



"EFFECT OF THERAPEUTIC MUSIC ON ANXIETY LEVEL OF CANCER PATIENTS DURING CHEMOTHERAPY"

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ABSTRACT

A quantitative, evaluative, pre experimental one group pre test – post test design to evaluate the effect of therapeutic music on anxiety level of cancer patients during chemotherapy, was conducted in July 2018 on 100 cancer patients undergoing chemotherapy through Non Probability, Convenience Sampling Technique. Data was collected through a standardised tool "Beck Anxiety Inventory (BAI)" and "Katherine Kolcaba Comfort Theory" was adopted as conceptual framework. Reliability for BAI was determined by Cronbach's alpha test using inter rater method which was 0.81 and was found to be good. Results: The major findings of the study showed that before the administration of therapeutic music, maximum (42%) cancer patients had mild to moderate anxiety level during chemotherapy which remarkably decreased in intensity to 2% after the administration of therapeutic music while 98% cancer patients had normal to minimal anxiety level after the administration of therapeutic music (Fig 1). Hence, there was a significant difference in the anxiety level of the cancer patients, rejecting the null hypothesis at $p < 0.01$. There was a significant association between "gender, education level and anxiety level" at $p < 0.05$, accepting alternate hypothesis at 95% of confidence level. The satisfaction feedback score indicated that maximum 80% cancer patients had "good" satisfaction level related to administration of therapeutic music during chemotherapy, followed by only 2% who were "unsatisfied". **Conclusion:** The study concluded that therapeutic music was effective in reducing the anxiety level of the cancer patients during chemotherapy.

KEYWORDS : Anxiety, Cancer, Chemotherapy, Effect, Therapeutic music

INTRODUCTION:

Cancer are a large family of disease that involves abnormal cell growth with the potential to invade or spread to other parts of the body.¹ 75of patients with cancer suffer from non-pathological anxiety.² Worldwide, the total number of people who are alive within five years of a cancer diagnosis, called the five year prevalence, is estimated to be 43.8 million.³ India recorded an estimated 3.9 million cancer cases in 2016, data available with the National Cancer Registry Programme of the Indian Council of Medical Research shows.⁴ As per data provided by Indian Council of Medical Research, the cases of various types of cancer in Bihar in 2011 was 88563, in 2012: 91721, in 2013: 94981 and in 2014: 98346.⁵

Modern day cancer care increasingly needs a joint multimodality approach.⁶ Chemotherapy treats many types of cancer effectively.⁷ Common side effects of chemotherapy treatment include fatigue, nausea, loss of appetite, sleep disruption, pain, stress, decreased quality of life and many symptoms of depression and anxiety.⁸ It can directly impact the way people feel emotionally and physically. Other nervous systems effects are loss of balance, shaking or trembling, stiff neck or headache, problem in seeing, hearing or walking normally, feel clumsy.⁷

Using music to promote a healing environment has been woven into many cultures throughout human history. The roots of western therapeutic music can be traced back to Pythagoras of Greece who taught music as a medical science,

to visionary musicians like St. Hildegard of Bingen, who embodied and passed on the knowledge of the power of therapeutic music. The intrinsic healing elements of live music and intentionality are to create an environment conducive to healing.⁹

Background Of The Study:

Cancer patients often have to deal with numerous side effects and psychological distress during chemotherapy.¹⁰ Anxiety is a normal reaction to cancer. One may experience anxiety while undergoing a cancer screening test, waiting for test results, receiving a diagnosis of cancer, undergoing cancer treatment or anticipating a recurrence of cancer.¹¹

Chemotherapy is a type of cancer treatment that uses drugs to kill cancer cells.¹² Long periods of treatment, repeated hospitalizations and side-effects of chemotherapy besides the knowledge of having cancer can all affect the psyche of these patients.¹³ 120 patients with the diagnosis of different cancers in IGIMS, Patna were assessed for the prevalence of anxiety and depression in which 56.7% of patients were suffering from anxiety.¹⁴ Therefore, it is important to provide interventions, which may be able to reduce the anxiety of cancer patients. One of the important approaches used to reduce the anxiety is therapeutic music. Listening to music is one of the several non-pharmacological methods to relieve pain and anxiety in both adults and children.²

Live therapeutic music has been shown to help reduce anxiety,

help to regulate blood pressure and respiration rates and reduce stress in patients, caregivers, and surrounding staff. This type of therapy can be easily adapted to meet the immediate and emerging needs of the patient.¹⁵

According to Bruscia, "Music therapy is a systematic process of intervention wherein the therapist helps the client to promote health, using music experiences and the relationships that develop through them as dynamic forces of change."¹⁶

Music therapy can leave a lasting impression on cancer patients of all ages. It helps patients relax and handle their cancer treatment in a way no medication can. Music therapists use music to meet the psychological, physical, emotional, spiritual, and social needs of patients and their families.⁸

