promoting relaxation. The main aim of the study was to assess the effect of Music therapy on anxiety among patients undergoing cardiac catheterization at selected hospital, Coimbatore. Pre experimental, non-equivalent posttest only control group design was used in the present study. The data was collected for a period of four weeks. By using purposive sampling technique 60 samples were selected, and 30 were assigned to the experimental group and control group respectively. The demographic profile was collected from the patients undergoing cardiac catheterization. A non-lyrical, veena based instrumental music composed in the raga hamsadvani and dwijavanti was administered to the patients in the experimental group for 30 minutes prior to the cardiac catheterization. Routine treatment was provided to the patients in the control group. 30 minutes after the intervention the level of anxiety among patients undergoing cardiac catheterization was assessed using the state trait anxiety inventory in both the groups. The calculated mean level of Anxiety and standard deviation in the experimental and control group were 75.9 and 118.26, 7.16 and 8.04 respectively. The mean difference was 42.3. The calculated 't' value 22.41 was greater than the table value 3.29 at 0.001 level of significance. Hence, it was concluded that music therapy is an effective therapeutic intervention in reducing the level of anxiety among patients undergoing cardiac catheterization.

INTRODUCTION

Music is God's best gift to man, music surrounds our lives; we hear it on the radio, television, from our car and home stereos. We come across it, in the mellifluous tunes of a classical concert or in the devotional strains of a bhajan, the wedding band, or the reaper in the fields breaking into song to express the joy of life. Even warbling in the bathroom gives us a happy start to the day. (Good, 1996)

For centuries, music and medicine have been linked together. In Greek mythology, Apollo was the god of music and art as well as healing. They believed that music had the power to heal the body and the soul. Zenocrates, Sarpenter, and Arion were the first Greeks to use music for the purposes of calming the mentally ill. Philosophers such as Confucius, Plato, and Pythagoras believed that daily exposure to music would enhance one's health. Aristotle went so far as to practice psycho - catharsis, a belief that those who suffered from uncontrollable emotions would relapse to their normal condition after having listened to music, which raised their souls to ecstasy. Hippocrates, the father of modern medicine, used music to cure human diseases. The famous music legend Thyagaraja, of South India, brought a dead person back to life by singing the composition Naa Jeevan Dhara in raga Bihari. (Sumathy & Sundar, 2005)

In the mid 1800s, Florence Nightingale recognized the power of music in hospital wards to aid in the healing process for soldiers injured in the Crimean war. Nightingale realized that music could be beneficial if provided by human

voices, wind instruments, or stringed instruments, providing continuous sound. She believed it was the responsibility of nurses to control the patient's environment for healing to take place. (Ulrica, 2008)

After the invention of phonograph in the late 1800s, recorded music could be used in the hospital setting. The extensive use of music in general hospitals appeared during the first half of the 1900s when health care practitioners used music in conjunction with anesthesia and analgesia. In 1914, Kane was the first person to provide intra operative music to distract patients from the horror of Surgery. In 1949, a group of surgeon has studied the use of music in conjunction with psychosomatic factors in physical illness. (Light & Haymond, 1949)

Music therapy, is a scientific method of effective cures of disease through the power of music. It restores, maintains, and improves emotional, physiological and subjective well- being. The articulation, pitch, tone and specific arrangement of swars (notes) in a particular raga stimulates, alleviates, and cures various ailments inducing electromagnetic change in the body. (Good & Stanton, 2005)

It is believed that music stimulates the pituitary gland, whose secretions affect the nervous system and the flow of blood. It is believed that for healing with music, it is necessary to vibrate the cells of the body, for it is through these vibrations that the diseased person's consciousness can be changed effectively to promote health. The right kind of music helps one to relax and refresh. Listening to music helps control negative aspects of our personalities like anxiety and anger. Music therapy is one of the most effective ways of controlling emotions, blood pressure, and restoring the functioning of the liver. (Aldridge, 2003)

The autonomic nervous system is connected with other parts of CNS like cerebral cortex, limbic system, and hypothalamus. The hearing of music is a higher neural activity related with learning and memory and its mechanism is not clear yet. External musical sound stimulates the receptor cell in the inner ear, and the electrical signals transmit in the brain by cochlear nerves, then by several relays, they excite the neurons in temporal lobe of cortex, which associate with other parts of the brain, such as thalamus, limbic system, and autonomic nervous system. (Fratianne, 2001)

The understanding of music's role and function in therapy and medicine is undergoing a rapid transformation, based on neuro scientific research showing the reciprocal relationship between studying the neurobiological foundations of music in the brain and how musical behavior through learning and experience changes brain and behavior function. This paradigm shift has the potential to move music therapy from an adjunct modality to a central treatment modality in rehabilitation and therapy. (Thant, 2005)

Coronary heart disease is the single largest killer of both men & women in the United States, affecting more than 12 million people. World health organization estimates, 25 million people worldwide die of cardio vascular disease each year. There are 45 million coronary artery disease patients currently in India .25% people are facing heart attack less than age of 40,900 people under 30 die due to heart disease in India every day. As per National health and nutrition survey 2007-2010:0.8%(men) and 5.5% (women)had coronary disease in the age of 40-59, 21%men and 10.6%women had coronary artery disease in the age of 60-79, 34.6% men and 18.6% women had CAD in the age of 80 in the year of 2010.(National health and nutrition survey,2010)

There are 45 million coronary artery disease patients. The death rate from Coronary heart disease decreased by 24% from 1989 to 1999. The decrease in death rate are due to factors such as improved technology for diagnosis and treatment, surgical techniques and modification of risk factors in populations at risk. Cardio vascular risks assessment in all adults should begin at age 20 and should be done every 5 years or yearly if risks are identified. Diet, weight reduction, smoking cessation, and increased physical activity are essential components of a therapeutic approach for both primary and secondary prevention.

(Centre for health statistics and heart lung institute, 2000)

Cardiac catheterization is a complex procedure that involves insertion of a catheter in to the heart and surrounding vessels to obtain detailed information about the structure and performance of the heart, valves and the circulatory system. Cardiac catheterization is usually performed in the laboratory. Anticipation of an invasive procedure in hospital is likely to provoke feelings of anxiety and stress in patients. An unfamiliar environment, loss of control, separation from family is all factors than can contribute to the development of such feelings. Recently, there has been considerable interest in potential of music listening in a variety of clinical settings, yet thus far little is known about the impact of music listening on the pre-procedural patient population**.** **(**Joyce M. Black, 2004)

Music therapy in the present study was based on the raga hamsadvani and dwijavanti. Both ragas were selected based on the music literature and from the opinion of music therapist. The raga literatures say that hamsadvani is the raga

meant for relaxation and to reduce anxiety. Dwijavanthi is meant for reducing pain and anxiety. Therefore the researcher used the raga based music therapy in this study.

The researcher was keenly interested in Indian classical music. The above mentioned research studies give evidence of human psycho-physiological effect of music. Encouraged by these findings the investigator had ventured into a field to experiment with ‘utilization of music as a therapeutic tool.

1.1 Need for the Study

Coronary artery diseases will take epidemic proportion by 2015. Half of deaths in India are likely to be caused by CAD. It will overtake infectious diseases as most common cause of disease in the country. We are predisposed to the disease six times more than the west and 20 times than the Chinese. Specific risk factors for Indians are abdominal obesity, uncontrolled diabetes, insulin resistance, high triglyceride, low HDL cholesterol, high blood pressure and smoking. 13 to 17 per cent of the Indian population suffers from metabolic syndrome. (Hamel, 2001)

Cardio vascular diseases are the major cause of death in the United States. The American heart association reports that an estimated 1.1 million Americans will have an acute myocardial infarction in 2013 and 4,60,000 will die, half of them before reaching a hospital. Although the death rate decreased by 26.3% between 1999 and 2009, heart attacks are still the leading cause of all Cardio vascular disease deaths in general.(American Heart Association, 2013)

More than 2.7 million cardiac catheterization are done every year in the United States. In India 4.06 million people undergoing cardiac catheterization between the year of 2008-2014. (American heart association, 2014)

Cardiac catheterization is a procedure which involves insertion of a catheter in to the heart. As with all invasive procedures cardiac catheterization involves some risks. The most serious complications include stroke and myocardial infarction. Other complications include cardiac arrhythmias, pericardial tamponade, vessel Injury and renal failure. A study suggested that music therapy reduces anxiety and negative mood among patients prior to cardiac catheterization. (Kathy bally, 2001)

Music is an intervention for hospitalized patients to relieve their anxiety. Hence the researcher was interested to conduct the study to investigate the effectiveness of music as an intervention on anxiety of patients undergoing cardiac catheterization.

1.2 Statement of the Problem

Effect of Music Therapy on Anxiety among Patients Undergoing Cardiac Catheterization at Selected Hospital, Coimbatore.

1.3 Objectives of the Study

1.3.1 To assess the level of anxiety among patients undergoing cardiac catheterization.

1.3.2. Effect of music therapy on anxiety among patients undergoing cardiac catheterization.

1.3.3 To find out the association between the level of anxiety and selected demographic variables among patients undergoing cardiac catheterization.

1.4 Operational Definitions

1.4.1 Effect

It is the extent to which music therapy causes change in the level of anxiety among patients undergoing cardiac catheterization.

1.4.2 Music Therapy

Music therapy is listening to non-lyrical veena based instrumental music, based on the Raga hamsadvani and dwijavanti for 30 minutes duration through portable music player among patients undergoing cardiac catheterization.

1.4.3 Anxiety

Anxiety is a multi-system response to a perceived threat or danger for patients undergoing cardiac catheterization as measured by the state trait anxiety inventory.

1.4.4 Cardiac catheterization

Cardiac catheterization is a diagnostic procedure to identify the circulation of the coronary arteries through the insertion of one or more catheters into a peripheral blood vessel in the arm or leg with x-ray guidance.

1.5 Hypothesis

H_1 - There is a significant difference in the level of anxiety between experimental and control group among patients undergoing cardiac catheterization after music therapy.

H_2 - There is a significant association between the level of anxiety and selected demographic variables among patients undergoing cardiac catheterization.

1.6 Conceptual Framework

This study is based on Ludwig Von Bertalanffy's General system model in 1968. According to this model, a system is a set of objects together with a relationship between the objects and between their attributes. The objects constituting the system behave together as a whole. Changes in any part affect the whole. In general system theory, the main concepts are input, throughput and output. Input and output are process in which system is able to communicate reaction with its environment. (Kozier and Erb, 2006).

Input

Input can be defined as any form of information, energy or materials that enter into general system through its boundary. In this study it is the collection of data and plan for administration of music therapy to the patients undergoing cardiac catheterization at selected Hospital, Coimbatore.

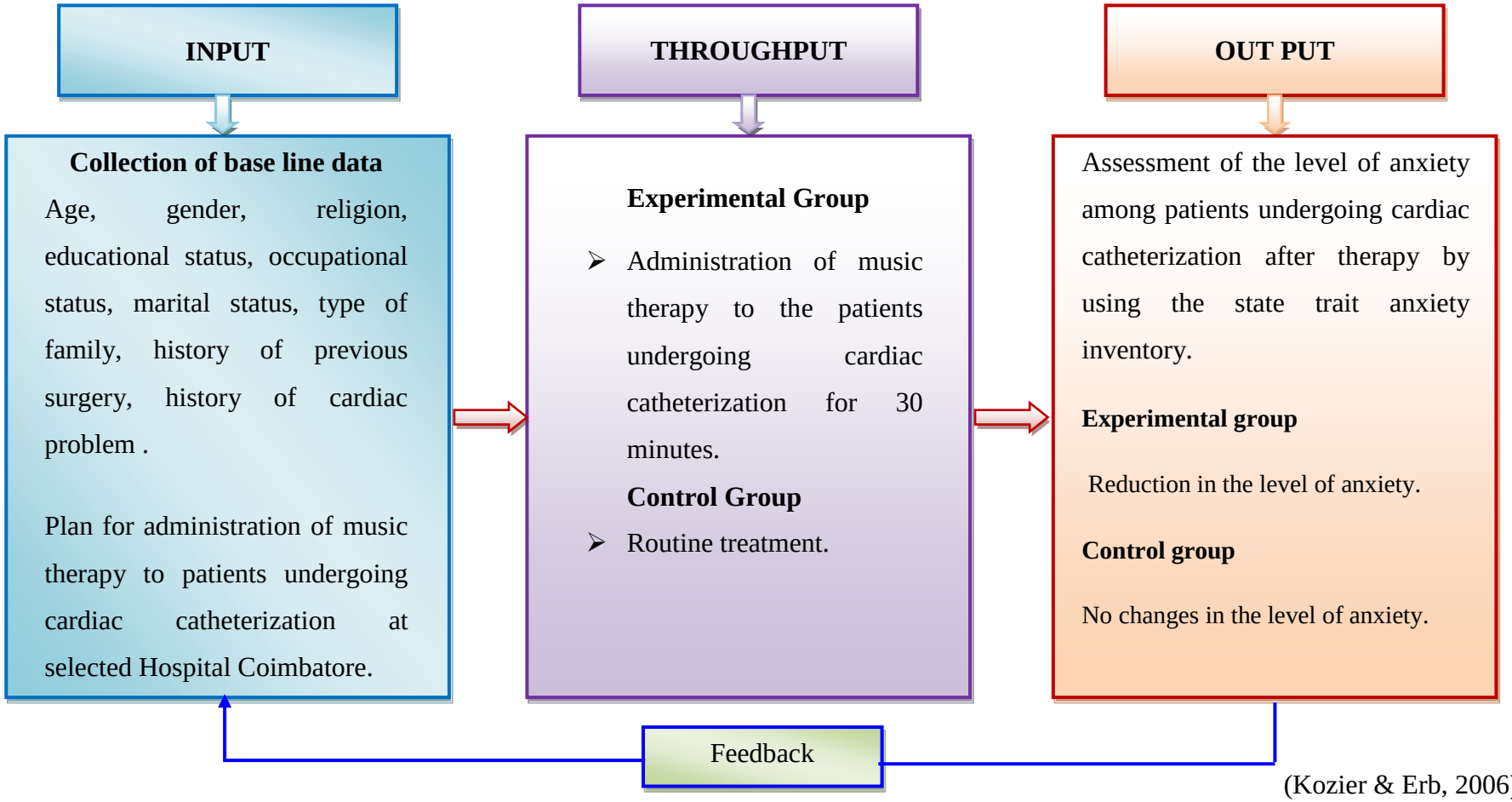
Throughput

Throughput is a process that occurs at some point between the input and output process. It enables its input to be transferred in such a way that it can be used readily by the systems. In this study throughput includes the administration of non-lyrical Veena based instrumental music, based on the Raga Hamsadvani and Dwijavanti for 30 minutes duration to the patients undergoing cardiac catheterization at selected Hospital Coimbatore.

Output

Output is any energy information or matter that is transferred to the environment. In this study output is the assessment of changes in the level of anxiety among patients undergoing cardiac catheterization at Selected hospital after music therapy.

Figure 1.1: Conceptual Framework Based on Modified General System Theory by Ludwig Von Bertalanffy (1968)



(Kozier & Erb, 2006)

1.7 Projected outcome of the study

Administration of music therapy will reduce the anxiety among patients undergoing cardiac catheterization.

REVIEW OF LITERATURE

Literature review is an essential component to the researcher for the greater understanding of research problem and its aspects. A literature review is a body of text that aims to review the critical points of knowledge on a particular topic of research. It provides the researcher with an opportunity to evaluate many different approaches to the problem. The review of literature of the present study was collected and organized under three headings.

2.1 Literature related to anxiety

2.2 Literature related to music therapy

2.3 Literature related to effect of music therapy on pre operative anxiety

2.1 Literature Related to Anxiety

Achmet & Kemalettin (2014) attempted to determine the effect of preoperative anxiety on postoperative pain control and recovery in patients undergoing laparoscopic cholecystectomy at Istanbul University. A total of 80 patients who were undergoing laparoscopic cholecystectomy were selected for this study. Demographic characteristics such as age, gender and marital status of the patients were recorded. Beck's Anxiety Inventory (BAI) was used to measure the level of anxiety of the patients during preoperative period. Visual analog scale (VAS) was used to measure the postoperative pain perception and consumption of Tramadol for all the patients were recorded. Patients those who scored more than 17 in BAI were in High-anxiety group and patients those who scored equal to or less than 17 in BAI were in low-anxiety group. During the postoperative period, patient-controlled analgesia with Tramadol was used for pain control. The results showed that among all the patients, 31 (38.75 %) patients had high preoperative anxiety, and significant correlation was found between the days of hospitalization and preoperative anxiety. In-group L, postoperative VAS score and Tramadol

consumption were significantly lower. This study concluded that a high preoperative anxiety level negatively affects recovery from anesthesia and control of postoperative pain.

Shahmansouri & Karimi (2012) assessed the prevalence of fear, anxiety and beliefs about surgery among coronary artery bypass graft surgery (CABG) candidates and to evaluate the correlations between fear and anxiety and other relevant factors. A total of 277 patients hospitalized for CABG between October 2011 and January 2012 were included in this study. The Bypass Grafting Fear Scale and the Spielberg Questionnaire STATE Inventory were given to the patients the day after hospitalization to measure fear and anxiety. Two hundred and seventy-seven patients completed the questionnaire. The results showed that 3.32% of study population had no fear, whilst 53.14% had low, 38.75% moderate, and only 4.08% high levels of fear. Also, 69.14% of the respondents had moderate, 19.70% low, and11.15% severe levels of anxiety. CABG candidates, fear of pain after surgery had the highest frequency, followed by fear of health deterioration, fear of myocardial infarction, and fear of CABG surgery. Fear was observed to be more common amongst the female respondents, while age had no significant correlation with fear. Anxiety and opium consumption and cigarette smoking were associated with reduction of fear. The results of this study helped in better identifying the most common fears and measure the prevalence of fear and anxiety in candidates undergoing coronary artery bypass grafting.

Zsuzanna., et al (2012) conducted a study at Department of Anesthesiology and intensive care, Semmelweis University, Budapest, Hungary to assess the impact of preoperative anxiety on long term mortality after cardiac surgery. The researchers selected 197 patients subjected to elective cardiac

surgery between July 2000 and May 2001. During preoperative period, investigators assessed the preoperative anxiety and other baseline data. At the time of discharge, 180 patients were confirmed for follow – up and remaining 17 patients were excluded. All the participants were followed up for 10 years through mail annually. Spielberger's State Trait Anxiety Inventory (STAI), Beck's Depression Inventory, and reason for re-hospitalization were assessed. The investigator also analyzed number of deaths. The collected data were analyzed and the results revealed that the survival rate was 76.6% and the mortality rate was 23.6. The further analysis proved that the mortality rate was highly associated with preoperative anxiety.

