

DISSERTATION ON

**“A STUDY TO ASSESS THE EFFECTIVENESS OF
MUSIC THERAPY ON REDUCTION OF PAIN AMONG
CHILDREN WHO UNDERWENT ABDOMINAL
SURGERY IN POSTOPERATIVE WARDS AT
INSTITUTE OF CHILD HEALTH AND HOSPITAL
FOR CHILDREN, EGMORE, CHENNAI -08.”**

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CERTIFICATE

This is to certify that this dissertation titled “**A Study to Assess The Effectiveness of Music Therapy on Reduction of Pain among Children Who Underwent Abdominal Surgery in Postoperative Wards at Institute of Child Health and Hospital for Children, Egmore, Chennai- 08**” is a bonafide work done by **MRS.V.PARIMALAM**, College of Nursing, Madras Medical College, Chennai – 600003 submitted to **THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY, CHENNAI** in Partial fulfilment of the requirements for the award of Degree of **Master of Science in Nursing, Branch - II, CHILD HEALTH NURSING**, under our guidance and supervision during the academic period from 2012 – 2014.

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"Music is an agreeable harmony for the honour of God and the permissible delights of the soul"

- Johann Sebastian Bach

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LIST OF ABBREVIATIONS

S. No	Abbreviations	expansion
1.	HR	Heart rate
2.	RR	Respiratory rate
3.	SBP	Systolic blood pressure
4.	DBP	Diastolic blood pressure
6	SD	Standard deviation
7	CI	Confidence Interval
8	Fig	Figure
9	H1 & H2	Research Hypothesis
10	M. Sc (N)	Master of science in Nursing
11	χ^2	Chi-square test

ABSTRACT

TITLE: A study to assess the effectiveness of music therapy on reduction of pain among children who underwent abdominal surgery in postoperative wards at Institute of child health and Hospital for Children, Egmore, Chennai-08.**METHODS:** Pre experimental research design was utilized and data collected by purposive sampling technique. The tool used for the study consists of demographic data, Wong baker's faces pain scale and physiological parameters. The population of this study were 60 children of both sexes in the age group of 6 to 12 years. Conceptual framework used for the study was Roy's adaptation theory. **RESULTS:** The findings of the study revealed that on an average, in Pre-assessment, children were 7.60 score and in Post-assessment, children were 2.60 score. Difference is 5.00 score. The difference between Pre-assessment and Post-assessment pain score was large and it was statistically significant. The pain reduction was evidenced by the reduction on the physiological parameters like Heart rate, Respiratory rate, Systolic Blood pressure, and Diastolic Blood Pressure. Morning Pre-assessment Mean Heart Rate score was 98.60 and the evening Post-assessment score was 91.60 and the morning Pre-assessment mean Respiratory score was 27.30 and evening Post-assessment score was 23.00, morning Pre-assessment mean SBP score was 104.92 and the evening Post-assessment SBP score was 97.50 and morning Pre-assessment mean DBP score was 65.88 and evening Post-assessment DBP score was 60.73. The association between level of pain reduction score and children demographic variables. Younger children, more educated mothers, more income family and joint family children were more reduced pain than others.

CONCLUSION: Music therapy is very effective in reduction of postoperative pain in children.

CHAPTER –I

INTRODUCTION

“Music acts like a magic key, to which the most tightly closed heart opens”

- Maria Von Trapp

Recent accepted definition of pain from the **International Association of Pain Study** states;

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of tissue damage.

Pain is always subjective. Each individual learns the application of the word through experience related to injury; hence the experience of pain varies from person to person based on past experience and or present state of mind (*Koestler and Myers, 2002*). In fact, pain in the immediate postoperative period is one of the major concerns of health professionals looking after a child who had a surgery.

The body naturally responds to pain with symptoms of high stress; increased heart rate and blood pressure, quick, shallow breathing, sweaty palms and knotted muscles. The sympathetic nervous system is aroused and stress hormones are released resulting in feelings of anxiety. These physiological responses can result in an increased perception of pain (*Mites, 1997*).

Children undergoing an operation often experience a loss of control as well as fear of the unknown, fear of pain, uncertainty and anxiety, emotions that may intensify the perception of pain. Furthermore physical and psychological stress contributes to perceived surgical pain, prolonging postoperative recovery time and enhancing immunosuppression. Quite often post operatively, patients do not always receive sufficient pain relief from opioids and may have undesired side effects. The most

effective approach to managing children's pain in the immediate postoperative period may include a combination of pharmacological agents and non-invasive, non-pharmacological interventions.

PHYSIOLOGICAL BASIS OF PAIN

Pain – producing (nociceptive) sensory stimuli in the skin and viscera activate peripheral nerve endings of primary afferent nerves, which synapse with second order neurons in the cord or medulla. The second order neurons form crosses ascending pathways that reach the thalamus and are projected to the somatosensory cortex. Parallel ascending neurons connect with brainstem nuclei and ventrocaudal and medial thalamic nuclei. These parallel pathways project to the limbic system and underlie the emotional aspect of the pain. Transmission is regulated at the dorsal horn level by descending bulbospinal pathways that contain serotonin, nor epinephrine and several neuropeptide.

A major working theory of pain is the *Gate Control Theory (GCT)* (Skevington, 1995). This theory proposes that the balance of the input between large and small fibres is important in pain sensation. The theory postulates that a predominance of small fibre activity constitutes an 'opening of the gate' allowing the brain to receive and interpret the impulses as pain. Through a preponderance of large fibre activity the gate is 'closed' and pain is not perceived. *It is the first theory to acknowledge and integrate known psychological mechanisms that affect individual perception and interpretations of pain. Music can have a direct effect upon such psychological mechanisms, potentially affecting the transmission of pain postulated by the Gate Control Theory.*

MUSIC THERAPY AND PAIN MANAGEMET

Music is a combination of rhythmical, harmonic and melodic sounds. Many people throughout the history have believed in its medicinal effects. The idea of music with therapeutic effects on human health and behaviour is as ancient as the writings of Aristotle, Plato and Socrates. But it was not until the 20th century that music began to be used more systematically, in the context of music therapy. By that time music was already used in hospitals mainly to boost morale, as a general aid to convalescence and as an entertaining diversion. Music therapy is a recognized science of systematically applying music to support and encourage physical, mental, social and emotional well-being. Music is already used in general hospitals to alleviate patients' mood and counteract depression, promote movement for physical rehabilitation, calm or sedate, often to induce sleep, and lessen muscle tension for the purpose of relaxation, including the autonomic nervous system.

Music has been recommended as adjuvant to medication in pain. It is a non-pharmacological intervention for the pain management similar to relaxation, guided imagery etc. It acts by decreasing anxiety, lowering muscle tension and distracting attention. Listening to music is theorized to release endorphins and reduce catecholamine levels, thereby resulting in a lower BP and a decreased need for analgesics. In addition, the heart rate, respiratory rate are improved.

Music has the potential to obviate or decrease the need of pharmacotherapy. According to the gate control theory of pain, pain receptors act together to send pain signals to the brain. Therefore distracters such as music can block certain pain pathways and diminish the amount of perceived pain.

1.1. NEED FOR STUDY

"Where words fail, music speaks"

-Hans Christian Anderson

'MUSIC' is the elaboration form of 'MYSTIC UNIVERSAL SPIRITUAL INVISIBLE CUROR'.

ENDLESS APPLCATIONS OF MYSTIC MUSIC

Constantly Crying babies and Children are lulled to sleep with music. Muscles actively participating in music are invisibly exercised ones become more powerful. Through music self expressing. It reduces the dose of pain killers needed while treating cancer pain, post operative pain and trauma wards. Music has successfully helped manage pain in dental clinics. Caesarean operations are reduced in clinics which use music in child birth. Music therapy has helped physically challenged children develop social skills.

Abdominal surgery in school age children is the most challenging thing needed for abdominal problems. Abdominal surgery in children. updated 2009 from [http://en .wikipedia.org /wiki/ abdsurg](http://en.wikipedia.org/wiki/abdsurg). ***The major abdominal problems in children are Appendicitis, Inguinal Hernia and Intestinal obstruction.*** Incidence Rate of Acute Appendicitis is approximately 1 in 400 or 0.25% or 680,000 children in the world. ***Incidence of Acute Appendicitis in India is 2,662,676 in 6-12 years of children.*** Incidence Rate for Inguinal Hernia is approximately 1 in 544 or 0.18% or 500,000 children in world. The ***Incidence of Inguinal Hernia in India is 1,957,850 in 6-12 years of children.*** Incidence rate of Intestinal obstruction is approximately 1 in 611 children in the world. ***Incidence rate of intestinal obstruction in India is 1,347,456 in 6-12 years of children*** The investigator has observed many school age children who had undergone abdominal surgery. Thus it increases the

risk for pain management among the children so that there is a complication raised following abdominal surgery. To prevent such complications investigator was interested to choose the non-invasive and non-pharmacological measures especially music therapy for pain management of the children who had undergone abdominal surgery.

MUSIC THERAPY ON VARIOUS DISEASES

Centuries long dedicated research on music of numerous music saints concluded for the immense curing benefits to the entire mankind. Here are the names of Indian Music Ragas and their diseases curing abilities. *Raga Ananda Bhairawi*: reduces nose related problems, *Kambroji and Saaver*: stomach related diseases, *Thodi*: Heart problems, *Dhanyasi*: Head related diseases, *Nayaki*: brain related diseases, *Punnagavarali*: skin related diseases, *Poorvikalyani*: eye related diseases. The research on music is never ending and it is going on and goes for ever.

MUSIC AS AN EFFECTIVE THERAPY FOR PAIN

Overall, music does have positive effects on pain management. Music can help to reduce both the sensation and distress of both chronic pain and postoperative pain. Listening to music can reduce chronic pain from a range of painful conditions, including osteoarthritis, disc problems and rheumatoid arthritis, by upto 21% and depression by up to 25%, according to a paper in the latest *UK-based Journal of Advanced Nursing Music therapy* is increasingly used in hospitals to reduce the need for medication during childbirth, to decrease postoperative pain and complement the use of anaesthesia during surgery.

There are several theories about how music positively affects perceived pain:

- ❖ Music serves as a distractor
- ❖ Music may give the patient a sense of control
- ❖ Music causes the body to release endorphins to counteract pain
- ❖ Slow music relaxes person by slowing their breathing and heartbeat.

REDUCING BLOOD PRESSURE

By playing recordings of pleasant music every morning and evening, people with high blood pressure can train themselves to lower their blood pressure - and keep it low. According to research reported at the *American Society of Hypertension meeting in New Orleans*, listening to just 30 minutes of classical, Celtic or raga music every day may significantly reduce high blood pressure.

MEDICINE FOR THE HEART

Music is good for the heart. Research shows it is musical tempo, rather than style. *Italian and British researchers* recruited young men and women, half of whom were trained musicians. The participants slipped on head phones and listened to six styles of music, including rap and classical pieces, with random two-minute pauses. As the participants kicked back and listened, the researchers monitored their breathing, heart rates and blood pressure. The participants had faster heart and breathing rates when they listened to lively music. When the musical slowed, so did their heart and breathing rates. Some results were surprising. During the musical pauses, heart and breathing rates normalized or reached more optimal levels. Whether or not a person liked the style of music did not matter. *The tempo, or pace, of the music had the greatest effect on relaxation.*

Music has the potential to obviate or decrease the need of pharmacotherapy. According to the gate control theory of pain, pain receptors act together to send pain signals to the brain. Therefore, distracters especially music can block certain pain pathways and diminish the amount of perceived pain, which is relatively inexpensive, non invasive and easily administrable. The present study proposes to determine the effectiveness of music therapy among the children undergone abdominal surgeries.

DEPARTMENT OF PEDIATRIC SURGERY

The Department of Pediatric Surgery, Institute of Children Health and Hospital for Children, Egmore, Chennai - 08 is one of the best surgical department in India. Patients referred from all over India. There are 4 surgical units taking care of the all surgical interventions in the children. The team provides a quality care and fastens the speedy recovery of the child.

1.2. STATEMENT OF THE PROBLEM

“A study to assess the effectiveness of music therapy on reduction of pain among children who underwent abdominal surgery in postoperative wards at Institute of child health and Hospital for Children, Egmore, Chennai- 08”.

1.3 OBJECTIVES OF THE STUDY

- ❖ To assess the level of pain and physiological measures among children before music therapy.
- ❖ To assess the level of pain and physiological measures after music therapy.
- ❖ To determine the effectiveness of music therapy on pain reduction by comparing Pre assessment and Post Assessment scores.

- ❖ To associate the effectiveness of music therapy with selected demographic variables.

1.4 OPERATIONAL DEFINITIONS

Effectiveness

In this study, the effectiveness refers to reduction in the level of postoperative pain among children which is measured by using Wong Bakers Faces Pain Scale before and after playing music therapy.

Music

In this study music refers to melodious instrumental song which is played through headphones for 15 minutes.

Pain

In this study pain refers to the subjective feeling of pain expressed by the child, which the researcher scores by Wong Bakers Faces Pain Scale.

Children

In this study child refers to between the age group of 6-12 years who were admitted in paediatric post operative ward.

Abdominal Surgery

Abdominal Surgery is defined as surgery pertaining to the contents of the abdominal cavity, its walls and orifices.

1.5 ASSUMPTIONS:

1. The children are interested in listening music
2. The music therapy will reduce pain during postoperative period.

1.6. HYPOTHESIS

H₁ : music therapy will have effective in reducing the postoperative pain in children.

H₂ : There will be significant relation between the music therapy and selected demographic Variables.

CHAPTER-II REVIEW OF LITERATURE

“Music is the literature of the heart; it commences where speech ends”

-Alphonse de Lamartine

Review of the literature is the key step in the research process. Review of literature refers to an extensive, exhaustive and systemic examination of publications relevant to the research project. It is divided into two headings.

2.1 Review of related studies

2.2 Conceptual Framework

Research and Non-research literature related to the study is reviewed and organized under the following headings.

2.1 Literature related to pain in children

2.2 Literature related to non-pharmacological management of postoperative pain in children

2.3 Literature related to effects of music therapy on pain management

2.1.1. LITERATURE RELATED TO PAIN IN CHILDREN

Kristy Petovello (2012) did a literature review regarding the complex nature of pain and has thereby improved the understanding, treatment, and management of paediatric pain by health care practitioners. Paediatric pain remains under-managed. Recommendations include: an individualized “3-P” approach combining pharmacologic, physical and psychological strategies; collaborative approaches eliciting expertise from caregivers and health care professionals across multiple

disciplines; and utilizing interventions before, during, and after the procedures.

Nilson (2011) has studied the children's experience of procedural pain management with trauma and wound dressing. 39 participants between 5-10 years were included in this study. The wound care session was standardized for all participants, semi structured interview conducted in children during the procedure and identified clinical competence, distraction, participation and feeling of security is important in pain management.

Rasha Sroji (2010) conducted the study on pain management in children remains under treated. The responsibility of the health care team is to educate the peers for appropriate pain management in children. There is necessary for consideration of Nurse's age, developmental age of the child, cognitive and communication skill, previous pain experience and associate belief. It also emphasised the need for more research to illuminate the optimal pain management in children.

Oncology Nursing forum (2010) did a literature review which was presented with the four components of the HRTI model, including the physiologic, pathophysiologic, experiential, and behavioural perspectives of the pain response related to childhood cancer and childhood CNS cancer and concluded that the person and environmental factors that may influence a child's pain.. The HRTI model provides an appropriate framework to gain insight into the paediatric oncology nursing role in the assessment, management, and evaluation of pain from childhood cancers.

Morries LD (2009) conducted a review to assess the effectiveness of virtual reality in pain and anxiety in burns patients. Articles reviewed for the period December 2007 to January 2008. Nine studies were

eligible for inclusion criteria. In this study, pain was the primary outcome and anxiety was secondary. The outcome of the studies shows the contribution of virtual reality and analgesic in pain management in burns while dressing and physiotherapy.

Pulsus (2008) did a meta-analysis on pharmacological and non-pharmacological management of acute procedure-related pain in hospitalized children aged one to 18 years were evaluated. . Critical appraisal of pharmacological pain interventions indicated that amethocaine was superior to EMLA for reducing needle pain. Distraction and hypnosis were non-pharmacological interventions effective for management of acute procedure-related pain in hospitalized children.

Shechter (2006) conducted a chart review from Dept. of Paediatrics St. From Department of Paediatrics St. Francis Hospital and Medical Centre, Harford. 90 children and 90 adults were randomly selected with matching sex and diagnosis. The analgesic dose is calculated between the two groups. The results were adult received 2.2 doses of narcotics and children received 1.1 ($p = .0001$). Long hospital stay showed a greater discrepancy between narcotic usage in adult & children. More doses administered in Urban Hospital than the Rural Hospital. Infants and young children required fewer amounts of narcotics than the older children but the frequency is same in all children.

Koestler and Myers (2002) concluded that the pain is always subjective. Each individual learns the application of the word through experience related to injury. Hence, the experience of pain varies from person to person based on past experience and/or present state of mind.

Mites (1997) concluded that, the body naturally responds to pain with symptoms of high stress; increased heart rate and blood pressure,

quick, shallow breathing, sweaty palms and knotted muscles. The sympathetic nervous system is aroused and stress hormones are released resulting in feelings of anxiety. These physiological responses can result in an increased perception of pain.

2.1.2. LITERATURE RELATED TO NON PHARMACHOLOGICAL MANGEMENT OF POST OPERATIVE PAIN IN CHILDREN

Eleanor Jame (2011) investigated whether active distraction or passive distraction reduces pain during the cold pressor task. 60 participants were allowed to submerge their hand in cold (2*c) until they tolerate. They underwent active distraction by electronic gaming system and passive distraction by watching television was randomly assigned order. Tolerance time and pain level assessed every time and the results were compared. It showed the active distraction reduces much more pain than the passive distraction.

Miller K (2011) did a study on the novel technology approach to pain management in children with burn injury. Forty children between 3-10 years undergoing burns dressing divided into two groups. One group is standard distraction and another group is a multimodal distraction (combined protocol of procedural preparation and distraction). Pain and distress measured in the children. The result showed a combined MMD protocol reduces the pain experiences for young children during burn care procedure.

Anfrea Windich – Biermeier (2009) did a study to evaluate the effects of distraction therapy during the venupuncture in cancer children and adults. This study evaluates the effects of the self selected distractions of 50 children with the age group of 5-18 years. In 50 children 28 children had undergone standard care and 22 children undergone standard care and distraction therapy. The pain and fear were assessed in 3 stages i.e. before, during and after the procedure and

concluded that the distraction is very effective to reduce fear and anxiety during procedure.

Emily F Law (2009) did a study on video game distraction using virtual reality technology for children experiencing cold pressor pain. Intensive distraction using voice commands to play video games or passive distraction. The results demonstrated improvement during the interactive distraction task. The cold pressor tolerance is significantly enhanced with distraction task.

Zi- Xaan Wang (2008) did a study of the efficacy of non pharmacological on his article regarding interventions for paediatric procedure-related pain in primary care. Variety of distraction technique like party blowers, music and cartoon movies and its outcome assessed in many dimensions. Distract is particularly appealing because it can be easily administered in time and cost effective manner. The cartoon distraction was proved more effective in reducing distress and pain during the procedure.

Eva Cignacco (2007) did a study on the efficacy of non pharmacological intervention in the management of procedural pain in preterm and term neonates. In this study 13 randomized controlled studies and two Meta analyses were taken. The interventions selected were music, positioning, swaddling, kangaroo care, olfactory and multi sensational stimulation and maternal touch. They found swaddling, non nutritive sucking have been very effective in pain reduction in neonates.

Madhumitha Sinhal (2006) conducted studies on evaluation of nonpharmacological methods of pain and anxiety during the laceration repair in Maricopa Medical Centre, Phonic. In this study 6-18 years of children (N-240) presenting to the casualty for laceration repair. An age appropriate distraction therapy used during the procedure. Quantitative measures of pain intensity, anxiety, and distress done by 7 points Facial

Scale, State Trait Anxiety Inventory for children and visual analog scale before and after the procedure. It concludes the distraction techniques are very effective in reducing anxiety in older children and lowering parental perceptions of pain in younger children.