Need Of The Study:

Everyone has the right of access to preventive health care and the right to benefit from medical treatment under the conditions established by national laws and practices.¹⁷ According to WHO, "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."¹⁸

Cancer has increasingly been recognized as a chronic illness. Cancer affects patients on physiological, social and psychological levels. Treatment of cancer persists for long periods after diagnosis.¹⁹ A cancer diagnosis can have a huge impact on most patients, families and caregivers. Feelings of depression, anxiety and fear are very common and are normal responses to this life-changing experience.²⁰

Music therapy is the use of music to address the physical, emotional, cognitive and social needs of a group or individual touching all aspects of the mind, body, brain and behaviour. Music can provide a distraction for the mind, slowing the rhythms of the body, altering the mood, which in turn can influence behaviour.²¹

Music therapy is a part of complementary medicine program in supportive cancer care which accompanies medical treatment. There are many benefits of music therapy for cancer patients-interactive music therapy techniques (instrumental improvisation, singing) as well as receptive music therapy techniques (listening to recorded or live music, music and imaginary) which can be used to improve mood, decrease stress, pain, anxiety level and enhance relaxation. Music therapy is an effective form of supporting cancer care for patients during the treatment process. It may be also basis for planning effective programs of rehabilitation to promote wellness, improve physical and emotional well being and the quality of life.²²

The student researchers can more effectively participate to relieve the anxiety level of cancer patients undergoing chemotherapy with the help of comprehensive care. The findings of the research project would contribute towards producing information with regards to reducing the anxiety level in cancer patients and can be of further help to the young researchers in future to use therapeutic music as non pharmacological method to decrease anxiety.

Objectives:

1. Assess the anxiety level of patients during chemotherapy before and after the administration of therapeutic music.
2. Compare pre and post effect of therapeutic music on cancer patients during chemotherapy.
3. Establish the association of anxiety level of cancer patients with selected demographic variables.
4. Analyse the comfort level of the cancer patients after the

administration of therapeutic music.

Research Methodology:

- **Research Approach:** Quantitative, Evaluative
- **Research Design:** Pre experimental one group pretest post test research design
- **Procedure for data collection:** (O₁ X O₂): - **Day 1:** Pretest (BAI), Therapeutic Music, Post Test (BAI)
- **Sample:** Cancer patients undergoing chemotherapy in RCC and Day care of IGIMS.
- **Sample Size:** 100
- **Sampling Technique:** Non probability convenience sampling

Variables:

- **Independent:** Therapeutic music
- **Dependant:** Anxiety

Validity Of The Instrument: By the Music expert

Method Of Data Collection:

- **Data collection technique and tool:** Standardised BAI; pre test, post test.
- **Development Of The Instrument:** Structured Instrumental therapeutic music was administered for 15min through laptop with the help of speaker. The music had variety of melodies (raag) involved in which some part of music consisted of raag Khamaz whereas some part consisted of raag Vrindavan Sarangi. The therapeutic music applied in this study was healing in nature, expected to provide relaxation to the cancer patients thus contributing to their good quality of life.

Description of the tool:

TOOL I: Consisting of 2 sections:

Section I consisted of:

- A) Demographic Performa consisting of age, gender, religion, marital status, education level, family income
- B) General Information's on types & stages of cancer, chemotherapy cycles and what other treatments are continuing along with chemotherapy.

Section II: - Standardized Beck Anxiety Inventory (BAI) 4 point scale: 21 items

The highest score in each item was 3. The highest possible total score for the whole items were 63 and lowest possible score for the whole items was 0. The Anxiety level was classified and scored as: **Severe (30 - 63), Moderate to severe (19 - 29), Mild to moderate (10 - 18) and Normal to mild (0 - 9)**

Tool II: Patient Satisfaction Feedback Questionnaire: 7 items

The highest score in each question was 5 and lowest was 1. The highest possible score for the whole question was 35 and lowest possible score was 7. The satisfaction feedback was classified and scored as: **Unsatisfied (7 - 15), Satisfied (16 - 25), Good (26 - 35)**

Ethical clearance was taken from the Institute Ethical Committee, IGIMS, prior to the conduction of the study.

RESULTS:

Table 1: Anxiety Level Of Cancer Patients During Chemotherapy Before And After The Administration Of Therapeutic Music.