Zahra & Mouse (2011) examined the level of anxiety in patients before and after coronary artery bypass grafting surgery (CABG) and its relationship to patient's quality of life (QOL). Data was collected prospectively on 187 patients who underwent CABGs in Fatimah Zahra university hospital in Sari, Iran. Preoperative and 18 months follow-up anxiety and QOL in functional status were measured. Anxiety was measured using the Spielberger State- Anxiety Inventory and Quality of life was measured by using Short Form Health Survey (SF-36) questionnaire. Preoperative State anxiety scores ranged from 23-67 with a mean of 38±-9.95. Postoperative anxiety level was 20-65 with a mean of 32±-9.40 in 18 months follow up after CABG. This study demonstrated that most of the patients (N=108, 57.8 and N=115, 61.5) had low levels of anxiety in preoperative period postoperative follow up respectively. The present study showed that there was a significant association between pre and postoperative state anxiety (P=0.000). Results showed that there was a negative correlations between preoperative quality of life and preoperative state anxiety (p=0.000) and there was a negative

correlations between postoperative quality of life and postoperative state anxiety (p=0.000). The study concluded that identifying patients, likely to experience anxiety before CABG and to highlight risk group will enable us to design specific interventions that predominantly focus to reduce patient's anxiety and improving their QOL.

Judson., et al (2013) conducted a prospective multicenter cohort study to examine the association between patient- reported anxiety and post cardiac surgery mortality and major morbidity among elderly patients undergoing cardiac surgery. This study was conducted at four tertiary care hospitals in United States and Canada between 2008 and 2009. The investigator had chosen 148 patients using consecutive sampling technique. The eligibility criteria were age > 70 and scheduled to undergo CABG. Hospital Anxiety and Depression Scale (HADS) was used to collect the data during preoperative period. The outcome measure was the incidence of mortality and morbidity (stroke, renal failure, prolonged ventilation, deep sternal wound infection, and need for reoperation) occurring after cardiac surgery. The HADS – A score among subjects during preoperative periods were; 71% scored 0-7(no anxiety), 22% scored 8-10(possible anxiety) and 7 % scored 11-21 (anxiety group). Multivariate regression analyses were done to examine the association between preoperative anxiety and postoperative morbidity and mortality. The results showed that a significant level of preoperative anxiety is an independent risk for in-hospital mortality and major morbidity in elderly patients undergoing cardiac surgery. The study also proved that a HAD score of 11 or higher was most predictive of mortality and morbidity in elderly patients undergoing cardiac surgery.

Bailey (2010) stated that, anxiety is a human reaction to any unknown situation. Although preoperative anxiety is considered to be a normal part of the surgical experience, it is a pervasive problem with far reaching health outcomes. Anxiety triggers the physiologic stress response, which can impede healing. Furthermore, anxiety has been shown to increase postoperative pain medication requirements, which can affect postoperative recovery, for example, by slowing respirations, which increases pulmonary risks; decreasing activity, which increases risk of thrombosis; and increasing risk of bowel upset. Anxiety also plays a role in increasing the risk of infection and decreasing the immune system response.

Rymaszewskaemail & Hardy (2009) conducted a study to offer a prospective view on the incidence and course of self-reported depression and anxiety in coronary artery bypass graft (CABG) patients. After informed consent, 53 patients who submitted to CABG were examined a few days before and after the operation and 3 months after CABG. They completed the Spielberger's Anxiety Questionnaire and Beck Depression Inventory. Approximately 55% of the patients had high a level of anxiety preoperatively. Shortly after the surgery, 34% of patients and after 3 months 32% of them had clinically relevant level of anxiety. Thirty-two percent of patients before the surgery, 28% immediately after CABG and 26% at follow-up were depressed. High preoperative depression, state, and trait anxiety scores appear to be predictors of postoperative psychological outcome.

Masood & Zeeshan (2007) conducted the descriptive study to ascertain preoperative anxiety level. The researchers selected 193 patients; both male and female subjects aged more than 18 years. The patients scheduled for elective

general surgery under general or spinal anaesthesia were included for the study. After the anaesthetic consultation, patients were asked to complete two visual analogue scales regarding anxiety on proposed surgery and anaesthesia. The results showed that the mean anxiety score for the surgery was 57.65(S.D 25.1) and for anaesthesia 38.14(S.D 26.05). The results indicate that the patients had anxiety significantly on surgery than anaesthesia ($p<0.05$). Females had a statistically significant higher level of anxiety than males. Anxiety can be measured easily in the preoperative period and for the patients with high level of anxiety necessary intervention can be provided, which may reduce the postoperative analgesic usage, complication, length of hospital stay and treatment expenses.

Chaudhury & Singh (2006) conducted a study to correlate the psychological aspects on outcome after CABG. The investigator selected 30 patients undergoing CABG at a service hospital were included. All patients filled a specially designed Performa. Mini Mental Status Examination, Hospital anxiety and depression scale, Coronary scale, Seattle angina questionnaire and Euro QOL 5 D were performed before and seven days after CABG. The Results showed that 43.3% had significant anxiety and 30% had significant depression before CABG. Following CABG, 36.67% of the patients had significant anxiety while 40% had significant depression. On the Seattle angina questionnaire, physical limitation reduced from 71.6 ± 7.9 to 53.1 ± 14.6. There was significant improvement in treatment satisfaction from 37.8 ± 6.1 to 59.4 ± 4.2 following CABG. On the euro quality of life scale (EQ5D) health status improved from 38.17 ± 9.51 before CABG to 68.5 ± 5.28 after CABG. The investigator concluded that there is a significant incidence of anxiety and depression in patients undergoing CABG, both before and after surgery.

Elon & Yaron (2001) Coronary artery bypass grafting (CABG) is one of the most common surgical procedures performed worldwide. However, its frequent complication, the post-CABG pain (PCP) syndrome, remains poorly documented. This retrospective cohort study was aimed to investigate the prevalence and characteristics of this syndrome. Five hundred and four of 540 subjects, who underwent CABG surgery at our institution between January 1995 and December1996 and were identified, mailed questionnaires regarding the presence and characteristics of chest wall pain. Eighty of 217 patients, who were defined as having PCP based on these questionnaires, were evaluated in detail. Main outcome measures included a preliminary pain questionnaire, pain localization on a body scheme, a five-point verbal scale and the Visual Analogue Scale (VAS) for measuring pain intensity. Pain qualities, disability and depression were measured by the McGill Pain Questionnaire (MPQ), the Pain Disability Index (PDI) and the Beck Depression Inventory (BDI), respectively. Medical and neurological examinations were also conducted, as well as quantitative thermal testing (QTT) of the chest wall. The preliminary pain questionnaires indicated that 219 of the 387 respondents (56%) reported chest wall pain, which was categorized as PCP. One hundred and forty-two (65%) of the patients with PCP reported pain of at least moderate severity, and 151 (72%) reported that the pain interfered with their daily activities. Pain intensity (VAS) was 35±22 (mean±SD), MPQ score was 4.9±3.7, PDI score was 2.0±0.7 and BDI score was 9.3±7.3. The neurological examination and the QTT indicated three subcategories of PCP: (1) left-sided chest wall pain often associated with hypoesthesia, mechanical allodynia, and elevated thermal thresholds; (2) midline scar pain accompanied primarily by

mechanical allodynia; (3) right-sided, relatively infrequent pain. The risk of developing PCP and its potential consequences should therefore be discussed with every patient prior to CABG surgery.

Marcus & Stevenson (2001) conducted a critical review to evaluate the interpretation of the findings reported in the peer-reviewed literature concerning the association of state and trait anxiety with surgical recovery and response to surgery. The Social Science Citation Index (SSCI), Science Citation Index (SCI), Medline and Psychological Abstracts (PsycInfo) databases were searched for studies published since 1981. Reference lists from previous reviews were also searched for additional references. Associations between preoperative measures of anxiety and postoperative mood and pain have been consistently reported. Associations with regard to other recovery variables are less consistent.

Shaza & Amarneh (2001) conducted a study to assess Sleep quality disturbance among coronary artery bypass graft surgery (CABG) patients. A descriptive correlational study was conducted to describe and examine changes in sleep quality of CABG patients at one month prior to surgery and at the fourth day postoperative. Convenient sampling technique was used. Study consisted of 148 patients at preoperative period and 138 patients postoperatively from Al- Bassel Heart Institute in Damascus city in Syria. The modified Pittsburgh Sleep Quality Index (PSQI) and a demographic form were used to collect the data from the patients. The results showed that sleep quality was more distributed during the first postoperative week; 99.3% of the patients reported poor habitual sleep quality (global>5) versus 70 % at preoperative period. Postoperative patients have worse subjective sleep quality, longer sleep latency, shorter sleep duration, less habitual

sleep efficiency, more sleep disturbances, more daytime dysfunction, and also used more sleeping medications. Sleep quality disturbance is present preoperatively and continues during the postoperative period. These findings suggest the need to assess sleep quality of CABG patients preoperatively, and to pay a special consideration during hospitalization.

Bergmann, et al (1999) conducted a study to test the peri operative course of stress, anxiety, and well-being in patients confronting cardiac surgery. From admission at the hospital through the late postoperative phase, salivary and plasma cortisol measurements as well as psychological anxiety inventories and well-being tests were performed in 30 patients awaiting open heart surgery. After medical information state anxiety decreased from 42.1 points (SE 2.1) to 38.7 points (SE 1.8) and remained almost unchanged until the day before surgery (38.6 points, SE 1.6). Preoperatively salivary cortisol decreased continuously but during transport to the operating room salivary cortisol increased significantly from 4.1 nmol/l (SE 0.4) to 39.4 nmol/l (SE 14.8); after induction of anesthesia plasma cortisol decreased from 419.0 nmol/l (SE 17.7) to 186.9 nmol/l (SE 15.4). Postoperatively, well-being deteriorated in all patients; anxiety decreased after surgery.

White (1999) conducted a study the surgery induces psycho physiological stress response which involves activation of the hypothalamic-pituitary-adrenal axis and the sympathetic nervous system and is characterized by increased heart rate, blood pressure, and cardiac output. The degree of the physiological stress response reflects the stress perceived and experienced. Obviously, this response increases the workload on a cardiovascular system that may already be compromised. Stress can be reduced by either removing the source of the stress or by mediating its effect through supportive interventions. Pain and anxiety are two

common stressors in patients with cardiovascular conditions Anxiety may bring about coping mechanisms to reduce the impact of the stress; but too much anxiety may interfere with cognitive ability to cope and lead to feelings of helplessness. Some anxiety is expected to be beneficial during coronary angiogram, because it indicates that the patient is confronting and attuned to the demands of the procedure and event. However, high anxiety may cause or potentiate an imbalance and create an unhealthy stress response.

2.2 Literatures Related to Music Therapy

MeltemVizeliDoğan1 & Leman Şenturan1Gulhane (2012) Medical Military Academy, conducted a study to assess the effect of music therapy on the level of anxiety in the patients undergoing coronary angiography. The aim of the study was to determine the effect of music, on the level of anxiety among patients undergoing a coronary angiography for the first time. The study was conducted experimentally as a pretest/posttest control group design. Data collection form; state-trait anxiety inventory, CDs and CD player were used. Inventories were applied to the patients before the process. The study group (100 patients) listened to music throughout the intervention, while the control group (100 patients) didn't listen to music. At the end of the process, all patients were given the same state anxiety inventory once more. It was found that the difference between the mean state anxiety scores obtained before and during the coronary angiography were significantly higher in the study group (4.04 ± 1.15) than the control group (2.01 ± 0.10) ($p = 0.000$). It was concluded that the music listened to during the coronary angiography process had an impact on the intraoperative anxiety levels of the patients.

Bittman., et al (2011) conducted a study to determine the role of group-drumming music therapy on stress-related hormones and enhancement of specific immunologic measures associated with natural killer cell activity and cell-mediated immunity. The study was conducted in the Mind-Body Wellness Center, an outpatient medical facility in Meadville. The investigators had chosen the pre test posttest and control group design. One Hundred and eleven subjects (55 men and 56 women) were included for the study. The composite drumming was selected as a music therapy protocol. Subjects were randomly assigned to group drumming or control sessions. Pre- and post test measurements of plasma cortisol, plasma dehydroepiandrosterone, plasma dehydroepiandrosterone-to-cortisol ratio, natural killer cell activity, lymphokine-activated killer cell activity, plasma interleukin-2, plasma interferon-gamma, and anxiety. The results proved that Group drumming increased the dehydroepiandrosterone-to-cortisol ratios, increased natural killer cell activity, and increased lymphokine-activated killer cell activity without alteration in plasma interleukin 2 or interferon-gamma, and anxiety. The researchers concluded that group Drumming is a complex composite intervention with the effect to modulate specific neuro-endocrine and neuro-immune parameters in a direction opposite to that expected with the classic stress response.

SandJeckl & Emerson (2010) conducted a exploratory study which demonstrated the positive impact of live music as a holistic patient intervention directed toward reducing pain, anxiety and muscle tension levels of patients admitted to a tertiary care center for an emergent medical condition. Music can be combined with other holistic interventions to positive impact on patient outcomes.

Leardi & Del (2007) conducted a study to evaluate the effect of music therapy on serum levels of cortisol and natural killer lymphocytes, both of which are known to increase during stress. A secondary objective was to determine the effect of different types of music. The study included 60 patients undergoing surgery at a day surgery unit. Subjects were randomly assigned to one of three groups, with 20 patients in each group. Subjects in Group I listened to a compilation of relaxing new age music via headphones before and during surgery. Subjects in Group II chose the type of music from the collections like classical, country, pop, and dance music, and listened to their musical choice via headphones before and during surgery. Group III was control group; did not listen to music before or during surgery. Subjects in the group I and II listened to music from one hour before surgery until the end of the surgical procedure. Blood Samples were collected immediately before, during, and three hours after surgery and tested for serum cortisol level and lymphocyte count, including natural killer lymphocyte cell count. The blood pressure, heart rate, and respiratory rate were recorded among all the subjects. Postoperative pain was also measured using a visual analogue scale three hours after the surgery. The investigator used ANOVA and the Duncan multiple range test, to analyze the differences between the groups.

Mammarella & Cornoldi (2007) Albert Einstein is recognized as one of the smartest men who has ever lived. A little known fact about Einstein is that when he was young he did extremely poor in school. His grade school teachers told his parents to take him out of school because he was "too stupid to learn" and it would be a waste of resources for the school to invest time and energy in his education. The school suggested that his parents get Albert an easy, manual labor job as soon

as they could. His mother did not think that Albert was "stupid". Instead of following the school's advice, Albert's parents bought him a violin. Albert became good at the violin. Music was the key that helped Albert Einstein become one of the smartest men who has ever lived. Einstein himself says that the reason he was so smart is because he played the violin. He loved the music of Mozart and Bach the most.

Siedliecki & Good (2006) conducted a study to determine the effect of music on power, pain, depression and disability. This paper reports a study testing the effect of music on power, pain, depression, and disability, and comparing the effects of researcher-provided music (standard music) with subject-preferred music (patterning music). However, the effect of music on power, pain, depression, and disability in working age adults with chronic non-malignant pain has not been investigated. A randomized controlled clinical trial was carried out with a convenience sample of 60 African American and Caucasian people aged 21-65 years with chronic non-malignant pain. They were randomly assigned to a standard music group (n = 22), patterning music group (n = 18) or control group (n = 20). Pain was measured with the McGill Pain Questionnaire short form; depression was measured with the Center for Epidemiology Studies Depression scale; disability was measured with the Pain Disability Index; and power was measured with the Power as Knowing Participation in Change Tool (version II). The music groups had more power and less pain, depression and disability than the control group, but there were no statistically significant differences between the two music interventions.

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Thaut (2005) explained the understanding of music's role and function in therapy and medicine is undergoing a rapid transformation, based on neuroscientific research showing the reciprocal relationship between studying the neurobiological foundations of music in the brain and how musical behavior through learning and experience changes brain and behavior function. Through this research the theory and clinical practice of music therapy is changing more and more from a social science model, based on cultural roles and general well-being concepts, to a neuroscience-guided model based on brain function and music perception. This paradigm shift has the potential to move music therapy from an adjunct modality to a central treatment modality in rehabilitation.

Brigitte, et al (2004) evaluated the effect of music therapy in patients under general anesthesia on the neuro hormonal response to surgical stress as measured by epinephrine, nor-epinephrine, Cortisol, and Adreno Corticotropic Hormone (ACTH) blood levels. The study was conducted at Department of Psychiatry, Washington University Medical Center, St.Louis, Missouri. Thirty female patients subjected to abdominal or gynecological, procedures were selected and randomly divided into two groups; group NM (no music) and group M (music). In group M, music was played from after the induction of anesthesia until the end of surgery. In the NM group, the patients wore the headphones but no music was played. Hemodynamic data were recorded at all times and postoperative consumption of morphine in the first 24 h was noted. There was no difference between the two groups with regard to plasma levels of norepinephrine, epinephrine, cortisol, or ACTH at any sample time, although the blood level of these hormones significantly increased in each group with surgical stimulation.

McCarty & Alan (1996) conducted a study to examine the effects of music and positive emotional states on autonomic and immune function in normal, healthy individuals. Autonomic activity was assessed using power spectral density analysis of heart rate variability, and salivary IgA was used as a marker of immunity. The effects of Rock, New Age, and Designer Music were examined alone and in conjunction with a self-induced positive emotional state. The results indicate that only the Designer Music and the self-induced state of appreciation produced a significant increase in autonomic activity and salivary IgA (S-IgA). The study concludes that music can be designed to enhance the beneficial effects of positive emotional states on immunity, and that this effect may be mediated by the autonomic nervous system.

2.3 Literature Related to Effect of Music Therapy on Pre operative Anxiety.

Bradt & Shim (2013) conducted a study systematic review to analyze the effect of Music interventions for preoperative anxiety. The authors projected that patients waiting for surgical procedures often experience significant anxiety. Such anxiety may result in negative physiological manifestations, slower wound healing, increased risk of infection, and may complicate the induction of anaesthesia, postoperative recovery and increase the length of hospital stay. To reduce the patient's anxiety, sedatives and anti-anxiety drugs are regularly administered before surgery. The aim of the study was to gauge the efficacy of both music therapy and music medicine interventions for reduction of preoperative anxiety.

