

## A QUASI EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF MUSIC THERAPY IN REDUCING ANXIETY AMONG THE PATIENTS UNDERGOING CORONARY ANGIOGRAPHY IN SELECTED HOSPITALS OF INDORE (M.P)

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### Abstract

#### Background:

Cardiovascular disease especially coronary artery disease is most important cause of mortality and morbidity in the world. Coronary angiography is the definitive and routine diagnostic procedure indicated for the evaluation of cardiovascular diseases, such as coronary artery disease and valvular disease. Coronary angiography (CAG) is an invasive and anxiety-provoking procedure for many patients. Psychological problems, especially anxiety, are the main concern of nurses taking care of these patients before the procedure. The music's sedative effects on healthy and ill people have been known for centuries. Nursing has now utilized the effectiveness of music therapy in interventions. Therefore, a study was done to assess the impact of music therapy on level of anxiety among patients undergoing for CAG.

**Objectives:** The main objective of the study is to provide support to the cardiovascular patients undergoing for coronary angiography by reducing their anxiety with the help of music therapy.

#### Method:

The study was done in the year 2014-2015. The research design selected was quasi experimental under that the type chosen was nonequivalent control group pre-test, post-test design was used in this study. Participants was selected by purposive sampling technique. The total sample size was 60 among those 30 patients in experimental group and 30 patients in control group. Hamilton scale was used to assess the level of anxiety.

#### Results:

The mean anxiety level after implementation of music therapy among samples with angiography was lower than the mean anxiety level before music therapy in experimental group. There was no

significant association between the pre-test anxiety level and selected demographic variables such as age, sex, education, occupation, religion, duration of illness and dietary pattern.

#### Conclusion:

It was concluded that as an effective nursing intervention the music therapy had an impact in reducing anxiety among patients undergoing for coronary angiography.

**Implementation For Practice:** The findings of the study have implementation for nursing practice, nursing education, nursing administration and nursing research.

**Keywords:** Anxiety, Coronary angiography, Music therapy, Hamilton anxiety scale.

**Introduction:** The prevalence of cardiovascular and circulatory diseases and associated mortality are increasing worldwide. The highest ischemic heart disease (IHD) mortality rates are in Eastern Europe and Central Asia, and for working-age populations, IHD mortality rates are mostly higher in transitional and developing countries than in developed countries. Coronary angiography is one of the most common invasive procedures to locate blocked coronary arteries, and plays an important role in determining treatment. Although it is essential for the detection of cardiovascular disease, it can cause fear, anxiety, and emotional stress. The coronary angiography laboratory with highly technical equipment and unfamiliar sounds can create a stressful situation for

patients. More than 80% of patients scheduled for coronary angiography experience a decreased sense of control over bodily functions and a high level of anxiety before the procedure is commenced. An elevated level of anxiety may negatively influence patients' psychological and physiological wellbeing and may interfere with nursing care. Patients may interpret their symptoms as an impending heart attack. Stress-related tachycardia and hypertension may cause clinical deterioration, dysrhythmia and an increase in the area of infarction. Various strategies have been used to reduce patients' anxiety before coronary angiography. Administration of anxiolytics and nursing care do not always reduce patients' perceptions of anxiety, although they are likely to be useful for the most anxious. However, increasing the dose of anxiolytics until patients report no anxiety may reduce the level of patients' alertness and hinders the implementation of the procedure. Complementary and alternative medicines are likely to become more popular if their effectiveness can be demonstrated. Listening to relaxing music as a non-pharmacological approach to reducing anxiety has been reported to be effective in the reduction of patients' anxiety in other situations, such as mechanical ventilation in intensive care.

### Review of Literature:

- **Studies and literature related to effects of music therapy in reducing anxiety:** - **Ms. K. Pandma (2009)** conducted a study on the effect of music therapy on patients prior to the coronary angiography. The study result shows that music therapy significantly reduced anxiety and improve mood state among patient undergoing

coronary angiography. **Buflum et al (2008)** conducted a quasi-experimental study to assess the effectiveness of music stimulation during intra coronary angiography on the total of 83 patients (48 Male, 35 Female) waiting for schedule coronary angiography. The results suggested that the use of music stimulation during the angiography has a relaxing and calming effect on patient. It seems to be beneficial in patients with higher than average psychological strains. **Murugan S et al (2011)** conducted a quasi-experimental study to see the effect of music therapy on anxiety of patients undergoing coronary angiography on total sample 86 patients. The study result shows significant reduction in anxiety was demonstrated in group that receive music therapy compared with the control group. **Gortner and Jenking (2010)** conducted a quasi-experimental study to examine the effect of music intervention on anxiety in the patients undergoing coronary angiography. The study showed that there was significant effect on anxiety, heart rate, systolic and diastolic blood pressure with indicated a generalized physiological relaxation response. **Wan (2007)** conducted a quasi-experimental study to investigate the effect of specially selected music on anxiety of the patients undergoing coronary angiography. The study showed that music was very pleasing and patient express that music made them feel less anxious. The result was not related to age or sex.