N=100

Anxiety level	Before Administration Of Therapeutic Music	After Administration Of Therapeutic Music
	%	%
Normal to minimal (0 - 9)	21	98

Mild to moderate (10 - 18)	42	2
Moderate to severe (19 -29)	19	-
Severe (30 - 63)	18	-

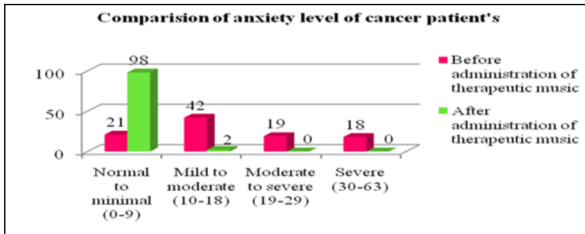


Fig. 1: Bar Diagram Showing Percentage Distribution Of Anxiety Level Of Cancer Patients During Chemotherapy Before And After The Administration Of Therapeutic Music.

Table 2: Description Of Mean, S.D. Of Pre Test And Post Test. N=100

Anxiety level	Mean \pm S.D	Standard Error Mean
Before administration of therapeutic music.	18.45 \pm 11.02	1.102
After administration of therapeutic music.	3.29 \pm 3.03	0.303

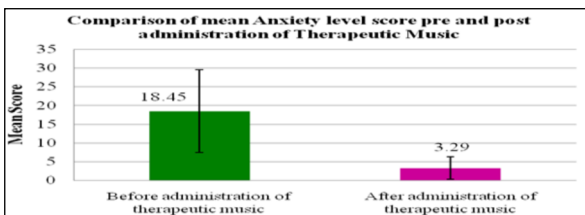


Fig. 2: Bar Diagram Showing Comparison Of Mean Score In Pre Test And Post Test Before And After The Administration Of Therapeutic Music.

Table 3: Statistical Difference Between Mean And S.D. Of Pre Test And Post Test N=100

Anxiety Level	Paired difference Mean \pm S.D	t-test	df	p-value	Significance
Before and after the administration of therapeutic music.	15.16 \pm 9.88	15.35	99	<0.01	HS

HS = Highly Significant

Table 4: Frequency And Percentage Of Cancer Patients Satisfaction Level Feedback. N =100

Satisfaction Feedback score	Frequency (%)
Unsatisfied (7 - 15)	2
Satisfied (16 - 25)	18
Good (26 - 35)	80

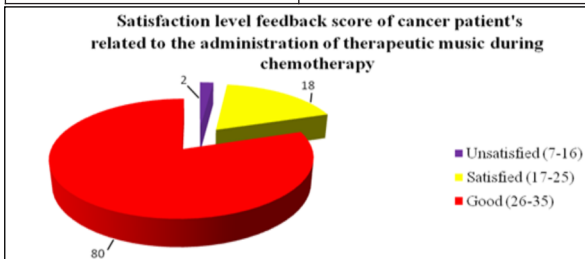


Fig. 4: Pie Diagram Showing Percentage Distribution Of Cancer Patients' Satisfaction Level Feedback Related To The

Administration Of Therapeutic Music During Chemotherapy.

DISCUSSION:

Effect Of Therapeutic Music In Terms Of Reducing The Anxiety Level Of Cancer Patients During Chemotherapy:

The findings of the present study showed that mean pretest anxiety scores (18.45) in all the areas were higher than the mean post test anxiety score (3.29) after administration of therapeutic music. Decrease in anxiety levels of cancer patients during chemotherapy was not by chance, instead the cancer patients significantly experienced less anxiety. Null hypothesis rejected. **Study was supported by the following studies:**

- Quasi-experimental study undertaken by Jasemi M (2016)²³ to determine the effects of music therapy on anxiety and depression of 60 cancer patients showed a significant decrease in the level of depression and anxiety. Therefore, it was recommended to include music therapy in the nursing care.
- Igawa, Wu and Harrigan (2007)²⁴ conducted a study on music and cancer pain management during invasive cancer procedures and chemotherapy concluding that music therapy has shown significant reduction in anxiety, while doing so, indirectly lessened the intensity of pain thus improving the quality of life in cancer patients.
- A study by Imran Syed, Moosabba MS, and Ancheril Alphonsa (2017)²⁵ on Effects of Music Therapy on Anxiety, Blood pressure and Respiratory Rate patients Undergoing Chemotherapy; concluded that music therapy during chemotherapy is an effective nursing intervention in decreasing anxiety.
- AJ Ferrer (2007)²⁶ conducted a study on effect of live music on decreasing anxiety in patients undergoing chemotherapy; in which patients heart rate and blood pressures were recorded, showing significant improvement with music intervention for the experimental group on the measures of anxiety, fear, fatigue, relaxation, and diastolic blood pressure.
- A randomized controlled trial of the effect of music therapy and verbal relaxation on chemotherapy-induced anxiety was conducted by Lin Mei- Feng, Hsieh Ya-Ju, Hsu Yu-Yun et al. (2011)²⁷ revealed that music therapy had a greater positive effect on post-chemotherapy anxiety in the experimental group than the verbal relaxation and control groups.
- Magill (2001)²⁴ conducted a study on the use of music therapy addressing the sufferings in advanced cancer pain. The researcher was of the opinion that, music therapy is a treatment modality of great diversity offering a range of benefits to patients with advanced cancer pain and symptoms of suffering; and that a variety of music therapy techniques may be used, including vocal techniques, listening, and instrumental techniques.