Hon – Gutte (2005) conducted studies on Chinese nurses use of non pharmacological methods in the postoperative period. The study was conducted by the questionnaire survey of 187 nurses working in surgical wards by using LIKERT Scale. The results were analyzed by the descriptive statistics and found commonly used non-pharmacological methods were comforting reassurance, pleasant environment, proper positioning and Distraction therapy.

Tarja Polkki (2004) conducted studies on nonpharmacological management in relieving pain in the post operative children between 8-12 years old. By a convenience sample method, 164 nurses from different hospitals were subjected to the study. The results were analyzed by the non parametric method (ANOVA) and Chi-Squire Test. The results were the pain management in the children mainly depends upon the knowledge of the nurse's age, experience, and child's previous hospitalization, emotional support and daily support activities, comfortable environment will minimize the cognitive- behavioural and physical method.

Astin (2004) did study on mind body therapies for the management of pain. Randomized controlled trials and systemic review of literature suggests the cognitive behavioural therapy was very useful adjuvant therapy in treating migraine and tensional headaches Mind and Body therapies like hypnosis, relaxation and imaginative are very effective during post operative period when practiced preoperatively.

2.1.3. LITERATURE RELATED TO EFFECTS OF MUSIC THERAPY ON PAIN MANGEMENT

H Jafari (2012) conducted in open heart intensive care unit (ICU) of a university hospital in Sari, Iran. A total of 60 patients who were scheduled to undergo open heart surgery were randomly allocated in two groups. Patients in the intervention group (n = 30) listened to their preferred music by headphones for 30 minutes, whereas those in the control group (n = 30) did not listen to music. Using a Numerical Rating Scale (NRS), pain intensity was measured among the patients before the intervention and immediately 30 minutes and one hour after the intervention and concluded that Music can be effective as a non-pharmacological, inexpensive, non-invasive and side effect free method for pain management after open heart surgery.

ElectraEconomidou et al, (2012) conducted a systematic literature search was performed to identify all studies looking at music's impact on postoperative pain. Searches on Medline, Embase, Cinahl and Cochran Library identified four trial, 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.

Nutt et al, (2011) did a review of research related to the effectiveness of music therapy when used in conjunction with standard pharmacological treatment for postoperative pain management. The researchers found that music therapy decreased the patient's pain level and stabilized the patient's heart and respiratory rates significantly when used in conjunction with standard pharmacological treatments.

Suresh S et al (2011) study was conducted in the U.S on the efficacy of music therapy on postoperative pain control in paediatric patients undergoing major surgeries. The study had 3 groups, control group, music therapy group and audio book group. The intervention was given through noise cancelling headphones for 30 minutes at least 4 times/day. Validated pain scores (VAS, FPR-R), physiological parameters including heart rate, respiratory rate, blood pressure etc. were used to assess pain. The results showed that despite familiar music therapy, the use of more intense distraction with audio books was better in the study group.

Joke Bradt (2010), this study examined the effects of music entrainment on postoperative pain perception and emotional state in 32 paediatric patients. Patients participated in two music entrainment conditions and one control condition over 2 consecutive days. During the music entrainment condition, live music was created by the music therapist to match the child's pain. Once resonance was achieved between the pain and the music, the music progressed into music predetermined by the child as healing. During the control condition, standard care was provided. The results support the effectiveness of music entrainment as a postoperative pain management technique for children and adolescents.

Paediatric anaesthesia (2009) conducted the study to test whether post operative music listening reduces morphine consumption and influence pain, distress, and anxiety after day surgery and to describe aged 7-16 years forty participants were randomized to music therapy and another forty participants were control group. We found evidenced those children in the music group received less morphine in the postoperative unit, 1/40 compared to 9/40 in the control group. So that music therapy reduced the requirement of morphine and decreased the distress after surgery.

Ambul Pediatr (2008) study was to conducted a systematic review of the efficacy of music therapy (MT) on pain and anxiety in children undergoing clinical procedures. Children aged 1 month to 18 years were examined, music was used as an intervention, and the study measured pain or anxiety of that children underrgone clinical procedure, and concluded that music is effective in reducing anxiety and pain in children undergone medical and dental procedure.

Whitehead-Pleaux AM et al, (2007) conducted the study was to assess the effects of music therapy on pain and anxiety in paediatric burn patients during nursing procedures. Nine subjects were randomly selected to participate in this study. Qualitative and quantitative data was collected on the patients' pain, anxiety, heart rate, blood oxygenation, and engagement level through measurement tools and interviews. The results from the qualitative and quantitative data indicated that music therapy reduced pain, anxiety, and behavioural distress.

Hatem TP et al (2006) A randomised controlled clinical trial study was done in Portugal on the therapeutic effects of music in children following cardiac surgery. The sample was 84 children, had 63 in the experimental and 21 in the control group. 30 minutes of relaxing classical music was played using headphones for the experimental group and a blank CD for the control group. The facial pain scale assessment was done at the first and last minute of the music therapy sessions. Drugs given at the time of experiment was also noted. The HR, MBP, SBP, DBP, RR, SaO₂ was also noted before and after the session. The study showed that there was a significant reduction in the pain and anxiety of patients during the immediate period. Also the study showed there was a reduction in heart rate due to the effect of music.

J pediatr Rio J (2006) the effect of music on children in paediatric cardiac intensive care unit following heart surgery by randomised clinical trial with assessing 84 children aged 1 day to 16 years, during the first postoperative period given a 30minutes of music therapy session with classical music and observed at the start and end of the session, recording heart rate, blood pressure, mean blood pressure, respiratory rate, temperature and oxygen saturation, plus a facial pain score and the results are a beneficial effect from music was observed.

Darcy Deeloach Walworth (2005) analyzed the music therapy as a procedural support. The patients underwent procedures like CT scan (n=57) Echocardiogram (n=92) and other procedures (n=17) were included in the analysis. This study proved the distraction helps to the successful elimination of patient sedation, procedural time reduction, decrease the number of staff required.

CONCEPTUAL FRAMEWORK

Conceptual frameworks are structured from a set of broad ideas and theories that help a researcher to properly identify the problem they are looking at, frame their questions and find suitable literature. Most academic research uses a conceptual framework at the outset because it helps the researcher to clarify his research question and aims.

- Smyth (2004)

The conceptual work of this study is based on the Roy's Adaptation Theory. This theory was developed by Sr.Callista Roy in 1963. According to Roy's Adaptation Theory, the nursing process is a problem solving approach for gathering data, identifying the capacities and needs of the human adaptive system, selecting and implementing approaches for nursing care, and evaluation the outcome of care provided. Roy explained three major aspects of the system.

INPUT

Input is defined as a stimulus comes from the environment or from within a person. Roy mentioned three types of stimuli

- 1) ***Focal stimuli:*** The internal or external stimulus most immediately confronting the person for the cluster of behaviours on which they focus.

In this study pain is the focal stimuli on the surgical incision in the abdomen

- 2) ***Contextual stimuli:*** All other stimuli present in the situation that contribute to the effect of the focal stimulus. It can be internal or external and can have a positive or negative effect.

Contextual stimuli in this study are past experiences, other health conditions, age, gender, culture, level of physical function, economic status, knowledge base.

3) ***Residual stimuli:*** Residual stimuli include the individual's beliefs or attitudes that may influence the situation.

Environmental factors in or out of the person, effects are not clear in the current situation.

Pre-assessment of Physiological parameters like Heart Rate, Respiratory Rate and Blood Pressure. Pain level was assessed by using a Wong-Baker's Faces Pain Scale. It is a subjective pain scale that consists of six faces. The pain score starts from 0 to 10.

0	:	No hurts
2	:	Hurts little bit
4	:	Hurts little more
6	:	Hurts even more
8	:	Hurts whole lot
10	:	Hurts worst

Based on third scores the intensity of the pain is categorized as

- ❖ 0 Indicates as No Pain
- ❖ 1-2 Indicates as Mild Pain
- ❖ 3-6 Indicates as Moderate Pain
- ❖ 7-10 Indicates as Severe Pain

THROUGH PUT

It denotes that the different operational procedures applied in the study group.

In this study music therapy (melodious instrumental song) was played twice day on the first postoperative day.

OUTPUT

Output is any information that leaves the system and enters the environment through the system boundaries. Output is the outcome of the system. In Roy's Adaptation System output is categorized as "adaptive response" or "ineffective response". These response or output provide feedback for the system.

In this, pain level and physiological parameters of the children was evaluated by the standardized scale, mild pain and moderate pain denotes effective response and none of the children are having ineffective response.

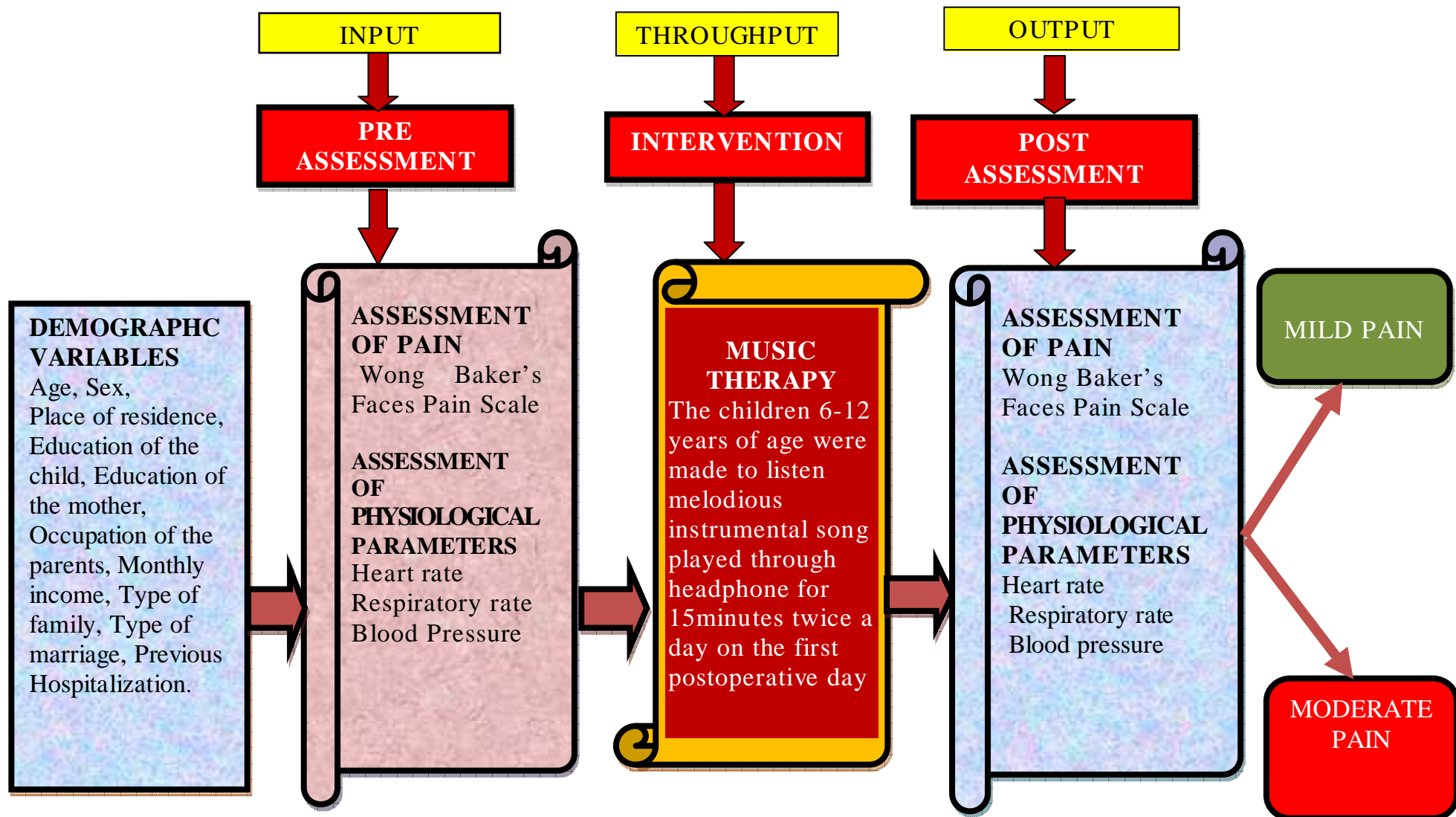


FIGURE 1: CONCEPTUAL FRAMEWORK BASED ON MODIFIED ROY'S ADAPTATION MODEL

CHAPTER – III RESEARCH METHODOLOGY

The research methodology consists of research design, variables of the study, the setting, population, sample criteria for sample selection, sample size, sampling technique scoring method, plan for data analysis.

3.1. RESEARCH APPROACH AND DESIGN

Research approach is a design which consists of researcher's position and his assumptions, the method of data collection and analysis of the data. The design is based on the type of the study. The research design adopted for this study is

Pre experimental design one group pre -test Post Assessment design.

O₁ X O₂

- O₁** : Collection of socio demographic data. Assessment of Pain Scores & Physiological Parameters before the intervention.
- X** : Intervention – Melodious instrumental song was played for 15 minutes twice day on the first postoperative day.
- O₂** : Assessment of Pain Score & Physiological Parameters after the Intervention.

3.2. SETTING

Study Setting means the physical location and condition where the data collection is being carried out. The study was conducted in post operative wards at Institute of child Health & Hospital for children, Egmore, Chennai-600 008. It is one of the biggest hospitals in the South East Asia .It is a 537 bedded hospital. The bed occupancy rate is 125%, Average length of stay of a patient is 7 days. The institute renders excellent service to all and proving a space for research in the field of nursing.

3.3. VARIABLES

Independent variable : Music Therapy

Dependent variable : Intensity of the Post Operative Pain

3.4. STUDY POPULATION

The target population in this study includes children between 6-12 years of age and both sexes admitted in post operative wards undergone abdominal surgeries at Institute of Child Health and Hospital for children, Egmore, Chennai -08.

3.5. SAMPLE SIZE

The sample size of this study is 60 children between the age group of 6 -12 years admitted in post operative wards at Institute of Child Health & Hospital for children, Egmore, Chennai – 600008.

3.6. SAMPLING TECHNIQUE

The purposive sampling technique was used in this study. It is a Non-Probability method of sampling.

3.7. CRITERIA FOR SAMPLE SELECTION

The sample selection is based on the following inclusion and exclusion criteria

i) Inclusion Criteria

The Study includes the children of 6-12 years both boys and girls,

- ❖ Who are in the first post-operative day.
- ❖ Willing to participate in the study.
- ❖ Undergone abdominal surgeries.
- ❖ Understanding Tamil and English language.

ii) Exclusion criteria

Parents / children who are

- ❖ Critically ill.
- ❖ Who are on ventilators.
- ❖ Who are not cooperative
- ❖ Children who below 6 years.

3.8. DEVELOPMENT OF THE DATA COLLECTION INSTRUMENT

The data collection instrument is a tool used by a researcher to find the effect on selected variables in this study. The following steps were followed in the development of the tool.

- ❖ Appropriate tool was selected with the help of review of literature
- ❖ Direct with the clients and others during clinical posting
- ❖ Obtained Expert opinion from Surgical and Nursing Departments
- ❖ Construction of tools
- ❖ Content validity
- ❖ Pre –testing of the tool
- ❖ Checking reliability of the tool

3.9. DESCRIPTION OF THE TOOL

Section-A

This section deals with socio demographic data of the child includes age, sex, place of birth, education of the child, education of the mother, occupation of the parents, monthly income, type of family, type of marriage, previous hospitalization.

SECTION –B

It consists of Wong-Baker Faces” Pain Rating Scale and physiological parameters like Heart rate, Respiratory rate and Blood Pressure and pain score of Pre Assessment and Post Assessment



It consists of Wong-Baker Faces” Pain Rating Scale. It is a subjective type of pain scale. It includes 6 faces. The score starts from 0, 2,4,6,8 and 10. Score “0” means No Hurt, and “10” means Hurts worst. The pain was assessed before and after the music therapy.

ETHICAL CONSIDERATION

3.10 Ethical Consideration

The study was started after getting approval from the Institutional Ethical Committee, Madras Medical College, Chennai-03. The investigator was instructed to follow the guidelines of the ethical committee.

3.11 Testing of The Tools

Content Validity

The content of the tool is validated by the experts from Surgery and Nursing. They gave the valuable suggestions and refine the tools. After this the tool was slightly modified and finalized. This tool was used to collection of data in this study.

3.12. PILOT STUDY

A pilot study conducted to evaluate the feasibility of time, cost effect, size, and adverse events and improve the study design prior to conduct the full study. After getting the Ethical clearance and institutional permission the pilot study was conducted in Post operative wards at Institute of Child Health and Hospital for children. By purposive sampling technique 6 samples were selected as per the inclusion criteria data was collected. The instrument was found reliable to proceed the main study.

Reliability

The accuracy and consistency of the research tool are called reliability.

After pilot study reliability of the tool was assessed by using interrater method. Pain score reliability correlation coefficient value was 0.85. This correlation coefficient is very high and it is good tool for assessing effectiveness of music therapy on reduction of pain among children who underwent abdominal surgery in postoperative wards.

3.13 DATA COLLECTION PROCEDURE

The permission obtained to conduct the study from the Director, Institute of Child Health and Hospital for Children, Egmore and the Head of the Department, Paediatric Surgery. Data collection was collected.

- ❖ Based on the inclusion criteria the researcher introduced himself to the selected child and the parents. It improves rapport between the child and the researcher.
- ❖ Explain the intervention to the child and parents and confirm their willingness.

- ❖ Provide comfortable position as preferred by the child.
- ❖ Demographic data was collected.
- ❖ Pre assessment of pain by using Wong Bakers Faces Pain Scale and Pre assessment of physiological parameters.
- ❖ Make the child to wear headphones to focus attention and avoid distraction.
- ❖ Play melodious instrumental song for 15minutes.
- ❖ After the intervention remove and replace the equipments and make the child to be in comfortable position.
- ❖ Post assessment of the pain and physiological measures after the intervention.
- ❖ Document the pain scores, physiological parameters, time, duration and response of the child.
- ❖ Total duration for one session should be around 30 minutes.