Neda & Mansour (2011) conducted a study at Kashan University of Medical Sciences, Iran to determine the effect of music on preoperative anxiety and physiological variables of patients before general surgery. The researchers used randomized control trial as a study design and by using convenient sampling technique, 60 patients were selected for the study. The selected subjects were randomly allocated to both experimental and control group. Researchers used Spielberger's State Anxiety Inventory to measure the preoperative anxiety among patients subjected to general surgery. Sphygmomanometer was used to measure the blood pressure. The researchers measured preoperative anxiety, pulse rate,respiratory rate, and blood pressure before the surgery as pre test among subjects in experimental and control group. The non- lyrical music was administered among experimental group for 20 minutes. The subjects in control group were not given music therapy. Posttest assessment of anxiety, pulse rate,respiratory rate, and blood pressure among subjects in experimental and dcontrol group. The results showed a statistical significant differences in the anxiety level as well as the systolic blood pressure in the intervention group (P=0.04). There was no significant difference in heart and respiratory rate between the two groups (P=0.2, P=0.11). The investgators suggested that music listening to be considered as an intervention to relieve preoperative anxiety.

Moradipanah & Mohammadi (2009) conducted a study to assess the effect of music therapy on patients prior to cardiac catheterization. The study result shows that music therapy significantly reduced anxiety, improved mood state among subjects undergoing cardiac catheterization.

Mandy (2008) stated that patients undergoing surgery are subjected to multiple environmental and psychosocial factors that contribute to anxiety. Preoperative care providers are responsible for taking a multifacted approach, including both Western techniques and holistic care measures, to attenuate the autonomic and emotional strains related to the surgical process. This project sought to produce a music therapy pilot implementation process at St. Francis Health System in Tulsa, Oklahoma. Analysis of current literature indicates that music is a beneficial intervention to alleviate preoperative patient anxiety. Music was offered to 60 conveniently selected female patients who were scheduled for outpatient gynecological surgery. Anxiety of each patient was measured using STAI, before and after the music therapy. All participants were allowed to listen to a provided database of music via individual MP3 players for 20 minutes. After music therapy, patients were given post surveys to reassess their level of anxiety. In the pre-survey, 55% of patients thought music would be helpful; 78% felt that listening to music helped relieve anxiety on the post-survey.

Kshettry & Kummer (2006) conducted a study to evaluate the feasibility, safety, and impact of a complementary alternative medical therapies package for heart surgery patients. One hundred four patients undergoing open heart surgery were prospectively randomized to receive either complementary therapy. Heart rate, systolic and diastolic blood pressure, and pain and tension were measured preoperatively and during the postoperative period. Complications were abstracted from the hospital record. The results showed that virtually all patients in the complementary therapy group (95%) and 86% in standard care completed the study. Decreases in heart rate and systolic blood pressure in the complementary

therapies group were judged within the range of normal values. Pretreatment and post treatment pain and tension scores decreased significantly in the complementary alternative medical therapies group on postoperative days ($p < 0.01$) and 2 ($p < 0.038$). The researchers concluded that the complementary medical therapies protocol was implemented with ease in a busy critical care setting and was acceptable to the vast majority of patients studied.

David lee & David Shum (2003) conducted a experimental study to determine the effects of nursing interventions utilizing music therapy or sensory information on chinese patients anxiety prior to cardiac cathterization. This result shows that older age was associated with lower anxiety scores.

Wang & Kain (2002) conducted a study to assess the effect of music on anxiety experienced by patients before surgery. In this investigation, researcher examined this hypothesis by using a rigorous study design and objective outcome measures. The study was conducted in Department of Anesthesiology, Yale University School of Medicine, New Haven, USA. Adult patients undergoing anesthesia and CABG surgery were randomly assigned to two study groups. Subjects in Group 1 ($n = 48$) listened to a 30-min patient-selected music session, and subjects in Group 2 ($n = 45$) received no intervention. By using self-report validated behavioral (State-Trait Anxiety Inventory) and physiological measures of anxiety (heart rate, blood pressure, and electrodermal activity and serum cortisol, epinephrine, and norepinephrine), patients were evaluated before, during, and after administration of the intervention. Results showed that after intervention, subjects in the Music group reported significantly lower anxiety levels as compared with the Control group ($F(1,91) = 15.4$, $P = 0.001$). That is, the post

intervention anxiety level of subjects in the Music group decreased by 16% as compared with the pre intervention level, whereas the anxiety level of the Control group did not change significantly. Two-way repeated-measures analysis of variance performed for the electrodermal activity, blood pressure, heart rate, cortisol, and catecholamine data demonstrated no group difference and no time for group interaction. In conclusion, under the conditions of this study, patients who listened to music before surgery reported lower levels of state anxiety. Physiological outcomes did not differ, however, between the two study groups. The concluded that patients who listen to music of their choice during the preoperative period report less anxiety.

Hamel (2001) conducted a quasi-experimental study to see the effect of music therapy on anxiety of patient's undergoing cardiac catheterization on the total sample of 86 patients. The study result shows significant reduction in anxiety in the experimental group that received music compared to the control group.

Kathy bally (2001) conducted a quasi-experimental study to investigate the effect of specially selected music on the anxiety of patients undergoing cardiac catheterization. The study showed that music group 91% of patients defined that the music was very pleasing. These patients' expressed that music made them feel less anxious.

METHODOLOGY

The present study was designed to assess the effect of music therapy on anxiety among patients undergoing cardiac catheterization at selected hospital, Coimbatore. The chapter on methodology comprises of research approach, research design, setting, population, sampling, criteria for sample selection, variables of the study, tools for data collection, pilot study, procedure for data collection and techniques of data analysis and interpretation.

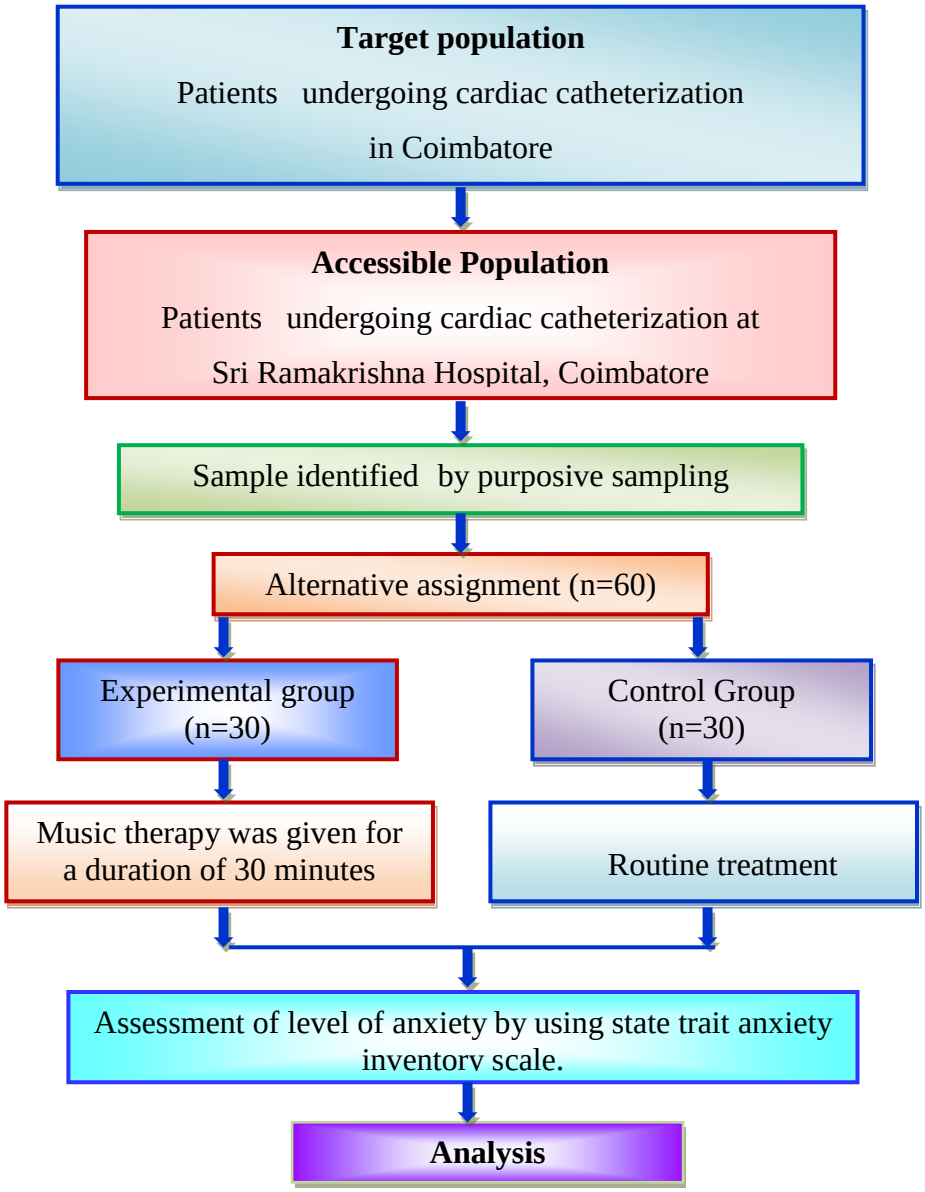
3.1 Research Approach

In this study the researcher aimed to determine the effect of music therapy on anxiety among patients undergoing cardiac catheterization at selected hospital, Coimbatore. Hence to achieve the objectives of the study, quantitative research approach was found to be appropriate and adopted in the study. The researcher manipulated the independent variable and measured the changes in the dependent variable.

3.2 Research Design

A sub type of pre experimental, non-equivalent posttest only control group design was used in the present study. The music therapy was given to the experimental group whereas routine treatment was given to the control group. Post test was administered to both experimental and control group to examine the effect of music therapy on anxiety among patients undergoing cardiac catheterization.

Figure 3.1 Schematic Representation of Research Process



3.3 Setting

The study was conducted in the coronary care unit of Sri Ramakrishna Hospital, a750 bedded super specialty hospital at Coimbatore. Sri Ramakrishna Institute of heart foundation and research has been founded to make a distinct mark in the treatment of heart disease with the most advanced equipment's.

3.4 Population

Target populations for the present study were patients undergoing cardiac catheterization in Coimbatore District. The accessible population includes the patients undergoing cardiac catheterization admitted in the coronary care unit of Sri Ramakrishna Hospital, Coimbatore.

3.5 Sampling and sample size

A total of 60 patients undergoing cardiac catheterization were selected for the study using purposive sampling technique. Sample size was determined by the following formula.

$$n = \frac{t^2 X \ p(1-p)}{(ME)^2}$$

Where,

n = Sample size

t = Significance or confidence level

p = Proportion

ME = Margin of error

t = 95% or 1.96

p = 4% or 0.04

ME = 5% or 0.05

n = $(1.96)^2 \times 0.04(1-0.04) \div (0.05)^2 = 59.0$

Sample size (n) = 60

3.6 Criteria for Sample Selection

The samples were selected based on the following inclusion and exclusion criteria.

3.6.1 Inclusion criteria

1. Patients undergoing cardiac catheterization within the age group of 20-75years
2. Patients who are willing to participate in this study.

3.6.2 Exclusion criteria

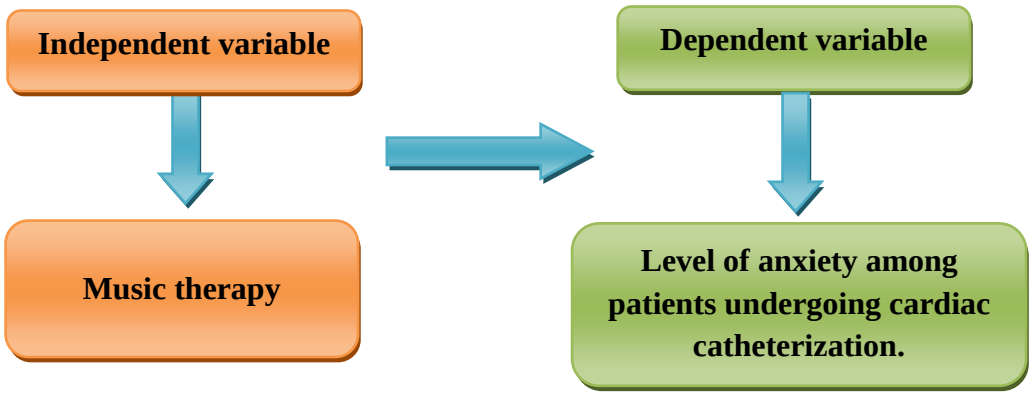
1. Patients on ventilator, sedation and critically ill
2. Patients who have already undergone cardiac catheterization.
3. Patients with hearing impairment

3.7 Variables of the Study

The Independent Variable in the present study is Music therapy and Dependent Variable is the level of anxiety among patients undergoing cardiac catheterization at Sri Ramakrishna Hospital.

Figure 3.2

Schematic Representation of Variables



3.8 Tools for data collection

The demographic data and Questionnaire on assessment of level of anxiety were framed by using the expert opinion and the supporting literatures and following tools were used for the data collection.

The following tools were used for the study:

3.8.1 Questionnaire to collect demographic profile

3.8.2 State trait anxiety inventory scale to assess the level of anxiety among patients undergoing cardiac catheterization

3.8.1 Questionnaire to Collect Demographic Profile

Demographic profile consists of Sample number, IP/OP number, Age, Gender, Religion, Educational status, Occupation, Marital status, type of family, History of previous surgery, History of cardiac problems, and Drugs before cardiac catheterization.

3.8.2 Spielberger's State trait Anxiety Inventory

Spielberger's State trait Anxiety Inventory was used to measure the anxiety of the patients undergoing cardiac catheterization. This tool was developed by Charles D. Spielberger in collaboration with R.L. Gorsuch, R. Lushene, P.R. Vagg, and G.A. Jacobs in 1983. They constructed the State trait Anxiety Inventory to measure the level of Anxiety. This is a highly validated scale and is being used worldwide to measure the Anxiety. The researcher translated the scale into Tamil language. The State Anxiety Inventory is a 4-Point Rating Scale, which includes 40 statements to measure the level of Anxiety. Out of 40, 20 statements were positive and remaining 20 were negative statements.

The total score ranges from 40-160. The minimum score of 40 indicates mild anxiety and the maximum score of 160 indicates severe Anxiety.

The scores were interpreted as follows:-

Scores	Level of Anxiety
40-80	Mild Anxiety
81-120	Moderate Anxiety
121-160	Severe anxiety

3.9 Music therapy

The intervention used in the study was music therapy using a non-lyrical veena based instrumental, based on the raga hamsadvani and dwijavanti. Both ragas were selected based on the music literatures and from the opinion of music therapist. The raga literatures says that hamsadvani is the raga meant for relaxation and to reduce anxiety, dwijavanthi is meant for reducing pain and anxiety. The music was played through a portable player to the patients in the experimental group for 30 minutes.

3.9.1 Steps of Procedure

After obtaining permission from the Hospital Authority, samples were selected according to the inclusion and exclusion criteria. Informed consent was obtained from patients after explaining the procedure. Need for the procedure and advantages of the therapy were explained. Demographic variables were collected. Music Therapy using a non-lyrical, veena based instrumental composed in the raga Hamsadvani and Dwijavanti was played from portable player and patients were instructed to listen to the Music through headphones for 30 minutes in

experimental group. Routine treatment was provided to the control group. 30 minutes after intervention post test was administered using state trait anxiety inventory scale to assess the anxiety level of patients undergoing cardiac catheterization in both groups.

3.10 Validity and Reliability of the Tool

Validity

The English version of Spielberger's State trait Anxiety Inventory is being used worldwide for many years. The experts in the field of English and Tamil did the reverse translation for the above tools. After the validation, the tools were used for data collection.

Reliability

The spilt half method was used to find out the reliability of the Spielberger's State trait Anxiety Inventory. The reliability score for the Spielberger's State trait Anxiety Inventory was 0.89.

3.11 Ethical Clearance

Ethical clearance approval for the present study was obtained from Institutional Ethical Committee of Sri Ramakrishna Hospital, Coimbatore. Each participant was explained about the study and obtained their consent.

3.12 Pilot Study

The pilot study was conducted for a period of one week. The study was conducted at coronary care unit of Sri Ramakrishna Hospital, Coimbatore. During the period of data collection, 20 samples were drawn purposively allotted 10 to experimental and 10 to the control group. Music therapy was administered to

patients undergoing cardiac catheterization in the experimental group for a duration of 30 minutes. Control group received routine treatment. Post test was administered using the state trait anxiety inventory scale to evaluate the level of anxiety among patients undergoing cardiac catheterization in both experimental and control group.

3.13 Procedure for Data Collection

The main study was conducted after the pilot study. During the period of data collection, 60 samples were drawn purposively and allotted 30 to experimental and 30 to control group. Music therapy was administered to patients undergoing cardiac catheterization in the experimental group for 30 minutes. Control group received routine treatment. Post test was administered using the state trait anxiety inventory scale to evaluate the level of anxiety among patients undergoing cardiac catheterization in both experimental and control group.

3.14 Technique of Data Analysis and Interpretation

The frequency tables were formulated for all significant information. Descriptive and inferential statistical methods (Unpaired ‘t’ test and Chi square test) were used for data analysis. Descriptive statistical method was applied for the analysis of demographic variables. Inferential statistical methods were used to identify the effect of Music therapy on anxiety

3.14.1 Unpaired ‘t’ test

Student 't' test was used to analyze the effect of Music therapy on Anxiety between experimental and control group.

$$t = \frac{\overline{X_1} - \overline{X_2}}{SE}$$

Where,

$$SE = SD\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$$

$$SD = \sqrt{\frac{\sum \left(x_1 - \overline{x_1}\right)^2 + \sum \left(x_2 - \overline{x_2}\right)^2}{n_1 + n_2 - 2}}$$

$\overline{X_1}$ = Mean anxiety scores of the experimental group

$\overline{X_2}$ = Mean anxiety scores of the control group

SE = Standard Error

SD = Combined standard deviation

n_1 = Number of samples in experimental group

n_2 = Number of samples in control group.

3.14.2. Chi-Square test

Chi-Square test was used to find out the association between the level of anxiety and selected demographic variables.

$$\chi^2 = \Sigma \frac{[(O-E)]^2}{E}$$

Where,

O = Observed value in each category

E = Expected value in corresponding category

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and results of data collected from 60 patients undergoing cardiac catheterization. The aim of the study was to determine the effect of music therapy on anxiety among patients undergoing cardiac catheterization. A total number of 60 patients were selected for the study, among 60 samples 30 were allotted to the experimental and 30 to control group respectively. The Intervention selected for the study was music therapy. The level of anxiety among patients undergoing cardiac catheterization was assessed by using state trait anxiety inventory scale after the intervention.

Descriptive and inferential statistics were used to analyze the data. Frequency and percentage were used to present the demographic variables and the level of anxiety was analyzed using inferential statistics. Student ‘t’ test was used to analyze the effect of music therapy on anxiety among experimental and control group. Chi square test was used to analyze the association between the level of anxiety and selected demographic variables.

ORGANIZATION OF THE FINDINGS

The data obtained from the patients undergoing cardiac catheterization were organized, analyzed and presented under the following sections.

