

**A STUDY TO ASSESS THE IMPACT OF MUSIC ON POST OPERATIVE PAIN
IN SURGICAL WARD IN OPERATED PATIENTS**



SUBMITTED TO THE FACULTY OF SCHOOL OF NURSING

GALGOTIAS UNIVERSITY, GREATER NOIDA, UP

In Partial Fulfilment of the Requirement For the Degree of B. Sc Nursing

BY

Roll No.

1618101034

1618101039

1618101040

Group Members

PRATIBHA LUHERA

SHAILY VERMA

SUDHA RAWAL

SCHOOL OF NURSING

GALGOTIAS UNIVERSITY, GREATER NOIDA, UP

YEAR: 2016-2020

CERTIFICATE

This is to certify that this thesis titled “**A STUDY TO ASSESS THE IMPACT OF MUSIC ON POST OPERATIVE PAIN IN SURGICAL WARD IN OPERATED PATIENTS**” is the bonafide work in the partial fulfilment of the requirement for the degree of Bachelor of Science in Nursing.

Roll No.

1618101034

1618101039

1618101040

Group Members

PRATIBHA LUHERA

SHAILY VERMA

SUDHA RAWAL

PROF (Dr.) Ashia Qureshi

Dean, School of Nursing

Galgotias University

GUIDE: Mr. Justin V Sebastian

Assistant Professor

School of Nursing

Galgotias University

ACKNOWLEDGEMENT

First and foremost we are bound by gratitude of almighty God for giving us the necessary knowledge and ability in accomplishing our task and giving me the necessary strength and willpower to overcome difficulties.

We express our profound gratitude to **Prof. (Dr.) Ashia Qureshi, Dean Galgotias School of Nursing** , who gave us the opportunity to conduct this project. We are extremely thankful to Madam for her continuous and valuable encouragement, motivation and support throughout these four years and facilitating the study with administrative permission.

We consider a greater privilege and honour to be under the gratitude to our guide **Mr. Justin V Sebastian**, Assistant Professor, Galgotias University, School of Nursing, for her expert guidance, valuable inputs, constant support and instilling confidence and encouragement in each step of the study.

Last but not the least, we are thankful to our parents who supported us throughout the study by their encouraging letters and generous financial aid.

ABSTRACT

Pain is a multi dimensional phenomenon pain following surgery is an unpleasant sensory and affective experience that can contribute to post operative complications, prolonging hospitalization and recovery. Music can reduce pain intensity, length of hospitalization stays and improves patient quality of life. Music can create diversion in pain, relaxes the mind and changes the mood. The goals of music therapy range from reduction of psychological stress, pain, anxiety and isolation to modulation of mood and behaviour modification.

Statement of problem

A study to assess the impact of music on post operative pain in surgical ward in operated patients

The objectives of the study

1. Determine the pain intensity before the administration of music therapy as measured by Visual Analogue Scale.
2. Plan, develop and validate the music therapy for pain management.
3. Evaluate the effect of music therapy by using patient opinionnaire and Visual Analogue Scale.

Evaluative approach was adopted for the study to evaluate the effectiveness of music as a diversional therapy on pain management. Pre experimental one group pre test post-test design was selected for the study. The study was conducted in B.R Ambedkar hospital Noida. The population selected for the study comprised of 30 postoperative surgery patients. The sampling technique was a non-probability, purposive sampling technique. The data collection was done by demographic data

and by assessing the pain before and after the therapy. The tools selected for the study were demographic data, Visual Analogue Scale and Opinionnaire regarding music.

The significant findings of the study are:

- Age: : Maximum number of subjects (60%) belonged to the age group 20- 40 years.
- Sex : Maximum numbers of subjects (53%) were females.
- Area of Residence : Majority of the subjects (80%) were from rural background.
- Marital Status : Maximum numbers of subjects (73%) were married.
- Educational Status : Maximum numbers of subjects (56%) were educated with secondary education.
- Employment Status : Forty seven percentage of subjects were employed
- Religion : Majority of the subjects (83%) were Hindus.
- Recreation : Majority of the subjects (63%) were interested in music.
- Type of surgery : Majority of the subjects (53.3%) had undergone Laparotomy.

There was a significant reduction in pre therapy pain intensity (43.3%) and the post- therapy pain intensity (23.3%) on the first post operative day morning of the music therapy and the subsequent day.

There was a significant reduction in mean post-therapy pain scores (5.03-3.31) in the morning on the first and second post operative day (t -15.3, 20.34, P <0.05).

There was a significant reduction in mean post-therapy pain scores (4.15- 2.88) in the evening on the first and second post operative day

(t- 11.68, 16.6, p< 0.05).

Majority of the subjects (63.3%) revealed that music therapy helped in diversion of pain.

There was no significant relationship between the pre- therapy pain scores and the age, sex, area of residence, marital status, educational status, employment status, religion, recreation and type of surgery.

Music therapy and pain are subjective concepts. Determining an objective cause and effect relationship between them was a challenging effort. Yet now that the relationship is evident, however minor it may be, its implication is far reaching. It was an enriching professional experience for the investigator. As this study has opened up a new zone for independent nursing practice, its potentiality requires further exploration.

Key words

Music; music as therapy; pain; post operative; diversion

TABLE OF CONTENTS

1.	Introduction	1-11
2.	Review of Literature	12-20
3.	Methodology	21-29
4	Results	30-53
5.	Discussion, Summary, Conclusion, nursing implications, limitations and recommendations	54-57
6.	Bibliography	58-64
7.	Annexures	65-74

LIST OF TABLES

Sl. No.	Tables	Page No
1.	Frequency and percentage distribution of postoperative surgical patients based on their sample characteristics.	32
2.	Frequency and percentage distribution of postoperative surgical patients on the basis of pain intensity.	38
3.	The Mean, Median, Standard deviation and 't' value of pre and post therapy scores on first post operative day morning.	41
4.	The Mean, Median, Standard deviation and 't' value of pre and post therapy scores on second post operative day morning.	42
5.	The Mean, Median, Standard deviation and 't' value of pre and post therapy scores on first post operative day evening.	44
6.	The Mean, Median, Standard deviation and 't' value of pre and post therapy scores on second post operative day evening.	45
7.	Association between pre-therapy pain scores and selected variables.	48
8.	Frequency and percentage distribution of the subject's responses with regard to the acceptability of the music therapy.	50

LIST OF FIGURES

Sl. No.	Figures	Page No
1.	Conceptual framework based on the Gate Control theory by Melzack and Wall.	10
2.	Schematic representation of the study design.	22
3.	Diagrammatic representation of the research design.	23
4.	Bar diagram showing the percentage distribution of postoperative surgical patients according to their age.	35
5.	Pie diagram showing the percentage distribution of postoperative surgical patients according to their gender.	36
6.	Pie diagram showing the percentage distribution of postoperative surgical patients according to their area of residence.	37
7.	Bar diagram showing the frequency and percentage distribution of subjects on the basis of pain intensity on day 1 and day 2 morning.	39
8.	Bar diagram showing the frequency and percentage distribution of subjects on the basis of pain intensity on day 1 and day 2 evening.	40
9.	Bar diagram showing the mean pain intensity of first and second post operative day morning.	43
10.	Bar diagram showing the mean pain intensity of first and second post operative day evening.	46
11.	Pie diagram showing the subjects response to the opinionnaire.	52

CHAPTER I

INTRODUCTION

Pain is a multidimensional phenomenon. Hence management of pain includes pharmacological and non-pharmacological approaches as alternative therapies. Some of this is relaxation, guidance imagery, music, distraction, yoga, acupressure, massage etc. The present trend in nursing profession attempts to encompass these non-pharmacological approaches for pain relief. This study being one of such attempts has considered examining the efficacy of music as a diversional and complementary therapy in order to minimize post-operative pain.¹

Pain following surgery is an unpleasant sensory and affective experience that can contribute to post-operative complications, prolonging hospitalization and recovery. Pain is not always controlled by prescribed analgesics. To augment medication, patients may use self-care methods, such as soothing music and other relaxation measures.¹

Music makes us feel better when we are well, so imagine what it can do us when we are ill. It can soothe us, distract us from pain and soften the hard edge of technology in hospitals and other clinical environments.¹

There has recently been a considerable increase in interest and exploration of the therapeutic potential of music. Bunt defined as “the use of music in the accomplishment of therapeutic aims, the restoration, maintenance and improvement of mental and physical health”.²

Early evidence of the existence of music goes back to perhaps 10000 BC when

our earliest ancestor began to attribute magical powers to sound that were perceived to be able to control the spirit and natural worlds, and to create and sustain life. People throughout the world placed great importance on music.³

The Greek god of healing and music, Apollo and his servant Orpheus used music therapeutically. Florence Nightingale (1859) recognized that potential of music in caring for the sick and wrote that, wind instruments including the human voice and stringed instruments, capable of continuous sound, have generally a beneficial effect on air will sensibly soothe.⁴

Need for the study

Post-operative pain is a dynamic symptom that varies in intensity. It is often severe at first, moderate with medication, mild to moderate on day two, yet increases significantly with ambulation and often decreases during rest.⁵

Studies have demonstrated that inadequacy of pain management in all clinical settings and despite decades of research and availability of effective analgesic approaches, many patients continue to experience moderate to severe pain following surgery. Investigators propose that non-Pharmacological interventions may be more effective at rest and when pain is less intense.⁶

Among all non-pharmacological measures of pain relief, music has attracted attention and interest. The investigator reviewed many studies based on the effects of music in different settings and stated that the use of music in relief of pain is relevant

and supported its use as an independent nursing intervention. The author further stated that music was an aural stimulant and had a well documented capacity to evoke physical response; eg: psycho physiological manifestations of stress in coronary care patients had been reported to get relief using modulated music.⁷

The investigator reviewed that music listened to and enjoyed by all societies and cultures had many purposes. According to the author, music therapy as behavioral sciences had been concerned by using different kinds of music, to effect changes in behaviors, emotions and physiology. It was also stated that music therapy influence human being to aid in physiological, psychological and emotional integration of the individual during treatment of an illness or disability. The author in addition reviewed the physiological effects of music on patient's heart rate, Blood Pressure, respiration rate, oxygen saturation, skin temperature, pain, anxiety level and mood states. These findings indicated that music was an effective nursing intervention for pain and anxiety states.⁸

The author reported that a combination of pharmacological and non-pharmacological method of pain control probably yields the most effective pain relief for the patients. It was suggested that, the nurses might make significant combination to pain control by being able to offer a variety of non-pharmacological methods such as distraction especially humor, relaxation and auditory stimulation in combination with the traditional methods of analgesia ⁹.

Campbell (1991) reported that music effectively increases metabolism, changes muscular energy, accelerates respiration, produces marked but variable

effects on volume, pulse and blood pressure and creates the physiological basis for the genesis of emotional shifts ¹⁰.

The investigator concluded from various studies, that music was said to be unique, in that it could penetrate both the mind and the body directly, whatever the individuals' intelligence or condition. Moreover the author added that music acts to stimulate the senses, evolving feelings and emotions, it also causes physiological and mental responses and energises the body and mind. The author recommended more research to measure the actual effects and benefits of music therapy in specific conditions.

The author stated that, not modern music, but the time-tested melodies of classical music act as an effective therapy to bring about holistic health. The author further suggested to listen to ragas 20 minutes at the most and may be three times a day. And further adds that in chronic and acute diseases, the patients should listen to ragas many times in a day ¹¹.

In a study on caring for adults with chronic cancer pain reported that music reduces pain intensity through distraction and relaxation and even by competing with pain impulse in the CNS ¹².

A nurse researcher, found relaxation and music separately or together, significantly reduced the patient's pain following major surgery. Further it is reported that, this self-care methods reduced pain more than medication alone. Thus the above mentioned studies signify the use of music as an effective nursing intervention in the alleviation of pain and anxiety¹³.

The investigator during the posting in the post operative units felt that nurses must take the lead in making pain management a treatment priority. Because nurses are the first one to receive complaints of pain from patients, since she spends most of the time with the patients, inspite of the other members of the healthcare team. The investigator found that nurses are at risk for liability in regard to the under treatment of pain, and nursing care has been described as the corner stone of multidisciplinary efforts to control pain.

Although pharmacological pain managements strategies when implement properly are effective in management of post-operative pain, some patients find that the additional care of non-pharmacological therapies enhance relief of post-operative pain. Music therapy is emerging as a non-intrusive means, by which patients can connect with and express their feelings at their own pace.

Problem Statement

A study to assess the impact of music on post operative pain in surgical ward in operated patients

The objectives of the study

1. Determine the pain intensity before the administration of music therapy as measured by Visual Analogue Scale.
2. Plan, develop and validate the music therapy for pain management.
3. Evaluate the effect of music therapy by using patient opinionnaire and Visual Analogue Scale.