- **Studies and literature related to level of anxiety and its impact on cardiovascular system:** **Mc Cornick et al (2009)** examined the relationship between uncertainty, system distress, anxiety and functional status in patient waiting for

coronary angiography. The descriptive study was done with 42 patients. Average uncertainty and anxiety were present at moderate level and were associated with moderate deterioration of functional status. Reported symptoms distress was low, however the presence of symptoms showed a strong relationship with anxiety ( $p=0.0002$ ), and its relationship was confirmed through semi structured interview. **Watkins, Bluementhal and Carney (2012)** A scientific evidence from a study has shown the relationship between Anxiety and Baro reflex control among MI patients. Their study evaluated whether depression is associated with impaired baroreflex sensitivity in patient with AMI. Two hundred four hospitalized with AMI were evaluated  $6 \pm 3$  (mean  $\pm$ sd) days after MI. BRS was assessed. Depression was not significantly related to BRS. However, anxiety was significantly related to low BRS in multivariate analysis, after potentially confounding variable of age, blood pressure, and respiratory frequency was controlled. comparison of group with high and low anxiety showed that BRS was reduced approximately 20% in the patients with the higher anxiety scores ( $4.7 \pm 3.2$ ms/mm Hg Vs.  $5.7 \pm 3.3$ ms/mm Hg,  $p < 0.05$ ) after adjustment for difference in age, blood pressure and respiratory frequency.

- **Studies and literature related to educational intervention in reducing anxiety of clients. Moore (2008)** conducted a quasi-experimental study to test the effect of a discharge information intervention on physical and psychological outcomes one month following coronary angiography. Recovery outcomes were compared between two groups of patients. An audiotape of information focusing on

expected physical symptoms and their management was the experimental intervention. Using tandem method first 49 patients were assigned to control group and next 46 were assigned to experimental group. The mean age of the sample was 64 years. The outcome measures included were psychological distress measured by the profile of mood state and physical functioning measured by the sickness impact profile. The audiotape intervention produced positive effect on physical functioning [ $(180) = 6.37$ ,  $p < .01$ ]. The effects were maintained when age and post procedure length stay were statistically controlled. No difference in psychological were found because the data pertaining to psychological distress was taken one months after discharge by which time the patients would have stable recovery. **Rankin, Moore along with Dolansky (2011)** tested the effectiveness of the same intervention using a Randomized, unblinded, controlled trial with follow up after 1 month. 193 patients were recruited for the study. Among them 98 patients were allotted the Cardiac Home Information Program (CHIP) plus using discharge care. CHIP was a 15 minutes audio taped message. Rest 95 patients were allotted usual discharge care. Main outcome measures were the psychological distress, physical functioning and symptoms frequency. The result revealed that the patients in CHIP group had better physical functioning ( $p=0.05$ ) and vigor ( $p=0.01$ ) that patients in the usual care group at one month.

#### **Methodology:**

The research design selected was quasi experimental under that the type chosen was nonequivalent control group pre-test, post-test design was used in this study.

This study was conducted in Synergy Hospital, Indore and the study population includes patients undergoing coronary angiography in the Synergy Hospital, Indore. Participants was selected by purposive sampling technique. The total sample size was 60 among those 30 patients in experimental group and 30 patients in control group. Hamilton rating scale was used to assess the level of anxiety, it consists of 14 items, each defined by a series of symptoms. Each item is rated on a 5-point scale, ranging from 0 (not present) to 4 (severe), Seven of the question specifically address psychic anxiety and the remaining seven address somatic anxiety. The total anxiety score ranges from 0 to 56, lower scores are better. Every week 10 participants were given pretest using Hamilton rating scale to assess the level of anxiety, then music therapy was given to experimental group using headphone and CD player for 10 minutes, and then posttest was done using Hamilton rating scale for 6 weeks among 60 participants.

#### Inclusion criteria:

- Patients who are undergoing coronary angiography with in the age of 31-75 years.
- Patients who are willing to participate in the study.
- Patients who can understand and communicate in the Hindi and English.
- Patients who are present in the data collection.

#### Exclusion Criteria:

- Patients who are already undergone coronary angiography.

- Patients who are not willingly to participate in the study.
- Patients who are undergoing coronary angiography and are associated with severe illness.

#### Results:

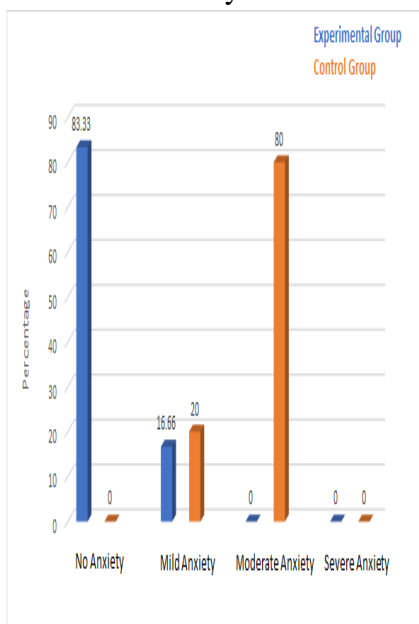
##### Demographic variables:

- Regarding age, the majority of the sample 12 out of 30 (40%) in the experimental group and 15 out of 30 (50%) in the control group were between the age group of 41-50 years. 15 out of 30 (50%) in the experimental group were male and females, 16 samples of males and 14 samples of females were in the control group, majority of samples 22 out of 30 (73.33%) were literate in experimental group and 26 out 30 (86.66%) were literates in control group, majority of samples 12 out 30 (40%) in the experimental group and 15 out of 30 (50%) in the control group were unemployed. Regarding religion status, 21 out of 30 (70%) in the experimental group and 22 out of 30 (73.33%) in the control group were Hindu, 18 out of 30 (60%) in the experimental group and 10 out of 30 (33.33%) in the control group were vegetarian.