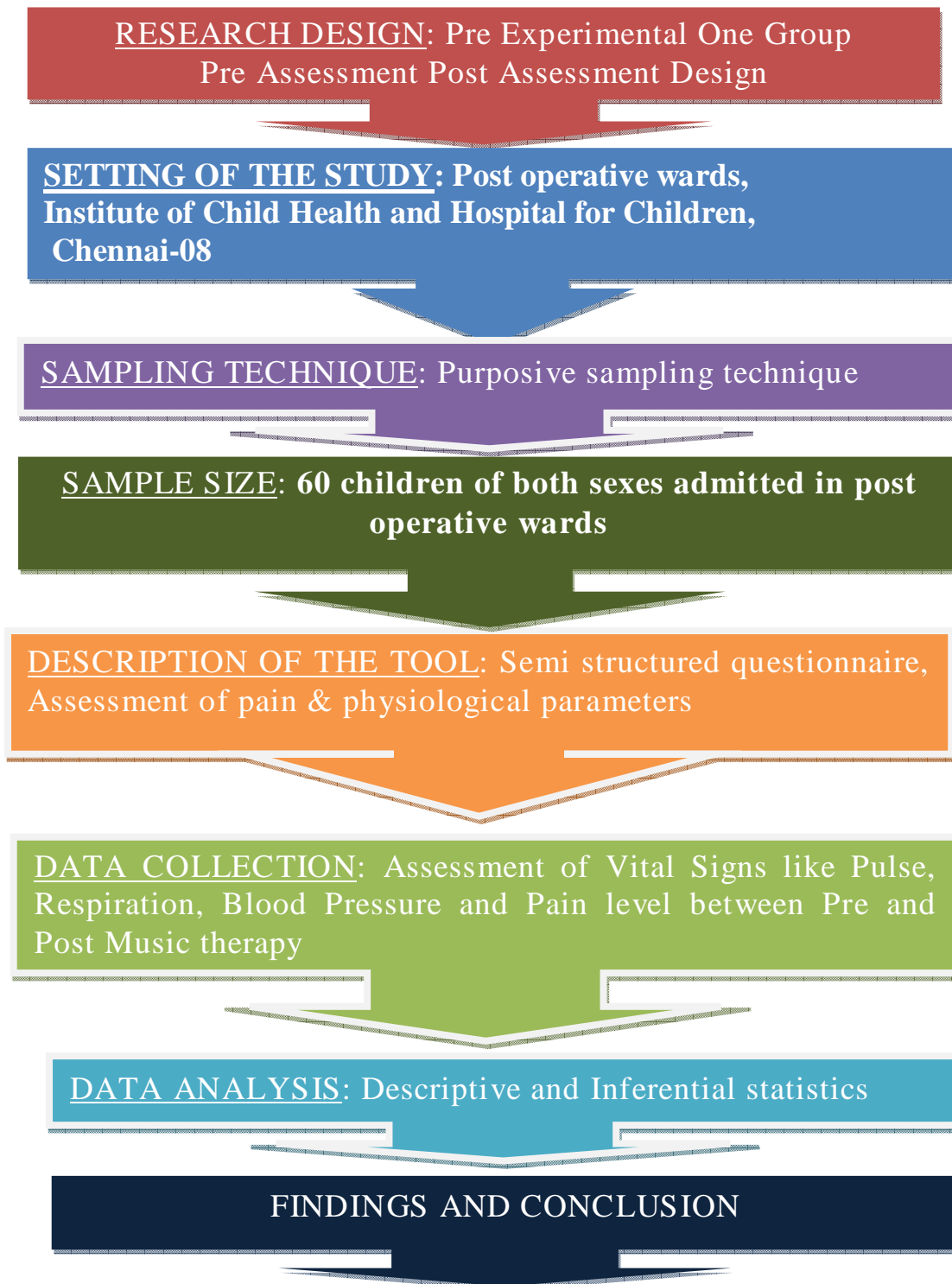
3.14. PLANS FOR DATA ANALYSIS

After the data collection, the collected data were organized, tabulated, summarized and analyzed. The data were analyzed according to the objectives of the study by using descriptive and inferential statistics.

- ❖ Demographic variables in categories were given in frequencies with their percentages.
- ❖ Pain score and physical measurements were given in mean and standard deviation.
- ❖ Association between demographic variables and level of reduction in pain score were analysed using chi-square test

- ❖ Pain score in Pre assessment and Post Assessment were compared using student's paired t-test.
- ❖ Difference between Pre assessment and Post Assessment score was analysed using proportion with 95% CI and mean difference with 95% CI.
- ❖ Simple bar diagram, multiple bar diagram, Pie diagram, Doughnut diagram, and Box plot were used to represent the data.
- ❖ $P < 0.05$ was considered statistically significant. All statistical tests are two tailed test.

FIGURE2: SCHEMATIC REPRESENTATION OF THE PLAN



CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis of data collected from 60 children in the age group of 6-12 years admitted in the selected post operative wards, at Institute of Child Health and Hospital for Children, Egmore, Chennai-08. The data findings have been tabulated according to the plan for data analysis.

ORGANIZATION OF THE DATA

- Section-I : Description of the demographic profile of selected samples

- Section-II : Description of pain score & physiological measures of selected Samples before music therapy by using Mean and Standard Deviation.

- Section-III : Description of the effectiveness of music therapy by comparing Pain score & physiological measures among selected samples.

- Section-IV : Association between the level of pain reduction score and selected demographic variables among selected samples.

SECTION-I: DESCRIPTION OF DEMOGRAPHIC VARIABLES

Table 1: Demographic Profile

Demographic variables	Categories	No. of children	Percentage%
Age of Child	6 -8 years	19	31.7%
	8 -10 years	21	35.0%
	10 -12 years	20	33.3%
Sex of Child	Male	39	65.0%
	Female	21	35.0%
Place of Residence	Rural	37	61.7%
	Urban	23	38.3%
Child's Education	Primary	36	60.0%
	Secondary	24	40.0%
Mother's Education	Primary	23	38.3%
	Secondary	20	33.3%
	Higher secondary	11	18.3%
	Graduate	6	10.0%
Father's Occupation	Unskilled worker	40	66.7%
	Skilled worker	17	28.3%
	Professional	3	5.0%
Mother's Occupation	Home maker	52	86.7%
	Unskilled worker	6	10.0%
	Skilled worker	1	1.7%
	Professional	1	1.7%
Monthly Income	Rs.3000 -5000	22	36.7%
	Rs.5001 -7000	23	38.3%
	Rs.7001 -9000	10	16.7%
	> Rs.9000	5	8.3%
Type of Family System	Nuclear family	44	73.3%
	Joint family	16	26.7%
Type of Marriage	Consanguineous	21	35.0%
	Non-Consanguineous	39	65.0%
Previous Hospitalization	No	54	90.0%
	Yes	6	10.0%

Table 1 shows the demographic information of children those who are participated for the following study on “A study to assess the effectiveness of music therapy on reduction of pain among children who underwent abdominal surgery in postoperative wards at Institute of child health Egmore, Chennai-0 8”.

This table shows majority of the children 35%(21) were comes under 8-10 years in this 65%(39) were male children and 61.7% (37) were came from rural area, 60%(36) were undergoing primary education, 38.3%(23)of mothers were undergone primary education, 66.7%(40) of fathers were unskilled workers, 86.7%(52) mothers were home makers, family income on 38.3%(23) children of family was between Rs.5001-7000. Among this73.3 %(44) were belongs to nuclear family, 65% (39) of parents were undergone non-consanguineous Marriage and 90 %(54) of the children were not previously hospitalized.

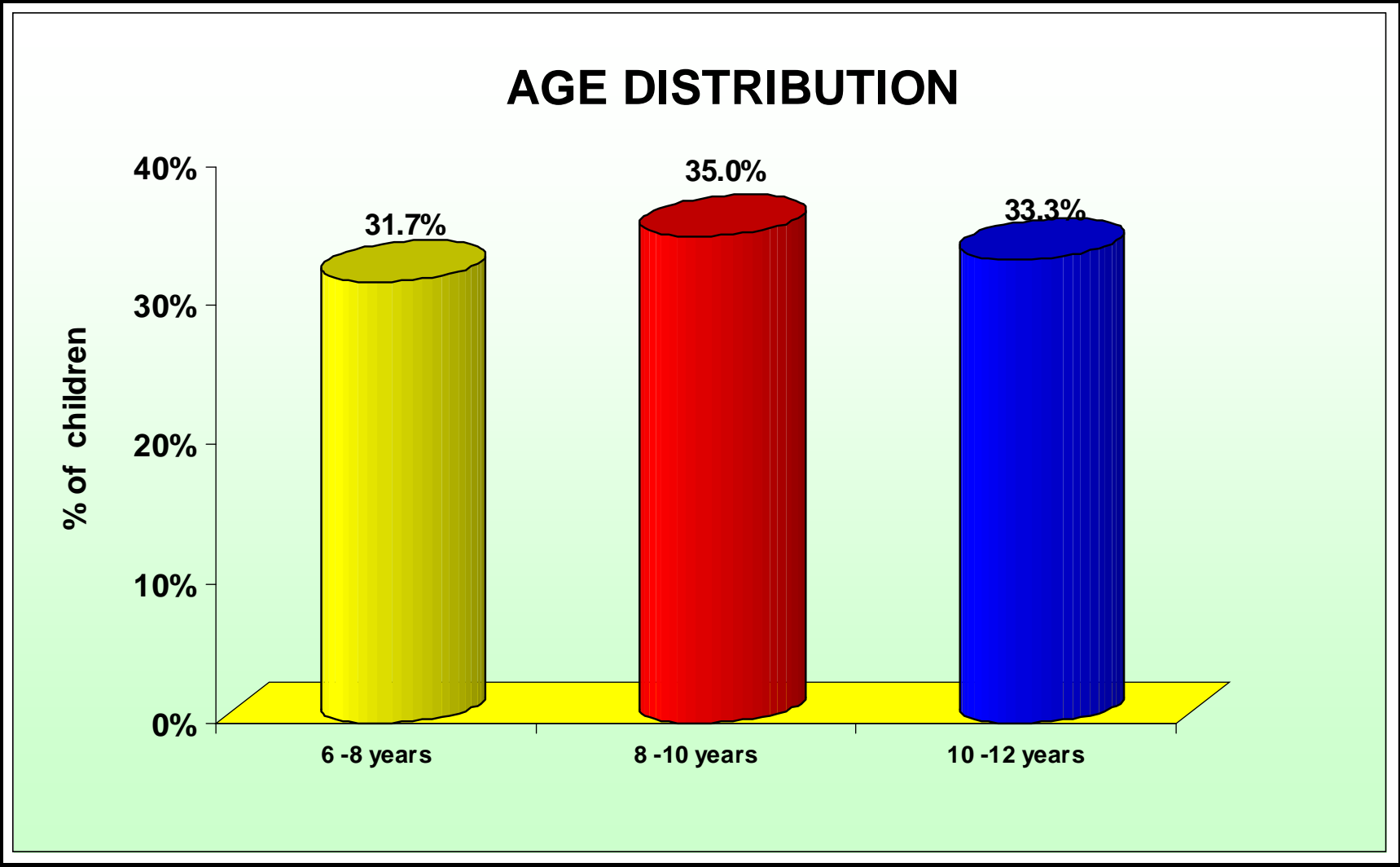


Figure 3: Distribution of Sample Percentage According to Age

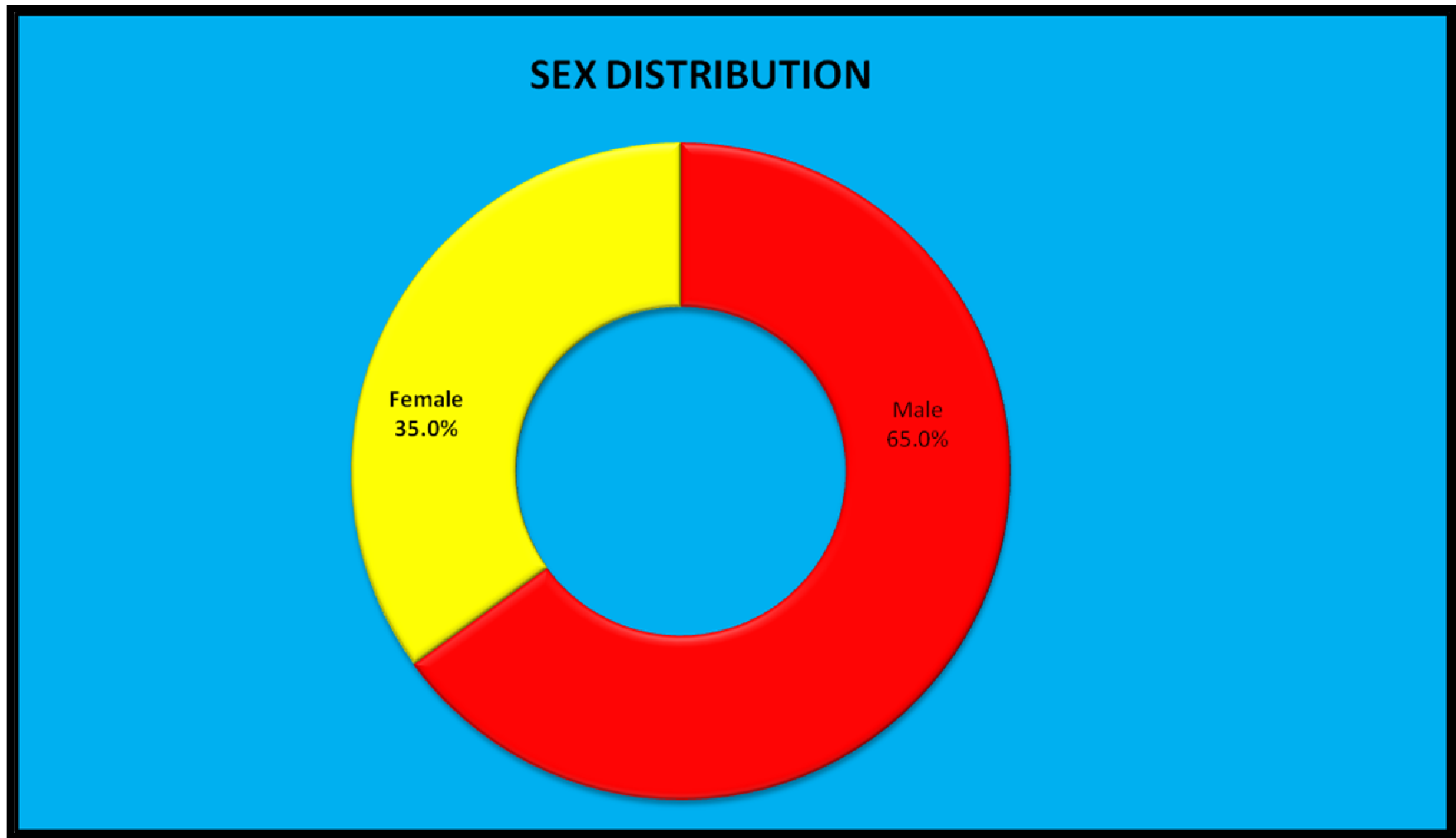


Figure 4: Distribution of Sample Percentage According to Sex

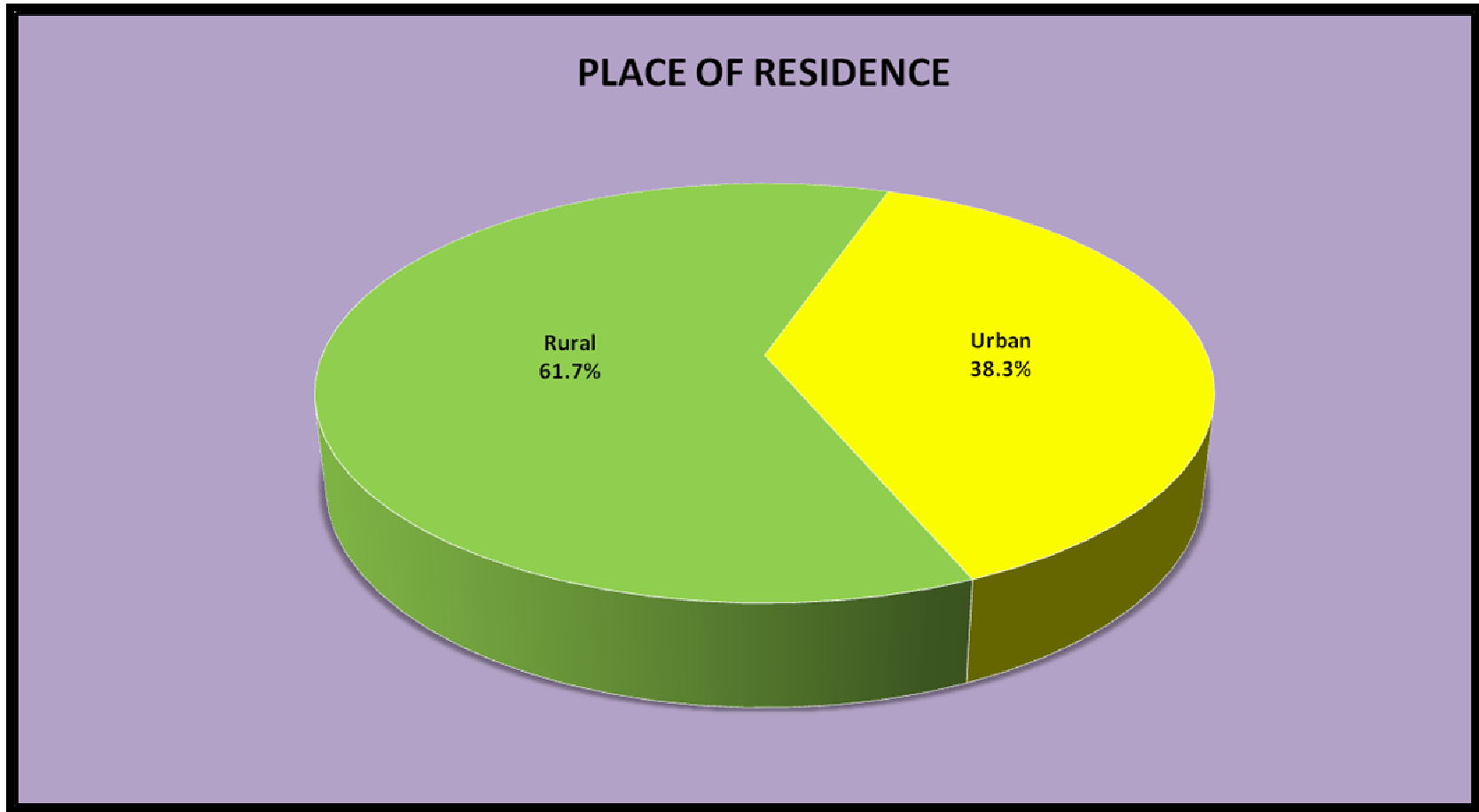


Figure 5: Distribution of Sample Percentage According to their Place of Residence

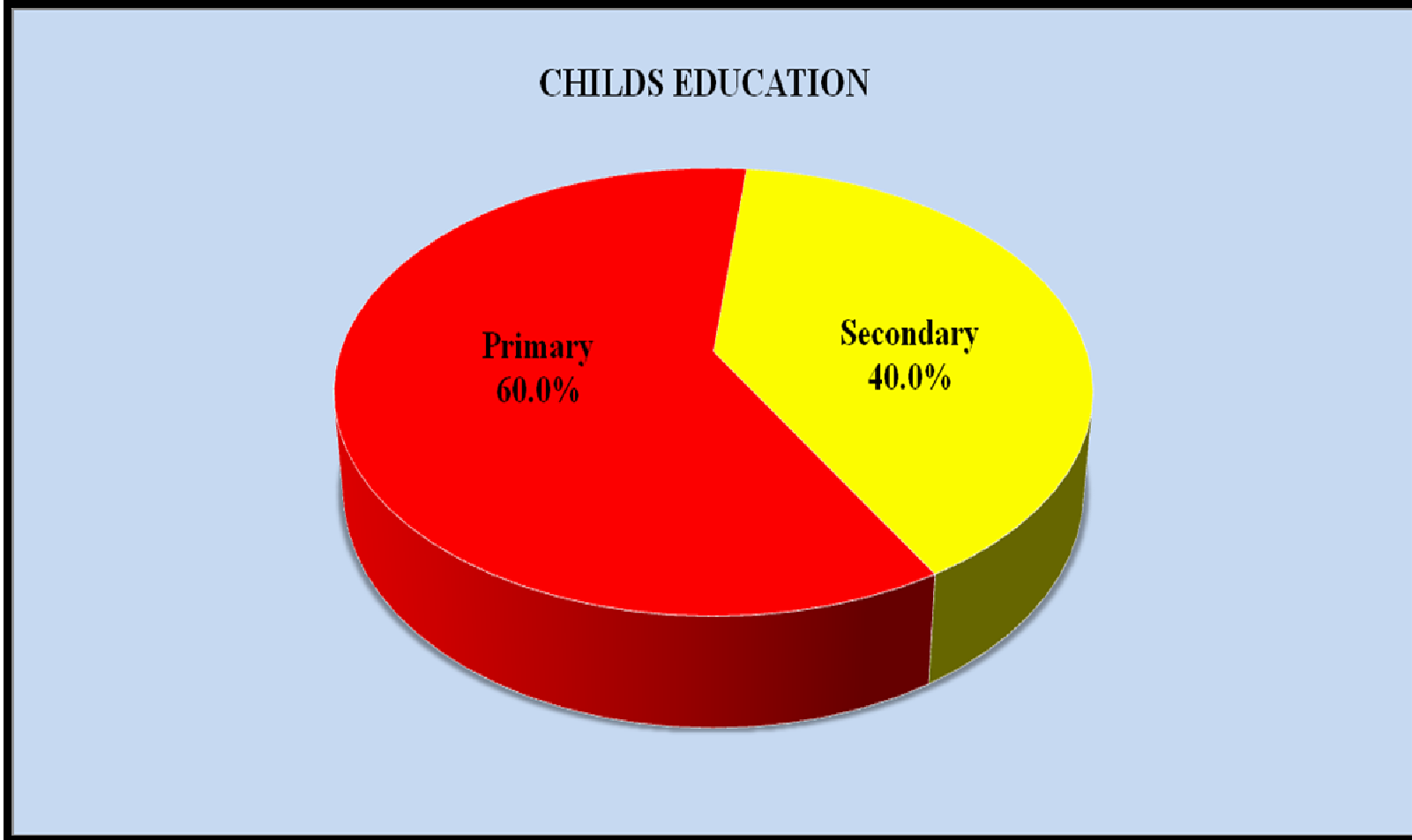


Figure 6: Distribution of Sample Percentage According to the Educational status of the children