Operational definition

1. **Music:** In this study it refers to a rhythmic and melodious tune of a selected Indian classical music recorded in a cassette to divert the attention from pain

sensation.

2. **Pain:** In this study it is the experience of the post-operative abdominal surgery patients in which he or she expresses the intensity and which is measured by means of Visual Analogue Scale and is classified as mild, moderate and severe.
3. **Impact:** In this study it refers as the consequences or the result of the music in terms of reduction of pain intensity as measured by the standardized Visual Analogue Scale
4. **Post-operative patients:** In the present study, post operative patients refers to patients who have undergone abdominal surgery (laparotomy, appendectomy) in order to get cure from a particular disease condition.
5. **Surgery:** In this study, it refers to the surgery (the treatment of injury or disorders of the body by incision or manipulation, especially with instruments) done in order to get cure from a particular disease condition.

Assumptions

The study assumes that:

1. The patients after abdominal surgery experience pain.
2. Music is a non-invasive method and has no known ill effects on patients.

Delimitations

The study is delimited to:

1. Patients who had under gone only surgery.
2. Patients on first and second postoperative days only.
3. Patients who are willing to participate in the study.
4. Patients who can communicate verbally.

Hypotheses

H₁ : The mean pre-therapy scores of pain intensity of post-operative surgical patients will be significantly higher than the mean post therapy scores at 0.05 level of significance as measured by the Visual Analogue Scale.

H₂ : There will be a significant association between the pain intensity and selected variables: - age, sex, education, area of residence, marital status, religion, employment and recreation, type of surgery.

Conceptual framework

The conceptual framework of this study is developed considering patients pain experiences after surgery and the effects of music on it. The framework is based on the gate-control theory modified by Melzack and Wall, literature on effects of music therapy and models of psychosomatic dimensions of pain. ¹⁴

Melzack and Wall presented the first version of the Gate-control theory. They postulated that when injury occurs, 'A' delta and 'C' fibers are stimulated and deliver impulses to brain via the substantia gelatinosa in the spinal cord, and that this area of the spinal cord controls the flow of these nociceptive impulses. They suggested that this control mechanism is influenced by a number of factors, which could inhibit or facilitate the passage of the pain impulses and used the analogy of a gate being able to open or close to describe the concept. They caused experimental and clinical evidence to build their theory and suggested that the 'gate' could be closed by mechanical pressure stimulating 'A' beta fiber, descending inhibitory impulses from the brain, and cognitive control. The theory implies that the nociceptive input is subjected to a modulating influence before it evokes pain perception and pain will occur if the nociceptive input exceeds that of the inhibitory mechanisms ¹⁵.

Using further evidence, the gate control theory of pain was extended to include a motivational dimension and proposed that pain had three components ¹⁶:

1. A discriminative sensory component primarily influenced by rapidly conducting spinal system.
2. A motivational drive and the unpleasant affect characteristic of pain, such as fear and emotional responses to pain.
3. A cognitive component based on the analysis of the input, past experiences and the meaning of the pain ¹⁶.

Pain is whatever experienced person says it is, existing whenever the experiencing person says it does. And further stated that, when nurses put personal biases aside and accept this definition. They acknowledge that every person with pain has a complex, multidimensional and unique experience. Their experiences are influenced by the factors such as post-operative pain, pain after ambulation, rest. Their influencing factors provoke mood changes which are expressed as anger, anxiety and depression. Although these three are the independent components, yet mutually support and feed one another, as well as enhance pain perceptions ¹⁷.

Music therapy, when repeatedly administered gradually creates diversion, which in turn relaxes the mind and changes the mood. It can reduce pain intensity, length of hospital stays and improve patients' quality of life. Therefore goals of music therapy range from reduction of psycho physiological stress, pain, anxiety and isolation to modulation of mood and behavior modification.

In the present study, the post operative pain is transmitted through the

nociceptive receptors situated in the substantia gelatinosa, which in turn gets situated and transmits the pain impulse, thus the patient experience pain. The perceived pain intensity is expressed as anger, anxiety and depression (patient's subjective feeling). In the present study, the intervention i.e. the Music therapy will help in the activation of 'C' fibers, which has caused the inhibition of transmission of pain impulses. Thus music is used as diversion, as a basis of pain relief measure. The patient's opinion regarding the diversion of pain with the music therapy can be assessed by opinonnaire, which may be manifested as Interesting- not interesting, relaxation-no relaxation, effective- not effective, pain reduced- pain not reduced.

The schematic representation of the conceptual framework as shown in the figure 1.

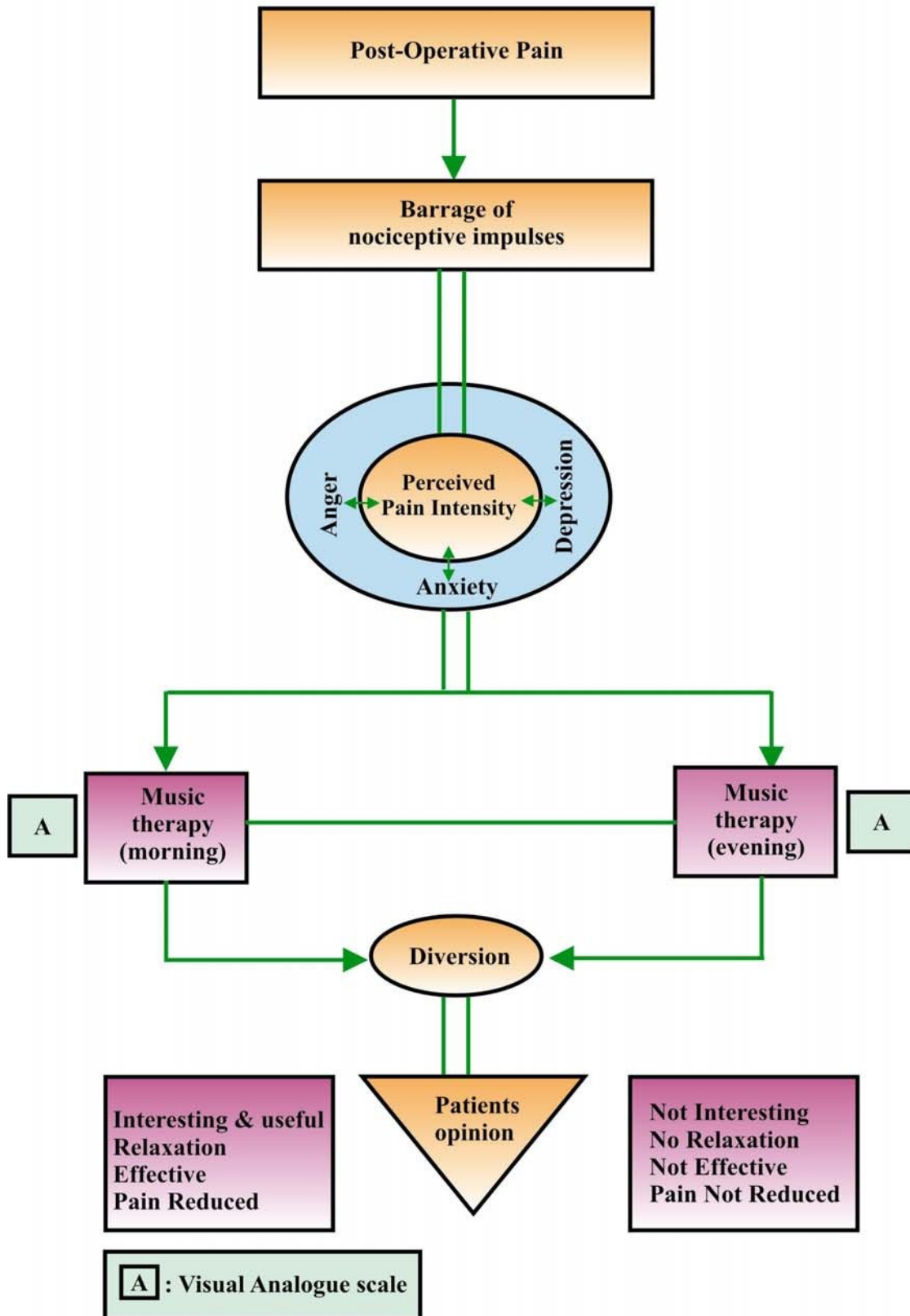


Fig. 1: Relationship of pain experience and music as a diversionary therapy based on the Gate Control theory by Melzack and Wall (1965)

Summary

This chapter dealt with the need for the study, conceptual framework, Statement of problem, purpose of the study, operational definitions, Assumptions, hypotheses, delimitations and scope of the study.

CHAPTER II

REVIEW OF LITERATURE

Review of the literature provides basis for future investigation, justifies the replication, throws light on the feasibility of the study and the constraints of data collection, relates the findings from one study to another with a hope to establish a comprehensive body of scientific knowledge in a professional discipline from which valid and pertinent theories may be developed.¹⁸ The review of literature for this study was done from the published articles, textbooks, reports, Medline search for post-operative surgical pain and music.

The content of literature was reviewed by the investigator and presented under the following areas: -

- 1) Literature related to effect of music therapy on post operative patients
- 2) Literature related to pain measurement and assessment
- 3) Literature related to patient's perspectives of pain relief

Literature related to effect of music therapy on post operative patients

Melissa A. Schneider, conducted a study to determine if listening to music has a positive effect on pain scores and satisfaction in the postoperative adult orthopedic patient. There are limited studies demonstrating statistically significant decreases in postoperative pain in this group. A secondary purpose was to expose nurses on a standard medical-surgical unit to an intervention, supported by the holistic nursing model that they could use in their care. This study was a descriptive, comparative, quasi-experimental design. Patients listened to prerecorded music on individual CD players and recorded pre-post pain scores with the intervention. A satisfactory survey

was completed at discharge. Results demonstrated a statistically significant reduction in patients' pain scores after listening to music. Length of listening time had no effect. Patients expressed overall satisfaction, and 100% of participants would recommend this intervention to others. Listening to music is beneficial as an adjunct to pain medication and contributes to increased patient satisfaction. It is hoped that the information gained from this study will lead to an enhancement in the standard of care for postoperative patients.¹⁸

Nadiye Ozer, Zeynep karaman özlü, conducted a study to to investigate the effect of listening to personal choice of music on self-report of pain intensity and the physiologic parameters in patients who have undergone open heart surgery. The study design was quasiexperimental. Patients were selected through convenience sampling in the Cardiovascular Surgery Intensive Care Unit at a university hospital. The study was conducted with a total of 87 patients who underwent open heart surgery: 44 in the music group, 43 in the control group, ages between 18 and 78 years. Through pretest-posttest design, postoperative first-day data were collected. First, physiologic parameters (blood pressure, heart rate, oxygen saturation, and respiratory rate) were recorded and a unidimensional verbal pain intensity scale applied to all participants. Later, the control group had a rest in their beds while the music group listened to their choice of music for 30 minutes. Physiologic data were then collected and the pain intensity scale applied once more. In the music group, there was a statistically significant increase in oxygen saturation ($p = .001$) and a lower pain score ($p = .001$) than in the control group. There was no difference between the groups in the other physiologic parameters. Results of this research provide evidence to support the use of music. Music might be a simple, safe, and effective method of reducing potentially harmful physiologic responses arising from pain in patients after open heart surgery.¹⁹

Kelly Allred, Mary Lou Sole, et.al, conducted a study to determine if listening to music or having a quiet rest period just before and just after the first ambulation on postoperative day 1 can reduce pain and/or anxiety or affect mean arterial pressure, heart rate, respiratory rate, and/or oxygen saturation in patients who underwent a total knee arthroplasty. Fifty-six patients having a total knee arthroplasty were randomly assigned to either a music intervention group or a quiet rest group. A visual analog scale was used to measure pain and anxiety. Physiologic measures, including blood pressure, heart rate, oxygen saturation, and respiratory rate, were also obtained. Statistical findings between groups indicated that the music group's decrease in pain and anxiety was not significantly different from the comparison rest group's decrease in pain ($F = 1.120$; $p = .337$) or anxiety ($F = 1.566$; $p = .206$) at any measurement point. However, statistical findings within groups indicated that the sample had a statistically significant decrease in pain ($F = 6.699$; $p = .001$) and anxiety ($F = 4.08$; $p = .013$) over time. Results of this research provide evidence to support the use of music and/or a quiet rest period to decrease pain and anxiety. The interventions pose no risks and have the benefits of improved pain reports and decreased anxiety. It potentially could be opioid sparing in some individuals, limiting the negative effects from opioids. Nurses can offer music as an intervention to decrease pain and anxiety in this patient population with confidence, knowing there is evidence to support its efficacy.²⁰