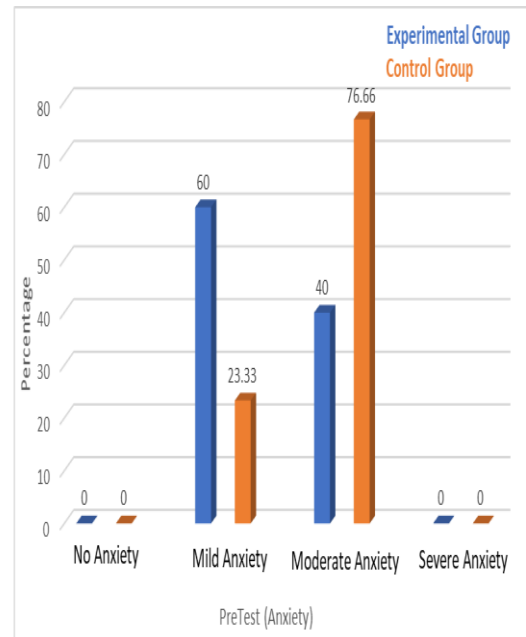
##### Distribution of level of anxiety in experimental group and control group before and after administration of music therapy:

- Before implementing music therapy, 60% of samples had mild anxiety, 40% of samples had moderate anxiety and no samples had severe and no anxiety in the experimental group.

- After implementation of music therapy, maximum score of samples 83.33% had no anxiety, 16.66% had mild anxiety and no samples had moderate and severe anxiety.
- For the control group, 23.33% of samples had mild anxiety, 76.66% samples had moderate anxiety and no samples had severe, very severe and normal range anxiety before implementation of music therapy.
- For the control group, 80% of samples had moderate anxiety, 20% of samples had mild anxiety and no samples had normal range and severe anxiety.



\*Figure 1.



\*Figure 2.

\*Figure 1 and 2. Distribution of level of anxiety after music therapy for both experimental and control group

**Overall percentage mean and standard deviation of pretest and posttest anxiety level in experimental and control group:**

Table 1. shows that over all percentage of pretest score was 32.97 % and percentage of post test score was 21.1 9% before and after implementation of music therapy for experimental group. For control group, over all percentage of pretest score was 34.76 % and percentage of post test score was 36.25 % before and after the implementation of music therapy.

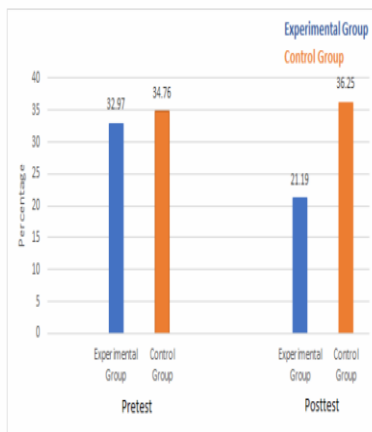
When comparing the overall scores for both experimental and control group, the mean post test score is lower than the mean pretest score for experimental group. But the control group had low score in pretest and posttest without giving music therapy. So, it is concluded that the music



therapy was very effective and useful to coronary angiography patient.

		No of Questions	Minimum-maximum Score	Mean standard deviation	Percentage of anxiety
Experimental Group	Pre test	14	0-36	18.46+ <sub>2.58</sub>	32.97
	Post test	14	0-36	11.86+ <sub>2.04</sub>	21.19
Control Group	Pre test	14	0-36	19.46+ <sub>2.70</sub>	34.76
	Post test	14	0-36	20.3+ <sub>2.42</sub>	36.25

Table 1



\*Figure 3

\*Figure 3. Distribution of level of anxiety of pretest and post test anxiety in experimental and control group.

**Association of pretest anxiety level with selected demographic variables such as age, sex, occupation, education, religion, duration of illness and dietary patterns.**

- There is no significant association found between pretest and selected demographic variables in this study.

**Conclusion:**

After the detailed analysis the study concluded that there was statistically significant reduction in anxiety level in experimental group where intervention music therapy was given as compared to control group where no intervention was given. The hypothesis H1 (There will be significant difference between pretest and posttest level of anxiety of patients undergoing for coronary angiography) is accepted as it was statistically significant at 0.05 level and hypothesis H3 (There will be significant difference between the posttest level of anxiety among angiography patient in experimental and control group) was also accepted that the mean posttest anxiety was lower in experimental group compare to control group with statistical significance at level of 0.05.

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