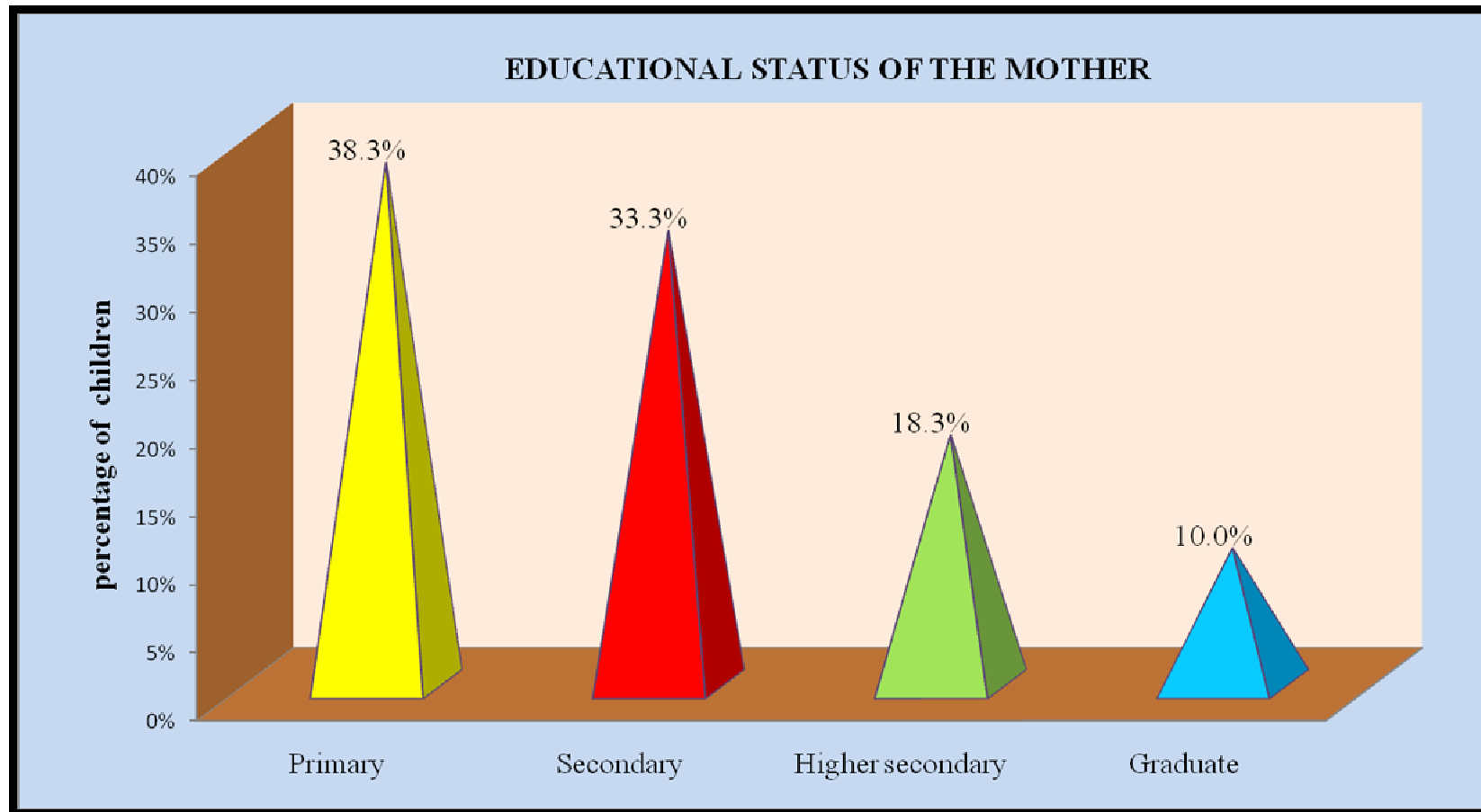


Figure 7: Distribution of Sample Percentage According to the Educational status of the Mother

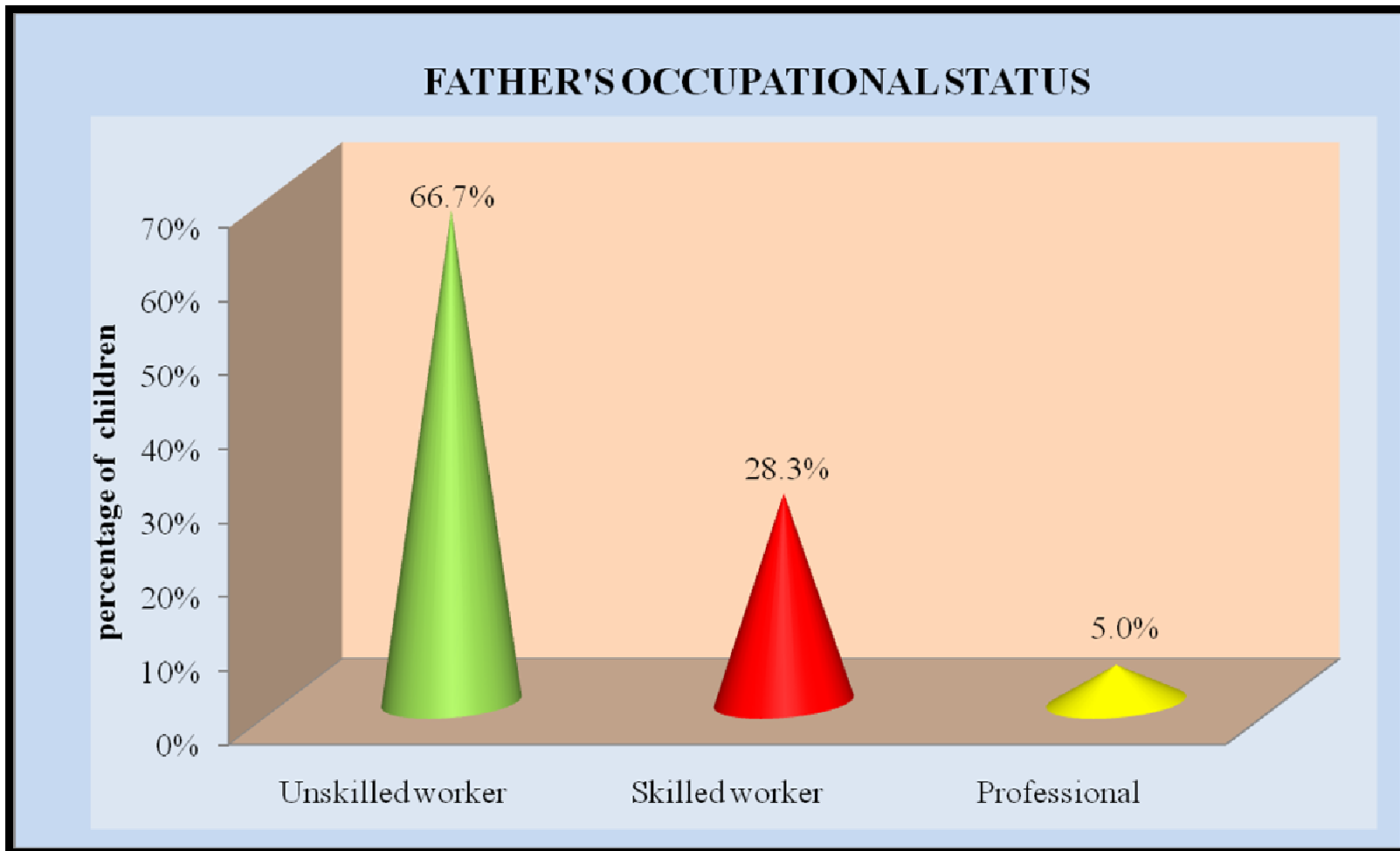


Figure 8: Distribution of Sample Percentage According to the Occupational status of the Father

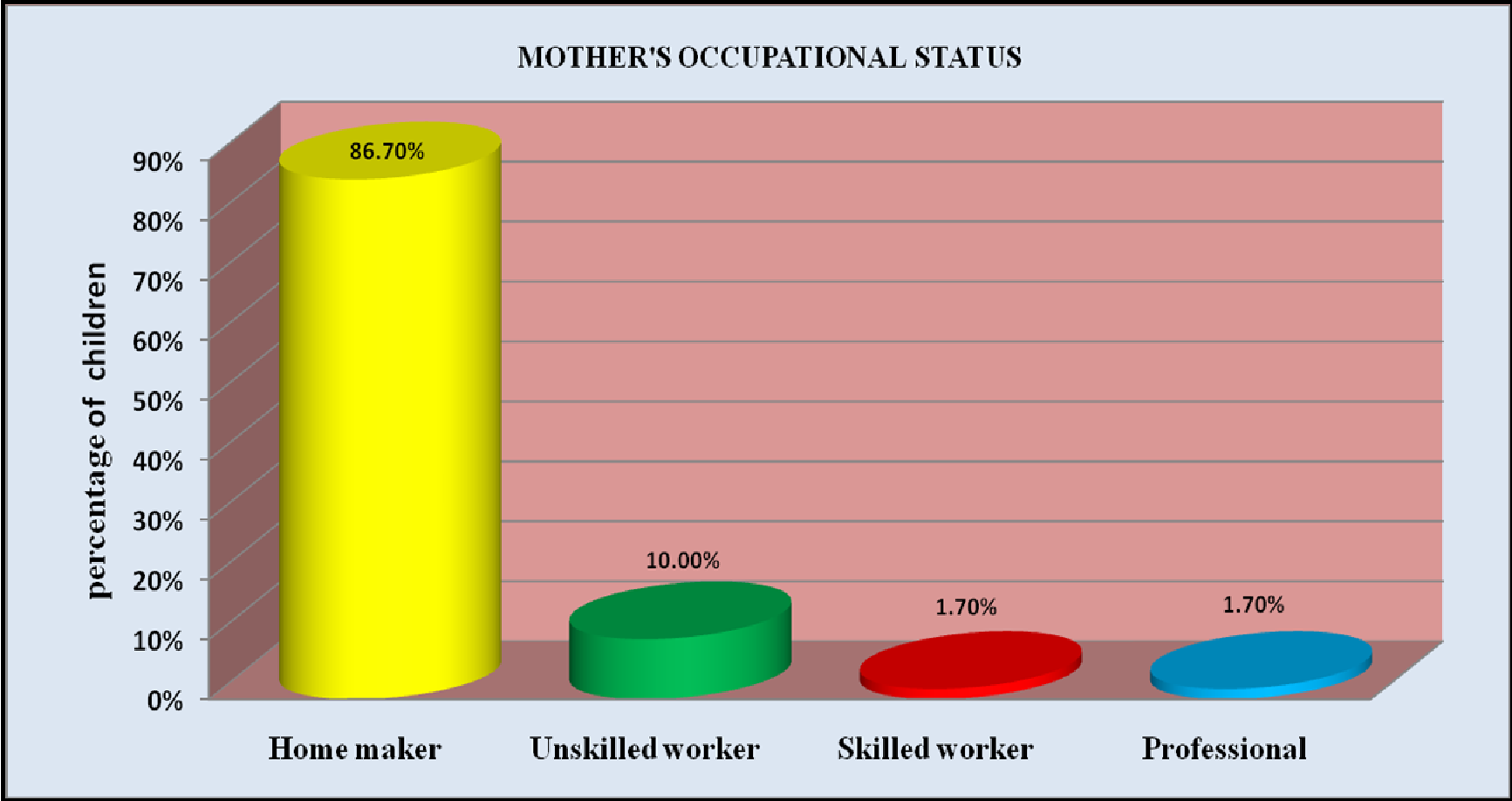


Figure 9: Distribution of Sample Percentage According to the Occupational status of the Mother

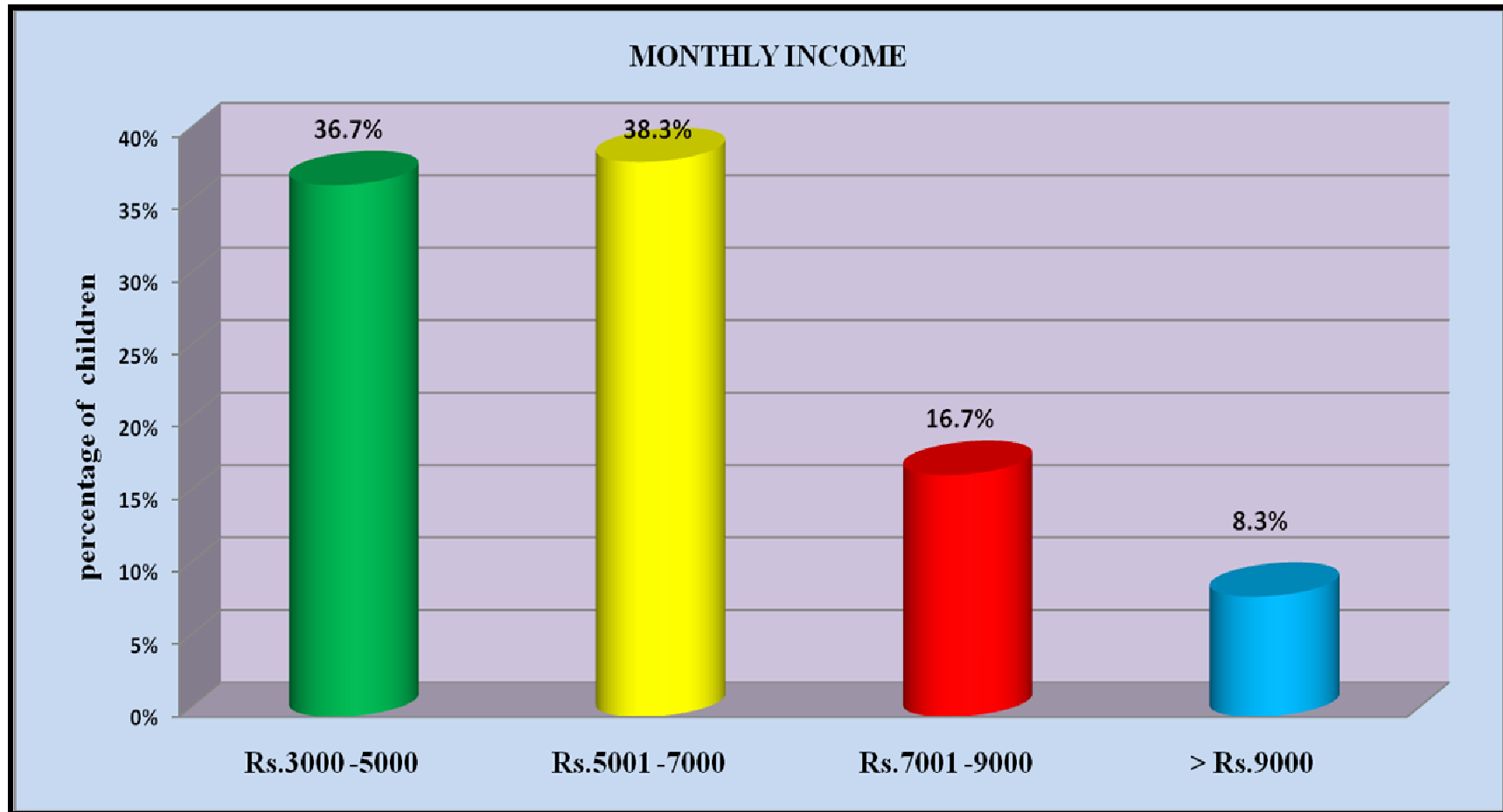


Figure 10: Distribution of Sample Percentage According to their Monthly income

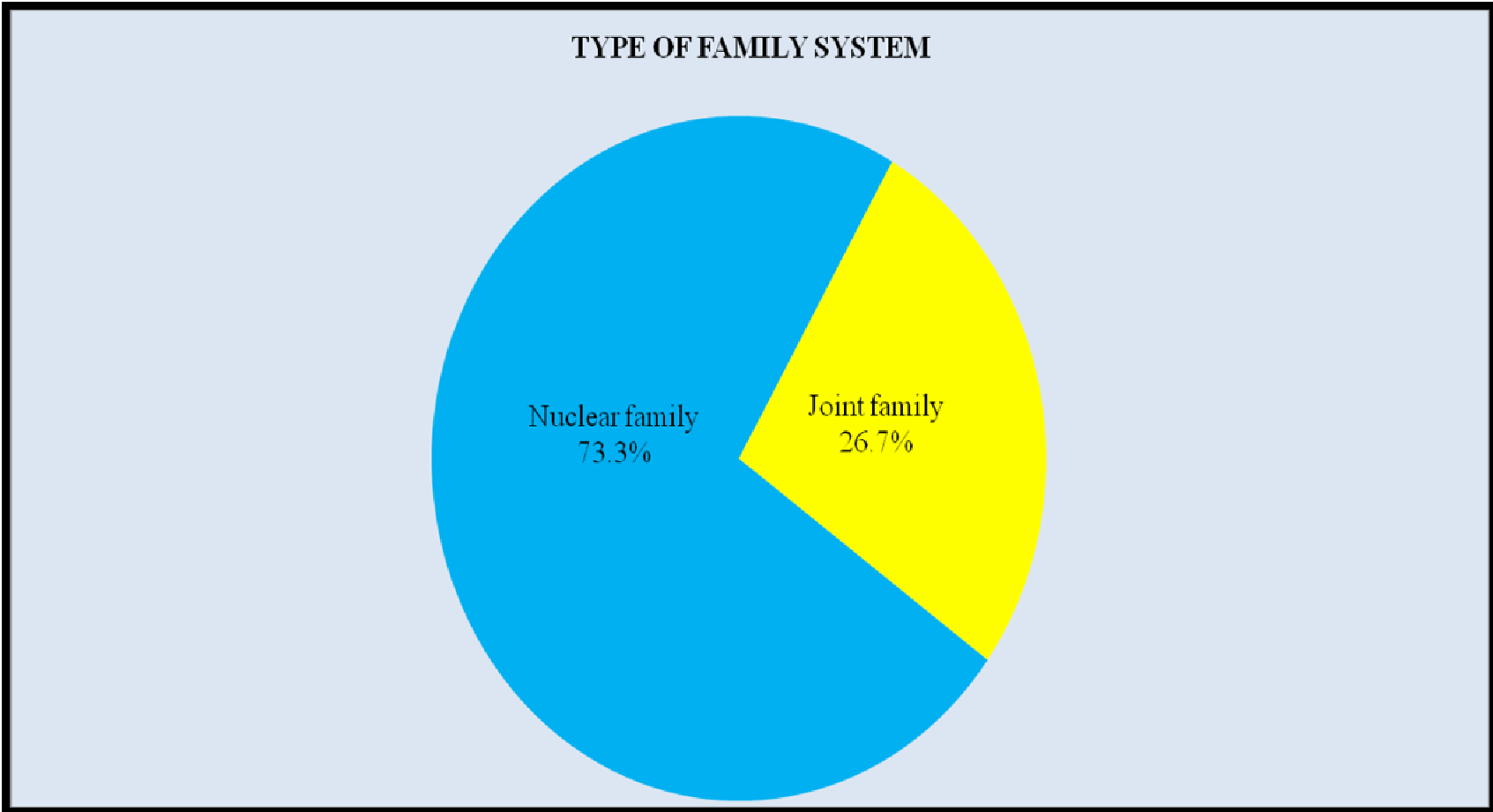


Figure 11: Distribution of Sample Percentage According to their Type of Family System