Electra Economidou , Amalia Klimi, et.al, conducted a study to examine the evidence related to this hypothesis. A systematic literature search was performed to identify all studies looking at music's impact on postoperative pain. Result shows that 886 patients, undergoing elective surgery under general anaesthesia participate in all four studies. Although the intervention was applied differently three of the studies

showed that music had reduced postoperative pain, as measured with visual analogue scale (VAS). The study concluded that Music appears to be an effective non-invasive, non-pharmacological and relatively cheap intervention for postoperative pain management.²¹

Literature related to pain measurement and assessment

Faisal Mahama and Jerry P. K. Ninnoni, conducted a study to investigate how nurses in a resource-constrained hospital in Ghana assessed and managed postoperative pain. This was an explorative qualitative study involving 12 registered nurses practising in the largest referral hospital in Ghana. Data was gathered using a semistructured interview guide. Demographic characteristics of participants were summarized using descriptive statistics. Data were analysed using Kvale's three phases for analysing qualitative data. First, the entire text was read again to identify meaning units which were then condensed. Second, the condensed texts were read again and interpreted. Finally, the condensed data containing similar meaning were coded and then sorted into subthemes. It was found that some nurses have never used any pain assessment tool due to lack of standard tool for assessing postoperative pain. The majority of nurses reported that managing pain by using medication was the norm especially in the first 24 hours after surgery. The study concluded that participants may have some knowledge of assessing and managing postoperative pain, this knowledge was not largely used to manage postoperative pain effectively, partly because of resource constraints.²²

Bergeron DA, Leduc G, et.al, conducted a study to examine and analyze various data related to the postoperative pain assessment of 40 patients who underwent elective surgery. Pain journals were to be completed by patients during every waking hour for the first three postoperative days to assess both pain intensity

and pain unpleasantness. A post hoc analysis of patient records permitted verification of pain assessment by nurses for each patient. The results showed that not only was postoperative pain rarely assessed using a valid scale, it was also poorly documented. In addition, when nurses assessed and documented postoperative pain using a numerical scale, their results were very different from patients' assessments. For the first postoperative day, the mean (\pm SD) pain intensity documented by nurses on a 0 to 10 numerical scale was 1.57 ± 0.23 , while the mean pain intensity noted by patients using the same scale was 3.82 ± 0.41 . Statistical analysis showed that there was no significant correlation between mean pain intensity documented by nurses and the mean pain intensity noted by patients.²³

Regina L. M. van Boekel, Kris C. P. Vissers, et.al, conducted a study to examine the relationship of pain scores and other methods of pain assessment. A cross-sectional study was conducted on patients who underwent major surgery between January 2008 and August 2013. Using logistic regression, we quantified the relationships between movement-evoked pain scores on the numerical rating scale (NRS-MEP) and three dichotomous dependent variables: patient's opinion on acceptability of pain (PO: acceptable or unacceptable pain); nurses' observation of patient's performance of necessary activities to expedite recovery (NO: good or bad performance); a compound measure judging the presence of the clinically desirable situation of acceptable pain associated with good patients' performance (PONO: present or not). Using Receiver Operating Characteristics (ROC) analysis, NRS cut-off points were determined such that they best discriminate between patients having one versus the other outcome for PO, NO and PONO. The result shows that 15,394 assessments were obtained in 9,082 patients in the first three postoperative days. Nine percent of the patients had unacceptable pain while having an NRS-MEP of 0–4. An

estimated 47% (95%CI = 45%-49%) of patients with an NRS-MEP of 7 described their pain as acceptable on day one. Moreover, 33% (31%-35%) performed all required physical activities, and 22% (21%-24%) combined acceptable pain with appropriate movement. NRS cut-off points for PO, NO and PONO were five, four and four, respectively, but had insufficient discriminatory power. It conclude that pain management should be guided by the many dimensions of the patient's pain experience, not solely by NRS cut-off points. Future research should evaluate the impact of such multidimensional pain assessment on patients' functional outcome.²⁴

P. S. Myles, D. B. Myles, et.al, conducted a study to measure pain intensity after surgery. We enrolled a sequential, unselected cohort of patients recovering from surgery and used a VAS to quantify pain intensity. We compared changes in the VAS with a global rating-of-change questionnaire using an anchor-based method and three distribution-based methods (0.3 SD, standard error of the measurement, and 5% range). We then averaged the change estimates to determine the MCID for the pain VAS. The patient acceptable symptom state (PASS) was defined as the 25th centile of the VAS corresponding to a positive patient response to having made a good recovery from surgery. The result shows that 224 patients at the first postoperative visit, and 219 of these were available for a second interview. The VAS scores improved significantly between the first two interviews. Triangulation of distribution and anchor-based methods resulted in an MCID of 9.9 for the pain VAS, and a PASS of 33. The study concluded that analgesic interventions that provide a change of 10 for the 100 mm pain VAS signify a clinically important improvement or deterioration, and a VAS of 33 or less signifies acceptable pain control (i.e. a responder), after surgery²⁵

Literature related to patient's perspectives of pain relief

David Casarett, MD, MA and **Jason Karlawish, MD, et.al**, conducted a study to define the endpoints of pain research that are important to patients with chronic pain and to identify clinical and demographic variables that are associated with patients' choices of endpoints. Interviews were completed with 40 patients seen at the anesthesia pain clinic of an urban tertiary care medical center. Each patient was presented with 4 brief (3–4 sentences) fixed information vignettes describing studies in which new medications would be evaluated. For each, patients were asked to describe how the medication being studied might offer an improvement over their current therapy. The result shows that Patients described a total of 20 endpoints. Individually, patients cited between 2 and 9 endpoints each (mean 4.9, standard deviation 1.7). Of these, the most commonly cited were decrease pain, decrease opioid dose, decrease frequency of scheduled dose, increased ability to function, decrease frequency of breakthrough dose, and improve sleep. Patients with severe pain cited more endpoints than did those with mild or moderate pain (mean 5.5 vs. 4.3; Rank sum test p 0.01). These data suggest that empirical research can provide data to guide the choice of endpoints in clinical studies of pain interventions.²⁶

Greti McHugh and Gavin Thoms, conducted a study to to investigate patients' perceptions and experiences of chronic pain management before and after attending pain services. A sample of 245 patients with chronic pain, who attended specialist pain services in 11 UK hospitals, were interviewed using a structured questionnaire. Patients' ages ranged between 23 and 86 years (median 51 years), and the duration of pain ranged between six months and 57 years (median five years). Patients reported that pain had had a profound effect on their lives, restricting daily living and leisure activities. 33 per cent (81) were classified as medically disabled. Patients' perceptions and attitudes to the management of chronic pain varied. Their main concern was that, although they wanted a specific diagnosis, they were often not given a reason for their chronic pain. Pain management requires a significant amount of input by health professionals. Patients wanted advice on the best techniques to help them cope with chronic pain. Most patients had previously tried many different pain treatments

to obtain short-term pain relief. One third of patients had waited up to four months for their initial pain assessment at the pain service. Once referred to specialist pain services, patients were satisfied with their care. Almost half (47 per cent, 115) of the interviewees reported that their pain had improved. As chronic pain has a profound effect on patients' lives, it is important that early diagnosis, treatment and referral to appropriate specialists is given high priority. This study has raised the awareness and understanding of an important, but often misunderstood area.²⁷

Eleni G. Hapidou & Emily Horst, conducted a study to gain insight into patients' experiences in a 4-week interdisciplinary chronic pain management program by determining major themes from patients' written comments on exit questionnaires. Upon completion of the program at the Chronic Pain Management Unit (CPMU), patients fill out program satisfaction (Pain Program Satisfaction Questionnaire) and evaluation of goal accomplishment (Self-Evaluation Scale) forms, sections of which are open-ended. Questionnaire data from 50 patients, admitted into the CPMU between May 2013 and December 2014, were randomly selected for this study. Written responses to open-ended sections were obtained. Comments were stratified by gender and coded using an inductive approach. Codes were grouped into categories which were further combined into several major themes. Six main themes extracted from comments were (1) impact of a strong interdisciplinary team, (2) learning to adapt in order to manage, (3) the Program as a stepping stone, (4) positive effects of a group effort, (5) improved mental health, and (6) benefits of the program. The results of this analysis reinforce the effectiveness of the interdisciplinary CPMU program at improving patients' quality of life. Findings may assist in the promotion of the program to stakeholders such as referral sources. The outcomes may also assist in the development of future programs that have similar goals. Concerns that arise within patients' comments may assist clinicians in this program to make adjustments such that all unique needs are met.²⁸

Claudia Zanini, Piercarlo Sarzi-Puttini, et.al, conducted a study to strengthen the conceptualization of the patient perspective by identifying aspects that, from doctors' point of view,

are important to address during a consultation to build a partnership with patients. Semistructured interviews were conducted with 17 doctors who are experts in the field of chronic pain in Italy. The recordings of the interviews were transcribed verbatim and interpreted using thematic analysis. The result shows participants agreed about the importance of doctors addressing aspects of the patient perspective that can lead to a difference of opinion with patients, namely, patients' views about their health condition (i.e., what they think they have and why and the perceived impact of the health condition on their life) and about treatments (i.e., what they have tried or have heard about and their expectations). Identifying patients' standpoints on their health condition and treatments offers an opportunity for critical discussion of differences of opinions and promotes communication exchange and agreement about the appropriate course of action.²⁹

CHAPTER III

METHODOLOGY

This chapter deals with the methodology adopted for the study. Research methodology is a way to systematically solve the research problem. It indicates the general pattern for organizing the procedure for collecting valid and reliable data for investigation.³⁰

This chapter describes the research approach, research design, setting, sample and the sampling technique. It also explains the process of selection and development of the study instruments, selection of the music cassettes for the therapy, data collection procedure, pilot study and plan for analysis.

Research Approach

The choice of the research approach depends on the purpose of the study. Evaluative Approach is considered to be the most powerful method for testing hypotheses of cause and effect relationship between variables. Evaluative approach was adopted in the study to evaluate the effectiveness of music as a diversional therapy on pain management.

Research design

Research design is the overall plan for obtaining answer to the research questions or for testing the research hypotheses.³¹

In this study, pre experimental one group, pre-test post-test design was selected for the study, to assess the effectiveness of music as a diversional therapy on pain management.

The present study design could be diagrammed as:

Morning	Pre therapy pain assessment- O_1	Experiment (Music) M_1	Post therapy pain assessment - O_2
Evening	Pre therapy pain assessment- O_1	Experiment (Music) M_1	Post therapy pain assessment - O_2

Fig: 2 Schematic representation of study design.

In this study, the pre-therapy assessment of pain intensity (O_1) followed by the experimental intervention (M_1) was assessed. A period of 5minute gap was given between the pre-therapy assessment and the commencement of the music therapy. The therapy was administered for 30 minutes and post therapy of pain assessment was done immediately after the completion of the therapy.

This cycle was done in the morning once and repeated once in the evening. Thus having a control component within the group itself, the same sequence was repeated on the first and second post operative day for each subject of the study, which is shown in the figure 2.

The design adopted for the study is shown in the figure

2 days therapy	Pre therapy pain Assessment	Time Gap	Experimental intervention (music therapy)	Post therapy pain Assessment
1st post-operative day				
Morning Postoperative day-1	O ₁	5 min	M ₁	O ₂
Evening Postoperative day- 1	O ₁	5 min	M ₁	O ₂
2ndPost-operative day				
Morning Post-operative day – 2	O ₁	5min	M ₁	O ₂
Evening Post-operative – 2	O ₁	5min	M ₁	O ₂

Fig.3. Diagrammatic representation of research design

O₁ : Visual Analogue Scale (VAS) and pre therapy pain assessment.

O₂ : VAS and post therapy pain assessment.

O₃ : Opinionnaire on the feelings about music on the Second day.

M₁ : Music Therapy.

Variables

Variable is some thing that varies or differs from one person to another.³¹

1. **Dependent variables** : perceived pain intensity.
2. **Independent variables** : Music therapy by the selected cassette given for 30 minute period.
3. **Extraneous variable** : age, sex, educational qualification, employment, area of residence, occupation, religion, recreation.

Setting of the study

Setting is the physical location and conditions in which data collection takes place in a study.³¹

The study was conducted in B. R Ambethkar hospital in Noida . The reason for selecting this hospital was the availability of the required number of surgical patients. The setting consists of 2 surgical wards (one male surgical and one female surgical unit) each ward has 30 general beds. No special and semi- special rooms are provided.

Population

A population is the entire aggregation of cases that meet a designated set of criteria.³¹

The population selected for the study comprised of 30 post operative abdominal surgery patients who were admitted to the surgical unit of B. R Ambethkar hospital in Noida, on their first and second post operative days. Both male and female patients were selected for the study.

Sample and Sampling technique

A sample is a portion of the population that has been selected to represent the study population.³²

The sample size consisted of 30 postoperative abdominal surgery patients.

The sampling technique was a non-probability, purposive sampling technique.

