EFFECTIVENESS OF MUSIC THERAPY ON STRESS AMONG PREGNANT MOTHERS

A DISSERTATION SUBMITTED TO THE TAMILNADU DR. M.G.R MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING.

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CERTIFICATE

This is the bonafide work of **S.KALAIVANI M.Sc.,** Nursing II year student from Sacred Heart Nursing college, Ultra Trust, Madurai, submitted in partial fulfillment for the Degree of Master of Science in Nursing, under The Tamilnadu Dr. M.G.R. Medical Univeristy, Chennai.

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ABSTRACT

The research project is “A study to evaluate the effectiveness of music therapy on stress among pregnant mothers in selected areas of Madurai District. Quasi experimental Non-equivalent control group pretest posttest design was adopted. By convenience sampling technique 60 samples were selected. Perceived Stress Scale tool was used to assess the level of stress status of pregnant mothers. Music therapy was administered via walkman to each individual mothers for 40 minutes session for 6 days. The data was collected, organized and analyzed in terms of both descriptive and inferential statistics. The major findings of the study were, the mean posttest stress score of experimental group was significantly (t-6.19, $p<0.05$) lower than the control group. The mean posttest stress score of experimental group was significantly (t-10.48, $p<0.05$) lower than the mean pretest stress score. There was no significant association between the posttest stress score and demographic variable of pregnant mothers.

CHAPTER -1

INTRODUCTION

BACKGROUND OF THE STUDY

"God's interest in the human race is nowhere better evinced than in obstetrics"

Matrin H. Fischer

A very important time in the life of a woman is the period of pregnancy It is a time of great anticipation. She expects a nice cute baby with much anxiety and happiness. She would be monitoring day by day the changes coming to her, mentally and physically.

Pregnancy is such a huge change in a women's life that is brings about more psychological changes than any other life event beside puberty (As cited by Adele pillitteri, 2010). A women's attitude toward a pregnancy depends a great deal on psychological aspects such as the environment in which she was raised, the messages about pregnancy her family communicated to her as a child , the society and culture in which she lives as an adult, and whether the pregnancy has come at a good time or less than a good time in her life (As cited by Adele pillitteri, 2010).

Pregnancy is a developmental crisis, Even in a " normal" pregnancy, the women, her partner, and her family have many fears that influences their needs and therefore their responses. As in any crisis, prior coping behaviour are disturbed, and stress is created as the individual struggles to adopt to a new and unfamiliar situation(As cited by Dickson 1997).

Until recently, the heavy emphasis on medical management for women during pregnancy conveyed the idea that pregnancy was a 9 - month - long illness. Today, health care settings view pregnancy as a time of health.

A women's ability to cope with or adapt to stress plays a major role in how she will resolve conflict and adopt to the new life contingencies that are coming. This ability to adopt- to being a mother without needing mothering, to having a child as well as a husband, to becoming a mother of each new child - depends on her basic temperament(As cited by Adele pillitteri,2010).

Whether she adapts to new situations quickly or slowly, faces them with intensity or maintains a low – key approach, or whether she has had experiences coping with changes and stress will determine her adaptation. Psychological changes of pregnancy occur in response not only to the physiologic alterations that are happening but also to the increased responsibility associated with welcoming a new and completely dependent person into a family.

Despite the magnitude of some of these changes, they are all extensions of normal physiology and psychology .This makes pregnancy represent a time of wellness, not of illness. A major responsibility of health care personnel caring for pregnant women and their families is to help the family maintain a state of wellness throughout the pregnancy and into early parenthood (As cited by Adele pillitteri, 2010). The results of research investigating the effect of stress during pregnancy aren't particularly conclusive. However, the general consensus is that while short term stress doesn't influence baby's development, sustained periods of severe stress may increase the risk of preterm labour, low birthweights and complications such as preeclampsia.

There are very few high-quality studies into the effectiveness of complementary or 'alternative' treatments Complementary medicines and treatments include a wide range of treatments. Complementary is a better description, as they should be used alongside but never replace the treatment offered by the obstetrician.

Some complementary therapies, such as acupuncture, massage, herbal medicine, chinese medicine, naturopathy, reflexology, aromatherapy, massage, yoga and music, can be suitable during pregnancy.

" Music washes away from the soul the dust of everyday life''

Music is a combination of rhythmical , harmonic melodic sounds, and many people , throughout history, have believed in its medicinal effects. Music has been used therapeutically for centuries and there are numerous examples of music's curative and preventive powers, in many historical documents from different cultures(Raji, & Jeya Gowri Subash,2009).