Section I

Demographic variables of patients undergoing cardiac catheterization.

Section II

Assessment of the anxiety scores among experimental and control group after music therapy.

Section III

Assessment of the level of anxiety among experimental and control group after music therapy.

Section IV

Effect of music therapy on anxiety among patients undergoing cardiac catheterization.

Section V

Association between the level of anxiety and selected demographic variables among patients undergoing cardiac catheterization.

Section I

4.1 Demographic Variables of Patients Undergoing Cardiac Catheterization

The demographic variables such as age, gender, religion, educational status, occupation, marital status, type of family, history of previous surgery, history of cardiac problems and drugs before cardiac catheterization were analyzed using descriptive statistics in terms of frequency and percentage.

Analyzed data were presented in the form of tables and diagrams.

Table 4.1.1

Age of Patients Undergoing Cardiac Catheterization

(n=60)

S.No	Age in years	Experimental group (n=30)		Control group (n=30)	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	<40	4	13.34	2	6.67
2	41-50	2	6.67	8	26.67
3	51-60	19	63.33	9	30
4	> 60	5	16.66	11	36.66

The above table 4.1.1 depicts that in the experimental group, majority 19 (63.33%) patients undergoing cardiac catheterization belonged to the age group of 51-60 years and in control group, 11 (36.66%) patients were above 60 years.

Figure 4.1.1

Age of Patients Undergoing Cardiac Catheterization

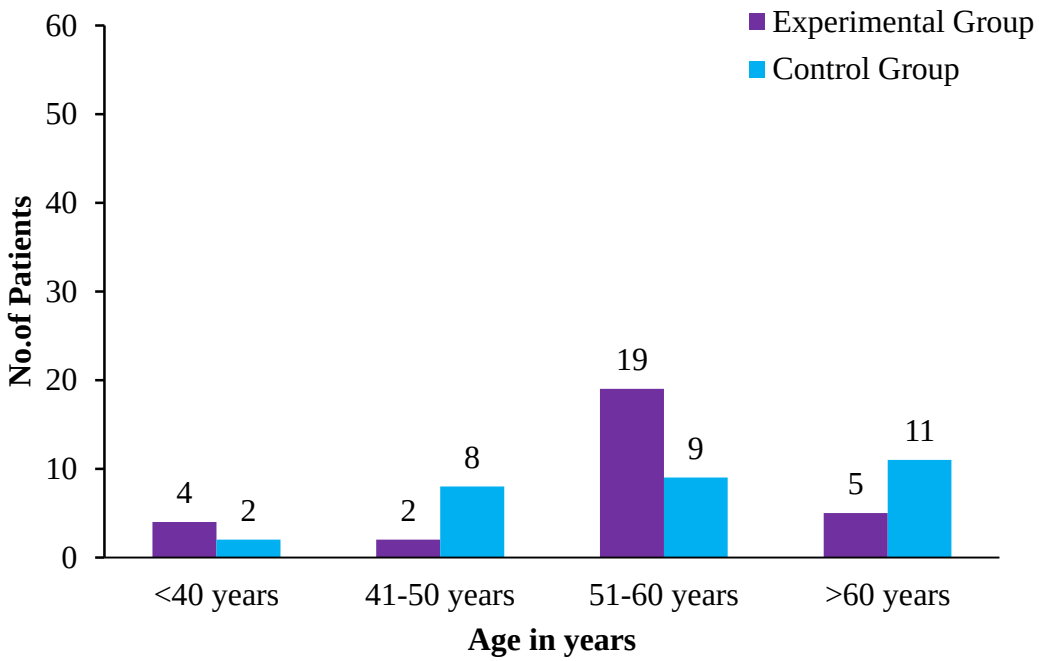


Table 4.1.2

Gender of Patients Undergoing Cardiac Catheterization

(n=60)

S.No	Gender	Experimental group (n=30)		Control group (n=30)	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	Male	24	80	24	80
2	Female	6	20	6	20

The above table 4.1.2 depicts that, majority of patients undergoing catheterization were males in experimental group 24 (80%) and in the control group 24 (80%) respectively.

Figure 4.1.2

Gender of Patients Undergoing Cardiac Catheterization

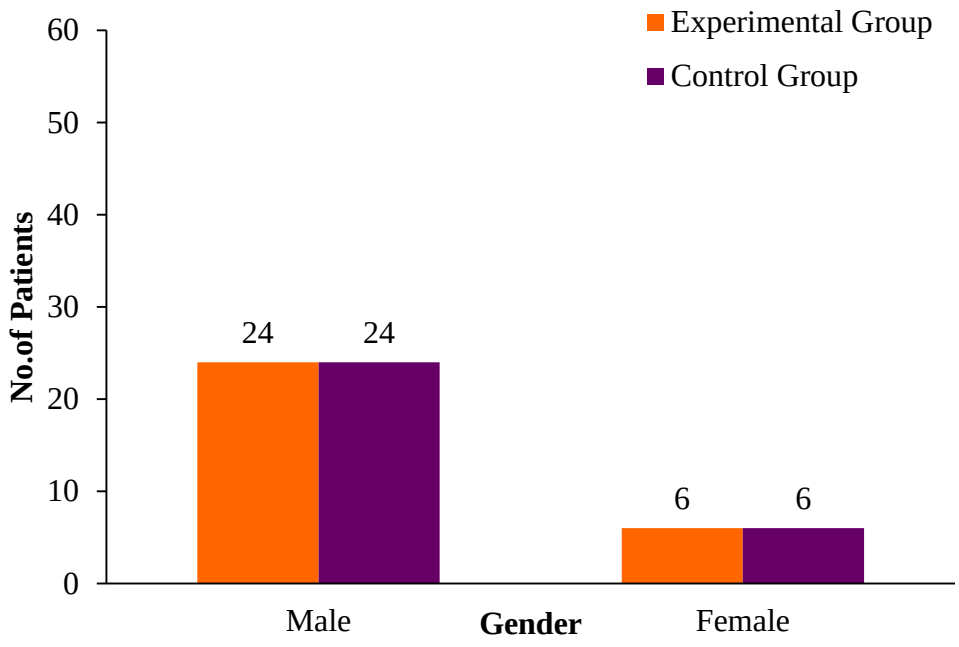


Table 4.1.3

Religion of Patients Undergoing Cardiac Catheterization

(n=60)

S.No	Religion	Experimental group (n=30)		Control group (n=30)	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	Hindu	28	93.34	27	90
2	Muslim	2	6.66	1	3.34
3	Christian	0	0	2	6.66

The above table 4.1.3 shows the data on religion which reveals that, majority, 28 (93.33%) in the experimental and 27 (90 %) in control group were Hindus respectively.

Figure 4.1.3

Religion of Patients Undergoing Cardiac Catheterization

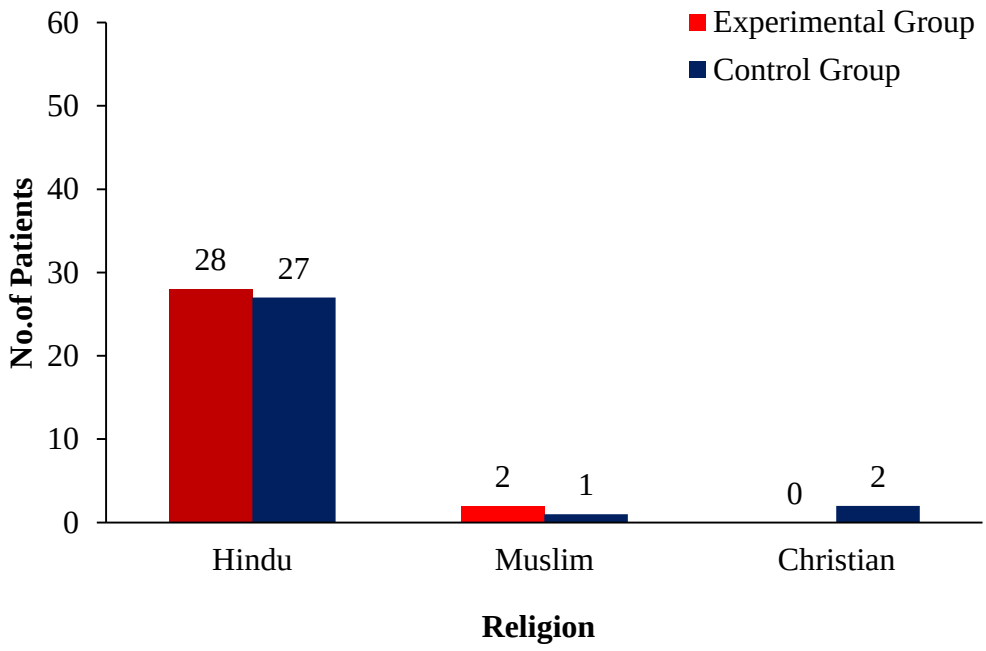


Table 4.1.4

Educational Status of Patients Undergoing Cardiac Catheterization

(n=60)

S.No	Educational status	Experimental group (n=30)		Control group (n=30)	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	Illiterate	6	20	9	30
2	Schooling	20	66.67	15	50
3	Graduate	3	10	5	16.67
4	Postgraduate	1	3.33	1	3.33

The above table 4.1.4 depicts the educational status of patients undergoing cardiac catheterization which reveals that, majority studied up to school in both experimental 20(66.67%) and control group 15 (50%) respectively.

Figure 4.1.4

Educational Status of Patients Undergoing Cardiac Catheterization

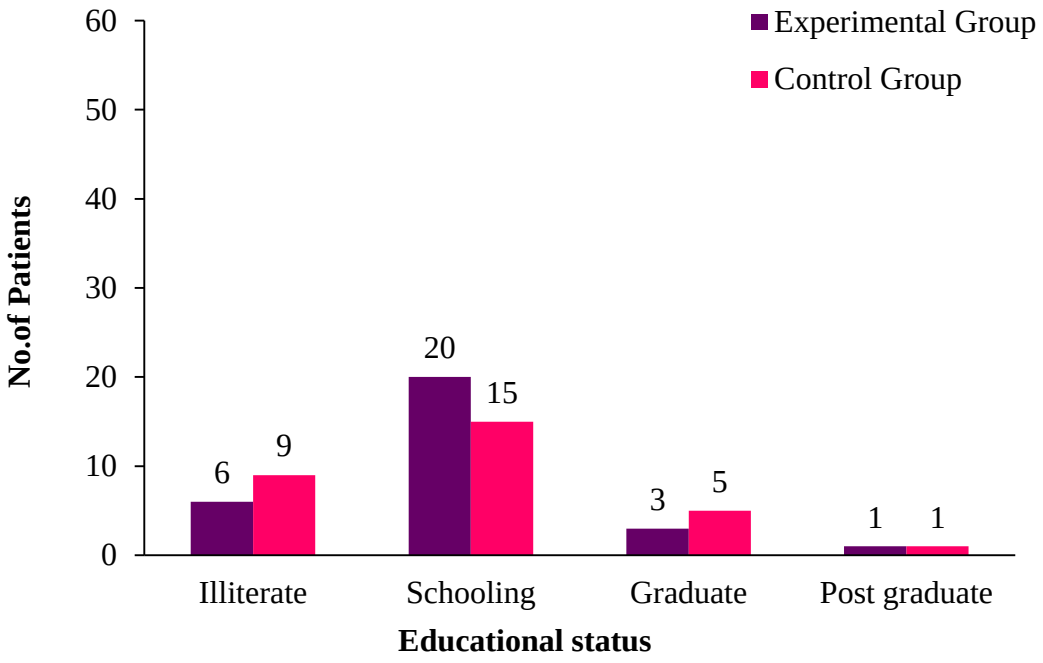


Table 4.1.5

Occupation of Patients Undergoing Cardiac Catheterization

(n=60)

S.No	Occupational status	Experimental group (n=30)		Control group (n=30)	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	Coolie worker	15	50	12	40
2	Working in professional organizations	6	20	6	20
3	Company worker	4	13.34	7	23.34
4	Any other	5	16.66	5	16.66

The above table 4.1.5 shows the occupation of patients undergoing cardiac catheterization. The results shows that majority, 15 (50%) of patients in experimental group and 12 (40%) in control group were coolie workers respectively.

Figure 4.1.5

Occupation of Patients Undergoing Cardiac Catheterization

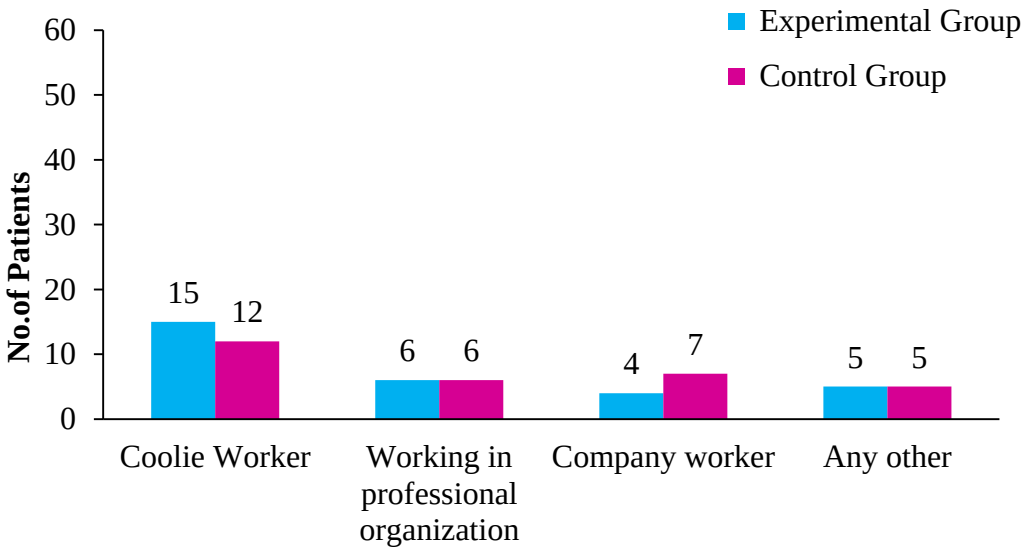


Table 4.1.6

Marital status of Patients Undergoing Cardiac Catheterization

(n=60)

S.No	Marital status	Experimental group (n=30)		Control group (n=30)	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	Single	1	3.33	2	6.67
2	Married	28	93.34	27	90
3	Widow / Widower	1	3.33	1	3.33

The above table 4.1.6 shows the Marital status of patients undergoing cardiac catheterization which reveals that, majority were married in both experimental 28(93.34%) and control group 27 (90%).

Figure 4.1.6

Marital Status of Patients Undergoing Cardiac Catheterization

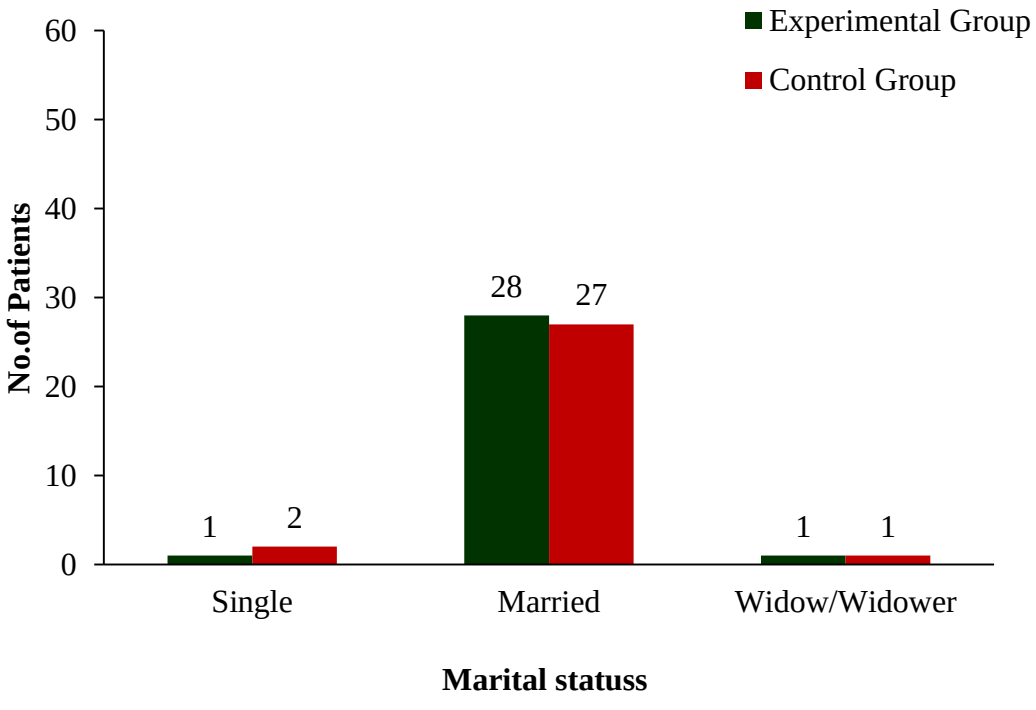


Table 4.1.7

Type of family of Patients Undergoing Cardiac Catheterization

(n=60)

S.No	Type of family	Experimental group (n=30)		Control group (n=30)	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	Nuclear	12	40	22	73.34
2	Joint	18	60	8	26.66

The above table 4.1.7depicts the type of family of patients undergoing cardiac catheterization which reveals that, majority belonged to joint family in experimental 18(60%) and 22 (73.34%) belonged to nuclear family in control group.

Figure 4.1.7

Type of family of Patients Undergoing Cardiac Catheterization

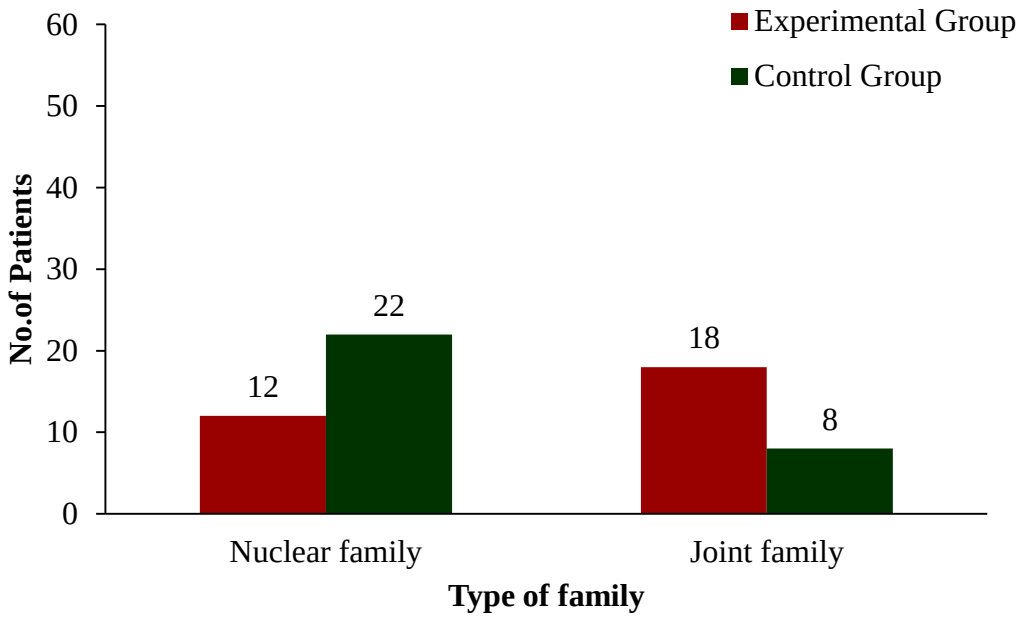


Table 4.1.8

History of Previous Surgery of Patients Undergoing Cardiac Catheterization

(n=60)

S.No	History of previous surgery	Experimental group (n=30)		Control group (n=30)	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	Yes	9	30	11	36.66
2	No	21	70	19	63.34

The above table depicts the history of previous surgery, among patients undergoing cardiac catheterization which reveals that, majority had no history of previous surgery in both experimental 21(70%) and in control group 19 (63.34%).