Sampling Criteria

The samples were selected on the following criteria.

Inclusion criteria:-

- 1) Post-operative surgery patients on the first and second post-operative days
- 2) Patients who are willing to participate.
- 3) Patients who are willing to receive music therapy.
- 4) Patients who are fully conscious
- 5) Patients who can communicate in Hindi and English.
- 6) Patients who receive analgesics.

Exclusion criteria

- 1) Patients who cannot communicate in Hindi and English.

Data Collection Instrument

“Data collection is the gathering of information needed to address the research problem”.³¹

Data collection instrument are the devices used to collect the data.

The present study was planned primarily to determine the pain intensity before and after the administration of music therapy, as measured by the Visual Analogue scale. The data collection technique was done by demographic data and by assessing the pain before and after the therapy. The investigator selected it by review of literature and prepared it in order to obtain the necessary information.

Selection and development of the Tool

The investigator developed the tool after consulting the subject experts and reviewing the literature on relevant topics. The tools selected for the study were, demographic data, Visual Analogue Scale, an opinionnaire regarding the music was developed.

Testing of the instrument

Content validity of the tool

Content validity is concerned with the scope or range of items used to measured the variable.³³

The prepared tool with the problem statement, objectives, operational definitions and criterion checklist was given to 7 experts to ensure content validity. The criterion check list contained four columns of strongly Agree, Agree, disagree and remarks / suggestion by the experts. Out of the 16 items in the tool, 100% agreement for 4 items, 86% agreement for 6 items, and 72% agreement for 3 items. 3 items were modified on the basis of expert opinion.

Content validity of music

The selected music items were sent to nine experts for the expert opinion. Cassettes of morning and evening, (song name) were validated, out of which (song name) had 100% agreement for response, 67% relaxation, 78% peacefulness and 78% recommended the selected (song name) was useful and hence (song name) was selected.

Description of the final tool

The final tool consisted of 3 parts: -

Part I: - Demographic profile: -

This consisted of patients name, age, sex, area of residence, marital status, employment status, educational status, religion, recreation and type of surgery. This information was collected from the patient's records and by patient interview.

Part II: - Visual Analogue Scale: -

In order to measure the pain intensity, a modified version of standard Visual Analogue Scale was used. The VAS was a wooden framework marked from 0 to 10 encompassing 10 divisions at equal distance, namely 0,1,2,3,4,5,6,7,8,9,10. The divisions 1 to 10 portray the pain intensity in ascending order, i.e. at 1 the pain intensity is at its lowest and at level 10 the pain intensity is at its peak. The subjects were instructed to indicate the pain intensity, which they experienced at that time by moving a sliding metal pointer to the pain level, expressed in terms of equally distanced 10 divisions marked in the VAS.

The pain intensity was categorized as severe, moderate and mild.

The range of pain score as follows: -

Mild pain intensity : refers to a score of 3 and < 3 on Visual Analogue Scale.

Moderate pain intensity : refers to a score of > 7 and 7< on Visual Analogue Scale.

Severe pain intensity : refers to a score of 7 and > 7 on Visual Analogue Scale.

Part III: - Structured opinionnaire: -

It consists of 8 statements, to obtain the information regarding the subject's personal interest in music and their opinion after listening to the music.

The maximum possible score was 32 and the minimum score was 8.

Pilot Study

A small-scale version or trial seen done in preparation for a major study.

After obtaining the formal administrative approval from Government Institute of Medical Sciences, Greater Noida. Pilot Study was conducted on 23/12/2019 to 28/12/2019 among 6 post operative abdominal surgical patients. The objectives of the study were explained to each subject and confidentiality was assessed. Music therapy was administered to the subjects and opinionnaire was given. The tool was found feasible, practicable and no changes were made after the pilot study. The data was analyzed using descriptive and inferential statistics. The investigator decided to carry out the actual data collection after the pilot study.

Data collection process

The data was collected from 06/01/2020 to 18/01/2020. The study was conducted in B. R Ambethkar hospital in Noida. A formal letter was sent to the Medical Superintendent of the Hospital and a written permission was obtained to conduct the study. The informed consent was taken prior to the study from the subjects and the nature of the study was explained to the participants. The subjects

were made comfortable and music was administered after assessing the pre therapy pain by means of VAS. After administering music therapy for 30 minutes post therapy pain was assessed immediately. This was done on the first and second post operative day, morning and evening.

The investigator found little difficulty to convince the subjects. Otherwise, the respondents were co-operative, excited and interested to listen to music. The data was thus collected and compiled for data analysis.

Plan for data analysis

The investigator planned to analyse data by using both descriptive and inferential statistics.

- Sample characteristics in terms of frequency and percentage
- Computation of mean and SD of the pre and post therapy scores
- Paired 't' test to determine the mean difference in the pain-intensity between pre and post therapy
- Chi-square to find the association between the pre-therapy pain scores and selected variables.

Summary

This chapter includes the research approach, research variables, setting, population, sample and sampling technique, data collection instrument, testing of instrument, pilot study, data collection process and plan for data analysis.

CHAPTER IV

RESULTS

The Analysis of data requires a number of closely related operations such as establishment of categories, the applications of these categories to raw data through coding, tabulation and then statistical inferences.

This chapter presents the analysis and interpretation of data collected from 30 post- operative abdominal surgical patients, to evaluate the effectiveness of music as a diversional therapy on pain management. The data were analyzed on the basis of study objectives using both descriptive and inferential statistics. The objectives of the study were:-

1. To determine the pain intensity before the administration of music therapy as measured by Visual Analogue Scale.
2. To plan, develop and validate the music therapy for pain management.
3. To evaluate the effect of music therapy by using patient opinionnaire and Visual Analogue Scale.

Hypotheses:

H₁	:	The mean pre therapy scores of pain intensity of post operative surgical patients will be significantly higher than the mean post therapy scores at 0. 05 level of significance, as measured by the VAS.
H₂	:	There will be significant association between the pain intensity and selected variables- age, sex, area of residence, education, employment, marital status, religion, recreation and type of surgery.

Organization of the study findings:-

The data collected were tabulated, analyzed and interpreted using descriptive and inferential statistics. The data were presented under the following headings:-

Section 1	:	Sample characteristics
Section 2	:	Distribution of sample on the basis of pain intensity
Section 3	:	Significance of difference between pre-therapy and post-therapy scores.
Section 4	:	Association of pre- therapy pain score with selected variables.
Section 5	:	Acceptability of music therapy.

Section 1:-

Sample characteristics

The sample characteristics of 30 post- operative surgical patients are described in terms of frequency and percentage. These data includes age, sex, area of residence, education, marital status, religion, employment status, recreation and type of surgery. The data is presented in table 1.

Section-1 Description of the sample characteristics:

Table: 1- Frequency and percentage distribution of post- operative surgical patients based on their sample characteristics.

N=30

SL No	Demographic characteristics	Frequency	Percentage
1.	Age a. 20- 40 years b. 41- 60 years c. 61 and above	18 8 4	60 27 13
2.	Sex a. Male b. Female	14 16	47 53
3.	Area of residence a. Urban b. Rural	6 24	20 80
4.	Marital Status a. Married b. Single	22 8	73 27
5.	Educational Status a. Illiterate b. Primary c. Secondary d. College- Degree/ PG	2 9 17 2	7 30 56 7
6.	Employment status a. Employed b. Not Employed c. Retired	14 13 3	47 43 10
7.	Religion a. Hindu b. Christian c. Muslim	25 3 2	83 10 7

8.	Recreation *		
	a. Cinema/ TV	17	57
	b. Music	19	63
	c. Games	2	7
	d. Others	5	1
9.	Type of surgery		
	a. Laparotomy	16	54
	b. Open surgery	14	46

* More than one response

The data presented in table 1 describes the sample characteristics as follows:-

Age	:	Maximum number of subjects (60%) belonged to the age group 20- 40 years.
Sex	:	Maximum numbers of subjects (53%) were females.
Area of Residence	:	Majority of the subjects (80%) were from rural background.
Marital Status	:	Maximum numbers of subjects (73%) were married.
Educational Status	:	Maximum numbers of subjects (56%) were educated with secondary education.
Employment Status	:	Subjects who were employed were (47%).
Religion	:	Majority of the subjects (83%) were Hindus.
Recreation	:	Majority of the subjects (63%) were interested in music.
Type of surgery	:	Majority of subjects had undergone Laparotomy (53.3%)

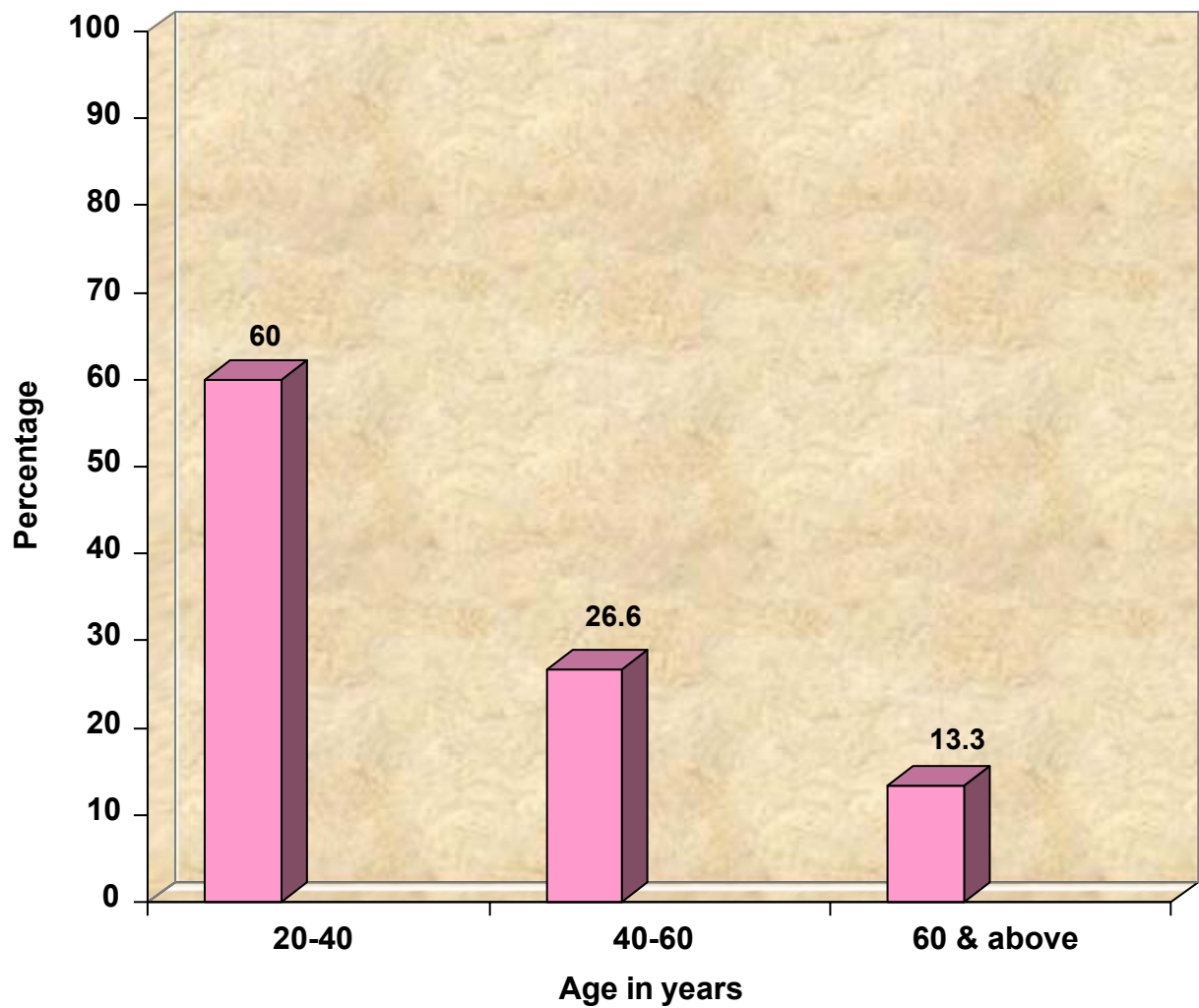


Fig 4: Bar diagram showing the percentage distribution of post-operative surgical patients according to their age.