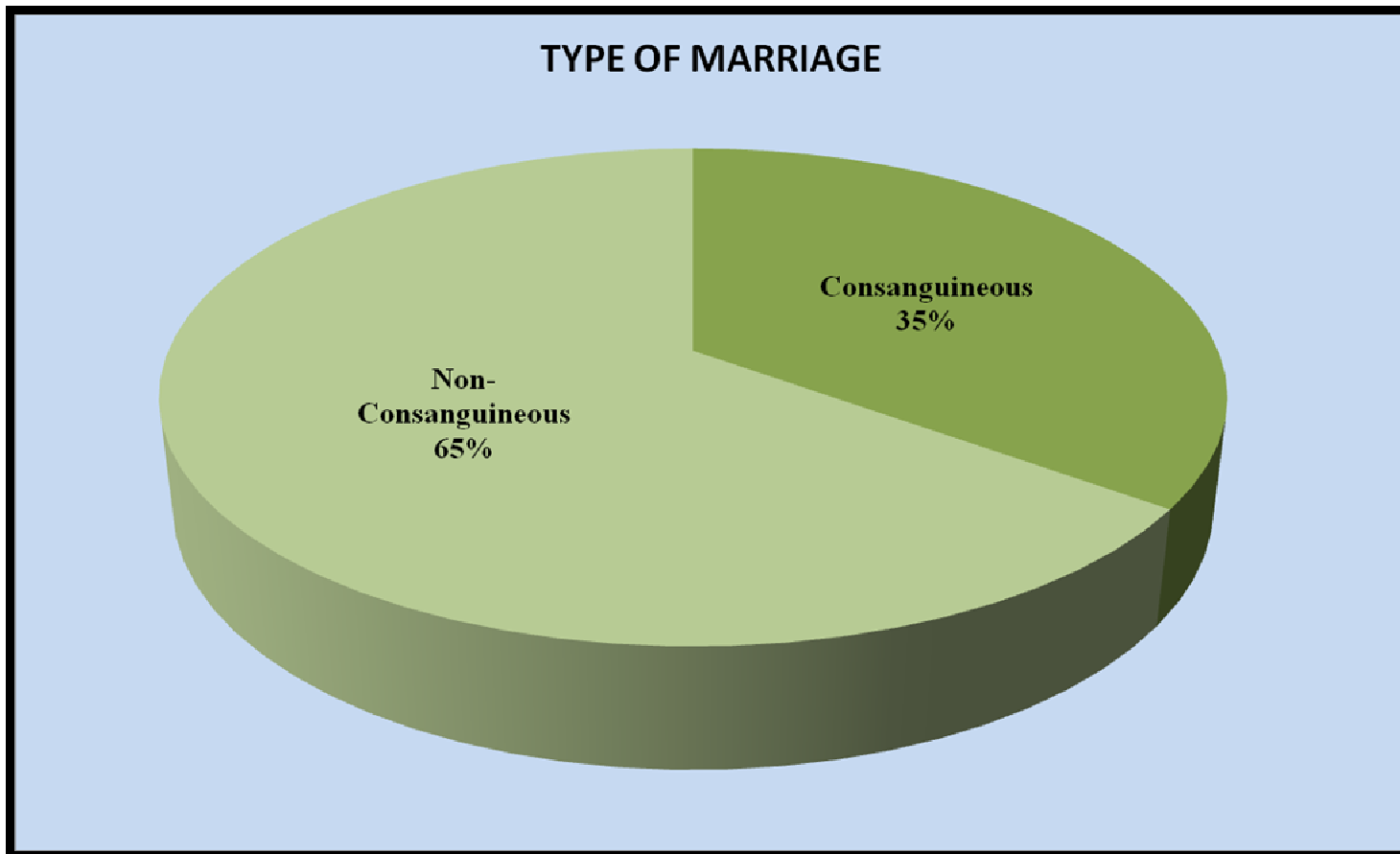


Figure 12: Distribution of Sample Percentage According to the Type of Marriage

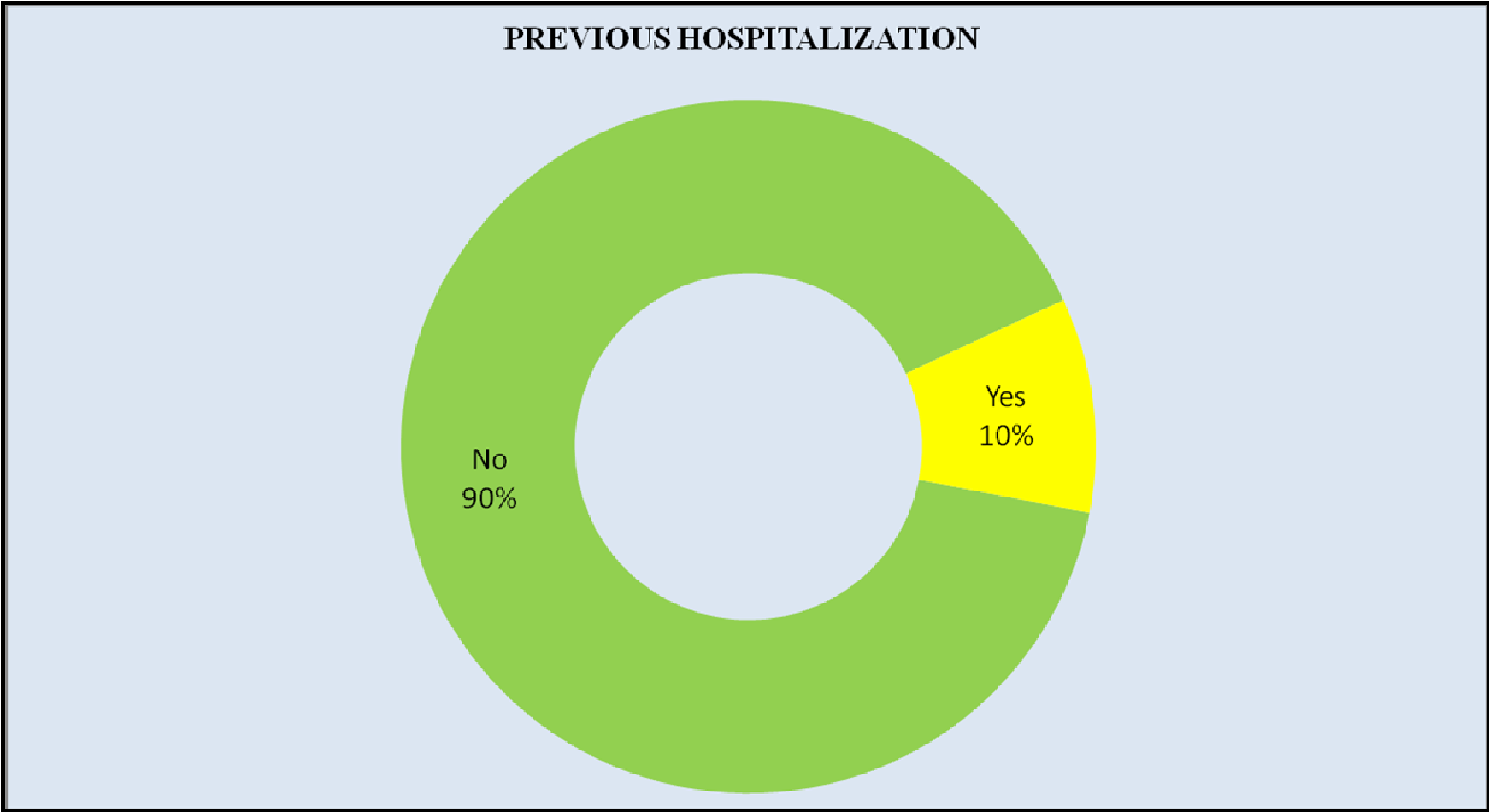


Figure 13: Distribution of Sample Percentage According to the Previous Hospitalization

SECTION-II

DESCRIPTION OF PAIN SCORE & PHYSIOLOGICAL MEASURES OF SELECTED SAMPLES BEFORE MUSIC THERAPY BY USING MEAN AND STANDARD DEVIATION.

Table 2: Pre Assessment Level of Pain

Description	No. of children	Percentage
No Hurt	0	0.0%
Hurts little bit	0	0.0%
Hurts little more	0	0.0%
Hurts even more	12	20.0%
Hurts whole lot	48	80.0%
Hurts worst	0	0.0%

Table 2 assess the level of pain among children before music therapy.

None of the children are having no pain or worst pain. 20 % (12) of the children are having hurts even more and 80 % (48) of them are having hurts whole lot.

Table 3: Pre Assessment Level of Physiological Parameters

Physiological parameters	Mean	SD
Heart rate	98.60	6.36
Respiratory rate	27.30	2.11
Systolic Blood Pressure	104.92	5.06
Diastolic Blood Pressure	65.88	4.69

Table 3 assess the level of physiological measures among children before music therapy.

This table reveals that Pre assessment mean scores of heart rate, respiratory rate, systolic blood pressure and diastolic blood pressure. The Mean Heart Rate was 98.60 and SD was 6.36, Mean Respiratory Rate was 27.30 and SD was 2.11, Mean Systolic Blood Pressure was 104.92 and SD was 5.06 and Mean Diastolic Blood Pressure was 65.88 and SD was 4.69.

Table 4: Pre and Post Assessment Level of Pain

Description	Morning		χ^2 -test	Evening		χ^2 -test
	Pre Assessment	Post Assessment		Pre Assessment	Post Assessment	
No Hurt	0	0	$\chi^2=94.15$ P=0.001***	0	0	$\chi^2=102.0$ P=0.001***
Hurts little bit	0	14		0	42	
Hurts little more	0	32		6	18	
Hurts even more	12	14		29	0	
Hurts whole lot	48	0		25	0	
Hurts worst	0	0		0	0	
Total	60	60		60	60	

significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high significant at $P \leq 0.001$

This table 4 shows that Pre assessment and Post Assessment level of pain. Morning 48 children showed Hurts whole lot before the intervention and 32 children Hurts little more after the intervention and evening 29 children showed Hurts even more before the intervention and 42 children showed Hurts little bit after the intervention. It shows that the pain was low on the evening and the music therapy shows much effect in pain reduction. The effectiveness was calculated by Chi Square test and the P value =0.001 it shows this result was very high significant.

Table-5: Overall Pre Assessment and Post Assessment Level of Pain

Description	Level of pain		χ^2 -test
	Morning Pre Assessment	Evening Post Assessment	
No Hurt	0	0	$\chi^2=120.00$ P=0.001***
Hurts little bit	0	42	
Hurts little more	0	18	
Hurts even more	12	0	
Hurts whole lot	48	0	
Hurts worst	0	0	
Total	60	60	

This table 5 shows that morning 48 children showed Hurts whole lot before the intervention and evening 42 children showed Hurts little bit after the intervention. Statistically significant difference in morning Pre assessment level of pain and evening Post Assessment level of pain. Statistical significance was calculated by using chi square test.

Table 6: Comparison of Mean Pain Score Between Pre Assessment and Post Assessment

Duration	Assessment	Mean	SD	Paired T-Test
Morning	Pre Assessment	7.60	0.81	t=27.11 p=0.001***
	Post Assessment	4.00	1.38	
Evening	Pre Assessment	6.63	1.31	t=24.00 p=0.001***
	Post Assessment	2.60	0.92	

* significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high significant at $P \leq 0.001$ Table no 6 shows the comparison of pain score between pre assessment and Post Assessment.

This table 6 shows that in Pre assessment pain score was 7.60 and evening Post Assessment pain score was 2.60, comparison of pain score between Pre Assessment and Post Assessment. There is a significant pain reduction at Morning Pre assessment and Post Assessment as well as evening Pre assessment and Post Assessment pain score .The difference between Pre assessment and Post Assessment pain score is large and it is statistically significant. Differences between Pre assessment and Post Assessment score were analysed by using paired t-test.

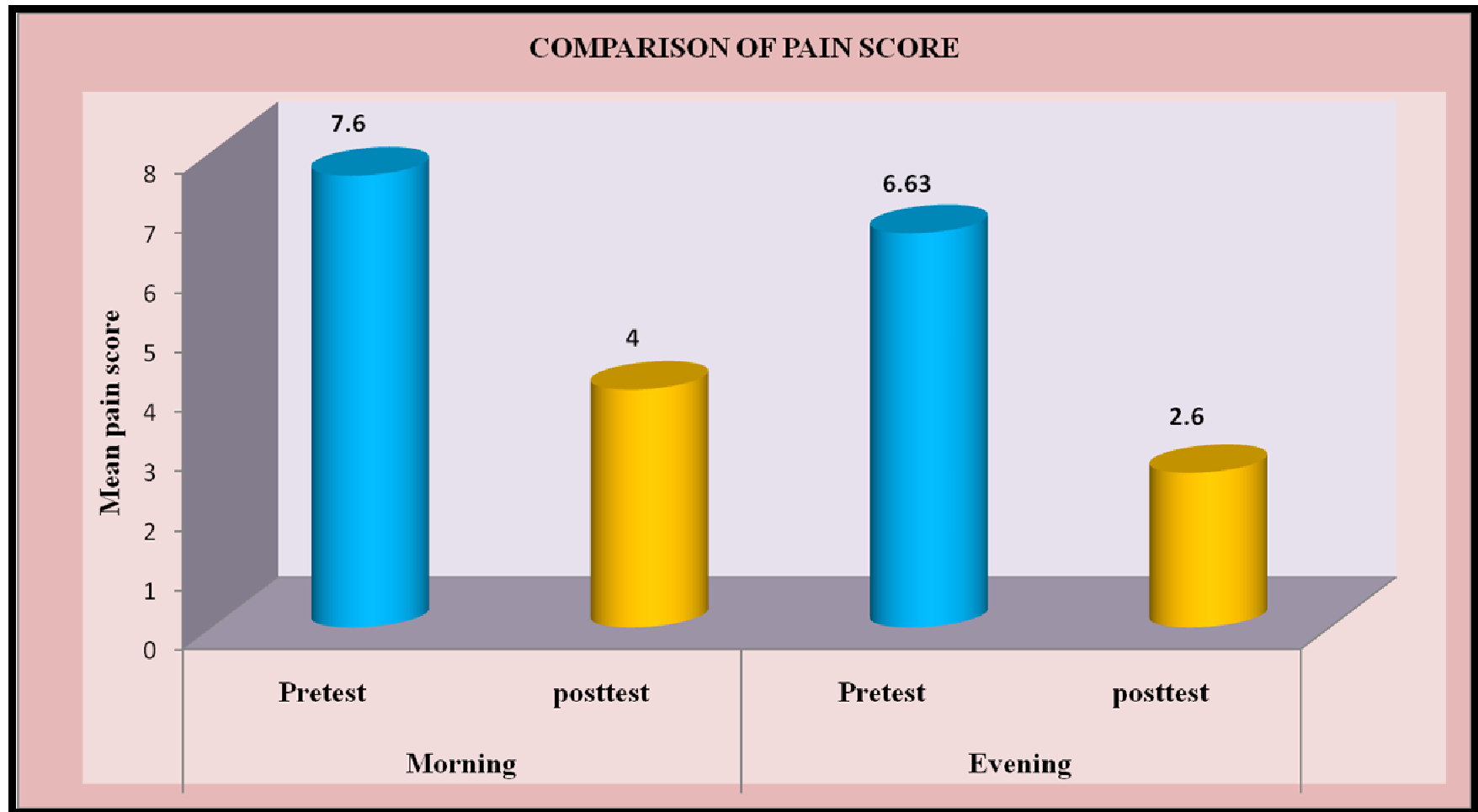


Figure14: comparison of pain score

Table 7: Comparison of Overall Pain Score

Assessment	No of children	Mean \pm sd	Student's paired T-test
Pre Assessment	60	7.60 \pm 0.81	t=36.07 P=0.001*** significant
Post Assessment	60	2.60 \pm 0.92	

* Significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high significant at $P \leq 0.001$

This table 7 shows the comparison of overall pain score between pre-assessment and post-assessment. On an average, in pre-assessment, children were 7.60 score and in post-assessment, children were 2.60 score. Difference was 5.00 score. The difference between Pre assessment and post assessment pain score was large and it was statistically significant. Differences between pre assessment and post-assessment score was analysed by using paired t-test.

Table 8: Comparison between Pre Assessment and Post Assessment Physiological Parameters

Physiological parameters	Time	Assessment	Mean	SD	Paired t-test
Heart rate	Morning	Pre Assessment	98.60	6.36	t=16.22 p=0.001***
		Post Assessment	95.67	6.02	
	Evening	Pre Assessment	94.57	5.56	t=16.39 p=0.001***
		Post Assessment	91.60	5.53	
Respiratory Rate	Morning	Pre Assessment	27.30	2.11	t=16.16 p=0.001***
		Post Assessment	24.93	2.07	
	Evening	Pre Assessment	24.97	2.77	t=6.67 p=0.001***
		Post Assessment	23.00	1.67	
SBP	Morning	Pre Assessment	104.92	5.06	t=4.96 p=0.001***
		Post Assessment	101.70	4.35	
	Evening	Pre Assessment	100.10	4.58	t=7.36 p=0.001***
		Post Assessment	97.50	4.53	
DBP	Morning	Pre Assessment	65.88	4.69	t=8.63 p=0.001***
		Post Assessment	63.07	3.54	
	Evening	Pre Assessment	63.40	2.88	t=9.53 p=0.001***
		Post Assessment	60.73	2.08	

This table 8 reveals that during morning Pre assessment Mean Heart Rate score was 98.60 and the evening Post Assessment score was 91.60 and the morning Pre assessment mean respiratory score was 27.30 and evening Post Assessment score was 23.00, morning Pre assessment mean SBP score was 104.92 and the evening Post Assessment SBP score was 97.50 and morning Pre assessment mean DBP score was 65.88 and evening Post Assessment DBP score was 60.73. There is a statistical difference between Pre assessment and Post Assessment physiological measures. Statistical significance was calculated by using paired t-test.

Table 9: Comparison of Overall Score of Physiological Parameters

Physiological parameters	Time	Assessment	Mean	SD	Paired t-test
Heart rate	Morning	Pre Assessment	98.60	6.36	t=23.73 p=0.001***
	Evening	Post Assessment	91.60	5.53	
Respiratory rate	Morning	Pre Assessment	27.30	2.11	t=22.73 p=0.001***
	Evening	Post Assessment	23.00	1.67	
SBP	Morning	Pre Assessment	104.92	5.06	t=17.91 p=0.001***
	Evening	Post Assessment	97.50	4.53	
DBP	Morning	Pre Assessment	65.88	4.69	t=9.82 p=0.001***
	Evening	Post Assessment	60.73	2.08	

This table 9 shows that there is a statistically significant difference between pre-assessment and post-assessment physiological measures. Statistical significance was calculated using paired t-test.