Figure 4.1.8

History of previous surgery of Patients Undergoing Cardiac Catheterization

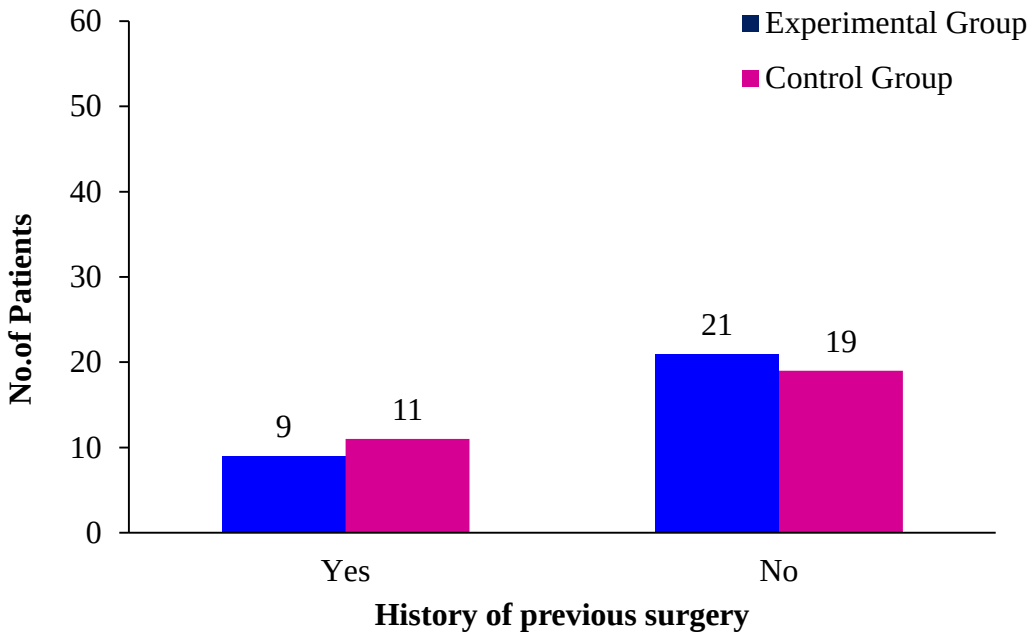


Table 4.1.9

History of Cardiac Problems of Patients Undergoing Cardiac Catheterization

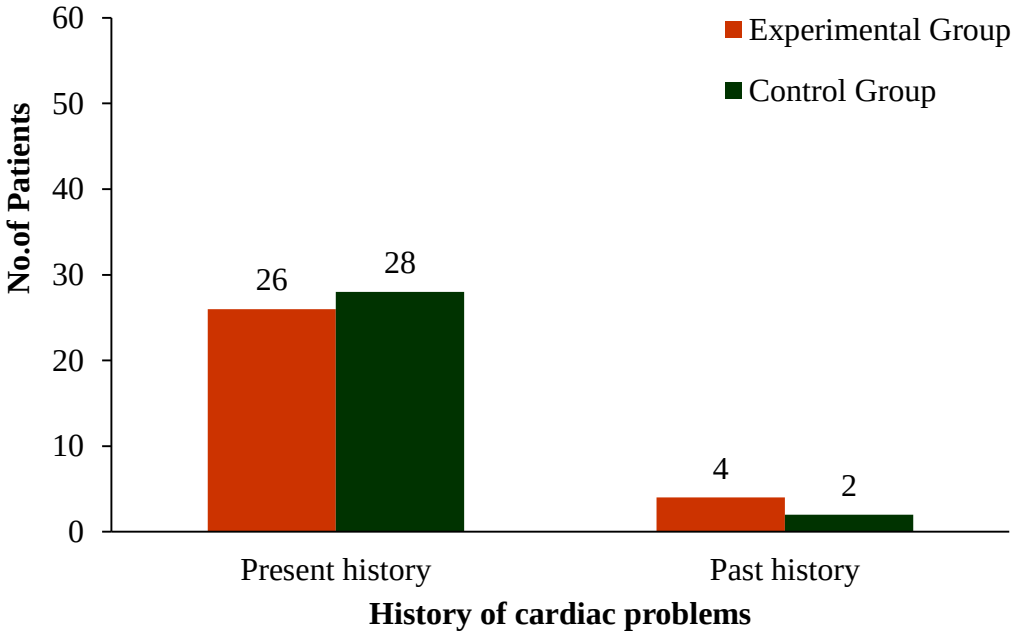
(n=60)

S.No	History of cardiac problems	Experimental group (n=30)		Control group (n=30)	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	Present history	26	86.66	28	93.33
2	Past history	4	13.34	2	6.67

The above table depicts the history of cardiac problems, among patients undergoing cardiac catheterization which reveals that, majority had a present history of cardiac problems in both experimental 26(86.66%) and in control group 28 (93.33%).

Figure 4.1.9

History of cardiac problems of Patients Undergoing Cardiac Catheterization



Section II

4.2 Assessment of the Anxiety scores among Experimental and Control Group after Music therapy

This section deals with the anxiety scores among experimental and control groups after music therapy. The anxiety scores among patients undergoing cardiac catheterization was assessed using state trait anxiety inventory which was categorized as mild, moderate and severe. Collected data were organized, analyzed and presented using descriptive statistics.

Table 4.2.1

Anxiety Scores among Experimental and Control Group after Music Therapy

(n=60)

S. No	Anxiety Scores	Experimental group (n=30)		Control group (n=30)	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1.	51-60	1	3.33	-	-
2.	61-70	5	16.66	-	-
3.	71-80	17	56.67	-	-
4.	81-90	7	23.34	-	-
5.	91-100	-	-	1	3.33
6.	101-110	-	-	4	13.33
7.	111-120	-	-	15	53.34
8.	121-130	-	-	8	23.33
9.	131-140	-	-	2	6.67

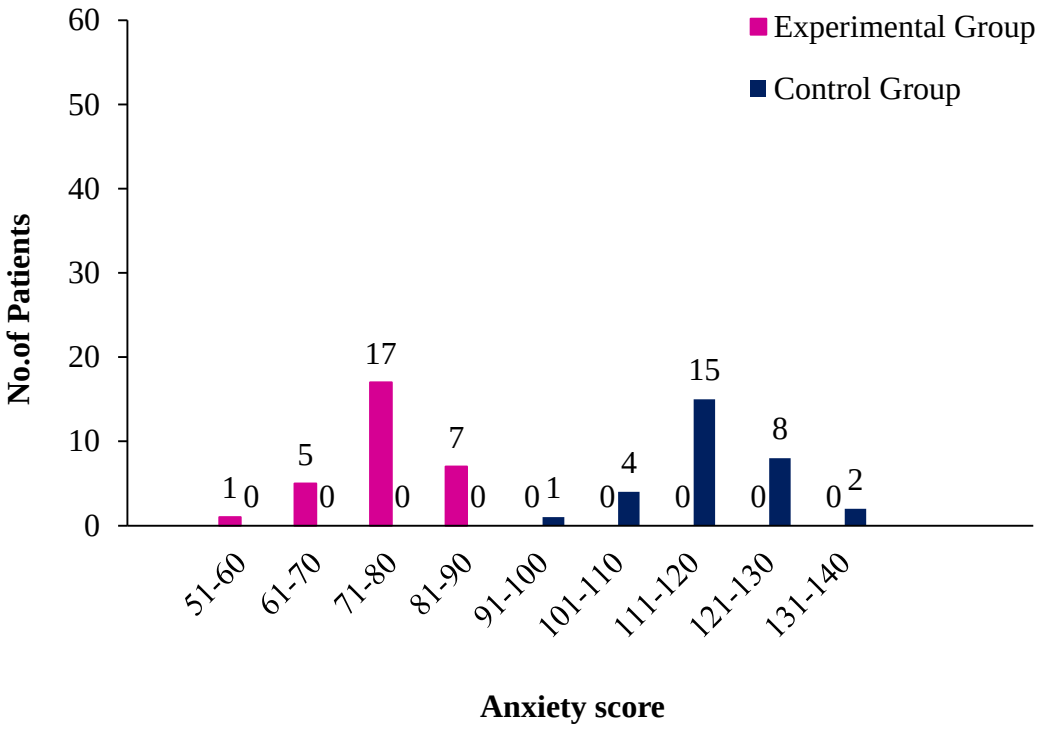
The Above table shows that, among experimental group there was 1 patients with the anxiety score between 51-60, 5patients undergoing cardiac catheterization were between 61-70, 17 patients undergoing cardiac

catheterization had scores between 71-80, 7 patients undergoing cardiac catheterization had scores between 81-90 and none of the patients undergoing cardiac catheterization scored above 91.

In the control group, 1 patient had a score between 91-100. In moderate anxiety, 4 patients had under score of 101-110, 15 patients had score between 111-120, 8 patients had score between 121-130 and 2 patients had anxiety score between 131-140.

Figure 4.2.1

Anxiety Scores among Experimental and Control Group after Music Therapy



Section III

4.3 Assessment of the Level of Anxiety among Experimental and Control Group after Music Therapy

This section deals with the analysis on the level of anxiety among patients undergoing cardiac catheterization after music therapy. The level of Anxiety among patients undergoing cardiac catheterization was assessed using state trait anxiety inventory which was categorized as mild, moderate and severe. Collected data were organized, analyzed and presented using descriptive statistics.

Table 4.3.1

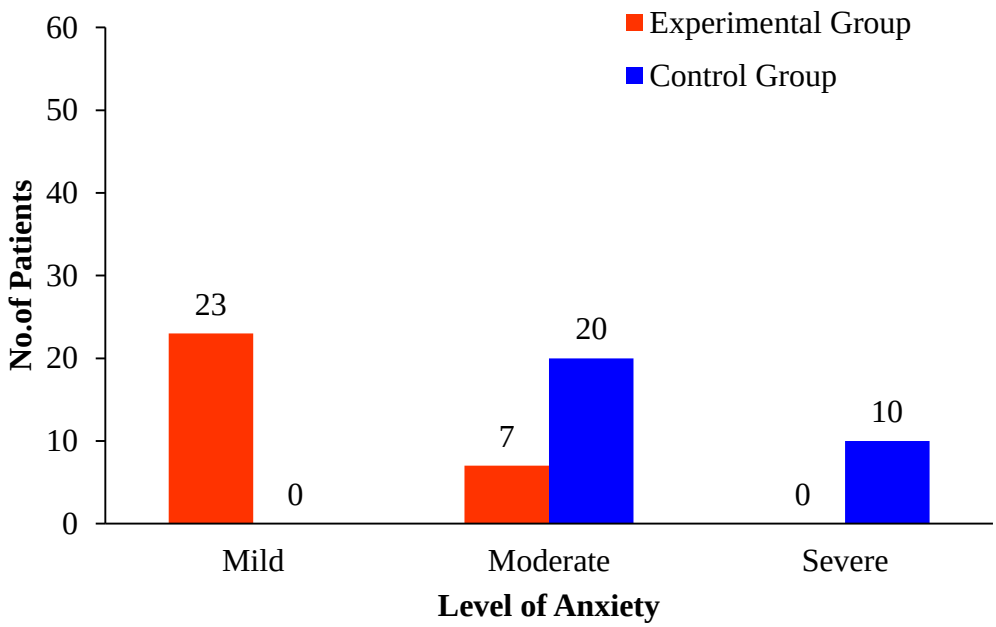
Level of Anxiety among Experimental and Control Group after Music Therapy

(n=60)

S. No	Level of Anxiety	Experimental group (n= 30)		Control group (n=30)	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1.	Mild	23	76.66	0	0
2.	Moderate	7	23.34	20	66.67
3.	Severe	0	0	10	33.33

The above table shows the distribution of patients undergoing cardiac catheterization based on the level of anxiety after music therapy. It was found that 23 (76.66 %) had mild level of anxiety and 7 (23.33%) had moderate level of anxiety in experimental group. Among the control group 20 (66.66%) patients had moderate level of anxiety, 10 (33.33 %) had severe level of anxiety.

Figure 4.3.1
Level of Anxiety among Experimental and Control Group after Music Therapy



Section IV

4.4.1 Effect of Music Therapy on Anxiety among Patients Undergoing Cardiac Catheterization in Experimental and Control group

This section deals with the analysis and interpretation of the effect of music therapy among patients undergoing cardiac catheterization.

Table 4.4.1

Effect of Music therapy on Anxiety among Patients Undergoing Cardiac Catheterization

(n=60)

Group	Mean	SD	Mean difference	't' value
Experimental Group	75.9	7.16	42.3	22.41***
Control Group	118.26	8.04		

***Significant at 0.001 level

Un paired 't' test was used to compare the posttest level of anxiety among experimental and control group. It was identified that the mean level of anxiety among patients in experimental and control group was 75.9 and 118.29 respectively with a mean difference of 42.3. Likewise the standard deviation of the experimental and control group was 7.16 and 8.04 respectively. The calculated 't' value 22.41 was greater than the table value 3.29 at 0.001 level of significance. Hence the research hypothesis **H_1**:''There is a significant difference in the level of anxiety between experimental and control group among patients undergoing cardiac catheterization after music therapy" was accepted.

Section V

4.5 Association between the Level of Anxiety and Selected Demographic Variables among Patients Undergoing Cardiac Catheterization

Chi square test was used to find the association between level of anxiety and selected demographic variables like age, gender, religion, educational status, occupation, marital status, type of family, history of previous surgery, history of cardiac problems, among patients undergoing cardiac catheterization.

Table 4.5.1

Association between the Level of Anxiety and Selected Demographic Variables among Patients Undergoing Cardiac Catheterization

(n=60)

S.No	Demographic variables	Category	Frequency	Level of Anxiety			χ^2value	Degree of freedom (r-1)(c-1)	χ^2 Table Value
				Mild	Moderate	Severe			
1.	Age	31-40 years	6	2	4	0	16.106*	6	12.59
		41-50 years	10	2	4	4			
		51-60 years	28	16	11	1			
		Above 60	16	3	8	5			
2.	Gender	Male	48	17	24	7	2.489	2	5.99
		Female	12	6	3	3			
3.	Religion	Hindu	55	21	24	10	3.688	4	9.49
		Muslim	3	2	1	0			
		Christian	2	0	2	0			
4.	Educational status	Illiterate	15	4	8	3	6.188	6	12.59
		Schooling	35	17	12	6			
		Undergraduate	8	1	6	1			
		Post graduate	2	1	1	0			

S.No	Demographic variables	Category	Frequency	Level of Anxiety			χ^2value	Degree of freedom (r-1)(c-1)	χ^2 Table Value
				Mild	Moderate	Severe			
5.	Occupation	Coolie worker	27	13	11	3	11.213	6	12.59
		Professional worker	12	4	7	1			
		Company worker	11	2	7	2			
		Any other	10	4	2	4			
6.	Marital status	Single	3	1	2	0	3.438	4	9.49
		Married	55	22	23	10			
		Widow/widower	2	0	2	0			
7.	Type of family	Nuclear family	34	11	16	7	1.532	2	5.99
		Joint family	26	12	11	3			
8.	History of previous surgery	Yes	20	7	8	5	1.508	2	5.99
		No	40	16	19	5			
9.	History of cardiac problems	Present history	54	20	24	10	1.383	2	5.99
		Past history	6	3	3	0			

*Significance at 0.05 level

Table 4.5.1 shows the association between the level of anxiety and selected demographic variables among patients undergoing cardiac catheterization. Stated demographic variables were age, gender, religion, educational status, occupation, marital status, type of family, history of previous surgery and history of cardiac problems among patients undergoing cardiac catheterization.

It was found that chi square value for age, (χ^2=16.106) had association with the level of anxiety among patients undergoing cardiac catheterization at 0.05 level of significance.

It was found that chi square value for gender (χ^2=2.489), religion (χ^2= 3.688), educational status (χ^2=6.188), occupation (χ^2=11.213), marital status (χ^2 = 3.438), Type of family (χ^2=1.532), history of previous surgery (χ^2 =1.508) and history of cardiac problems (χ^2 = 1.383) had no association with the level of anxiety among patients undergoing cardiac catheterization.

RESULTS AND DISCUSSION

This chapter deals with the interpretation of the results and discussion of the findings. The main aim of the study was to assess the effect of music therapy on anxiety among patients undergoing cardiac catheterization. The study was conducted at Sri Ramakrishna Hospital, Coimbatore. Pre experimental, non-equivalent posttest only control group design was used in the present study. 60 patients were selected, 30 patients were allotted to the experimental group and 30 were allotted to the control group respectively. The researcher administered music Therapy for 30 minutes for subjects in the experimental group. Patients in control group were received routine treatment for 30 minutes. The level of anxiety of patients was assessed after intervention before undergoing cardiac catheterization.

The data was analyzed and the findings were discussed based on the objectives of the study.

5.1 Findings related to Demographic profile

In the present study, out of 30 patients in experimental group, majority 19 (63.33%) patients belonged to the age group of 51-60 years, 5 (16.66%) were above 60 years of age, 4 (13.34%) were less than 40 years of age and 2 (6.67%) belonged to 41-50 years of age. In control group majority 11 (36.66%) patients were above 60 years, 9 (30%) belonged to 51-60 years of age, 8 (26.67%) belongedto41-50 years of age and 2 (6.67%) were less than 40 years of age.

The data on gender reveals that, in experimental group majority 24 (80%), were males 6 (20%) were females and in control group 24 (80%) were males, 6 (20%) were females.