Male Female

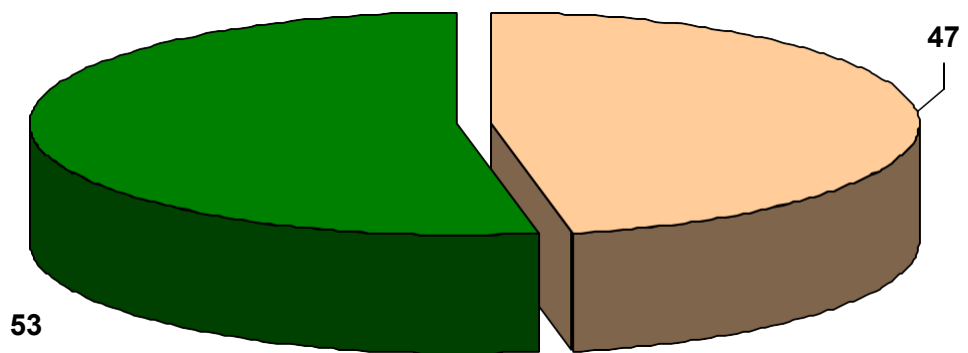


Fig 5: Pie diagram showing the percentage distribution of post-operative surgical patients according to their gender

Rural Urban

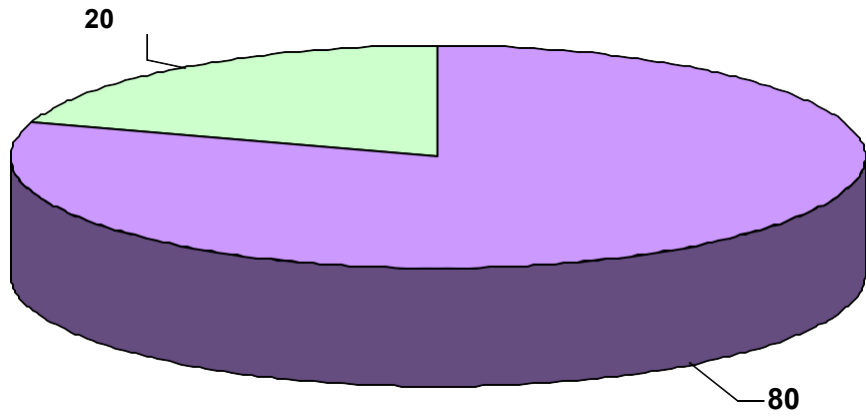


Fig 6: Pie diagram showing the percentage distribution of post-operative surgery patients according to their area of residence.

Section 2- Distribution of sample on the basis of pain intensity

Table 2: Frequency and percentage distribution of post-operative surgical patients on the basis of pain intensity

N =30

Time of the Day	Category of pain Intensity	Day 1				Day 2			
		Pre		Post		Pre		Post	
		F	%	F	%	F	%	F	%
MORNING	Severe	13	43.3	7	23.3	6	20	1	3.3
	Moderate	17	56.6	12	40	14	46.6	15	50
	Mild	6	3.3	6	20	12	40	15	50
EVENING	Severe	9	30	4	13.3	4	13.3	2	6.6
	Moderate	15	50	10	33.3	9	30	6	20
	Mild	6	16.6	11	36.6	16	53.3	19	63.3

The data presented in the table 2 shows that on the first day morning, before the music therapy 13 subjects (43.3%) were in the category of severe pain and after the music therapy the number of subjects having severe pain were reduced to 7 (23.3%). On the second day as the music therapy continued, 6(20%) were in severe pain and after music therapy the number reduced to 1(3.3%). Similar pattern was observed in the evening of the first and second day of the music therapy, which is shown in Fig 7 and 8.

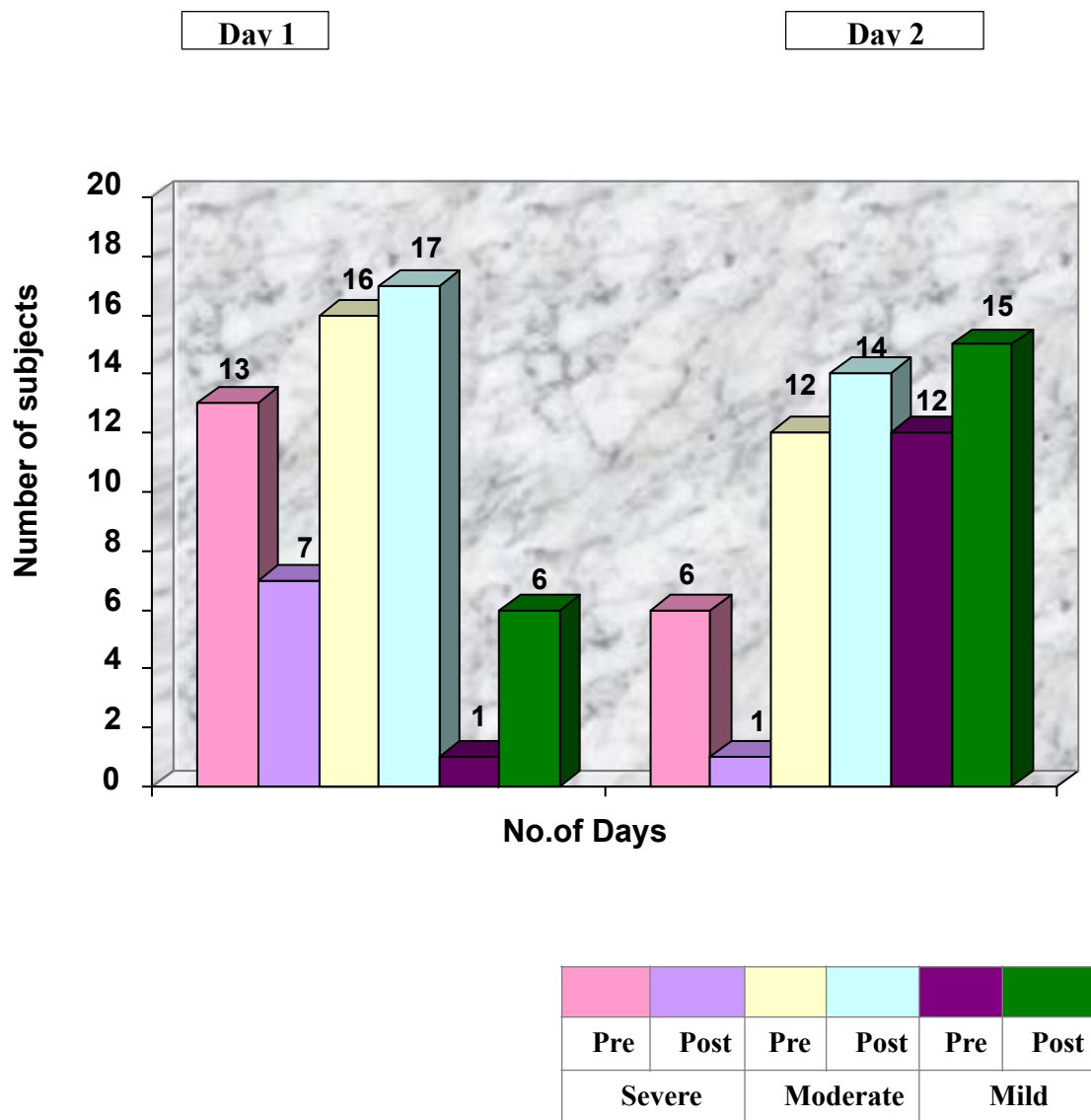


Fig: 7 Bar diagram showing the frequency and percentage distribution of subjects on the basis of pain intensity, on day 1 and day 2 morning.

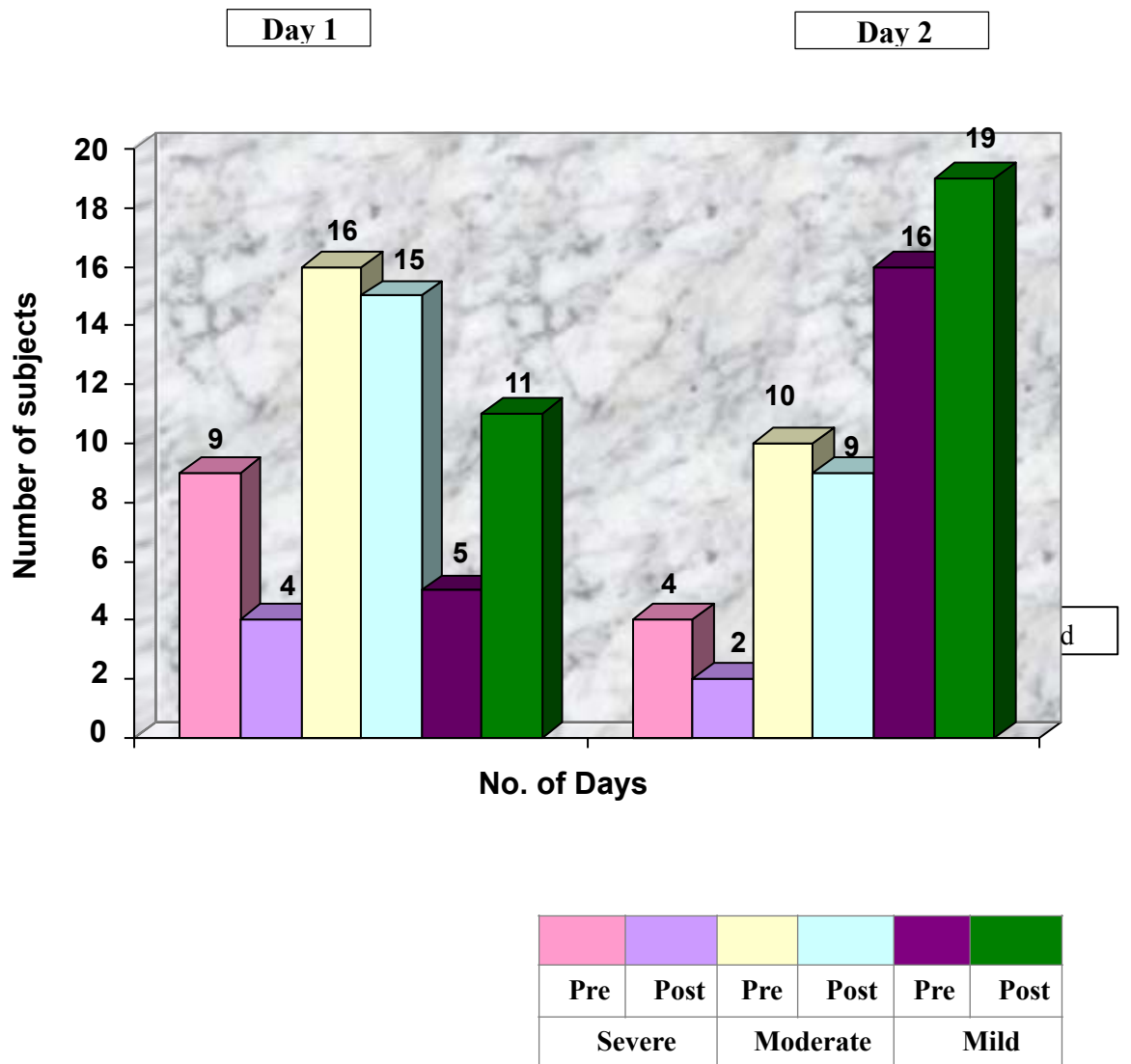


Fig: 8 Bar diagram showing the frequency and percentage distribution of subjects on the basis of pain intensity, on day 1 and day 2 evening.

Section 3- Significance of difference between pre therapy and post therapy scores

In order to determine the significant difference between pre therapy and post therapy pain scores of post operative abdominal surgery patients, independent 't' test was used.

To test the significant difference, null hypotheses were stated as follows:-

H₀	:	There will be no significant difference between the mean pre therapy and post therapy pain scores of post operative surgery patients.
----------------------	---	---

Table 3

Mean, Median, SD, SE and 't' value of pre and post therapy score in the morning on first post operative day.

N = 30

Day 1Morning	Mean	Median	SD	SE	t	p
Pre therapy	6.3	4	2.19	0.45	15.36	0.05
Post therapy	5.03	3	2.01			

df= 29 Tabled T₂₉=2.045, P< 0.05 * Significant

The data presented in the table 3 shows that there were mean difference (1.27) between the mean pre therapy (6.3 ± 2.19) and the mean post therapy (5.03 ± 2.01) pain intensity scores in the first day morning. Further the 't' value (15.36, p < 0.05) computed with mean difference in pre therapy and post therapy scores were statistically significant. Hence the music therapy was effective in reducing pain in the morning as shown in fig.9.

Table 4

Mean, Median, SD, SE and 't' value of pre and post-therapy score in the morning on second post-operative day.

N = 30

Day 2 Morning	Mean	Median	SD	SE	t	p
Pre therapy	4.5	3	1.92	0.32	20.34	0.05
Post therapy	3.31	1.5	1.97			

df= 29 Tabled T₂₉=2.045, P< 0.05 * Significant

The data presented in the table 5 shows that there were mean difference (1.19) between the mean pre-therapy (4.5 ± 1.92) and the mean post-therapy (3.31 ± 1.97) pain intensity scores in the second day morning. Further the 't' value (20.34, p < 0.05) computed with mean difference in pre-therapy and post-therapy scores were statistically significant. Thus the music therapy was effective in reducing pain in the second day morning as shown in the figure 9.