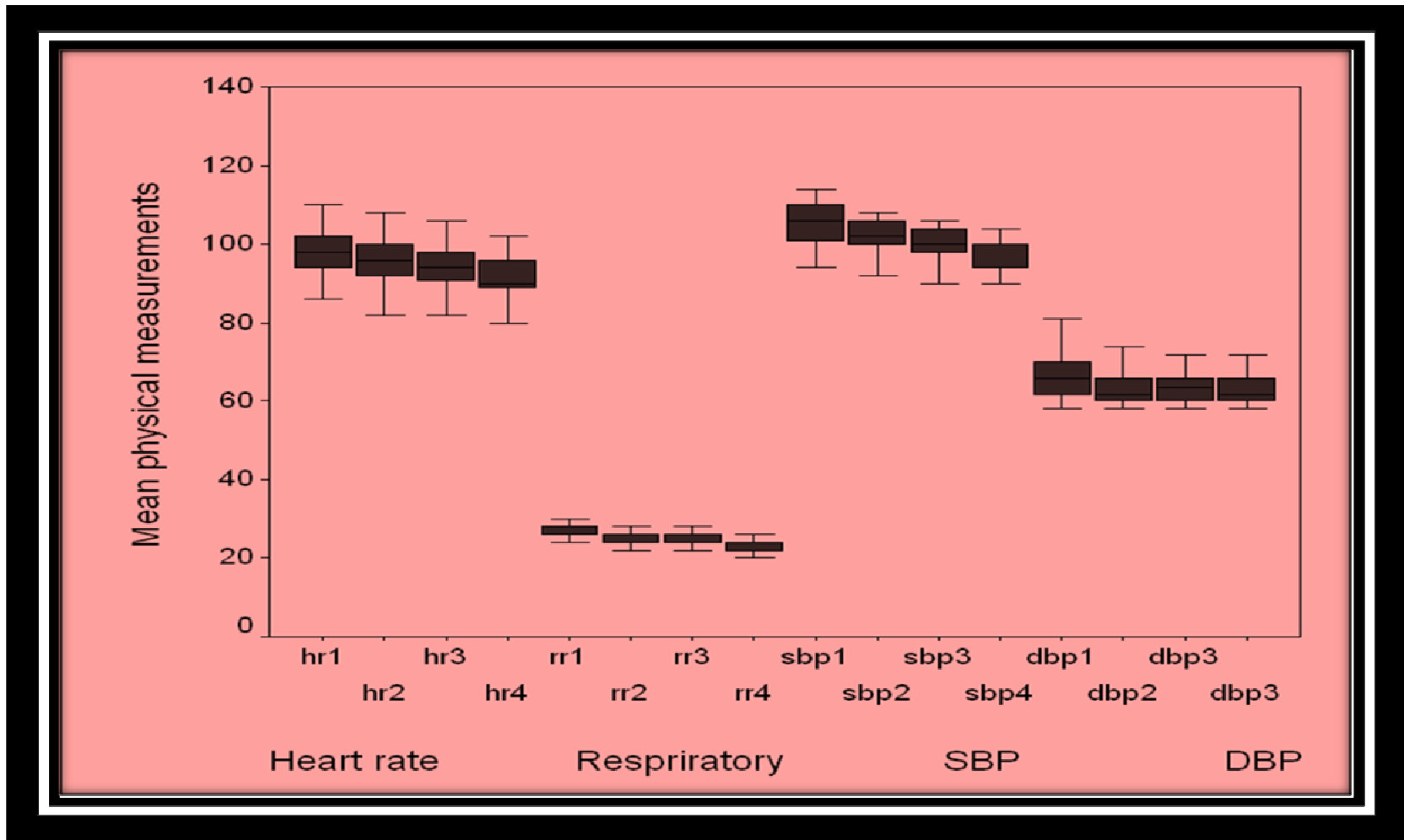


Figure 15: Box-Plot compares Pre Assessment and Post Assessment level of Physiological Parameters

SECTION-III: DESCRIPTION OF THE EFFECTIVENESS OF MUSIC THERAPY BY COMPARING PAIN SCORE & PHYSIOLOGICAL MEASURES AMONG SELECTED SAMPLES

Table 10: Effectiveness of Music Therapy

Score	Pre assessment	Post assessment	Mean difference With 95% Confidence interval	Reduction from base line data
Pain score	7.60	2.60	5.00 (4.72-5.28)	↓65.8 % (62.1% -69.5%)
Heart rate	98.60	91.60	7.00 (6.41-7.59)	↓7.1 % (6.5% - 7.7%)
Respiratory Rate	27.30	23.00	4.30 (3.92-4.68)	↓15.7 % (14.3%-17.1%)
SBP	104.90	97.50	7.42(6.59-8.24)	↓7.1 % (6.3%-7.9%)
DBP	65.88	60.73	5.15(4.10-6.20)	↓7.8% (6.2%-9.4%)

Table no 10 shows the effectiveness of music therapy on reduction of pain, HR, RR, SBP and DBP among children who underwent abdominal surgery in postoperative wards.

This table 10 reveals that Pre assessment pain score was 7.60 and Post Assessment pain score was 2.60, Pre assessment Heart Rate score was 98.60 and the Post Assessment Heart Rate score was 91.60, pre-Assessment Respiratory Rate score was 27.30 and Post Assessment Respiratory Rate score was 23.00, PreAssessment Systolic Blood Pressure score was 104.90 and the Post Assessment Systolic Blood Pressure score was 97.50 and Pre Assessment Diastolic Blood Pressure score was 65.88 and the Post Assessment Diastolic Blood Pressure score was 60.73. Difference between Pre assessment and Post Assessment pain score were analysed using proportion with 95% Confidence interval and mean difference with 95% Confidence interval.

SECTION-IV: ASSOCIATION BETWEEN THE LEVEL OF PAIN REDUCTION SCORE AND SELECTED DEMOGRAPHIC VARIABLES AMONG SELECTED SAMPLES.

Table 11: Association between Level of Pain Reduction and Children Demographic Variables

Demographic Variables		Level of Pain Reduction				Total	Chi Square Test
		Below average (<5.00)		Above average (>5.00)			
		N	%	N	%		
Age of child	6 -8 years	6	31.5%	13	68.5%	19	$\chi^2=5.88$ $p=0.05^*$
	8 -10 years	10	47.6%	11	52.4%	21	
	10 -12 years	14	70.0%	6	30.0%	20	
Sex of child	Male	20	51.3%	19	48.7%	39	$\chi^2=0.07$ $p=0.78$
	Female	10	47.6%	11	52.4%	21	
Place of birth	Rural	20	54.1%	17	45.9%	37	$\chi^2=0.63$ $p=0.42$
	Urban	10	43.5%	13	56.5%	23	
Child's education	Primary	16	44.4%	20	55.6%	36	$\chi^2=1.11$ $p=0.29$
	Secondary	14	58.3%	10	41.7%	24	
Educational status of mother	Primary	16	69.6%	7	30.4%	23	$\chi^2=8.46$ $p=0.04^*$
	Secondary	10	50.0%	10	50.0%	20	
	Higher secondary	3	27.3%	8	72.7%	11	
	Graduate	1	16.7%	5	83.3%	6	

Demographic Variables		Level of Pain Reduction				Total	Chi Square Test
		Below average (<5.00)		Above average (>5.00)			
		N	%	N	%		
Father's occupation	Unskilled worker	21	52.5%	19	47.5%	40	$\chi^2=3.15$ $p=0.20$
	Skilled worker	9	52.9%	8	47.1%	17	
	Professional			3	100.0%	3	
Mother's occupation	Home maker	26	50.0%	26	50.0%	52	$\chi^2=2.00$ $p=0.57$
	Unskilled worker	3	50.0%	3	50.0%	6	
	Skilled worker	1	100.0%			1	
	Professional			1	100.0%	1	
Monthly income	Rs.3000 -5000	15	68.2%	7	31.8%	22	$\chi^2=8.35$ $p=0.04^*$
	Rs.5001 -7000	12	52.1%	11	47.9%	23	
	Rs.7001 -9000	2	20.0%	8	80.0%	10	
	> Rs.9000	1	20.0%	4	80.0%	5	
Type of family system	Nuclear family	26	59.1%	18	40.9%	44	$\chi^2=5.45$ $p=0.02^*$
	Joint family	4	25.0%	12	75.0%	16	
Type of marriage	Consanguineous	12	57.1%	9	42.9%	21	$\chi^2=0.65$ $p=0.41$
	Non-Consanguineous	18	46.2%	21	53.8%	39	
Previous Hospitalization	No	27	50.0%	27	50.0%	54	$\chi^2=0.00$ $p=1.00$
	Yes	3	50.0%	3	50.0%	6	

* significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$ *** very high significant at $P \leq 0.001$.

Table 11 shows the association between level of pain reduction score and children demographic variables. Younger children, more educated mother, more income family and joint family children are having more reduced pain than others.

This table shows that younger children 6-8 years 68.5% were above average (>5.00) level of pain reduction ($\chi^2=5.88$ $p=0.05^*$), Children of more educated mother 83.3% were above average (>5.00) of pain reduction ($\chi^2=8.46$ $p=0.04^*$), Children who belongs to more income family 80.0% were above average (>5.00) of pain reduction ($\chi^2=8.35$ $p=0.04^*$) and the Children were came from joint family 75.0% were above average (>5.00) of pain reduction ($\chi^2=5.45$ $p=0.02^*$). It shows that they were more reduction of pain than others. Statistical significance was calculated by using Chi square test.

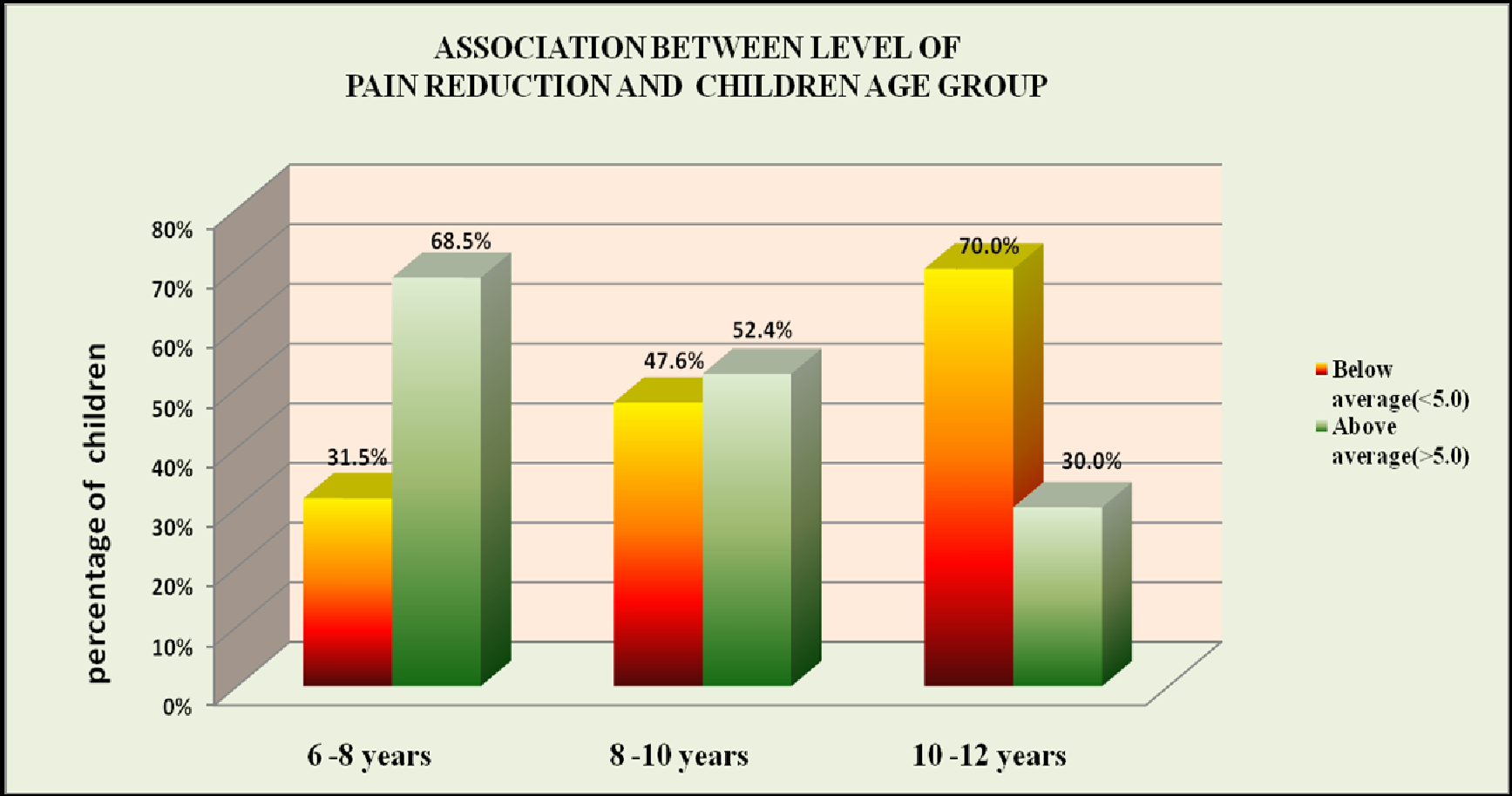


Figure 16: Association between level of pain reduction and children age group

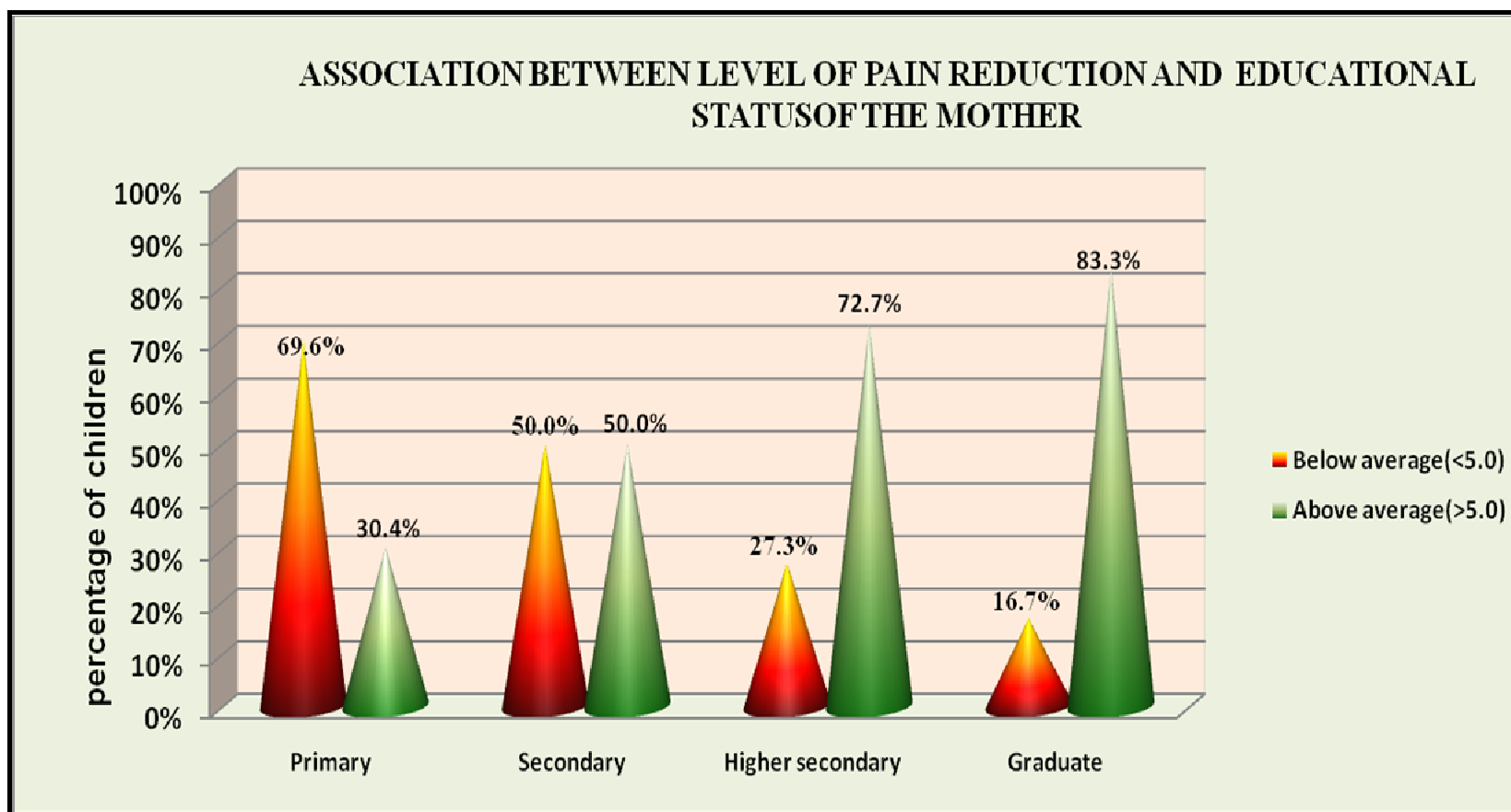


Figure 17: Association between level of pain reduction and Educational Status of the Mother