The data on religion reveals that, in experimental group majority 28 (93.34%), were Hindus 2(6.66%) were Muslims and in control group 27 (90%) were Hindus, 2 (6.66%) were Christians and 1 (3.34%) was a Muslim.

Educational status of patients in experimental group reveals that 20 (66.67%) had completed Schooling, 6 (20%) were Illiterate, 3 (10%) had done graduation and 1 (3.33%) was a post graduate. In control group 15 (50%) had schooling, 9 (30%) were illiterate, 5(16.67%) completed graduation and 1 (3.33%) had completed Post Graduation.

Regarding occupational status, in experimental group majority 15 (50%) patients were coolie workers, 6 (20%) were working in Professional organizations and 5 (16.66%) were doing other works and 4(13.34%) were company workers and in control group majority 12 (40%) were coolie workers, 7 (23.34%) were company workers and 6 (20%) were working in professional organizations and 5(16.66%) were company workers.

Marital status reveals that in experimental group, most of them 28(93.34%) were married, 1patient (3.33%) was single and 1patient (3.33%) was a widow and in control group, majority 27 (90%) were married, 2 (6.67%) were single and 1 (3.33%) was a widow.

Type of family reveals that in experimental group 18 (60%) patients belonged to joint family, 12 (40%) belonged to nuclear family, and in control group 22 (73.34%) belonged to nuclear family, 8 (26.66%) belonged to joint family.

History of previous surgery of patients reveals that, in experimental group most of the patients 21 (70%) had no history of previous surgery and 9 (30%) had history of previous surgery in control group, majority 19 (63.34%) had no history of previous surgery and 11(36.66%) had history of previous surgery.

History of cardiac problems reveals that, in experimental group most of the patients 26 (86.66%) had present history of cardiac problems and 4 (13.34%) had past history of cardiac problems. In control group, majority 28 (93.33%) had present history of cardiac problems and 2(6.67%) had past history of cardiac problems.

5.2 Assessment on the Anxiety Scores among Experimental and Control Group after Music Therapy

In the experimental group there was 1 patient with the anxiety score between 51-60, 5patients were between 61-70, 17 patients had scores between71-80, 7 patients had scores between 81-90 and none of the patients undergoing cardiac catheterization scored above 91.

In the control group, 1 patient had a score between 91-100, 4 patients had anxiety scores between 101-110, 15 patients had score between 111-120, 8 patients had score between 121-130 and 2 patients had anxiety score between 131-140.

A similar study was conducted by Hamel (2001) to see the effect of music therapy on anxiety of patient's undergoing cardiac catheterization on the total sample of 86 patients. The study result shows significant reduction in anxiety scores in the experimental group compared with the control group.

5.3 Assessment of the Level of Anxiety among Experimental and Control Group after Music Therapy

The intervention used in the study was music therapy using a non-lyrical veena based instrumental, based on the raga hamsadvani and dwijavanti. Both ragas were selected based on the music literatures and from the opinion of music therapist. The raga literatures says that hamsadvani is the raga meant for relaxation and to reduce anxiety, dwijavanthi is meant for reducing pain and anxiety. The music was played through a portable player to the patients in the experimental group for 30 minutes. Routine treatment was provided to the control group. 30 minutes after intervention posttest was administered using state trait anxiety inventory scale to assess the anxiety level of patients undergoing cardiac catheterization in both groups.

After intervention it was found that, 23(76.66%) patients from experimental group had mild level of Anxiety, and 7 (23.34%) had moderate level of Anxiety.

In control group, post test score showed that 20 (66.67%) patients had moderate level of Anxiety, 10 (33.33%) had severe level of Anxiety.

A similar study was conducted by Moradipanah & Mohammadi (2009) to assess the effect of music therapy on patients prior to cardiac catheterization. The study result shows that music therapy significantly reduced anxiety, improved mood state among subjects undergoing cardiac catheterization in the experimental group. After intervention it was found that patients from experimental group had mild level of Anxiety and moderate level of Anxiety. Patients from control group had moderate level of Anxiety and severe level of Anxiety.

5.4 Effect of Music therapy on Anxiety among Patients Undergoing Cardiac Catheterization

Un paired 't' test was used to compare the posttest level of anxiety among experimental and control group. It was identified that the mean level of Anxiety among patients in experimental and control group was 75.9 and 118.29 respectively with a mean difference of 42.3. Likewise the standard deviation of the experimental and control group was 7.16 and 8.04 respectively. The calculated 't' value 22.41 was greater than the table value. Hence the research hypothesis **H_1**:''There is a significant difference in the level of anxiety between experimental and control group among patients undergoing cardiac catheterization after music therapy" was accepted.

A similar study was conducted by Wang & Kain (2002) to assess the effect of music on anxiety experienced by patients before surgery. Adult patients undergoing CABG surgery were randomly assigned to two study groups. Subjects in experimental group (n = 48) listened to a 30-minutes patient-selected music session, and subjects in control group (n = 45) received no intervention. Pretest and post test was conducted using self-report validated behavioral (State-Trait Anxiety Inventory) to measure the level of anxiety. Results showed that after intervention, subjects in the music group reported significantly lower anxiety levels as compared with the control group (15.4, P = 0.001). That is, the post intervention anxiety level of subjects in the Music group decreased by 16% as compared with the pre intervention level, whereas the anxiety level of the Control group did not change significantly. The researcher concluded that patients who listened to music before surgery reported lower level of state anxiety.

5.5 Association between the Level of Anxiety and Selected Demographic Variables

The association between the level of anxiety and selected demographic variables among patients undergoing cardiac catheterization were calculated using Chi square. It was found that chi square value for age, (χ^2=16.106) had association with the level of anxiety among patients undergoing cardiac catheterization at 0.05 level of significance.

It was found that chi square value for gender (χ^2=2.489), religion (χ^2= 3.688), educational status (χ^2=6.188), occupation (χ^2=11.213), marital status (χ^2 = 3.438), Type of family (χ^2=1.532), history of previous surgery (χ^2 =1.508) and history of cardiac problems (χ^2 = 1.383) had no association with the level of anxiety among patients undergoing cardiac catheterization.

A similar study was conducted by David lee & David Shum (2003) to determine the effect of nursing intervention utilizing music therapy or sensory information on Chinese patients anxiety prior to cardiac catheterization. This result shows that older age was associated with lower anxiety scores.

SUMMARY AND CONCLUSION

This chapter deals with the findings, limitations, suggestions for the study and implications in the field of nursing education, practice, administration and nursing research. The study was conducted to see the effect of music therapy on anxiety among patients undergoing cardiac catheterization at selected hospital at Coimbatore.

Pre experimental, non-equivalent posttest only control group design was used in the present study. General system model was used as a conceptual framework for the study. The Study was conducted in the Coronary Care Unit of Sri Ramakrishna Hospital, Coimbatore. State trait anxiety inventory developed by Spielberger (1983) was used to assess the level of anxiety among patients undergoing cardiac catheterization. In this study, 30 samples were allotted to experimental group and 30 samples to control group respectively. Music therapy was administered for the samples in experimental group by the researcher for a duration of 30 minutes. On the other hand, routine treatment was given for patients in the control group. Post-test was done using State trait anxiety inventory for both experimental and control group.

6.1 Major Findings of the Study

6.1.1 Type of family among patients undergoing cardiac catheterization revealed that, majority belonged to joint family in experimental 18(60%) and majority belonged to nuclear family in control group 22 (73.34%).

6.1.2 History of previous surgery of patients undergoing cardiac catheterization revealed that, majority had no history of previous surgery in both experimental 21(70%) and in control group 19 (63.34%).

6.1.3 Majority of patients had a present history of cardiac problems in both experimental 26(86.66%) and in control group 28 (93.33%).

6.1.4 Anxiety scores among patients in experimental group reveals that in posttest, 23 patients had scored between 40-80 and 7 patients had scored between 81-120 after music therapy. In control group, post test scores revealed that there were 10 patients who scored between 121-140, 20 patients had scored between 81- 120.

6.1.5 In experimental group the level of anxiety after intervention shows that, 23 members had mild level of anxiety, 7 members had moderate level of anxiety. In control group 20 patients had moderate level of Anxiety, 10 had severe level of anxiety.

6.1.6 The effect of music therapy on anxiety among patients undergoing cardiac catheterization in the experimental and control group was analyzed using student ‘t’ test. It was identified that the mean level of anxiety among patients in experimental and control group was 75.9 and 118.29 respectively with a mean difference of 42.3. The standard deviation of the experimental and control group was 7.16 and 8.04 respectively. The

calculated ‘t’ value was 22.41 was greater than the table value at 0.001 level of significance. Hence the research hypothesis $H_{1:}$‘‘There is a significant difference in the level of anxiety between experimental and control group among patients undergoing cardiac catheterization after music therapy’ was accepted.

6.1.7 There is a significant association between the level of anxiety among patients undergoing cardiac catheterization and age, (χ^2=16.106) at 0.05 level of significance.

6.2 Limitation

6.2.1 Sample size of the study was small which limits the generalization of the study findings.

6.3 Recommendations

6.3.1 The study can be replicated with larger samples which would facilitate generalizations.

6.3.2 All staff nurses have to be trained to implement music therapy to decrease the level of anxiety among patients undergoing cardiac catheterization.

6.3.3 A similar study can be conducted among the people with various pre-operative surgical procedures.

6.3.4 Further research can be carried out to find out the effect of music therapy on other surgical procedures like CABG, pain of cancer patients.

6.4 Nursing Implication

6.4.1 Nursing Education

Music therapy used in the present study was found effective in reducing the anxiety level among patients undergoing cardiac catheterization. Nurse educators need to have knowledge and awareness on

music therapy, as it is an effective measure to reduce anxiety. So, the importance of music therapy can be emphasized and included in the nursing curriculum.

6.4.2 Nursing Administration

The nurse administrator can draw written policies regarding music therapy to reduce the anxiety among patients undergoing cardiac catheterization.

6.4.3 Nursing Practice

Music therapy is an effective measure to reduce the anxiety level among patients undergoing cardiac catheterization. Nurses working in coronary care unit and hospitals should be trained to focus on this therapy among the patients undergoing cardiac catheterization. Client with anxiety can be provided music therapy and encouraged to practice in their day to day life.

6.4.4 Nursing Research

The study has tested the effectiveness of music therapy on anxiety among patients undergoing cardiac catheterization. It can be used as evidence based practice for reducing anxiety. Similar studies can be undertaken for assessing the anxiety among patients in different settings.

6.5 Conclusion

Cardiac disease is a deadly disease. People with cardiac problems often undergo physical and emotional disturbances due to their diagnosis of cardiac diseases through cardiac catheterization .The non-pharmacological interventions such as complimentary therapies reduce changes in anxiety among patients undergoing cardiac catheterization. Music therapy reduces the anxiety level, by relaxing body and mind. This indicates that music therapy is an important non pharmacological method to reduce the anxiety level among patients undergoing cardiac catheterization. Hence, the researcher concludes that music therapy can be one of the methods to reduce the anxiety among patients undergoing cardiac catheterization.

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PERMISSION LETTER FOR CONDUCTING STUDY

From,

Jayalalitha.G,
Msc (Nursing)1year,
College Of Nursing,
Sri Ramakrishna Institute of Paramedical Science,
Coimbatore-44.

To,

Dr. SUKUMARAN., MS, M.Ch., FIACS.,
DIRECTOR MEDICAL SERVICE / DEAN
SRI RAMAKRISHNA HOSPITAL
COIMBATORE - 44

Through,

The Principal,
College Of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore-44.

Respected Sir/Madam,

Subject:-Requesting permission to conduct study in Coronary care unit of Sri-Ramakrishna hospital

I am Mrs.Jayalaliyha.G doing my 1st year M.sc nursing in Sri Ramakrishna Institute of paramedical science .As a part of my curriculum requirement ,I have undertaken the following study for my research **"Effect of music therapy on anxiety among patients undergoing cardiac catheterization."** I have planned to do the above said study in the coronary care unit of Sri Ramakrishna Hospital .Hence I humbly request you to grant me the permission to conduct the study in the coronary care unit. I assure that I abide the rules of the institution and information collected from the study participants will not be disclosed.

Here with I am attaching a brief copy of the research proposal.

Thanking you,

Date: 27/05/2015

Yours sincerely,

Jai

Place:Coimbatore

(Jayalalitha.G)

For

PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Sri Ramakrishna Hospital

Medical Service : M/s. S.N.R. SONS CHARITABLE TRUST

SRI RAMAKRISHNA HOSPITAL ETHICAL COMMITTEE

395, SAROJINI NAIDU ROAD, SIDHAPUDUR, COIMBATORE - 641 044.
Phone : 0422 - 4500000, 4500201, Grams :"RAMHOSP" Fax : 0422-2240521
E-mail : dean@snrsonstrust.org, website : sriramakrishnahospital.com

Ethics Committee Registration No. ECR/690/Inst/TN/2014

22nd June 2015

Ms.Jayalalitha.G
IInd year M.Sc., Nursing,
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences,
Coimbatore 641 044.

Dear Ms.Jayalalitha.G

The Institutional Human Ethics Committee of Sri Ramakrishna Hospital reviewed and discussed your application to conduct the study proposal entitled "Effect of Music Therapy on Anxiety among Patients Undergoing Cardiac Catheterization at Selected Hospital, Coimbatore".

The following documents were reviewed:

- Study Protocol
- Study procedure
- Informed consent document in Tamil & English
- Investigator study Undertaking
- Draft Case Report Form
- Investigator's current CV

The following members of the ethics committee were present at the meeting held on 17.06.2015 at 3.00pm at New Auditorium, Sri Ramakrishna Hospital Campus, Coimbatore.

Sl No	Members name	Qualification	Designation in Ethics Committee	address	Affiliation to the Institution (Yes / No)
1.	Dr.P.Sukumaran	MS,M.Ch., FIACS.,	EC Member Secretary	Dean Sri Ramakrishna Hospital, 395, Sarojini Naidu Road, Sidhapudur, Coimbatore	Yes

Sri Ramakrishna Hospital

Medical Service : M/s. S.N.R. SONS CHARITABLE TRUST

SRI RAMAKRISHNA HOSPITAL ETHICAL COMMITTEE

395, SAROJINI NAIDU ROAD, SIDHAPUDUR, COIMBATORE - 641 044.
Phone : 0422 - 4500000, 4500201, Grams :"RAMHOSP" Fax : 0422-2240521
E-mail : dean@snrsonstrust.org, website : sriramakrishnahospital.com

Ethics Committee Registration No. ECR/690/Inst/TN/2014

Ethics Committee Chairman

Dr. P. M. Murali, M.Sc.,Ph.D.,D.Sc.,

Ethics Committee Member Secretary

Dr. P. Sukumaran, MS.,M.Ch.,FIACS.,

Ethics Committee Members

Dr. MohanKumar T. MD.,AB.,D.Sc., DPPR.,FCCP.,
Clinician

Dr. R. Lalitha, DGO.,
Clinician

Dr. S. Rajagopal, M.Ch.,
Clinician

Dr. M. Rangasamy, B.E.,M.Sc.(Engg.)Ph.D.,
Lay Person

Dr. T.K. Ravi, M.Pharm.,Ph.D.,
Scientific Member

Dr. N. Paramasivan, MBBS., MD.,(Pharmacology)
Basic Medical Scientist

Mr. P. R. Ramakrishnan, B.Com.,B.L.,
Legal Expert

Mrs. Mythili Padmanabhan, M.Sc.,
Social Scientist

2	Dr.T.Mohan Kumar	MD., D.Sc., AB., DPPR. FCCP.	Clinician	Sr.Consultant Pulmonologist Sri Ramakrishna Hospital, 395, Sarojini Naidu Road, Sidhapudur,Coimbatore	Yes
3.	Dr.S.Rajagopal	M.Ch.,	Clinician	Sr.Neuro Surgeon Sri Ramakrishna Hospital, 395, Sarojini Naidu Road, Sidhapudur,Coimbatore	Yes
4.	Dr.R.Lalitha	DGO.,(OG)	Clinician	Sr. Gynecologist Sri Ramakrishna Hospital, 395, Sarojini Naidu Road, Sidhapudur,Coimbatore	Yes
5.	Dr.T.K.Ravi	M.Pharm. Ph.D	Scientific Member	Principal Sri Ramakrishna College of Pharmacy, 395, Sarojini Naidu Road, Sidhapudur,Coimbatore	Yes
6.	Dr.N.Paramasivan	MBBS.,MD.	Basic Medical Scientist	Prof. of Pharmacology & HOD Sri Ramakrishna Dental College & Hospital, Coimbatore.	Yes
7.	Mr.P.R.Ramakrishnan	B.Com.,BL.	Legal Expert	Advocate No.2, Ramar Kovil St., Ramnagar, Coimbatore-9	No
8.	Mrs.Mythili Padmanabhan	M.Sc., (Psychology	Social Scientist	Correspondent Vriksha 5/14, 2nd Street, G.G.Avenue, Coimbatore-46	No

Ethics Committee has granted approval for the study to be conducted at Sri Ramakrishna Hospital.

The ethics committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

Yours Truly,

Member Secretary,
Institutional Human Ethics Committee,

Dr. P. SUKUMARAN, M.S.,M.Ch.,FIACS.,
Dean
SRI RAMAKRISHNA HOSPITAL,
395, Sarojini Naidu Road,
Sidhapudur, Coimbatore-641 044.

LETTER REQUESTING TO VALIDATE THE RESEARCH TOOL AND CONTENT

REQUISITION LETTER

From,

Jayalalitha.G,
M.Sc(Nursing)I year,
College of nursing,
Sri-Ramakrishna Institute of paramedical sciences,
Coimbatore-44.

To,

Dr. S. MANOHARAN., M.B.B.S., MD., DM
Consultant & Interventional cardiologist
Head division of cardiology
SRI Ramakrishna hospital, coimbatore-44

Through,

The Principal,
College of Nursing,
Sri-Ramakrishna Institute of Paramedical science,
Coimbaore-44

Respected Sir/Madam,

Subject:-Requisition for tool and content validation:-Reg

I am Jayalalitha.G,doing my I[st] year M.Sc nursing in Sri-Ramakrishna Institute of paramedical sciences and as a part of my M.Sc nursing programme,I have undertaken the following study for my research **"Effect of music therapy on anxiety among patients undergoing cardiac catheterization at Sri-Ramakrishna Hospital,Coimbatore"**.The following tool is intended to be used,hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking You,

FOR

PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore-641044

Date: 28/5/2015

Place: coimbatore

Yours sincerely,

(Jayalalitha.G)

Dr. S. MANOHARAN MD. DM. (Cardiology)
Consultant & Interventional Cardiologist
Head of the Department of Cardiology
Sri Ramakrishna Hospital
Coimbatore - 641 044.
Reg. No. : 28967

FORMAT FOR CONTENT VALIDITY

Name of the Expert: DR. S. MANOHARAN., M.B.B.S., MD., DM

Address: Consultant & Interventional cardiologist
Head division of cardiology
SRI Ramakrishna hospital, coimbatore-44

Kindly validate each tool and tick wherever applicable

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A	✓			
2.	SECTION-B	✓			
3.	SECTION-C	✓			

Tool content for the tool : Adequate/ Inadequate ✓

Date: 28/05/2015

Signature of the Expert

Dr. S. MANOHARAN MD. DM. (Cardiology)
Consultant & Interventional Cardiologist
Head of the Department of Cardiology
Sri Ramakrishna Hospital
Coimbatore - 641 044.
Reg. No. : 28967

LETTER REQUESTING TO VALIDATE THE RESEARCH TOOL AND CONTENT

REQUISITION LETTER

From,

Jayalalitha.G,
M.Sc(Nursing)I year,
College of nursing,
Sri-Ramakrishna Institute of paramedical sciences,
Coimbatore-44.