*"**Music has a universal appeal & can serve as a distraction**"*

It makes a women calm and cope up with the situation.(Angayarkanni, 2009). Sounds were developed with humans. It was an inbound human quality. Pleasant tunes always tend to have a good impact on the environment. Music which is good and correct bring forth positives impact in the nerves of the listeners. Music is considered a direct experience before it is transformed into thoughts and feeling. Indian Classical music has a great impact on the individuals moods and behaviour(As cited by Adele pillitteri, 2010).

SIGNIFICANCE AND NEED FOR STUDY

Because of all the tasks need to be worked through during a pregnancy, emotional responses can vary greatly. Common reactions include grief, narcissism, introversion or extroversion, body image and boundary concerns, couvade syndrome [somatic experiences of father during pregnancy simulating those of the pregnant mother], stress, mood swings, and changes in sexual desire (As cited by Adele pillitteri, 2010).

Stress

Because pregnancy brings with it such a major role change, it can cause extreme stress in a women. This stress of pregnancy, like any stress, can make it difficult for a women to make decisions, be as aware of her surroundings as usual, or maintain time management with her usual degree of skill (As cited by Adele pillitteri, 2010). Psychological science of pregnancy is advancing rapidly. A major focus concerns stress processes in pregnancy and effects on preterm birth and low birth weight. The current evidence points to pregnancy anxiety as a key risk factor in the etiology of preterm birth, and chronic stress and depression in the etiology of low birth weight (Dunkel Schetter,2011).

Pregnancy is viewed as a major life event and, while the majority of healthy, low-risk women adapt well to pregnancy, there are those whose levels of stress are heightened by the experience(Alderdice, Crealey, & McElnay, 2010). Prenatal stress is known to be a potential risk factor for cognitive, behavioral and motor development that even last until adolescence(Rothenberger, Moehler, Reck,& Resch, 2010).

Aiderdice et al. (2010) conducted on observational cross –sectional study in Northern Ireland among 263 healthy, low –risk pregnant women. The mean prenatal distress score in the sample was 15.1 (SD=7.4; range 0-46). The regression model showed that women who had had previous pregnancies, with or without complications, had significantly lower mean prenatal distress scores than primiparous women ($p<0.01$). , while women aged 16-20 experienced a mean increase in the reported prenatal distress score ($p<0.05$) in comparison to the reference group of 36 years and over. This study brings to light the prevalence of pregnancy-related stress within a sample representative of healthy, low-risk women.

Too much stress can be uncomfortable for anyone. In the short term, a high level of stress can cause fatigue, sleeplessness, anxiety, poor appetite or overeating, headaches and backaches. When a high level of stress continues for a long period, it may contribute to potentially serious health problems, such as lowered resistance to infections, high blood pressure and heart disease. High levels of stress also may pose some special risks for pregnant women (Naina Roy, 2008).

Kintraia, [2006] did an analysis of premature labour and its causes in the Republic of Georgia. It was done in regions close to military conflict areas, where people are under permanent 'expectancy – stress.' The rate of premature labor in the Republic of Georgia is about 11.2%+/-2.1. 75% of still-born babies are premature. The rate of perinatal mortality for the last 3 years was 28.9, where about 75.3% is due to preterm labor. Stress endured by a pregnant woman affects psycho-emotional sphere of a newborn.

A number of studies that high level of stress in pregnancy may contribute to premature birth and low birthweight. Babies born too small and too soon are at increased risk for health problems during the newborn period,lasting disabilities (such as mental retardation and cerebral palsy) and even death(Naina Roy, 2008).

Certain stress – relater hormones may play a role. For example , stress may contribute to preterm labor by triggering the release of a hormone called corticotrophin hormone (CRH).CRH, which is produced by the brain and the placenta, is closely tied to labor. It promotes the body to release chemicals called prostaglandins, which help trigger uterine contractions (Naina Roy, 2008).

Sever or prolonged stress may interfere with the functioning of the immune system. This could cause a pregnant women to be more susceptible to infections involving the uterus. Uterine infections are an important cause of premature birth, especially those occurring at less than 28 weeks of pregnancy.

Stress may affect a women's behaviour. Some women react to stress by smoking cigarettes, drinking alcohol or taking illicit drugs, all of which have been linked to premature birth, low birth weight and other pregnancy complications. Use of alcohol and certain illicit drugs increases the risk of birth defects(Naina Roy, 2008).