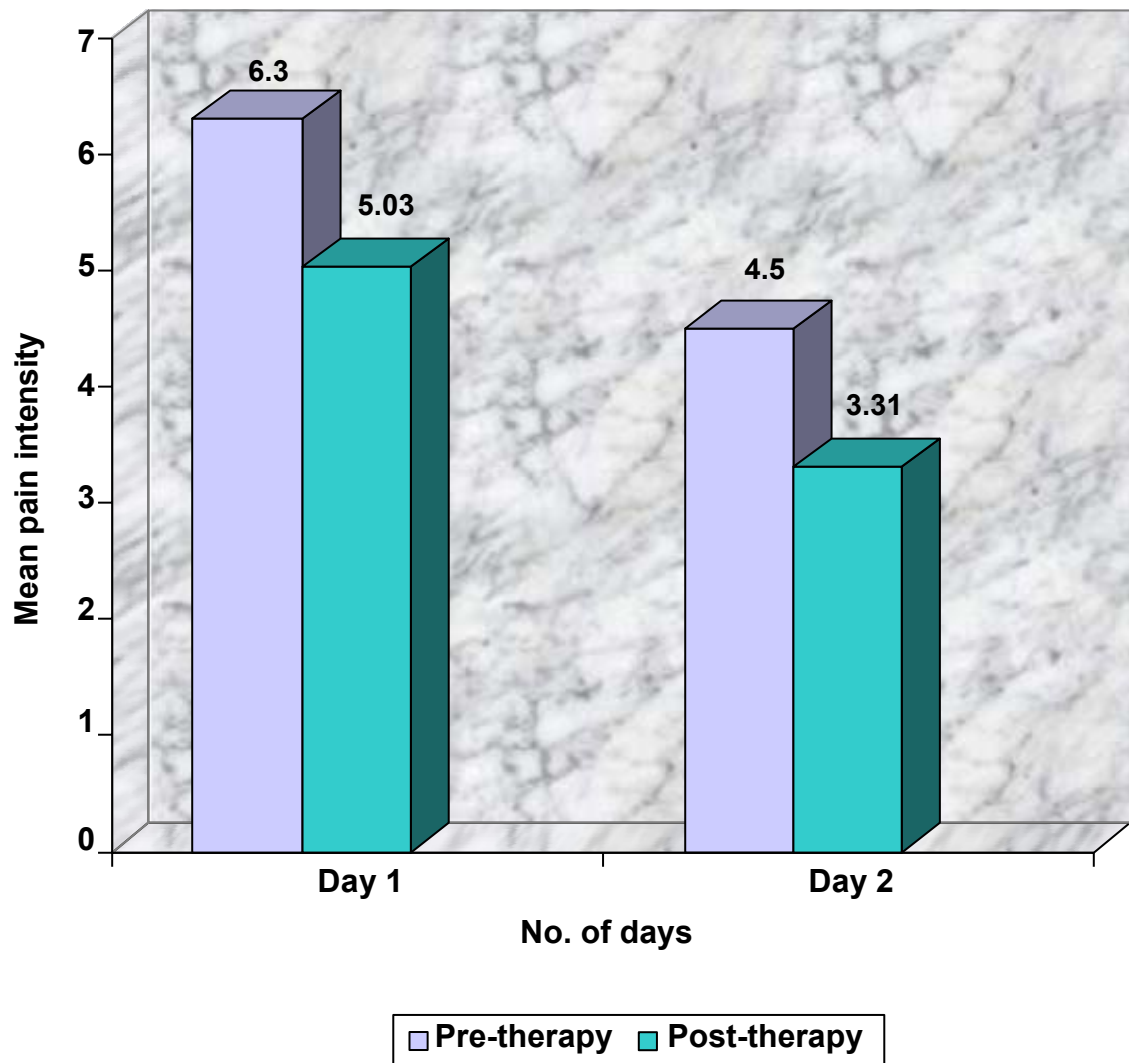


Fig: - 9. Bar diagram showing the Mean pain intensity of first and second post operative day morning

Table 5

Mean, Median, SD, SE and 't' value of pre and post-therapy score in the evening on first post operative day.

N= 30

Day1 Evening	Mean	Median	SD	SE	t	P
Pre therapy	5.4	3	2.30	0.59	11.68	0.05
Post therapy	4.15	2	1.81			

df= 29 Tabled T₂₉=2.045, P< 0.05 * Significant

The data presented in the table 4 shows that there were mean difference (1.25) between the mean pre-therapy (5.4 ± 2.30) and the mean post-therapy (4.15 ± 1.81) pain intensity scores in the first day evening. Further the 't' value (11.68, p < 0.05) computed with mean difference in pre-therapy and post-therapy scores were statistically significant. Thus the music therapy was effective in reducing pain in the evening as shown in the fig 10.

Table 6

Mean, Median, SD, SE and 't' value of pre and post therapy score in the evening on second post operative day.

N = 30

Day 2 Evening	Mean	Median	SD	SE	t	p
Pre therapy	4.21	3	2.05			
Post therapy	2.88	1	1.99	0.47	16.6	0.05

df= 29 Tabled T₂₉=2.045, P< 0.05 * Significant

The data presented in the table 6 shows that there were mean difference (1.33) between the mean pre-therapy (4.21 ± 2.05) and the mean post-therapy (2.88 ± 1.99) of pain intensity scores in the second day evening. Further the 't' value (16.6, p < 0.05) computed with mean difference in pre-therapy and post-therapy scores were statistically significant. Thus the music therapy was effective in reducing pain in the second day evening as shown in the figure 10.

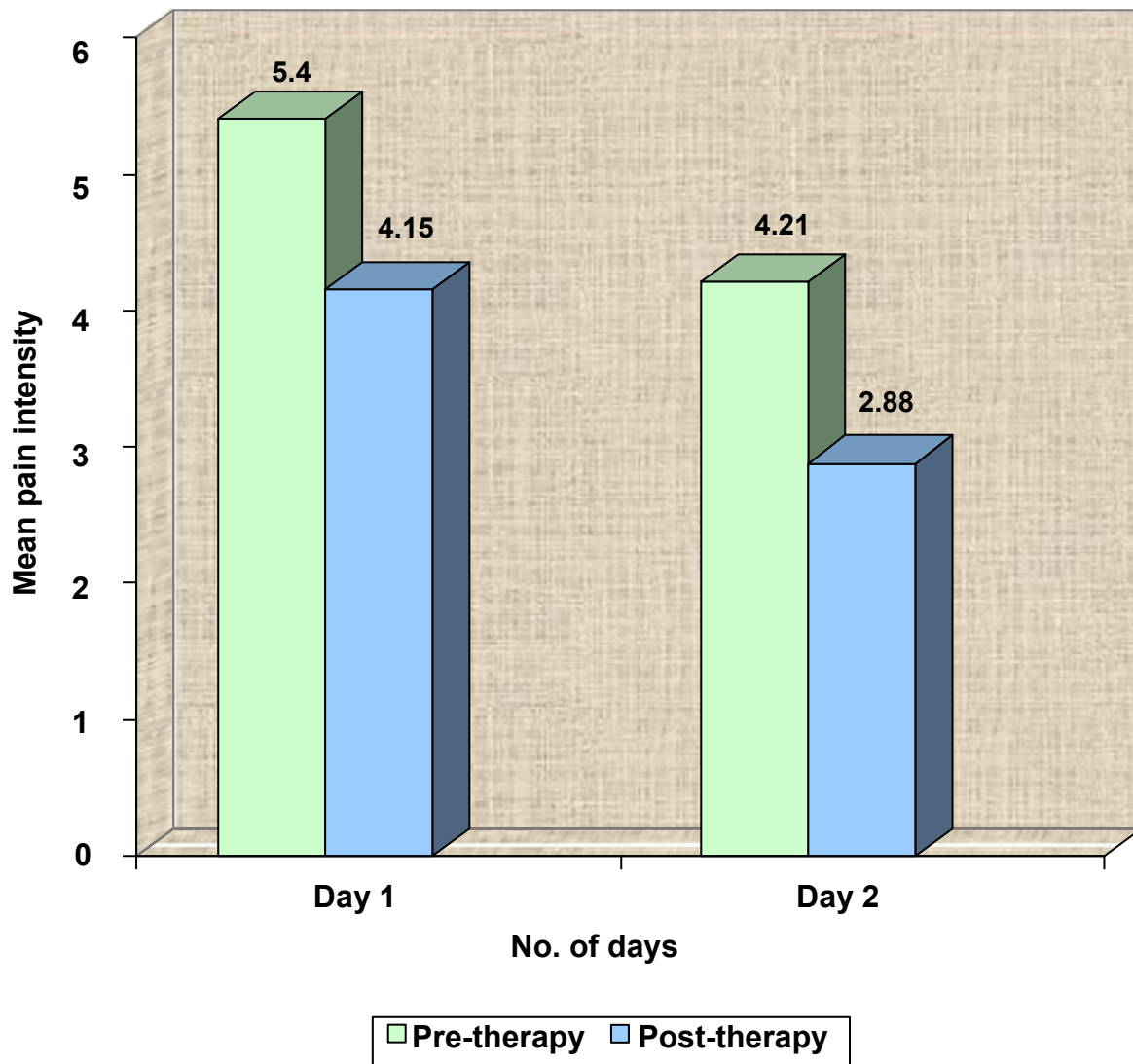


Fig: 10 Bar diagram showing the Mean Pain Intensity of first and second post operative day evening.

**Section 4 -Association between pre- therapy pain score and selected variables-
age, sex, area of residence, marital status, educational status, employment status,
religion, recreation and type of surgery.**

To test the association, a null hypothesis was stated and tested using chi-square.

HO₂	:	There is no significant association between the pre- therapy pain score and the selected variables: age, sex, area of residence, marital status, educational status, employment status, religion, recreation and type of surgery.
-----------------------	---	---

Table 7:- Chi- square values showing association between pre-therapy pain scores and the selected variables.

N=30

SI No	Variable	Pain scores		Chi ² cal	Chi ² tab	d. f	Significance
		>Median	<Median				
1.	Age a. 20-40 years b. 41-60 years c. 60 & above	12 3 2	6 5 2	1.27	5.99	2	NS
2.	Sex a. Male b. Female	9 8	5 8	0.17	3.84	1	NS
3.	Area of residence a. Urban b. Rural	2 15	4 9	0.68	3.84 1	1	NS
4.	Marital status a. Single b. Married	4 13	4 9	0.74	3.84 1	1	NS
5.	Educational status a. Illiterate & Primary b. Secondary	5 13	6 6	0.72	3.84	1	NS
6.	Employment Status a. Employed b. Not employed c. Retired	6 9 2	7 5 1	3.83	5.99 1	2	NS
7.	Religion a. Hindu b. Christian c. Muslim	12 3 2	13 0 0	2.4	5.99 1	2	NS
8.	Recreation a. Cinema/TV b. Music c. Games	3 12 2	3 8 2	0.24	5.99 1	2	NS

9.	Type of surgery						
	a. Laparotomy	7	9	0.25	3.84	1	NS
	b. Open surgery	6	8				

The data presented in the table 7 shows that there is no significant association between the pre-therapy pain score and the selected variables: age, sex, area of residence, marital status, educational status, employment status, religion, recreation and type of surgery at 0.05 level of significance. Hence the null hypotheses is accepted and research hypotheses is rejected. Therefore it was interpreted that there was no significant association between pre-therapy pain scores with selected variables.

Section – 5 Acceptability of the music therapy

Table –8 shows the responses of the post operative surgical patients with regard to the acceptability of the music therapy in terms of frequency and percentage.

Sl. No	Statements	To a great extent		To some extent		Very little		Not at all	
		F	%	F	%	F	%	F	%
1.	I'm interested in music	16	53.3	13	43.3	1	3.3		
2.	I feel the music played was useful in diversion of pain	19	63.3	10	33.3	1	3.3		
3.	I feel better when listening to the music	19	63.3	10	3.3	1	3.3		
4.	I experience happy & pleasant when listening to the music.	18	60	12	40				
5.	I feel that music therapy was effective during ----- hrs								
	a. Morning only	7	23.3	23	76.6				
	b. Both (Morning and Evening)	23	76.6	7	23.3				
6.	I feel that music has helped me to relax.	22	73.3	8	26.6				
7.	I believe that music should be used to all post operative patients in pain	23	76.6	7	23.3				
8.	I find music improves inner feelings and peace of mind	24	80	6	20				

The data presented in the table 7 shows that the statement number 8, “I find music improves inner feelings and peace of mind” were marked by 24 (80%) subjects, as acceptable ‘to a great extent’. Statement no 6, “I feel that music has helped me to relax” 22 (73.3%) agreed ‘to a great extent’ and 8 (26.6%) agreed ‘to some extent’. Statement No: 7 “I believe that music should be used to all post- operative patients in pain”, 23 (76.6%) agreed ‘to a great extent’. Statement no 2, “Music helps in diversion of pain” 19 (63.3%) agreed to a great extent, as shown in the figure 11.