To,

Dr. ANANTH., M.B.B.S., ph.D., M.D.
Behavioural health consultant physician
SRI Ramakrishna hospital
Coimbatore - 44

Through,

The Principal,
College of Nursing,
Sri-Ramakrishna Institute of Paramedical science,
Coimbaore-44

Respected Sir/Madam,

Subject:-Requisition for tool and content validation:-Reg

I am Jayalalitha.G,doing my I[st] year M.Sc nursing in Sri-Ramakrishna Institute of paramedical sciences and as a part of my M.Sc nursing programme,I have undertaken the following study for my research **"Effect of music therapy on anxiety among patients undergoing cardiac catheterization at Sri-Ramakrishna Hospital,Coimbatore"**.The following tool is intended to be used,hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking You,

FOR PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Date: 30/04/2015

Place: Coimbatore

Yours sincerely,

(Jayalalitha.G)

FORMAT FOR CONTENT VALIDITY

Name of the Expert: Dr. ANANTH S MD ABPN

Address: Sri Ramakrishna Hospital

Kindly validate each tool and tick wherever applicable

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A	✓			
2.	SECTION-B	✓			
3.	SECTION-C	✓			

Tool content for the tool : Adequate/ Inadequate

Date: 30/4/2015

Signature of the Expert

Dr. S. ANANTH M.B.B.S. Ph.D M.C. ABPN (USA)
Consultant Psychiatrist
Sri Ramakrishna Hospital
Coimbatore - 641 044
Reg. No: 40045

LETTER REQUESTING TO VALIDATE THE RESEARCH TOOL AND CONTENT

REQUISITION LETTER

From,

Jayalalitha.G,
M.Sc(Nursing)I year,
College of nursing,
Sri-Ramakrishna Institute of paramedical sciences,
Coimbatore-44.

To,

Dr. Lakshmanan., MA., M.Phil, PhD
clinical psychologist
Coimbatore - 012

Through,

The Principal,
College of Nursing,
Sri-Ramakrishna Institute of Paramedical science,
Coimbaore-44

Respected Sir/Madam,

Subject:-Requisition for tool and content validation:-Reg

I am Jayalalitha.G,doing my I[st] year M.Sc nursing in Sri-Ramakrishna Institute of paramedical sciences and as a part of my M.Sc nursing programme,I have undertaken the following study for my research **"Effect of music therapy on anxiety among patients undergoing cardiac catheterization at Sri-Ramakrishna Hospital,Coimbatore"**.The following tool is intended to be used,hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking You,

FOR PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Date: 29/04/2015

Place: Coimbatore-012

Yours sincerely,

(Jayalalitha.G)

FORMAT FOR CONTENT VALIDITY

Name of the Expert: Dr. Lakshmanan MA, Mphil, PhD

Address: Clinical Psychologist. Coimbatore-012

Kindly validate each tool and tick wherever applicable

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A	✓			
2.	SECTION-B	✓			
3.	SECTION-C	✓			

Tool content for the tool : Adequate/ Inadequate

Date: 29/04/2015

Signature of the Expert

N. LAKSHMANAN. MA. Mphil.
Clinical Psychologist.
RCI. No A-25341.
MADHU HARI COUNSELLING CENTRE
27, COWLEY BROWN ROAD
R.S. PURAM, COIMBATORE-641 002.
Cell: 98420-06144

FORMAT FOR CONTENT VALIDITY

Name of the Expert: Mr. Meenakshi Sundaram

Address: HOD. Medical Surgical Nursing
RVS College of Nursing, CBE-02

Kindly validate each tool and tick wherever applicable

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A		✓		
2.	SECTION-B		✓		
3.	SECTION-C		✓		

Tool content for the tool : Adequate/ Inadequate

Date: 24/04/2015

Signature of the Expert

N. MEENAKSHI SUNDARAM
ASSOCIATE PROFESSOR
HOD-MEDICAL SURGICAL NURSING
R.V.S. COLLEGE OF NURSING
SULUR, COIMBATORE - 641 402

LETTER REQUESTING TO VALIDATE THE RESEARCH TOOL AND CONTENT

REQUISITION LETTER

From,

Jayalalitha.G,
M.Sc(Nursing)I year,
College of nursing,
Sri-Ramakrishna Institute of paramedical sciences,
Coimbatore-44.

To,

Prof: Mr. Balasubramanian
college of Nursing - KMCH
Coimbatore - 14

Through,

The Principal,
College of Nursing,
Sri-Ramakrishna Institute of Paramedical science,
Coimbaore-44

Respected Sir/Madam,

Subject:-Requisition for tool and content validation:-Reg

I am Jayalalitha.G,doing my I[st] year M.Sc nursing in Sri-Ramakrishna Institute of paramedical sciences and as a part of my M.Sc nursing programme,I have undertaken the following study for my research **"Effect of music therapy on anxiety among patients undergoing cardiac catheterization at Sri-Ramakrishna Hospital,Coimbatore"**.The following tool is intended to be used,hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking You,

FOR

PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Date: 23 - 04 - 2015

Place: CBE - 14

Yours sincerely,

(Jayalalitha.G)

FORMAT FOR CONTENT VALIDITY

Name of the Expert: Prof: Mr. Balasubramanian

Address: College of Nursing - KMCH, Coimbatore-641

Kindly validate each tool and tick wherever applicable

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A	✓			
2.	SECTION-B	✓			
3.	SECTION-C	✓			

Tool content for the tool : Adequate/ Inadequate

Date: 23-04-2015

KMCH COLLEGE OF NURSING COIMBATORE-641014

K. Balasubramanian

Signature of the Expert

LETTER REQUESTING TO VALIDATE THE RESEARCH TOOL AND CONTENT

REQUISITION LETTER

From,

Jayalalitha.G,
M.Sc(Nursing)I year,
College of nursing,
Sri-Ramakrishna Institute of paramedical sciences,
Coimbatore-44.

To, Prof: shanthipriya, [Reader]
Medical surgical Nursing
KG college of Nursing
Coimbatore - 18

Through,

The Principal,
College of Nursing,
Sri-Ramakrishna Institute of Paramedical science,
Coimbaore-44

Respected Sir/Madam,

Subject:-Requisition for tool and content validation:-Reg

I am Jayalalitha.G,doing my I[st] year M.Sc nursing in Sri-Ramakrishna Institute of paramedical sciences and as a part of my M.Sc nursing programme,I have undertaken the following study for my research **"Effect of music therapy on anxiety among patients undergoing cardiac catheterization at Sri-Ramakrishna Hospital,Coimbatore"**.The following tool is intended to be used,hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking You,

for

PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Date: 30/04/2015

Place: Coimbatore

Yours sincerely,

(Jayalalitha.G)

FORMAT FOR CONTENT VALIDITY

Name of the Expert: Prof: Mrs. Shanthipriya [Reader.] Medical surgical Nursing

Address: KG college of Nursing
Coimbatore - 18

Kindly validate each tool and tick wherever applicable

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A	✓			
2.	SECTION-B	✓			
3.	SECTION-C	✓			

✓

Tool content for the tool : Adequate/ Inadequate

Date: 30/04/2015

Signature of the Expert

Arts College Rd.
Coimbatore-18
K. G. HOSPITAL

FORMAT FOR CONTENT VALIDITY

Name of the Expert: Dr. Rajalakshmi

Address: Medical surgical Nursing
P.P.G. College of Nursing
Coimbatore

Kindly validate each tool and tick wherever applicable

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A		✓		
2.	SECTION-B		✓		
3.	SECTION-C		✓		

Tool content for the tool : Adequate/ Inadequate

Date: 30/04/2015

P.P.G. COLLEGE OF NURSING COIMBATORE-35

Signature of the Expert

LETTER REQUESTING TO VALIDATE THE RESEARCH TOOL AND CONTENT

REQUISITION LETTER

From,

Jayalalitha.G,
M.Sc(Nursing)I year,
College of nursing,
Sri-Ramakrishna Institute of paramedical sciences,
Coimbatore-44.

To,

Prof: Mrs. Vijayalalitha
Medical Surgical Nursing
P.P.G College of Nursing
Coimbatore

Through,

The Principal,
College of Nursing,
Sri-Ramakrishna Institute of Paramedical science,
Coimbaore-44

Respected Sir/Madam,

Subject:-Requisition for tool and content validation:-Reg

I am Jayalalitha.G,doing my I[st] year M.Sc nursing in Sri-Ramakrishna Institute of paramedical sciences and as a part of my M.Sc nursing programme,I have undertaken the following study for my research **"Effect of music therapy on anxiety among patients undergoing cardiac catheterization at Sri-Ramakrishna Hospital,Coimbatore"**.The following tool is intended to be used,hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking You,

Date: 30/04/2015
Place: Coimbatore

FOR PRINCIPAL
College of Nursing
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

Yours sincerely,

(Jayalalitha.G)

P.P.G. COLLEGE OF NURSING * COIMBATORE-38 *

FORMAT FOR CONTENT VALIDITY

Name of the Expert: Prof: Mrs. violet anitha

Address: Medical surgical Nursing
P.P.G College of Nursing
Coimbatore

Kindly validate each tool and tick wherever applicable

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A		✓		
2.	SECTION-B	✓			
3.	SECTION-C		✓		

✓

Tool content for the tool : Adequate/ Inadequate

Date: 30/04/2015

Signature of the Expert

P.P.G. COLLEGE OF NURSING
COIMBATORE-35

CERTIFICATE OF TAMIL EDITING

TO WHOMEVER IT MAY CONCERN

This to certify that the STATE TRAIT ANXIETY INVENTORY was translated to Tamil, for the dissertation" EFFECT OF MUSIC THERAPY ON ANXIETY AMONG PATIENTS UNDERGOING CARDIAC CATHETERIZATION AT SRI RAMAKRISHNA HOSPITAL, COIMBATORE" done by JAYALALITHA.G has edited for Tamil language for appropriateness.

Name : Dr. K. Bagyam

Designation : HOD, Asso. Professor of Tamil

Name of the institution : Sri Ramakrishna College of Art & Science for Women CBE-44

Signature :

4/6/15

துறைத்தலைவர்
தமிழ்த்துறை
ஸ்ரீ இராமகிருஷ்ணா
மகளிர் கலை அறிவியல் கல்லூரி
கோயம்புத்தூர் - 641 044.

TOOL TO ASSESS THE LEVEL OF ANXIETY AMONG PATIENTS UNDERGOING CARDIAC CATHETERIZATION

SECTION – A

DEMOGRAPHIC VARIABLE

1. Sample Number : ☐
2. OP/IP number : : ☐
3. Age : ☐
4. Gender :
   a) Male
   b) Female
5. Religion :
   a) Hindu
   b) Muslim
   c) Christian
   d) Any other
6. Educational status :
   a) Illiterate
   b) Schooling
   c) Graduate
   d) Post graduate
   e) Any other
7. Occupation :
   a) Coolie worker
   b) Working in professional organizations
   c) Company worker
   d) Any other
8. Marital status :
   a) Single
   b) Married
   c) Widow/Widower
   d) Divorce

9. Type of family :

   a) Nuclear family

   b) Joint family

10. History of previous surgery:

   a) Yes

   b) No

   If yes specify

11. History of cardiac problems:

   a) Present

   b) Past

   If yes specify

SECTION - B

STATE TRAIT ANXIETY INVENTORY(Y-1)

(Spielberger 1983)

Directions:

Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers.

S.No	Statement	Not at all	Some what	Moderately so	Very much so
1.	I feel calm				
2.	I feel secure				
3.	I am tense				
4.	I feel strained				
5.	I feel at ease				
6.	I feel upset				
7.	I am presently worrying over possible misfortunes				
8.	I feel satisfied				
9.	I feel frightened				
10.	I feel comfortable				
11.	I feel self confident				
12.	I feel nervous				
13.	I am jittery				
14.	I feel indecisive				
15.	I am relaxed				
16.	I feel content				
17.	I am worried				

S.No	Statement	Not at all	Some what	Moderately so	Very much so
18.	I feel confused				
19.	I feel steady				
20.	I feel pleasant				

(not at all=1,somewhat=2,moderately so=3,very much so=4)

STATE TRAIT ANXIETY INVENTORY (Y-2)

(Spielberger 1983)

Directions:

Read each statement and then circle the appropriate number to the right of the statement to indicate how you generally feel. There are no right or wrong answers.

S.No	Statement	Almost never	Some times	Often	Almost always
21.	I feel pleasant				
22.	I feel nervous and restless				
23.	I feel satisfied with myself				
24.	I wish I could be as happy as others seem to be				
25.	I feel like a failure				
26.	I feel rested				
27.	I am calm, cool, and collected				
28.	I feel that difficulties are piling up so that I cannot overcome them				
29.	I worry too much over something that really doesn't matter				
30.	I am happy				
31.	I have disturbing thoughts				
32.	I lack self confidence				
33	I feel secure				
34.	I make decisions easily				
35.	I feel inadequate				
36.	I am content				
37.	Some unimportant thought runs through my mind and bothers me				
38.	I take disappointments so keenly that I can't put them out of my mind				
39.	I am a steady person				
40.	I get in a state of tension or turmoil as I think over my recent concerns and interests				

(almost never=1,sometimes=2,often=3,almost always=4)

INTERPRETATION

Score range from :40-160

Mild anxiety:40-80

Moderate anxiety:81-120

Severe anxiety:121-160

இருதயத்தில் வடிகுழாய் பொருத்தப்போகும் நோயாளிகளின் பதற்றநிலையை கண்டறியும் அளவுகோள்

பகுதி - அ

சுயகுறிப்பு

1. மாதிரி எண் :
2. உள் /வெளி நோயாளி எண் :
3. வயது :

    அ)20-30

    ஆ) 31-40

    இ)41-50

    ஈ)51-60

    உ) 60க்கு மேல்

4. இனம் :

    அ) ஆண்

    ஆ) பெண்

5. மதம் :

    அ) இந்து

    ஆ) முஸ்லிம்

    இ) கிருஸ்துவர்

    ஈ) மற்றவர்கள்

6. கல்விதகுதி :

    அ) படிக்காதவர்

    ஆ) பள்ளி படிப்பு

    இ) இளநிலை கல்வி

    ஈ) முதுநிலை கல்வி

    உ) மற்றவை

7. தொழில் :

அ) கூலி

ஆ) பட்டறிவு சார்ந்த வேலை

இ) தொழிலாளர்

ஈ) மற்றவை

8. திருமணநிலை :

அ) மணமாகாதவர்

ஆ) மணமானவர்

இ) துணை இழந்தவர்

ஈ) மணமுறிந்தவர்

9. குடும்பவகை :

அ)தனிக்குடும்பம்

ஆ) கூட்டுக்குடும்பம்

10. முந்தைய அறுவை சிகிச்சையின் அனுபவம் :

அ) ஆம்

ஆ) இல்லை

இ) ஆம் எனில் விவரிக்கவும்

11. இருதய பிரச்சினைகளின் வரலாறு :

அ) தற்போதைய வரலாறு

ஆ) முந்தைய வரலாறு

இ) ஆம் எனில் விவரிக்கவும்

பகுதி-ஆ

ஸ்பீல்பெர்கெர் பதற்றத்தை கண்டறிவதற்கான அளவுகோள்

நெறிமுறை: கொடுக்கப்பட்டுள்ள வாக்கியங்களைப் படித்து தற்போது இந்த நிமிடம் நீங்கள் தங்களுக்கு ஏற்றது என எண்ணும் வாக்கியத்தை சரியான எண்ணில் வட்டமிடுக. இவற்றில் சரி / தவறு என்ற பதில்கள் பொருந்தாது

வ.எண்	கூற்றுக்கள்	இல்லவேஇல்லை	ஒரளவில்	மிதமாக	மிகஅதிகமாக
1.	நான் அமைதியை உணர்கிறேன்				
2.	நான் பாதுகாப்பாக உணர்கிறேன்				
3.	நான் பதற்றத்தை உணர்கிறேன்				
4.	நான் கஷ்டப்படுவதாக உணர்கிறேன்				
5.	நான் நலமாக உணர்கிறேன்				
6.	நான் வருத்தமாக உணர்கிறேன்				
7.	நான் இப்பொழுது உள்ள துரதிர்ஷ்ட நிலையை நினைத்து கவலைப்படுகிறேன்				
8.	நான் திருப்தியாக உள்ளேன்				
9.	நான் பயப்படுகிறேன்				
10.	நான் சௌகரியமாக இருப்பதை உணர்கிறேன்				
11.	நான் தன்னம்பிக்கையாக இருப்பதை உணர்கிறேன்				
12.	நான் பதற்றமாக இருப்பதை உணர்கிறேன்				
13.	நான் நடுக்கத்தை உணர்கிறேன்				
14.	நான் முடிவு எடுப்பதற்கு கஷ்டப்படுகிறேன்				
15.	நான் தளர்வுடன் இருப்பதாக உணர்கிறேன்				
16.	நான் நம்பிக்கையுடன் உள்ளேன்				
17.	நான் கவலைப்படுகிறேன்				
18.	நான் குழப்பமாக உள்ளேன்				
19.	நான் தடுமாற்றமின்றி உள்ளேன்				
20.	நான் புத்துணர்வுடன் இருக்கிறேன்				

(இல்லவேஇல்லை - 1, ஒரளவில் - 2, மிதமாக - 3, மிகஅதிகமாக - 4)

ஸ்பீல்பெர்கெர் பதற்றத்தை கண்டறிவதற்கான அளவுகோள்

நெறிமுறை: கொடுக்கப்பட்டுள்ள வாக்கியங்களை படித்து உங்களின் பொதுவான உணர்வை ஏற்படுத்தும் வாக்கியத்தை சரியான எண்ணில் வட்டமிடுக. இவற்றில் சரி / தவறு என்ற பதில்கள் பொருந்தாது