Association Between Anxiety Level Of Cancer Patients During Chemotherapy With The Selected Demographic Variables:

Significant association between anxiety level of cancer patients during chemotherapy with demographic variables "gender and educational level" in the pretest at $p < 0.05$ (5%) whereas in post test. **Study was supported by the following studies:**

- Bergerot Cristiane Decat, Mitchell Hannah-Rose, Ashing Kimlin Tam et al. (2017)²⁸ conducted a prospective longitudinal study of changes in anxiety, depression and problems in living during chemotherapy treatments: effects of age and gender on cancer patients assessed at 3 time points during chemotherapy revealing that gender-specific types of cancer reported greater anxiety compared with those with non gender specific types of cancer.
- Zhang Qian, Wang Yufu, Wang Xishan et al. (2017)²⁹

conducted a study on the impact of socioeconomic status on survival of colorectal cancer patients indicating that educational level was significantly associated with colorectal cancers' overall survival.

- A study undertaken by Spilioti Evangelia D, Galanis Petros A, Konstantakopoulou Olympia K. et al. (2017)³⁰ on the effects of music on 34 cancer patients, assigned to control and intervention group each, submitted to chemotherapy treatment, concluding that there was no statistically significant relations between physiological parameters and marital status as revealed in the present study too.
- **Study was not supported by the study** undertaken by Farooqi Yasmin Nilofer, Ahsan Sidra (2009)³¹ on gender differences in anxiety and depression among 100 Pakistani cancer patients indicated no significant gender differences in level of anxiety among cancer patients.

CONCLUSIONS:

1. Therapeutic music is beneficial to the cancer patients in reducing the anxiety level while undergoing chemotherapy and it also provides an effective method of reducing potentially harmful physiological responses arising from anxiety.

2. All the subjects in the present study experienced less anxiety with the help of therapeutic music; results supporting the Katherine Kolcaba Comfort Theory indicating that if a patient is comfortable, they will feel better both emotionally and physically, which will help them to recover quicker. The study also supported the role of cognition in promoting the psychological well-being of patients with cancer. Findings of the present study also suggested that some health-related outcomes may be affected positively by participating in the music therapy in addition to chemotherapy.

3. A positive result in this study provided an initial foundation for the development of noninvasive, cost-effective, evidenced-based interventions in this group of vulnerable patients. As symptom management is an essential component of palliative care, holistic care, encompassing physical, psychosocial and spiritual aspects, representing a rational approach for the relief of these incurable symptoms. The results of this study supported music therapy as a nursing intervention promoting the holistic care of the cancer patients undergoing chemotherapy.

4. All cancer patients undergoing chemotherapy expressed a sensation of well-being and pleasure at the end of the therapeutic music sessions. Thus, music therapy appeared to be a novel motivational tool in cancer patients.

Implications:

The efficient patient care basically lies in the hands of nursing personnel. A strong workforce catering to the needs of the patients in the hospital are nurses. Advanced technologies improvement day by day demands the requirement to meet the challenges. Hence, it becomes imperative for nurses to cope with the daunting challenges and remain physically, mentally alert to the complex situations.³²

Cancer treatment requires a multi-disciplinary approach. In each stages of the treatment, there are many emotional impacts on patients. As a result, psychological disorders develop. Therefore, it is very important that in each stage of treatment, psychosocial support should be given to patients and their relatives in order to understand the anxiety level of cancer patients, so as to understand the significance of bedside Therapeutic music interventions in alleviating anxieties of cancer patients in future.

Therapeutic music introduced as a nursing intervention of holistic care should be included in the nursing curriculum so that student nurses can broaden their horizon and comprehension which can be further utilized by the student

nurses in the palliative care in order to enhance quality of life in cancer patients. Well-equipped wards with inbuilt functional audio system are the need of the hour in order to provide relaxation to the cancer patients to mitigate the anxiety and destructive physiological responses arising due to anxiety.

The hospital settings should have adequate facilities to provide intervention and education not only to the parents but also catering to the growing demands of educating the other healthcare professionals and caregivers on the same. There is scope in this area to prevent the further psychobiological complication of the cancer patients by providing evidence based care in a cost effective way thus increasing the successes of such interventions.³²

Recommendations:

1. A comparative study can be conducted among other patients who are undergoing radiotherapy or dialysis.
2. A comparative study to assess the effectiveness of therapeutic music vs therapeutic musical video.
3. A comparative quasi experimental study can be conducted to assess the effect of therapeutic music vs various other techniques to reduce the anxiety level of cancer patients during chemotherapy.

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Conflict Of Interests:

The author declares no conflict of interests.

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