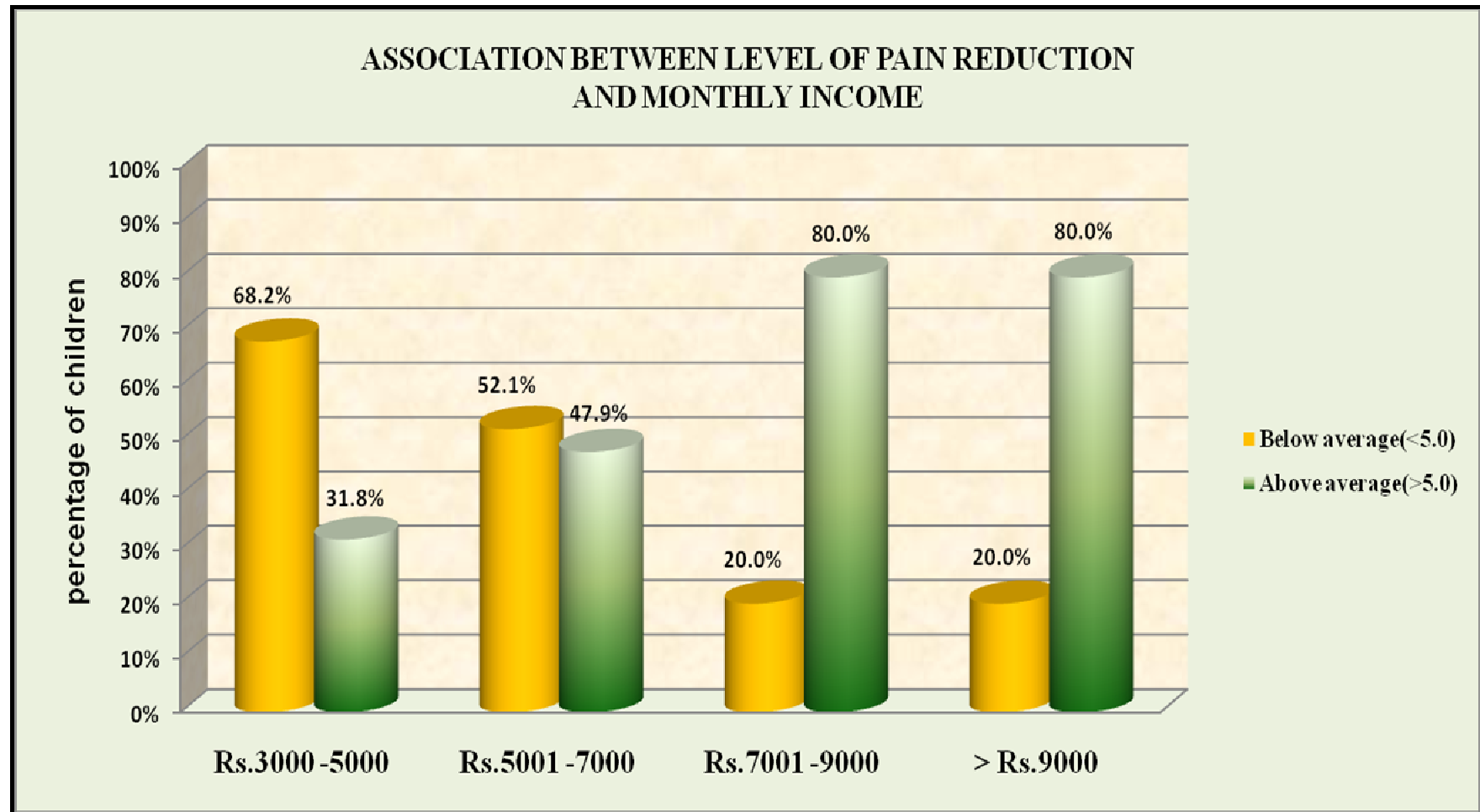


Figure 18: Association between level of pain reduction and their monthly income

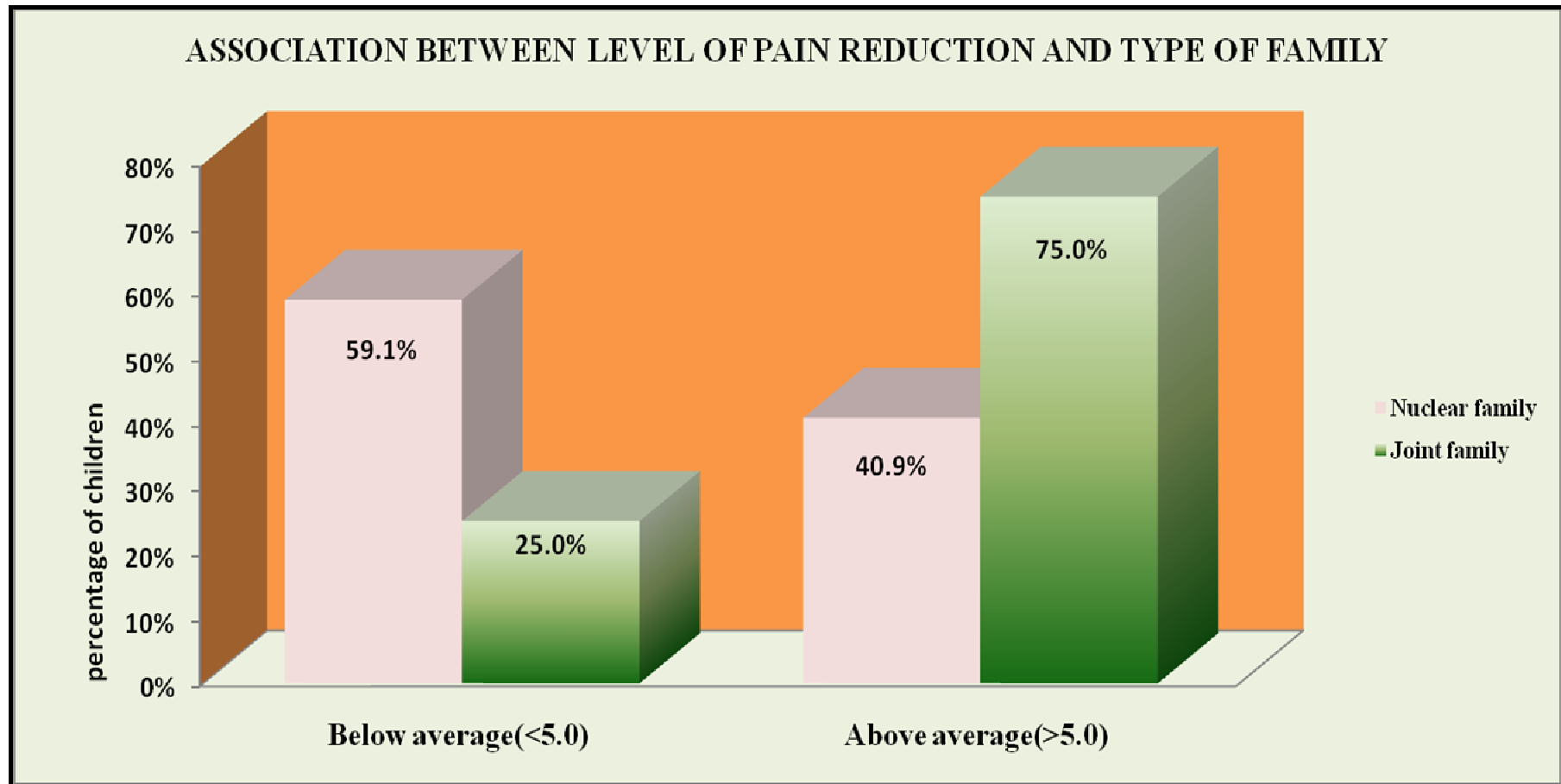


Figure 19: Association between level of pain reduction and Type of Family

CHAPTER-V DISCUSSION

This chapter deals with the findings of the study based on the interpretation of statistical analysis. The findings are discussed towards the objectives of the study. The findings are supported by the review of literature.

The purpose of the study was to assess the effectiveness of music therapy between the children undergone abdominal surgeries regarding pain management in postoperative wards.

Description of the demographic variables

Percentage distribution according to the table 1 showed that 6-8 years of children were (31.7%), 8-10 years of children were (35.0%) and 10-12 years of children were (33.3%)

With respect of sex higher proportion was Male 65.0% (39) and female children were 35% (21)

More than half of the children belong to rural area 61.7% (37) and urban area was 38.3% (23)

More than half of the children were undergone primary education 60.0% (36) and 40% (24) were undergone secondary education.

With respect of Education of the mother 38.3% (23) were undergone primary education, 33.3% (20) were completed secondary education, 18.3% (11) were Higher Secondary education and 10.0% (6) were studied upto Graduate.

More than half of fathers 66.7% (40) were Unskilled workers, 28.3% (17) were Skilled workers and 5 % (3) were Professionals.

High proportion of mother 86.7 % (52) were Home Makers, 10 % (6) were Unskilled workers and 1.7%(1) was Skilled worker and similarly 1.7% (1) was Professional.

In respect to the family's monthly income 36.7% (22) were earning Rs. 3000-5000/-, 38.3% (23) were Rs.5001-7000/- , 16.7% (10) were earning Rs. 7001- 9000/- and more than Rs. 9000 were 8.3 % (5).

Higher proportion of children 73.3% (44) were belongs to nuclear family and 26.7% (16) children were belongs to joint family.

In respect to the type of marriage more than half of the parents 65% (39) were undergone Non-Consanguineous marriage and 35% (21) were consanguineous marriage.

Higher proportion of the children 90% (54) were not previously hospitalized and 10% (6) of children were previously hospitalized.

The first objective of the study was to assess the level pain and physiological measures in children before music therapy

The pain score of the children was assessed by Wong Backers Faces Pain Scale and the data were analyzed by the descriptive statistics.

In a Pre assessment among 60 children 80% (48) had Hurts whole lot and 20% (12) had Hurts even more and none of them had worse or no pain.

The Pre assessment Mean pain score on morning and evening were 7.60 & 6.63 and standard deviations were 0.81 & 1.31.

The Mean Heart on morning and evening were 98.60 & 94.57 standard deviations were 6.36 & 5.56.

The Mean Respiratory on morning and evening were 27.30 & 24.97 standard deviations were 2.11 & 2.77.

The Mean Systolic Blood Pressure on morning and evening were 104.92 & 100.10 standard deviations were 5.06 & 4.58.

The Mean Diastolic Blood Pressure on morning and evening were 65.88 & 63.40 standard deviations were 4.69 & 2.88.

Overall physical parameters were high on the first postoperative day morning it was mainly due to increased pain.

This study is supported by Sweet and McGrath 1998 et al. on physiological parameters such as heart rate, respiration rate, blood pressure, palmar sweating, cortisol and cortisone levels, O₂ levels, vagal tone, and endorphin concentrations have been monitored in infants and children to understand how behavioural and biological measures may be used to assess the pain. The study concluded that physiological parameters were high during the acute pain.

Nancy Wellset al by RG Hughes - 2008 concluded that the cardiovascular system responds to stress of pain by activating the sympathetic nervous system, which produces a variety of unwanted effects. In the postoperative period, these include hypercoagulation and increased heart rate, blood pressure, cardiac work load, and oxygen demand. Aggressive pain control is required to reduce these effects and prevent thromboembolic complications. Cardiac morbidity is the primary cause of death after anesthesia and surgery.

The second objective of the study was to assess the pain score and physiological parameters after the music therapy

The Post Assessment mean pain Mean pain score on morning and evening were 4.00 & 2.60 standard deviations were 1.38 & 0.92.

The Post Assessment Mean Heart rate on morning and evening were 95.67 & 91.60 standard deviations were 6.02 & 5.53.

The Post Assessment Mean Respiratory rate on morning and evening were 24.93 & 23.00 standard deviations were 2.07 & 1.67.

The Post Assessment Mean Systolic Blood Pressure on morning and evening were 101.70 & 97.50 standard deviations were 4.35 & 4.53.

The Post Assessment Mean Diastolic Blood Pressure on morning and evening were 63.07 & 60.73 standard deviations were 3.54 & 2.08.

Data were analyzed using descriptive statistics Mean and standard deviation of Pain score, Heart rate, Respiratory rate, Systolic Blood Pressure and Diastolic Blood Pressure.

This study is supported by Magill-Levreault-1993 there are three possible ways that music may modify pain such as affective, cognitive and sensory. In affective music can lift depressive symptoms, promote relaxation and diminish tension and anxiety, according to cognitive music provide a means of distracting attention away from pain, Sensory component of music may have effect on sensory component of pain through counter- stimulation of the afferent fibres.

Kwekkeboom, 2003 concluded that the act of listening to music may reduce the perception of pain as a distraction as used in a study for procedural pain and anxiety in patients with cancer. This kind of a distraction can change the transmission of pain impulses through activating the limbic system and sensory region of the brain.

The third objective of the study was to determine the effectiveness of Music Therapy on pain reduction with physiological measures by comparing Pre assessment and post-assessment score.

The comparison shows that there is statistically significant difference between Pre assessment and post-assessment pain score and physiological parameters.

The Pre assessment mean pain score was 7.60 and Post Assessment mean pain score was 2.60. This result evidenced that there was significant pain reduction after music therapy.

The Pre assessment mean Heart rate was 98.60 and Post Assessment mean Heart rate score was 91.60, the Pre assessment mean Respiratory rate was 27.30 and Post Assessment mean respiratory rate was 23.00, the Pre assessment mean Systolic Blood Pressure was 104.92 and the Post Assessment score was 97.50 and the Pre assessment mean Diastolic Blood Pressure was 65.88 and Post Assessment score was 60.73.

These results evidenced that there is significant reduction of pain, heart rate, respiratory rate, systolic blood pressure and diastolic blood pressure of children who underwent abdominal surgery due to music therapy.

This study is supported by Mattei TA et.al, 2013 conducted a study, a randomised clinical trial, consisting of 79 children aged 1 year to 16 years who were recovering from congenital heart surgery, investigated the impact of music during the first 24 hour post-operative period. The study found that the group exposed to music had significant reductions in facial pain scale ratings ($p < 0.001$), heart rate ($p = 0.04$) and respiratory rate ($p = 0.02$) in comparison to the non-music control group. Music therapy showed significant effect on pain management in this intervention.

The fourth objective of the study was to associate the demographic variables with pain.

The association between the pain and demographic variables was noted with Age of the children, Educational status of the Mother, Income of the family and children who belongs to Joint family.

According to the age of the children 6-8 years (68.5%) were above average (>5.00) pain reduction ($\chi^2=5.88$ $p=0.05^*$). Statistical significance was calculated by using Chi square test.

The children's pain perception and anxiety were influenced by the education of the mother because children were taken care by their mother. The children of more educated mother (83.3%) showed an effective pain reduction ($\chi^2=8.46$ $p=0.04^*$) compare to mother who has got only primary education.

Children who belongs to wealthy family 80.0% were above average (>5.00) level of pain reduction ($\chi^2=8.35$ $p=0.04^*$) compare to children who belongs to below poverty family.

Type of family plays important role in pain reduction. The children who belongs to joint family 75% was (>5.00) level of pain reduction ($\chi^2=5.45$ $p=0.02^*$) than the children who belongs to nuclear family.

This study is supported by Alexandra Lamont of Keele University in the UK established that the foetus hears music. She discovered that at the age of one child recognize and express a preference for music they were exposed to in the womb. The auditory system of the foetus is fully functional at about twenty weeks after conception. Music therapy for premature infants is typically targeted at integrating, and increasing the infant's tolerance for, physical and auditory stimulation and at increasing strength and speed of sucking, in order to promote growth.

The study was supported by *Ross, D. P., & Roberts, P. 1999* conducted a study in canadian children and concluded that low- income families are more likely to experience greater incidence of variety of illness, hospital stays, In fact, low-income children show higher incidences of just about any health, social and education-related

problem, however, these differences in problem incidence occur across the income range but are most concentrated among low-income children

McWey, 2000 concluded that theoretical support for maintaining and promoting families' contact with their children in out-of-home placement is drawn from research on attachment and bonding. On the basis of extensive research, Bowlby (1980) provided evidence that children's capacity to form an attachment with a care giving adult is the foundation of their capacity to form healthy relationships in later life and serves as a protective factor in dealing with stress. Attachment theory is now considered relevant to individuals at all stages of development. Attachments provide the continuity, stability, and mutuality necessary to healthy psychosocial development.

CHAPTER-VI SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter deals with the summary of the study and the conclusions drawn. It clarifies the limitations of the study, the implications and recommendations are given for different areas of Nursing such as practice, education, research and administration in the Health care delivery system.

6.1. SUMMARY

Pain is the unpleasant sensory stimulation, especially in children. It shapes their behaviour in the future. The pain in children was underestimated and untreated in many clinical settings. The roles of the nurses are important role in managing the pain in children especially during the postoperative period. It helps the child to develop confidence, cooperation and to reduce the anxiety during hospital procedures. The family also needs to manage the child during the painful procedures. Health care professionals have to set the responsibility to reduce the pain and anxiety as much as possible. A Non-Pharmacological procedure shows very effective in managing the pain. Cultural factors affect the pain perception in the children. Hence, this study was undertaken to determine the effectiveness of music therapy play in pain reduction among the children undergone abdominal surgeries on the first postoperative day.

The following objectives were set for the study

- ❖ To assess the level of pain and physiological measures among children before music therapy.
- ❖ To assess the level of pain and physiological measures after music therapy.

- ❖ To determine the effectiveness of music therapy on pain reduction by comparing pre-test and post-test scores.
- ❖ To associate the effectiveness of music therapy with selected demographic variables.

The following Hypothesis was formulated

H₁ : Music therapy will have effective in reducing the postoperative pain in children

H₂ : There will be significant relation between the music therapy and selected demographic Variables.

The variables studied were

Independent variable → Music therapy

Dependent variable → Post Operative Pain

Extensive literature review and studies from primary and secondary focus regarding the effects of music therapy on pain management provided evidence based guidance for the study. This has helped to design the methodology, develop the tool for data collection and the protocol for administering music therapy. The conceptual framework developed for the study was based on the Roy Adaptation Theory.

The tool used for data collection was validated by the experts in the Department of Paediatric Surgery and Nursing. Reliability of the tool was assessed by using interrater reliability correlation coefficient. The instrument was found to be reliable. A pilot study was conducted on six samples to find out the appropriateness and feasibility of conducting the study and it was found feasible.

The data was collection in the Selected Post operative wards, at Institute of Child Health and Hospital for children, Egmore, Chennai-08. Formal permission was obtained from the Director of the Institute and Head of the Department of Paediatric Surgery at Institute of Child Health and Hospital for children, Egmore, Chennai-08.

The researcher adopted the pre-experimental design one group pre-test post-test design to assess the effectiveness of music therapy on pain management.

The purposive sampling technique was used in this study. It is a Non-Probability method of sampling. It was used to select 60 samples based on the inclusion criteria.

Parents were explained about the purpose of the study and assured of confidentiality of the data collected. On the first post-operative day, the demographic data and pre assessment of pain and physiological measures were obtained. Adequate privacy was provided during the procedure. Melodious instrumental song was played by using with the Head phone for 15 minutes in the morning and evening.. Post assessment of pain & physiologic Parameters were obtained immediately after the music therapy.

Descriptive (percentage distribution, mean, standard deviation) and inferential statistics (t- test, Pearson chi square test) were used to analyze the data and to test hypothesis. The data were then interpreted and discussed based on the objectives of the study, hypotheses and relevant studies from the literature reviewed.

6.2. MAJOR FINDINGS OF THE STUDY

Description of the demographic variables

On Percentage distribution according to the table 1 showed that 6-8 years of children were (31.7%), 8-10 years of children were (35.0%) and 10-12 years of children were (33.3%)

With respect of sex higher proportion was Male 65.0% (39) and female children were 35% (21)

More than half of the children belong to rural area 61.7% (37) and urban area was 38.3% (23)

More than half of the children were undergone primary education 60.0% (36) and 40% (24) were undergone secondary education.

With respect of Educational status of the mother 38.3% (23) were undergone primary education, 33.3% (20) were completed secondary education, 18.3% (11) were Higher Secondary education and 10.0% (6) were studied upto Graduate.

More than half of father 66.7% (40) were Unskilled workers, 28.3% (17) were Skilled workers and 5 % (3) were workers Professionals.

High proportion of mother 86.7 % (52) were Home Makers, 10 % (6) were Unskilled workers and 1.7%(1) was Skilled worker and similarly 1.7% (1) was Professional.

With respect to the family monthly income 36.7% (22) were earning Rs. 3000-5000/-, 38.3% (23) were Rs.5001-7000/- , 16.7% (10) were earning Rs. 7001- 9000/- and more than Rs. 9000 were 8.3 % (5).

Higher proportion children 73.3% (44) were belongs to nuclear family and 26.7% (16) children were belongs to joint family.

With respect to the type of marriage more than half of the parents 65% (39) were undergone Non-Consanguineous marriage and 35% (21) were consanguineous marriage.

Higher proportion of the children 90% (54) were not previously hospitalized and 10% (6) of children were previously hospitalized.

Music therapy & Pain reduction

None of the children are having no pain or worst pain. Morning 48 children showed Hurts whole lot before the intervention and 32 children Hurts little more after the intervention and evening 29 children showed Hurts even more before the intervention and 42 children showed Hurts little bit after the intervention. Morning pre-test mean pain score was 7.60 and post-test mean pain score was 4.00, evening pre-test mean pain score was 6.63 and post-test mean pain score was 2.60. On an average, in pre-test, children are having 7.60 score and in post-test, children are having 2.60 score. Difference is 5.00 score. The difference between pre-test and post-test pain score is large and it is statistically significant. Differences between pre-test and post-test score were analysed using paired t-test.

Physiological Parameters and Pain reduction

The pain reduction is evidenced by the reduction on the physiological parameters like Heart rate, Respiratory rate, Systolic Blood pressure, and Diastolic Blood Pressure. Morning pre-test Mean Heart Rate score was 98.60 and the evening post-test score was 91.60 and the morning pre-test mean respiratory score was 27.30 and evening post-test score was 23.00, morning pre-test mean SBP score was 104.92 and the evening post-test SBP score was 97.50 and morning pre-test mean DBP score was 65.88 and evening post-test DBP score was 60.73. There is a statistically difference between pre-test and post-test physiological measures. Statistical significance was calculated by using paired t-test.

Association between pain reduction and Demographic Variables

The mean Pain score is associated with selected demographic variables. There is significant association seen with age group of the subject i.e. children between the age of the 6-8 years (68.5%) were above average (>5.00) maximum pain reduction, ($\chi^2=5.88$ $p=0.05^*$) than the 8-10 years (52.4%) and 10-12 years (30.0%) of children. Statistical significance was calculated by using Chi square test.

The children's pain perception and anxiety were influenced by the education of the mothers. The children of more educated mother (83.3%) showed an effective pain reduction ($\chi^2=8.46$ $p=0.04^*$) compared to mother who were undergone primary education (30.4%).