வ.எண்	கூற்றுக்கள்	கிட்டத்தட்ட எப்பொழுதும்	சில வேளைகளில்	அடிக்கடி	எப்போதும்
21.	நான் புத்துணர்வுடன் இருப்பதை உணர்கிறேன்				
22.	நான் பதற்றமாகவும், அமைதியின்றியும் இருப்பதாகஉணர்கிறேன்				
23.	நான் திருப்தியாக உள்ளேன்				
24.	நான் மற்றவர்களைப்போல் மகிழ்ச்சியாக இருக்க விரும்புகிறேன்				
25.	நான் தோல்வியடைந்தவனாக எண்ணுகிறேன்				
26.	நான் ஒய்வுடன் இருப்பதாக உணர்கிறேன்				
27.	நான் அமைதியுடனும் மகிழ்ச்சியுடனும் இருக்கிறேன்				
28.	எனது கஷ்டங்கள் அதிகமாவதினால் அவற்றிலிருந்து மீள முடியவில்லை				
29.	நான் தேவையின்றி அதிகமாக வேதனைப்படுகிறேன்				
30.	நான் மகிழ்ச்சியாக உள்ளேன்.				
31.	எனக்கு குழப்பமான எண்ணங்கள் உள்ளன				
32.	எனக்கு தன்னம்பிக்கை குறைவாக உள்ளது				
33.	நான் பாதுகாப்பாக இருப்பதை உணர்கிறேன்				
34.	நான் எளிதாக முடிவு எடுப்பேன்				

வ.எண்	கூற்றுக்கள்	கிட்டத்தட்ட எப்பொழுதும்	சில வேளைகளில்	அடிக்கடி	எப்போதும்
35.	நான் பயனற்றவனாக இருப்பதாக எண்ணுகிறேன்				
36.	நான் நம்பிக்கையுடன் உள்ளேன்				
37.	எனக்கு சிலமுக்கியமில்லாத எண்ணங்கள் நினைவில் ஓடுகின்றன.				
38.	என் மனதில் உள்ளவைகளை அகற்ற முனைப்போடு முற்படும்போது நான் எமாற்றம் அடைகிறேன்				
39.	நான் ஒரு நிலையான மனிதன்				
40.	எனது சமீபத்திய கவலைகள் மற்றும் நலன்கள் பற்றி நினைக்கும் போது பதற்றம் மற்றும் கொந்தளிப்பு நிலையை அடைகிறேன்				

(கிட்டத்தட்ட எப்பொழுதும் - 1, சில வேளைகளில் - 2, அடிக்கடி - 3, எப்போதும் - 4)

ANNEXURE I

Analysis on the Effect of Music therapy on Anxiety between Experimental and Control Group

Student 't' test was used to analyze the level of Anxiety Music therapy on Anxiety between experimental and control group

$$t = \frac{\overline{X}_1 - \overline{X}_2}{SE}$$

Where,

SE (Standard Error) = SD $\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$

SD (Combined standard deviation) = $\sqrt{\frac{\sum \left(x_1 - \overline{x_1}\right)^2 + \sum \left(x_2 - \overline{x_2}\right)^2}{n_1 + n_2 - 2}}$

$\overline{X}_1$ = Mean of the experimental group

$\overline{X}_2$ = Mean of the control group post

n_1 = Number of samples in experimental group

n_2 = Number of samples in control group

ANNEXURE I

Analysis on Level of Anxiety after Music therapy among Experimental and Control group

S.No	Experimental Group			Control Group		
	X_1	$X1-\overline{X1}_{=D1}$	$D1^2$	X_2	$X2-\overline{X2}_{=D2}$	$D2^2$
1.	73	-2.9	8.41	126	7.74	59.9076
2.	79	3.1	9.61	118	-0.26	0.0676
3.	69	-6.9	47.61	120	1.74	3.0276
4.	80	4.1	16.81	116	-2.26	5.1076
5.	77	1.1	1.21	119	0.74	0.5476
6.	61	-14.9	222.01	118	-0.26	0.0676
7.	77	1.1	1.21	115	-3.26	10.6276
8.	67	-8.9	79.21	99	-19.26	370.9476
9.	73	-2.9	8.41	105	-13.26	175.82
10.	71	-4.9	24.01	109	-9.26	85.7476
11.	81	5.1	26.01	126	7.74	59.9076
12.	80	4.1	16.81	117	-1.26	1.5876
13.	78	2.1	4.41	113	-5.26	27.6676
14.	78	2.1	4.41	118	-0.26	0.0676
15.	83	7.1	50.41	127	8.74	76.3876
16.	85	9.1	82.81	123	4.74	22.4676
17.	76	0.1	0.01	110	-8.26	68.2276
18.	81	5.1	26.01	118	-0.26	0.0676
19.	84	8.1	65.61	113	-5.26	27.6676
20.	78	2.1	4.41	119	0.74	0.5476
21.	80	4.1	16.81	126	7.74	59.9076
22.	86	10.1	108.16	119	0.74	0.5476
23.	78	2.1	4.41	135	16.74	280.2276
24.	67	-8.9	79.21	108	-10.26	105.2676
25.	80	4.1	16.81	139	20.74	430.1476
26.	62	-13.9	193.21	118	-0.26	0.0676
27.	78	2.1	4.41	124	5.74	32.9476
28.	85	9.1	82.81	113	-5.26	27.6676
29.	72	-3.9	15.21	117	-1.26	1.5876
30.	58	-17.9	320.41	121	2.74	7.5076
	2277		1540.85	3548		1942.3404

$$SD = \sqrt{\frac{\sum \left(x_1 - \overline{x_1}\right)^2 + \sum \left(x_2 - \overline{x_2}\right)^2}{n_1 + n_2 - 2}} = \sqrt{\frac{1540.85+1942.34}{30+30-2}} = 7.7495$$

$$SE = SD \sqrt{\frac{1}{n_1} + \frac{1}{n_2}} = 7.749 \sqrt{\frac{1}{30} + \frac{1}{30}} = 1.89$$

$$t = \frac{\overline{X_1} - \overline{X_2}}{SE} = \frac{75.9 - 118.26}{1.89} = 22.41$$

t = 22.41

ANNEXURE II

Chi-Square test analysis between the level of Anxiety and selected demographic variables.

Chi-Square test was used to check the association between the level of Anxiety and selected demographic variables.

$$\chi^2 = \sum \frac{((O - E))^2}{E}$$

Where,

O = Observed value

E = Expected value in corresponding category

$E = \frac{RT \times CT}{N}$

RT = Row total

CT = Column total

N = Number of samples

ANNEXURE II-1

Chi-Square test analysis between the level of Anxiety and age among patients undergoing cardiac catheterization

Age	Mild	Moderate	Severe	TOTAL
< 40	2	4	0	6
41-50	2	4	4	10
51-60	16	11	1	28
> 60	3	8	5	16
TOTAL	23	27	10	60

O	**E=$\frac{RT\times CT}{N}$**	**E**	**(O-E)**	$[(\mathbf{O}-\boldsymbol{E})]^2$	$\frac{[(\boldsymbol{O}-\boldsymbol{E})]^2}{\boldsymbol{E}}$
2	$E_2=\frac{6\times23}{60}$	2.3	-0.3	0.09	0.039
2	$E_2=\frac{10\times23}{60}$	3.8	-1.8	3.24	0.852
16	$E_{16}=\frac{28\times23}{60}$	10.7	5.7	32.49	3.036
3	$E_3=\frac{16\times23}{60}$	6.13	-3.13	9.79	1.597
4	$E_4=\frac{6\times27}{60}$	2.7	1.3	1.69	1.01
4	$E_4=\frac{10\times27}{60}$	4.5	-0.5	0.25	0.055
11	$E_{11}=\frac{28\times27}{60}$	12.6	-1.6	2.56	0.203
8	$E_8=\frac{16\times27}{60}$	7.2	0.8	0.64	0.088
0	$E_0=\frac{6\times10}{60}$	1	-1	1	1
4	$E_4=\frac{10\times10}{60}$	1.66	2.34	5.47	3.295
1	$E_1=\frac{28\times10}{60}$	4.66	-3.66	13.39	2.873
5	$E_5=\frac{16\times10}{60}$	2.66	2.34	5.475	2.058
				$\sum X^2$	16.106

ANNEXURE II - 2

Chi-Square test analysis between the level of Anxiety and gender among patients undergoing cardiac catheterization

Gender	Mild	Moderate	Severe	TOTAL
Male	17	24	7	48
Female	6	3	3	12
TOTAL	23	27	10	60

O	$E=\frac{RT\times CT}{N}$	E	(O-E)	$[(O-E)]^2$	$\frac{[(O-E)]^2}{E}$
17	$E_{17}=\frac{48\times23}{60}$	18.4	-1.4	1.96	0.106
6	$E_{6}=\frac{12\times23}{60}$	4.6	1.4	1.96	0.426
24	$E_{24}=\frac{48\times27}{60}$	21.6	2.4	5.76	0.266
3	$E_{3}=\frac{12\times27}{60}$	5.4	-2.4	5.76	1.066
7	$E_{7}=\frac{48\times10}{60}$	8	-1	1	0.125
3	$E_{3}=\frac{12\times10}{60}$	2	1	1	0.5
Σx^2					2.489

ANNEXURE II -3

Chi-Square test analysis between the level of Anxiety and Religion among patients undergoing cardiac catheterization

Religion	Mild	Moderate	Severe	TOTAL
Hindu	21	24	10	55
Muslim	2	1	0	3
Christian	0	2	0	2
TOTAL	23	27	10	60

O	**E=$\frac{RT\times CT}{N}$**	**E**	**(O-E)**	$[(\mathbf{0}-\boldsymbol{E})]^{\mathbf{2}}$	$\frac{[(\boldsymbol{O}-\boldsymbol{E})]^{\mathbf{2}}}{\boldsymbol{E}}$
21	$E_{21}=\frac{55\times23}{60}$	21.08	-0.08	0.006	0.000
2	$E_{2}=\frac{3\times23}{60}$	1.15	0.85	0.722	0.628
0	$E_{0}=\frac{2\times23}{60}$	0.76	-0.76	0.57	0.75
24	$E_{24}=\frac{55\times27}{60}$	24.75	-0.75	0.56	0.02
1	$E_{1}=\frac{3\times27}{60}$	1.35	-0.35	0.12	0.08
2	$E_{2}=\frac{2\times27}{60}$	0.9	1.1	1.21	1.34
10	$E_{10}=\frac{55\times10}{60}$	9.16	0.84	0.70	0.07
0	$E_{0}=\frac{3\times10}{60}$	0.5	-0.5	0.25	0.5
0	$E_{0}=\frac{2\times10}{60}$	0.33	-0.33	0.10	0.30
Σx^2					3.688

ANNEXURE II -4

Chi-Square test analysis between the level of Anxiety and educational status among patients undergoing cardiac catheterization

Educational status	Mild	Moderate	Severe	TOTAL
Illiterate	4	8	3	15
Schooling	17	12	6	35
Graduate	1	6	1	8
Postgraduate	1	1	0	2
TOTAL	23	27	10	60

O	**E=$\frac{RT\times CT}{N}$**	**E**	**(O-E)**	$[(\mathbf{O}-\boldsymbol{E})]^2$	$\frac{[(\boldsymbol{O}-\boldsymbol{E})]^2}{\boldsymbol{E}}$
4	$E_4=\frac{15\times23}{60}$	5.75	-1.75	3.06	0.532
17	$E_{17}=\frac{35\times23}{60}$	13.42	3.58	12.82	0.955
1	$E_1=\frac{8\times23}{60}$	3.1	-2.1	4.41	1.422
1	$E_1=\frac{2\times23}{60}$	0.77	0.23	0.05	0.064
8	$E_8=\frac{15\times27}{60}$	6.75	1.25	1.56	0.231
12	$E_{12}=\frac{35\times27}{60}$	15.75	-3.75	14.06	0.892
6	$E_6=\frac{8\times27}{60}$	3.6	2.4	5.76	1.6
1	$E_1=\frac{2\times27}{60}$	0.9	0.1	0.01	0.011
3	$E_3=\frac{15\times10}{60}$	2.5	0.5	0.25	0.1
6	$E_6=\frac{35\times10}{60}$	5.83	0.17	0.02	0.003
1	$E_1=\frac{8\times10}{60}$	1.33	0.33	0.10	0.075
0	$E_0=\frac{2\times10}{60}$	0.33	-0.33	0.10	0.303
Σx^2					6.188

ANNEXURE II- 5

Chi-Square test analysis between the level of Anxiety and occupation among patients undergoing cardiac catheterization

Occupation	Mild	Moderate	Severe	TOTAL
Coolie worker	13	11	3	27
Professional worker	4	7	1	12
Company worker	2	7	2	11
Any other	4	2	4	10
TOTAL	23	27	10	60

O	$E=\frac{RT\times CT}{N}$	E	(O-E)	$[(O-E)]^2$	$\frac{[(O-E)]^2}{E}$
13	$E_{13}=\frac{27\times23}{60}$	10.35	2.65	7.02	0.096
4	$E_4=\frac{12\times23}{60}$	4.6	-0.6	0.36	0.078
2	$E_2=\frac{11\times23}{60}$	4.22	-2.22	4.93	1.168
4	$E_4=\frac{10\times23}{60}$	3.83	0.17	0.03	0.007
11	$E_{11}=\frac{27\times27}{60}$	12.15	-1.15	1.32	0.108
7	$E_7=\frac{12\times27}{60}$	5.4	1.6	2.56	0.474
7	$E_7=\frac{11\times27}{60}$	4.95	2.05	4.20	0.848
2	$E_2=\frac{10\times27}{60}$	4.5	-2.5	6.25	1.388
3	$E_3=\frac{27\times10}{60}$	4.5	-1.5	2.25	0.5
1	$E_1=\frac{12\times10}{60}$	2	-1	1	0.5
2	$E_2=\frac{11\times10}{60}$	1.83	0.17	0.03	0.016
4	$E_4=\frac{10\times10}{60}$	1.67	2.33	5.43	3.25
Σx^2					11.213

ANNEXURE II - 6

Chi-Square test analysis between the level of Anxiety and marital status among patients undergoing cardiac catheterization

Marital status	Mild	Moderate	Severe	TOTAL
Single	1	2	0	3
Married	22	23	10	55
Widow/Widower	0	2	0	2
TOTAL	23	27	10	60

O	$E=\frac{RT\times CT}{N}$	E	(O-E)	$[(O-E)]^2$	$\frac{[(O-E)]^2}{E}$
1	$E_1=\frac{3\times23}{60}$	1.15	-0.15	0.02	0.017
22	$E_{22}=\frac{55\times23}{60}$	21.08	0.92	0.84	0.040
0	$E_0=\frac{2\times23}{60}$	0.76	-0.76	0.57	0.75
2	$E_2=\frac{3\times27}{60}$	1.35	0.65	0.42	0.311
23	$E_{23}=\frac{55\times27}{60}$	24.7	-1.7	2.89	0.117
2	$E_2=\frac{2\times27}{60}$	0.9	1.1	1.21	1.344
0	$E_0=\frac{3\times10}{60}$	0.5	-0.5	0.24	0.48
10	$E_{10}=\frac{55\times10}{60}$	9.16	0.84	0.70	0.076
0	$E_0=\frac{2\times10}{60}$	0.33	-0.33	0.10	0.303
Σx^2					3.438

ANNEXURE II- 7

Chi-Square test analysis between the level of Anxiety and type of family among patients undergoing cardiac catheterization

Type of family	Mild	Moderate	Severe	TOTAL
Nuclear family	11	16	7	34
Joint family	12	11	3	26
TOTAL	23	27	10	60

O	$E=\frac{RT\times CT}{N}$	E	(O-E)	$[(O-E)]^2$	$\frac{[(O-E)]^2}{E}$
11	$E_{11}=\frac{34\times23}{60}$	13.03	-2.03	4.12	0.316
12	$E_{12}=\frac{26\times23}{60}$	9.96	2.04	4.16	0.417
16	$E_{16}=\frac{34\times27}{60}$	15.3	0.7	0.49	0.032
11	$E_{11}=\frac{26\times27}{60}$	11.7	-0.7	0.49	0.042
7	$E_{7}=\frac{34\times10}{60}$	5.66	1.34	1.79	0.316
3	$E_{3}=\frac{26\times10}{60}$	4.33	-1.33	1.77	0.409
Σx^2					1.532

ANNEXURE II - 8

Chi-Square test analysis between the level of Anxiety and history of previous surgery among patients undergoing cardiac catheterization

History of previous surgery	Mild	Moderate	Severe	TOTAL
Yes	7	8	5	20
No	16	19	5	40
TOTAL	23	27	10	60

O	**E=$\frac{RT\times CT}{N}$**	**E**	**(O-E)**	$[(\mathbf{O}-\boldsymbol{E})]^2$	$\frac{[(\boldsymbol{O}-\boldsymbol{E})]^2}{\boldsymbol{E}}$
7	$E_7=\frac{20\times23}{60}$	7.67	-0.67	0.45	0.058
16	$E_{16}=\frac{40\times23}{60}$	15.33	0.67	0.45	0.029
8	$E_8=\frac{20\times27}{60}$	9	-1	1	0.111
19	$E_{19}=\frac{40\times27}{60}$	18	1	1	0.055
5	$E_5=\frac{20\times10}{60}$	3.33	1.67	2.79	0.837
5	$E_5=\frac{40\times10}{60}$	6.67	-1.67	2.79	0.418
Σx^2					1.508

ANNEXURE II - 9

Chi-Square test analysis between the level of Anxiety and history of cardiac problems among patients undergoing cardiac catheterization

History of cardiac problems	Mild	Moderate	Severe	TOTAL
Present	20	24	10	54
Past	3	3	0	6
TOTAL	23	27	10	60

O	**E=$\frac{RT \times CT}{N}$**	**E**	**(O-E)**	$[(\mathbf{0} - \boldsymbol{E})]^2$	$\frac{[(\boldsymbol{O} - \boldsymbol{E})]^2}{\boldsymbol{E}}$
20	$E_{20}=\frac{54 \times 23}{60}$	20.7	-0.7	0.49	0.023
3	$E_{3}=\frac{6 \times 23}{60}$	2.3	0.7	0.49	0.213
24	$E_{24}=\frac{54 \times 27}{60}$	24.3	-0.3	0.09	0.003
3	$E_{3}=\frac{6 \times 27}{60}$	2.7	0.3	0.09	0.033
10	$E_{10}=\frac{54 \times 10}{60}$	9	1	1	0.111
0	$E_{0}=\frac{6 \times 10}{60}$	1	-1	1	1
Σx^2					1.383