The responses of the subjects in the opinionnaire indicates that, all the subjects were greatly satisfied with the music therapy. In their opinion, the music therapy helps in reducing the pain intensity, improves inner feeling, peace of mind, relaxation and sense of well being.

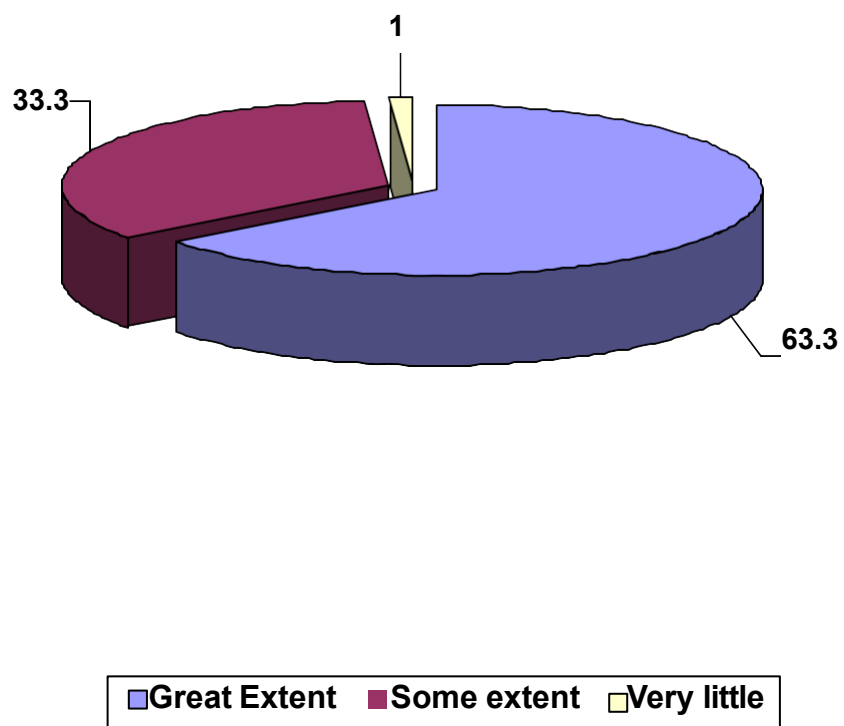


Fig 11:- Pie diagram showing the subjects response to the statement “Music helps in diversion of pain”.

Summary

This chapter dealt with the analysis and interpretation of data using descriptive and inferential statistics. The findings of the study reveal that there is significant difference between the pre therapy and post therapy pain scores on post- operative surgical patients.

CHAPTER V

DISCUSSION, SUMMARY, CONCLUSION, NURSING IMPLICATIONS, LIMITATIONS AND RECOMMENDATIONS

This chapter deals with the findings of the study as per the objective and hypotheses

Demographic Data:

The findings of the study demonstrated that, among the subjects, majority were in the age group 20- 40 years, majority were females, majority were the Hindus, subjects from rural background, majority were married, majority with secondary education, employed, interested in music and had undergone laparotomy.

Significance of difference between pre-therapy and post-therapy pain scores:-

The findings of the study revealed that majority of the subjects (43.3%) had severe pain on the first day before music therapy and it was reduced to (23.3%) after music therapy. This show the percentage of reduction in pain intensity as response to music therapy.

Association between pre-therapy pain intensity scores and the selected demographic variables:

The study findings showed that there was no significant association between the pre-therapy pain intensity, scores and the selected variables.

SUMMARY

This study aimed to evaluate the effectiveness of music therapy as a diversion on post operative pain. Music therapy being the current concept, has been effectively used in various disorders as a healing agent for the mind and body.

CONCLUSION

The following conclusions were drawn on the basis of the findings of the study.

1. There was a significant reduction in pre-therapy pain intensity (43.3%) and the post-therapy pain intensity (23.3%) on the first post operative day morning of the music therapy and the subsequent day.
2. There was a significant reduction in mean post-therapy pain scores in the morning (5.03 - 3.31) on the first and second post-operative day. ($t_{29}=2.045, p<0.05$)
3. There was a significant reduction in the mean post-therapy pain scores in the evening (4.15 - 2.88) on the first and second post-operative day. ($t_{29}=2.045, p<0.05$)
4. Majority of the subjects (63.3%) revealed that music therapy helped in diversion of pain.
5. There was no significant relationship between the pre therapy pain scores and the age, sex, area of residence, marital status, educational status, employment status, religion, recreation and type of surgery.

NURSING IMPLICATIONS

Nurses who are working in post operative areas are encouraged to take up the challenge in making post operative pain management a treatment priority. It is important to develop effective strategies to in-cooperate in the care of the clients after surgery. Music therapy is one of the internationally recognized interventions, used in the care setting, and helps in the treatment of modern ailments both physical and mental. It reduces the psycho physiological stress, pain, anxiety, isolation to modulation of mood and behavior modification.

Nursing practice:-

Music can be used in diversion and recreation. It is important to draw a distinction between the use of music as diversion in pain and as therapy, and music in

diversion and recreation. Nurses can integrate the current research findings and use music therapy as an effective nursing intervention in the care settings.

To bring about holistic health, music therapy can be practiced for better mental health, to reduce anxiety and stress. With the collaboration of the other members of the health care team, nurses working in post-surgical units can contribute the knowledge and skills of other team-mates in supporting the patients to improve their sense of well-being.

Nursing Education: -

Nursing students should be made aware to evaluate the physical and psychological causes of the pain and about the various nursing interventions. The student nurses while planning care to the patients should focus on pain reduction by diversion therapy. They should be aware of the fact, that severe pain has depressing effect on a person's quality of life and emphasize the use of music to limit anxiety, lessen fear and to reduce pain. The music selected for the study also is used to nursing students, so that they will experience relaxation and reduction in anxiety. This would motivate them in turn to help patients while working with them.

Nursing Administration:-

Nursing administrator can make use of the facilities or educate with the existing hospital setting together with the nurses to utilize the central music system every morning and evening with the selected music items to provide soothing effect and to divert the patients mind from pain and anxiety

Nursing research:-

This study was an attempt, to study the problem and the use of music therapy as diversion from pain sensation, leading to reduction in actual pain sensation. Similarly other than pain several other problems such as anxiety, stress, depression for

which nursing intervention such as relaxation, teaching, counseling etc can be effectively researched. Thus in the management of post operative pain complementary health practices can be researched.

Limitations

1. The study was conducted for the representative sample of the whole population in a particular setting; hence generalization is limited to the population of post operative surgery patients of B. R Ambethkar hospital in Noida only.
2. The music therapy was effective only for a short time. It had no permanent effect on pain relief.
3. The study is time consuming, and needs a continuous follow-up till discharge. This was not possible due to lack of time.
4. Lack of control group, leads to the threat to internal validity.
5. Assessment of other parameters of pain is not done, so the results should be used with caution.

Suggestions

1. Nurses should implement music therapy in their respective unit to those patients in pain as an alternative pain management measures.
2. Every hospital can implement music on all pre operative and post operative units.

Recommendations

Based on the study findings, the following recommendations were made for the future study.

1. A similar study may be replicated on a larger sample.
2. A similar study could be done having control group.
3. A similar study could be done on other post operative conditions, cancer patients etc.

BIBLIOGRAPHY

1. Good M. A comparison of the effects of jaw relaxation and music on postoperative pain. *Nursing research* 1995; 44: 52-7.
2. Bunt. Review on the effects on patient well being of music listening as a nursing intervention. *Journal of clinical nursing* 2000; 99: 668-77.
3. Alvin J. Music therapy. Baker. London.
4. Nightingale F. The influence of music on health and life. *Journal of clinical nursing* 2000; 9: 668-77.
5. Good M, Stanton, Hicks, Grass JM, Anderson GC. Relief of postoperative pain with jaw relaxation, music and their combination pain 1999; 81: 163-72.
6. Mullooly VM, Levin RF, Feldman HR. Music for postoperative pain and anxiety. *Journal of the New York state nurse association* 1998; 19(3): 4-7.
7. Kneafsey R. The therapeutic effect of music in a case of elderly setting: a literature review. *Journal of clinical nursing* 1997; 6(5): 341-46.
8. Crosby C, Covington H. Music therapy as a nursing intervention. *Journal of psychosocial nursing* 1997; 5(3): 34-7.
9. Mc Caffery M. Nursing approaches to non pharmacological pain control,distracton,relaxation and cutaneous stimulation. *Journal of nursing studies* 1990; 27(1): 1-5.
10. Campbell. Music listening as a nursing intervention. *Journal of clinical nursing* 2000; 9: 668-77.
11. Tripathy K. Noise, sound and music. *Herald of health* 1997; 88(12): 16-8.
12. Bral EE. Caring for adults with cancer pain. *American journal of nursing* 1998; 98(4): 27-33.

13. Shankar R. Music for pain. *The New Indian Express (science express)* 1999 June 29(1); sec.a: 4(col 5).
14. Melzack R and Wall PD. Pain mechanism,a new theory science.1965; 150(3699): 971-77.
15. Luckmann J and Sorensen KC. *Medical surgical nursing*. 4th ed. Philadelphia: WB Saunders Company; 1994.
16. Melzack R and Casey KL. Sensory, motivational and central control determinants of pain. a new conceptual model. *Thomas Springfield III*.423-43.
17. Mc Caffery. *Nursing management of patient with pain*. 2nded. Philadelphia, Toronto: Lippincott Company; 1979: 109-110.
18. Melissa A. Schneider, The Effect of Listening to Music on Postoperative Pain in Adult Orthopedic Patients, [online 2016], available from URL:<https://journals.sagepub.com/doi/full/10.1177/0898010116677383>.
19. Nadiye Ozer, Zeynep karaman özlü, Effect of Music on Postoperative Pain and Physiologic Parameters of Patients after Open Heart Surgery, [online 2013], available from URL:https://www.researchgate.net/publication/235773662_Effect_of_Music_on_Postoperative_Pain_and_Physiologic_Parameters_of_Patients_after_Open_Heart_Surgery.
20. Kelly Allred, Mary Lou Sole, et.al,The Effect of Music on Postoperative Pain and Anxiety, [online 2010], available from URL:https://www.researchgate.net/publication/41807959_The_Effect_of_Music_on_Postoperative_Pain_and_Anxiety.
21. Electra Economidou , Amalia Klimi, et.al, Does music reduce postoperative pain? [online 2012], available from URL:<https://www.hsj.gr/medicine/does->

music-reduce-postoperative-pain-a-review.pdf.

22. Faisal Mahama and Jerry P. K. Ninnoni, Assessment and Management of Postoperative Pain among Nurses at a Resource-Constraint Teaching Hospital in Ghana, [online 2019], available from URL:<https://www.hindawi.com/journals/nrp/2019/9091467/>.
23. Bergeron DA, Leduc G, et.al, Descriptive study of the postoperative pain assessment and documentation process in a university hospital, [online 2011], available from URL:<https://www.ncbi.nlm.nih.gov/pubmed/21499582>.
24. Regina L. M. van Boekel ,Kris C. P. Vissers, et.al, Moving beyond pain scores: Multidimensional pain assessment is essential for adequate pain management after surgery, [online 2017], available from URL:<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0177345>.
25. P. S. Myles, D. B. Myles, et.al, Measuring acute postoperative pain using the visual analog scale: the minimal clinically important difference and patient acceptable symptom state [online 2016], available from URL:[https://bjanaesthesia.org/article/S0007-0912\(17\)30212-X/pdf](https://bjanaesthesia.org/article/S0007-0912(17)30212-X/pdf).
26. David Casarett, MD, MA Jason Karlawish, MD, et.al, Designing Pain Research From the Patient's Perspective: What Trial End Points Are Important to Patients With Chronic Pain?, [online 2011].available from URL:<https://watermark.silverchair.com>.
27. Greti McHugh and Gavin Thoms, Living with chronic pain: The patient's perspective, [online 2011], available from URL:https://www.researchgate.net/publication/11182634_Living_with_chronic_pain_The_patient's_perspective.
28. Eleni G. Hapidou & Emily Horst, Learning to Manage Chronic Pain: The Patients' Perspective, [online 2016], available from URL: <https://>

link.springer.com/article/10.1007/s40122-016-0047-0.