Children who belongs to wealthy family 80.0% were above average (>5.00) level of pain reduction ($\chi^2=8.35$ $p=0.04^*$) compared to children who belongs to below poverty family (31.8%).

Type of family plays some role in pain reduction. The children who belongs to joint family 75% was (>5.00) level of pain reduction ($\chi^2=5.45$ $p=0.02^*$) than the children who belongs to nuclear family (40.9%)

6.3. IMPLICATIONS

The implications drawn from the study are of vital concern to the field of nursing including Nursing Service, Nursing Education, Nursing Research and Nursing Administration.

6.3.1. IMPLICATIONS FOR NURSING PRACTICE

- 1) Nurse is the primary care giver and having responsibility in applying the holistic approach while giving the care to the patient. Music therapy should include as a part of nursing care.
- 2) The findings of the study will help the Nursing personnel to manage the pain in children during the postoperative period.

- 3) Regular timings of music therapy to be provided in postoperative care settings.
- 4) A protocol steps on implementation of music therapy can be developed and used in all wards of Institute of Child Health and Hospital for Children.

6.3.2. IMPLICATIONS FOR NURSING EDUCATION

Nursing is an evolving profession whereas every practice is based on evidence based care with adequate knowledge.

- 1) The Nurse educator should teach about the distraction therapies, it is very effective and easy to administer.
- 2) Nurse educators should provide In-service Education regarding benefits of non pharmacological methods (especially music therapy) on pain management.
- 3) Nurse educator can conduct Symposium, Seminars regarding the effect of the music therapy in pain management in children.
- 4) It provides an opportunity for nursing students to participate in various distraction techniques like music and dance for anxiety management strategies.

6.3.3. IMPLICATIONS FOR NURSING RESEARCH

- 1) Help the Nursing researcher to focus and develop insight on the distraction therapies
- 2) To do the further research in all post operative children
- 3) The management should motivate the researchers to find various types of distraction therapies in post operative children on the basis of cost effectiveness.
- 4) Helps to research on various speciality departments with future scope.

6.3.4. IMPLICATIONS FOR NURSING ADMINISTRATION

- 1) The Nurse administrator should prepare the protocol for distraction therapies especially music therapy for the children who are admitted in the hospitals.
- 2) The Nurse administrator should arrange training programmes In-service Education, seminar, symposium, conference and to teach about the effectiveness of music therapy in pain management among the children.
- 3) The nurse administrator can take initiative to provide opportunities to subordinates to perceive various relaxation techniques especially listening music to cope with stress and able to manage in work place.

6.4. RECOMMENDATIONS

- ❖ A similar study can be conducted for all types of surgical patients.
- ❖ The same study can be conducted in larger groups in different settings.
- ❖ The same study can be used to minimize the fear and anxiety of the children.
- ❖ Comparison study can be done by various distraction therapies.
- ❖ This can be done as a True Experimental study
- ❖ A similar study can be conducted in various age groups.
- ❖ This study can be done to assess the effectiveness of music enhances the attention and concentration power of children

6.5. CONCLUSION

This study attempted to find out the Effectiveness of music therapy among the children undergone abdominal surgeries regarding pain management in selected post operative wards.

The following conclusions were drawn from the study

- ❖ Music therapy was found to be effective in reducing the pain in post operative children.
- ❖ The post assessment pain score was significantly lowers the pre assessment.
- ❖ There was a significant association between selected demographic variables and pain reduction in children undergone abdominal surgery.

Nurses are the primary care giver and having responsibility in applying the holistic approach while giving the care to the patient. Music therapy should include as a part of nursing care. Music has a definite place in treating paediatric postoperative pain. It can reduce perceived pain in children. It was cost effective, safe, and feasible. Music therapy provides therapeutic relationship between therapist and client and it makes an exceptional treatment modality.

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ELECTRONIC VERSION

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- 3) <http://www.ijtmb.org>
- 4) <http://www.google.com>
- 5) <http://www.pubmed.com>
- 6) <http://www.medscape.com>
- 7) <http://www.higewire.com>
- 8) <http://www.medline.com>
- 9) <http://www.painclinic.com>
- 10) <url:http;/www. Iasppain.org>
- 11) <http://en.citizendium. rg/wiki/Music therapy> (accessed 28.01.2010).
- 12) <http://en .wikipedia . org /wiki/ abdsurg>
- 13) www.careresearch.com/a/acuteaoendicitis/stats/country.html
- 14) www.wrongdiagnosis.com/a/inguinalhernia /stats/country.html.

DESCRIPTION OF THE TOOL

SECTION- A

This section deals with socio demographic data of the child includes Sample No, age, sex, place of birth, education of the child, educational status of the mother, occupation of the parents, monthly income, type of family, type of marriage, previous hospitalization.

SECTION –B

It consists of Wong-Baker's Faces pain assessment scale and physiological parameters like heart rate, respiratory rate and blood pressure.

APPENDIX-A

TOOL FOR DATA COLLECTION

INSTRUCTION:

The following items seek information about you and your child. Kindly choose Appropriate. The data that are collected will be kept confidential

Interview/Observational Semi-Structured Schedule

Sample No : _____

Date : _____

Time : _____

SECTION-A DEMOGRAPHIC VARIABLE

1. Age of the child:

a. 6 -8 years

b. 8 -10 years

c. 10 -12 years

2. Sex of the child:

a. Male child

b. Female child

3. Place of Residence

a. Rural

b. Urban

4. Education of the child:

a. Primary

b. Secondary

5. Education of the Mother

a. Primary

b. Secondary

c. Higher Secondary

d. Graduate

6. Occupation of the father:
- a. Unskilled worker
 - b. Skilled worker
 - c. Professional
7. Occupation of the mother:
- a. Home maker
 - b. Unskilled worker
 - c. Skilled worker
 - d. Professional
8. Monthly income:
- a. Rs3000 – Rs5000
 - b. Rs5001 – Rs7000
 - c. Rs7001 – Rs9000
 - d. >Rs 9000
9. Type of the family:
- a. Nuclear
 - b. Joint
 - c. Extended
10. Type of marriage:
- a. Consanguineous
 - b. Non-consanguineous
11. Previous hospitalization, if yes what for?
- a. No
 - b. Yes, if so specify

SECTION-B

Assessment of the Physiological parameters

Instruments: The observation will be recorded by the Investigator using reliable instruments.

Aim: Assess the Heart rate, respiratory rate and Blood Pressure before and after music therapy on first post-operative day Morning and Evening.

SAMPLE NO:

DATE:

TIME:AM/PM

Wong-Baker FACES™ Pain Rating Scale



PAIN SCORES:

It consists of Wong-Baker Faces Pain Rating Scale. It is a subjective type of pain scale. It includes 6 faces. The score starts from 0, 2,4,6,8 and 10. Score “0” means no hurt, and “10” means Hurts worst. The pain will be assessed before and after the music therapy with the help of Wong-Baker’s Faces pain scale

Description	Score
No Hurt	0
Hurts little bit	2
Hurts little more	4
Hurts even more	6
Hurts whole lot	8
Hurts worst	10

Based on the scores the intensity of the pain is categorized as

- 0 Indicates as No Pain
- 1-2 Indicates as Mild Pain
- 3-6 Indicates as Moderate Pain
- 7-10 Indicates as Severe Pain

ASSESSMENT OF PAIN &PHYSIOLOGICAL PARAMETERS:

Date	Vital Signs	Morning		Evening	
		Pre assessment before music therapy	Post assessment after music therapy	Pre assessment before music therapy	Post assessment after music therapy
	Pain				
	Heart rate				
	Respiratory rate				
	Systolic blood pressure				
	Diastolic blood pressure				

MUSIC THERAPY PROCEDURE

Music is the universal language of mankind

'MUSIC' is the elaboration form of 'MYSTIC UNIVERSAL SPIRITUAL INVISIBLE CUROR'

DEFINITION

Music therapy is the planned and creative use of music to attain and maintain health and well –being and may address physical, psychological, emotional cognitive and social needs of individuals within a therapeutic relationship.(**Australian Music therapy Association, 2005**)

ADVANTAGES OF MUSIC THERAPY

- ❖ Effective therapy for pain -Music can help reduce both the sensation and distress of both chronic pain and postoperative pain
- ❖ It was cost effective, safe, and feasible
- ❖ Reducing blood pressure-
- ❖ Music is the medicine for the heart
- ❖ Music boosts immunity
- ❖ Music enhances intelligence, learning and IQ
- ❖ Music improves memory performance
- ❖ Music improves concentration and attention
- ❖ Reduction in the feeling of fatigue
- ❖ Increase in levels of psychological arousal
- ❖ Physiological relaxation response
- ❖ **Music has the power to enhance some kinds of higher brain function:**
- ❖ Reading and literacy skills
- ❖ Spatial-temporal reasoning
- ❖ Mathematical abilities even children with attention deficit/hyperactivity disorder benefit in mathematics tests from listening to music beforehand.

EQUIPMENT FOR MUSIC THERAPY

- ❖ Music player
- ❖ Headphone
- ❖ Music Disc
- ❖ Additional battery
- ❖ Charger
- ❖ Back up supply

STEPS ON MUSIC THERAPY INTERVENTION

- ❖ Explain the intervention to the child and parents and confirm their willingness
- ❖ Provide comfortable position as preferred by the child.
- ❖ Demographic data was collected
- ❖ Pre assessment of pain by using Wong-Baker's Faces Pain Scale and Pre assessment of physiological parameters
- ❖ Make the child to wear headphones to focus attention and avoid distraction
- ❖ Play melodious instrumental song for 15 minutes
- ❖ After the intervention remove and replace the equipments and make the child to be in comfortable position.
- ❖ Post assessment of the pain and physiological measures after the intervention
- ❖ Document the pain scores, physiological parameters, time, duration and response of the child.
- ❖ Total duration for one session should be around 30 minutes

பகுதி - அ

சமூகம் சார்ந்த சுய விவரக் குறிப்பு

உங்கள் கவனத்திற்கு,

கீழ்காணும் கேள்விகள், உங்களைப் பற்றியும், உங்கள் குழந்தையைப் பற்றியும் அறிவுதற்காக கேட்கப்படும் கேள்விகள். சரியான விடையைத் தேர்ந்தெடுத்து எண்ணைக் குறிப்பிடுக. நீங்கள் கொடுக்கும் இந்த விவரங்கள் மிக இரகசியமாக பாதுகாக்கப்படும்

- 1) குழந்தையின் வயது ஆண்டுகளில்
 - அ) 6-8 வயது
 - ஆ) 8-10 வயது
 - இ) 10-12 வயது
- 2) பாலினம்
 - அ) ஆண்
 - ஆ) பெண்
- 3) வசிக்கும் இடம்
 - அ) கிராமம்
 - ஆ) நகரம்
- 4) குழந்தையின் கல்விநிலை
 - அ) ஆரம்பப் பள்ளி
 - ஆ) உயர்நிலைப் பள்ளி
- 5) தாயின் கல்வி நிலை
 - அ) ஆரம்பப் பள்ளி
 - ஆ) உயர்நிலைப் பள்ளி
 - இ) மேல்நிலைப் பள்ளி
 - ஈ) கல்லூரிப் படிப்பு

- 6) தந்தையின் தொழில்
- அ) கைத்திறன் தொழிலாளி
- ஆ) மூளைத்திறன் தொழிலாளி
- இ) தொழில் சார்ந்த வேலை
- 7) தாயின் தொழில்
- அ) குடும்பத் தலைவி
- ஆ) கைத்திறன் தொழிலாளி
- இ) மூளைத்திறன் தொழிலாளி
- ஈ) தொழில் சார்ந்த வேலை
- 8) மாத வருமானம்
- அ) ரூ.3000-5000
- ஆ) ரூ.5001-7000
- இ) ரூ.7001-9000
- ஈ) ரூ.9000/-க்கும் மேல்
- 9) குடும்ப வகை
- அ) கூட்டுக் குடும்பம்
- ஆ) தனிக் குடும்பம்
- 10) திருமண முறை
- அ) உறவுமுறை திருமணம்
- ஆ) உறவு சாரா திருமணம்
- 11) இதற்கு முன் மருத்துவமனையில் அனுமதிக்கப்பட்டுள்ளாரா?
- அ) ஆம்
- ஆ) இல்லை
- இ) ஆம் எனில் என்ன காரணம்

பகுதி - ஆ

எண் தொகுப்பு

தேதி

நேரம்

காலை/மாலை

வலியை அளக்கக்கூடிய அளவுகோல் ஆய்வாளர் கீழ்க்காணும் வலியை அளக்கும் அளவுகோலின் மூலம் வயிறு அறுவைசிகிச்சைக்குப்பின் முதல் நாளன்று காலையும், மாலையும் தகவல் சேமிக்கிறார்.

Wong-Baker FACES™ Pain Rating Scale




பொருள்	மதிப்பெண்
வலி இல்லை	0
லேசான வலி	2
மிதமான வலி	4
அதிகமான வலி	6
கடுமையான வலி	8
மிகக் கடுமையான வலி	10

- 0 - வலி இல்லை
- 1-2 - லேசான வலி
- 3-6 - மிதமான வலி
- 7-10 - கடுமையான வலி

தேதி	அளவீடுகள்	காலை		மாலை	
		பரிசோதனைக்கு முன்	பரிசோதனைக்கு பின்	பரிசோதனைக்கு முன்	பரிசோதனைக்கு பின்
	வலியின் அளவு				
	இருதய துடிப்பு				
	சுவாசங்களின் எண்ணிக்கை				
	இரத்த அழுத்தத்தின் அளவு				

CERTIFICATE OF CONTENT VALIDITY

This is to certify that a tool prepared by Mrs. V.Parimalam, M.Sc. Nursing, II year of College of Nursing, Madras Medical College, undertaking a research study on "A study to assess the effectiveness of music therapy on reduction of pain among children who underwent abdominal surgery in postoperative wards at Institute of child health Egmore, Chennai- 8" has been validated by me and is found to be valid and up to date and she can proceed with this tool to conduct the main study


Signature : 

Name :

Designation :

Date : 3/9/2013

Place : Chennai

Seal : 
Dr. S.V. SENTHILNATHAN, M.S., M.Ch.,
Professor & HOD - Paediatric Surgery
ICH & HC - (MMC), Egmore, Chennai - 8.
Reg. No. : 36255

Ref: NO: 306 C.O.N., M.M.C., Ch-3/DT 05/7/13

From

Mrs.V.Parimalam,
M.Sc(Nursing) II year,
College of Nursing,
Madras Medical College,
Chennai-3.

To

The Professor & HOD,
Department of Paediatric Surgery,
Institute of Child Health and Hospital for Children,
Egmore,
Chennai-8.

Through Proper Channel,

Respected Sir,

Sub: Requesting Permission to conduct a research study-regarding

I, Mrs.V.Parimalam, studying M.Sc.Nursing II year ,College of nursing, Madras Medical college, kindly request you to grant me permission to conduct study for the proposed topic **"A study to assess the effectiveness of music therapy on reduction of pain among children who underwent abdominal surgery in post operative wards, at Institute of Child Health, Egmore, Chennai-8"** to fulfill the requirement of data collection. I assure you that it will not interfere with routine activities of the study settings.

Thanking you,

Date:

Place: Chennai-03.

Handwritten signature and date: 31/07/13

Dr. S.V. SENTHILNATHAN, M.S.,M.Ch.,
Professor & HOD - Paediatric Surgery
ICH & HC - (MMC), Egmore, Chennai - 8.
Reg. No. : 36255

Yours obediently,

Handwritten signature: V. Parimalam

(Mrs.V.Parimalam)

Dr- No. 291/ CoH. HHC. Che-3/ D/; 16/7/13

From

Mrs.V.Parimalam,
M.Sc(Nursing) II year,
College of Nursing,
Madras Medical College,
Chennai-3.

To

The Director,
Institute of Child Health and Hospital for Children,
Egmore,
Chennai-8.

Through Proper Channel,

Respected Madam,

Sub: Requesting Permission to conduct a research study-regarding

I, Mrs.V.Parimalam, studying M.Sc.Nursing II year ,College of nursing, Madras Medical college, kindly request you to grant me permission to conduct study for the proposed topic "A study to assess the effectiveness of music therapy on reduction of pain among children who underwent abdominal surgery in post operative wards, at Institute of Child Health, Egmore, Chennai-8 " to fulfill the requirement of data collection. I assure you that it will not interfere with routine activities of the study settings.

*forwarded
16/7/13*

Thanking you,

Date: 16.07.13

Place: CHENNAI-3.

Yours obediently,

V. Parimalam

OK T.P. Madhavan

Senior Civil Surgeon
Institute of Child Health and Hospital for Children
Egmore, Chennai-600 008
Senior Civil Surgeon
Institute of Child Health and Hospital for Children
Egmore, Chennai-600 008

*To see
Prof. Dr. Madhavan
Paed. Surgery*

Director and Superintendent,
Institute of Child Health and
Hospital for Children
Egmore, Chennai - 600 008

INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI -3

EC RegNo.ECR/270/Inst./TN/2013
Telephone No : 044 25305301
Fax : 044 25363970

CERTIFICATE OF APPROVAL

To
Parimalam.V,
M.Sc.,(N) II year,
College of Nursing,
Madras Medical College, Chennai-3.
Dear Parimalam

The Institutional Ethics committee of Madras Medical College, reviewed and discussed your application for approval of the proposal entitled "A study to assess the effectiveness of music therapy on reduction of pain among children who underwent abdominal surgery in post operative wards, at Institute of Child Health, Egmore, Chennai-8" No.12072013.

The following members of Ethics Committee were present in the meeting held on 06.07.2013 conducted at Madras Medical College, Chennai -3.

- | | | |
|--|-----|------------------|
| 1. Dr.G.SivaKumar, MS FICS FAIS | --- | Chairperson |
| 2. Prof. R. Nandhini MD
Director, Instt. of Pharmacology ,MMC, Ch-3 | -- | Member Secretary |
| 3. Prof. Shyamraj MD
Director i/c , Instt. of Biochemistry , MMC, Ch-3 | -- | Member |
| 4. Prof. P. Karkuzhali. MD
Prof., Instt. of Pathology, MMC, Ch-3 | -- | Member |
| 5. Prof. Kalai Selvi
Prof of Pharmacology, MMC, Ch-3 | -- | Member |
| 6. Prof. Siva Subramanian,
Director, Instt. of Internal Medicine, MMC, Ch-3 | -- | Member |
| 7. Thiru. S. Govindsamy. BABL | -- | Lawyer |
| 8. Tmt. Arnold Saulina MA MSW | -- | Social Scientist |

We approve the proposal to be conducted in its presented form.

Sd/ Chairman & Other Members

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

R Nandini

Member Secretary, Ethics Committee

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation work “A study to assess the effectiveness of music therapy on reduction of pain among children who underwent abdominal surgery in postoperative wards at Institute of Child Health and Hospital for Children, Egmore, Chennai -08.” done by Mrs.V.Parimalam, II year M.Sc(N) student of college of Nursing, Madras Medical College, Chennai-03, is edited for English language appropriateness by Dr.John Sunil Manoah, M.A., M.Phil., Ph.D.,


Signature : *J. John Sunil Manoah*

Designation: *Asst. professor in English*

Seal : 

CERTIFICATE OF CONTENT VALIDITY

This is to certify that a tool prepared by Mrs. V.Parimalam, M.Sc. Nursing, II year of College of Nursing, Madras Medical College, undertaking a research study on **“A study to assess the effectiveness of music therapy on reduction of pain among children who underwent abdominal surgery in postoperative wards at Institute of child health Egmore, Chennai- 8”** has been validated by me and is found to be valid and up to date and she can proceed with this tool to conduct the main study

Signature : 

Name : ZEALOUS MARY.C

Designation : READER

Date : 16.08.13

Place : KUNRATHUR, CHENNAI-69

Seal :