29. Claudia Zanini, Piercarlo Sarzi-Puttini, et.al, Doctors' Insights into the Patient Perspective: A Qualitative Study in the Field of Chronic Pain, [online 2014], available from URL: <https://www.hindawi.com/journals/bmri/2014/514230/>
30. Kothari CR. Research methodology, methods and techniques. 2nd ed. New Delhi: Wishwa prakashan; 2002.
31. Polit DF, Hungler BP. Nursing research, principles and methods. Philadelphia: JB Lippincott Company; 2001
32. Burns N, Groove SK. Nursing research. 2nd ed. New Delhi: Harcourt India private Ltd; 2002.
33. Nieswiadomy RM. Nursing research. 4th ed. New Jersey: Prentice Hall; 2002.
34. Flosy R. An evaluative study to determine the effectiveness of music as a diversional therapy on patients with cancer pain. Unpublished Masters of Nursing Thesis. MAHE, Manipal, India

APPENDIX 1

LETTER SEEKING PERMISSION FOR CONDUCTING RESEARCH STUDY

02/ 01/ 2020

To,

The Chief Medical Officer,

B. R Ambethkar hospital

Noida, U.P.

SUBJECT: LETTER SEEKING PERMISSION FOR RESEARCH STUDY

Dear Sir/Madam

This is to introduce **Group I**, a final year B.Sc (nursing) student in this college. They need to conduct a research project, which is to be submitted to the **Galgotias University, Greater Noida** for the partial fulfilment of university requirement for the award of B.Sc. (N) degree.

Topic: “A study to assess the impact of music on post operative pain in surgical ward in operated patients”

The student is in need of your esteem support and co-operation as they are interested in conducting research study in your institution.

This is to request you to kindly extend necessary facilities to work on the proposed research study during 6th to 18th January, 2020.

Students will furnish further information if required regarding the research.

Thanking you,

Prof. (Dr.) Ashia Qureshi

Dean, School of Nursing

Galgotias University

APPENDIX 2

A CRITERIA RATING SCALE FOR EXPERT OPINION REGARDING CONTENT VALIDITY OF RESEARCH TOOLS

Criteria checklist for validating the proforma for background data

INSTRUCTIONS: Kindly go through the questions and place a tick (✓) against each item in the column provided with regard to its relevancy, accuracy and appropriateness. Kindly give your comments in the remark column.

Q. No.	Strongly Agree	Agree	Disagree	Remarks
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

Criteria Checklist for validating the structured opinionnaire

INSTRUCTIONS: Kindly go through the questions and place a tick (✓) against each item in the column provided with regard to its relevancy, accuracy and appropriateness. Kindly give your comments in the remark column.

Q. No.	Strongly Agree	Agree	Disagree	Remarks
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

Criteria checklist for validation of the music items

List of music items for validation

Cassette 1

	Cassette Name	Item	Time
Side A. 1	Morning Raga Volume I	Isochronic Tones	14.50
2	Morning Raga Volume II	Isochronic Tones	14.45

Criteria for selection of the music items

Please give your suggestions after listening to the cassette in terms of your

1. Response (Please tick mark)
2. Feeling (Please give rating of 0,1,2,3,4,5)
3. Recommendations (Please tick mark)

1. Response

Side	I like	Neutral	I don't like
A			
B			

2. Feelings

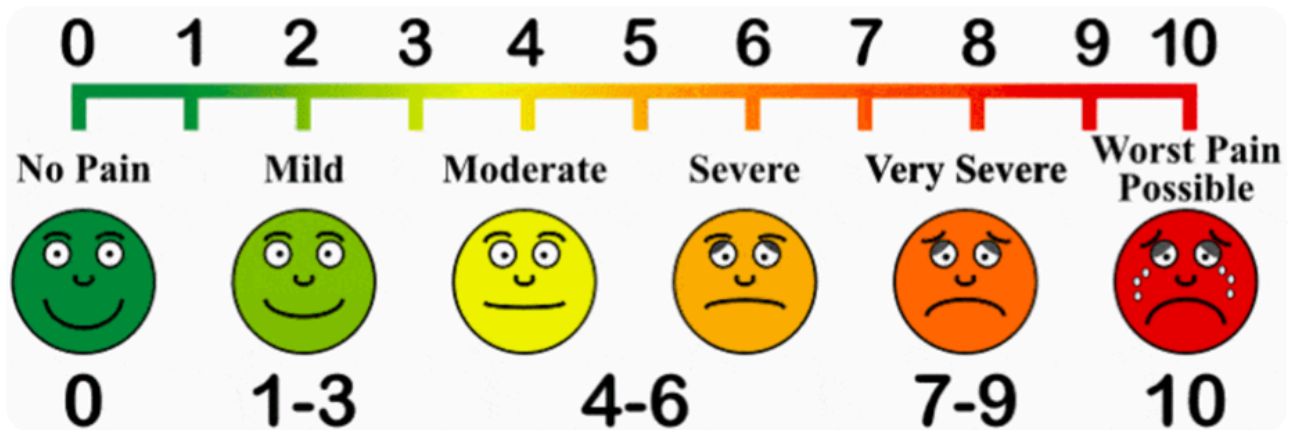
Side	Relaxation	Peacefulness	Gives emotional energy	Sadness	Any other
A					
B					

3. Recommendations

Can be administered to the patients as diversional therapy to reduce post operative pain

Side	Very Useful	Useful	Not Useful	Any Other
A				
B				

Visual analog scale



Suggestions:

Signature of the Validator

APPENDIX 3
INFORMED CONSENT

I am giving my consent to participate in the research study, **“A STUDY TO ASSESS THE IMPACT OF MUSIC ON POST OPERATIVE PAIN IN SURGICAL WARD IN OPERATED PATIENTS”**

I have been informed that my participation is entirely voluntary and that even after the study begins; I can refuse to answer (or) participate at any point of the time during the study. I have been fully informed about the nature of the study, the researcher responsibilities and likely benefits from this study.

Date:

Signature of the participant

APPENDIX 4

4a. Demographic data (Back ground details of the patient)

Instructions:

Please a tick mark (√) in the appropriated space provided against each item.

Select one alternative which suits you

1.	Age	:	a.	20-40 yrs
			b.	41-60 yrs
			c.	61 and above
2.	Sex	:	a.	Male
			b.	Female
3.	Area of Residence	:	a.	Urban
			b.	Rural
4.	Marital Status	:	a.	Married
			b.	Single
			c.	Divorced
5.	Educational Status	:	a.	Illiterate
			b.	Primary
			c.	Secondary
			d.	College - Degree /PG
6.	Employment Status	:	a.	Employed
			b.	Not employed
			c.	Retired
7.	Religion	:	a.	Hindu
			b.	Christian
			c.	Muslim

			d.	Other-specify
8.	Recreation	:	a.	Cinema
			b.	Music
			c.	Games
			d.	Others

Clinical details of the patient

1. Name of the surgery
2. Date and time of the surgery
3. Duration of the surgery
4. Agents used for Anaesthesia

4b. Structured Opinionnaire

Structured opinionnaire to determine the effect of music therapy on post-operative pain after abdominal surgery

Instructions: A few statements are given below. There is no right or wrong answer. Please read each statement carefully and feel free to express your frank opinion. Place a tick mark (√) in the appropriate column, against the response, about the music in your mind.

Sl. No	Statements	4 To a great extent	3 To some extent	2 Very little	1 Not at all
1.	I'm interested in music				
2.	I feel the music played was useful in diversion of pain				
3.	I feel better when listening to the music				

4.	I experience happy & pleasant when listening to the music.				
5.	I feel that music therapy was effective duringhrs a. Morning b. Evening c. Both				
6.	I feel that music has helped me to relax.				
7.	I believe that music should be used to all post operative patients in pain				
8.	I find music improves inner feelings and peace of mind				

If you have any suggestion, please feel free to state below:

11b. MASTER DATA SHEET FOR EXPERIMENTAL GROUP

S. NO.	AGE	SEX	AOR	MS	ES	Emp	RGN	Recr	TOS	PRE-THERAPY					POST-THERAPY				
										P1	P2	P3	P4	TPS	P1	P2	P3	P4	TPS
1	1a	2b	3b	4a	5b	6a	7a	8a	9b	10	10	7	7	34	7	4	5	5	21
2	1c	2b	3b	4a	5a	6b	7a	8d	9b	10	10	7	6	33	9	9	6	5	29
3	1a	2b	3a	4b	5d	6a	7a	8b	9b	7	7	5	4	23	6	6	4	2	18
4	1a	2a	3b	4b	5b	6a	7a	8b	9a	5	5	3	3	16	3.5	4	2	2.5	12
5	1a	2a	3a	4b	5d	6a	7a	8b	9a	10	8	5	10	33	8	7	4	8	27
6	1c	2a	3b	4a	5b	6c	7a	8a	9a	5	5	4	4	18	3.5	4	3.5	3	14
7	1a	2a	3b	4a	5c	6a	7a	8b	9b	4	3	3	3	13	3	1.5	2	1.5	8
8	1a	2b	3b	4b	5b	6b	7a	8b	9b	7	4	3	2	16	5.5	2	1.5	0.5	9.5
9	1c	2a	3a	4a	5c	6c	7a	8b	9a	10	9	7	6	32	8.5	8	6	5	27.5
10	1c	2b	3b	4a	5b	6b	7a	8a	9a	9	9	7	7	32	7	7	6	5.5	25.5
11	1c	2b	3b	4a	5a	6b	7a	8a	9a	7	6	6	5	24	5.5	5	5	5	15.5
12	1c	2a	3b	4a	5b	6c	7c	8b	9a	5	3	3	4	15	3.5	2	2	3.5	11
13	1a	2b	3b	4a	5c	6b	7b	8a	9b	6	5	5	3	19	5	3.5	3.5	3	15
14	1a	2b	3b	4a	5c	6b	7a	8b	9b	5	4	3	3	15	4.5	3.5	2	2	12
15	1b	2b	3b	4a	5b	6b	7a	8a	9a	6	6	5	3	20	5	4.5	4	1.5	15
16	1b	2b	3b	4a	5c	6b	7a	8b	9b	5	4	4	3	16	4	3	3	1.5	11.5
17	1b	2b	3b	4a	5c	6b	7a	8b	9a	7	6	5	6	24	5	5	4	4	18
18	1a	2b	3b	4b	5c	6b	7a	8b	9a	4	3	3	2	12	3	1.5	1.5	1	7
19	1b	2a	3a	4b	5c	6a	7a	8b	9a	6	5	3	3	17	5	4.5	1.5	1.5	12.5
20	1b	2b	3b	4a	5c	6b	7c	8d	9b	4	4	3	3	14	3	3	1.5	1.5	9
21	1b	2a	3b	4a	5c	6a	7a	8b	9a	7	6	6	6	25	6.5	5.5	5	4.5	21.5
22	1b	2a	3b	4a	5c	6a	7a	8b	9a	4	4	3	3	14	3.5	3	1.5	1.5	9.5
23	1a	2a	3a	4b	5c	6a	7b	8a	9a	4	3	3	3	13	3	1.5	1.5	1.5	7.5
24	1a	2a	3b	4a	5c	6b	7a	8b	9b	3	2	1	1	7	2	0.5	0.5	0	3
25	1a	2b	3b	4a	5b	6a	7a	8d	9b	9	7	10	8	34	7	6	8.5	7	28.5
26	1a	2b	3b	4a	5c	6a	7a	8b	9b	5	3	3	2	13	4	3	1.5	1	9.5
27	1a	2b	3b	4a	5c	6b	7a	8d	9b	4	4	4	3	15	3	3	2	1	9
28	1b	2a	3b	4a	5b	6b	7a	8b	9a	10	7	7	6	30	9	5.5	6	4	24.5

99

29	1a	2a	3b	4a	5c	6a	7a	8b	9a	4	4	2	2.5	12. 5	3.5	3.5	0.5	0.5	8
30	1a	2a	3a	4b	5c	6a	7a	8b	9b	7	5	5	5	22	5	5	4.6	3	17. 5

**STATISTICAL FORMULAE USED FOR ANALYSIS AND
INTERPRETATION**

1. Formula 1 Karl Pearson's Co-efficient of Correlation to find out the reliability of the test retest method

$$r = \frac{N (\Sigma x y) - (\Sigma x) (\Sigma y)}{\sqrt{N (\Sigma x^2) - (\Sigma x)^2} \sqrt{N (\Sigma y^2) - (\Sigma y)^2}}$$

Where r = estimated reliability

2. Formula 2 Spearman's Brown Prophecy Formula

$$= \frac{2r}{1+r}$$

3. Formula 3 Paired 't' test

$$SD (d) = \frac{\sqrt{\Sigma (d-\bar{d})^2}}{n-1}$$

$$SE (d) = \frac{SD (d)}{n}$$

4. Formula 4..... Chi-square test

$$\chi^2 = \frac{N (ab-bc)^2}{(a+b) (c+d) (a+c) (b+d)}$$

Chi square test with Yates correction

$$\frac{N (|ad-bc| - N/2)^2}{(a+b) (c+d) (a+c) (b+d)}$$