Some studies suggest that high level of stress in pregnancy may affect a child's mental and emotional development. Mental stress may contribute to learning problems, such as difficulty paying attention, nd to increased anxiety and fearfulness. It is not known how maternal stress may cause these problems. However, some studies suggest that stress- related hormones in the mother's blood may cross the placenta and affect the fetus's developing brain. Concerns, or go with her to prenatal visits. Some studies suggest that having a good support network reduces a women's risk of having a low- birthweight baby(Naina Roy, 2008).

Listening to music does wonders to alleviate stress. Music has always been a great healer. Music is a significant mood-changer and reliever of stress, working on many levels at once.

"Pregnancy is a unique and stressful period for many expectant mothers and they suffer anxiety and depression because of the long time period involved. Our study shows that listening to suitable music provides a simple, cost-effective and non-invasive way of reducing stress, anxiety and depression during pregnancy", says **Prof Chung-Hey Chen, lead author of the study.**

He and his colleagues did a study to assess the effect of music therapy on psychological health of women during pregnancy. The purpose of this study was to examine the effects of music therapy on stress, anxiety and depression**.** Two hundred and thirty - six pregnant women were randomly assigned to music therapy (n = 116) and control (n = 120) groups. The music therapy group received two weeks of music intervention An ANCOVA test with the pretest scores as the control revealed that the changes in Perceived Stress Scale, after two weeks were significantly decreased in the experimental group compared with the control group.. This controlled trial provides preliminary evidence that two-week music therapy during pregnancy provides quantifiable psychological benefits.

Chang &Chan [2004] in their abstract on the application of music therapy in maternity nursing**.** States that music therapy has been used in the care of patients in a variety of fields, to decrease anxiety and enhance health, and has shown promising results. It is reported that pregnancy and childbirth may result in stressful consequences for some women. Midwives are charged with the tasks of assuring the positive aspects of pregnancy and childbirth and meeting the demands of the women in these stressful situations. In order to create a caring environment, they suggest that music therapy be incorporated into standard maternity care.

The above quoted researcher evidence and the investigator's prenatal experience motivated the researcher to undertake the present study.

STATEMENT OF THE PROBLEM

A study to evaluate the effectiveness of music therapy on stress among pregnant mothers in selected areas of Madurai District.

OBJECTIVES

1. To find out the level of stress experienced by the pregnant mothers before &after music therapy in experimental group.
2. To find out the pretest & posttest level of stress experienced by the pregnant mothers in the control group.
3. To evaluate the effectiveness of music therapy on stress among pregnant mothers.
4. To find out the association between post test level of stress and selected demographic variables like age, education, occupation, income, parity, gestational weeks and any previous abortion.

HYPOTHESIS

1. The mean post test stress score of pregnant mothers in the experimental group will be significantly lower than the mean pretest stress score after administration of music therapy.
2. The mean posttest stress score of pregnant mothers in the experimental group will be significantly lesser than the mean posttest stress score of the pregnant mothers in the control group.
3. There will be a significant association between post test level of stress and selected demographic variables [age, education, occupation, income, parity, gestational weeks and any previous abortion] of pregnant mothers.

OPERATIONAL DEFINITIONS

Pregnant Mother

Refers to the mothers who are between 18 – 34 weeks of gestation and without any pregnancy or medical complication.

Stress

In this study it refers to the degree of subjective experience of disturbance like being nervous, lake of confidence, unable to cope, irritation & anger as expressed were usually by pregnant mother which was measured using Perceived Stress Scale.

Music therapy

In this study it refers to the administration of instrumental music via walkman for 40 minutes per day for 6 days to pregnant mothers. The instrumental music selected for the study consisted Bhairavi raga.

Effectiveness

In this study effectiveness refers to the outcome of music therapy in reducing the level of stress among pregnant women, which will be measured by the difference in the posttest stress score of pregnant mothers in the experimental group & in the control group.

ASSUMPTIONS

The study was based on the assumptions that

1. Normal pregnancy is a stressful period.
2. Music therapy is based on healing acts and grounded in scientific principles. It has no side effect.

DELIMITATION

The following delimitations were set for the study

1. Pregnant mothers from selected areas of Madurai District.
2. Pregnant mother with a gestational age of 18 – 34 weeks
3. The data collection period will be limited to 6 weeks.

PROJECTED OUTCOME

This study will reveal the existing level of stress and the effectiveness of music therapy in reducing stress among normal pregnant mothers.The study findings will help the nurse to plan music therapy to awaken the interest in non pharmacological treatment approaches to stress, since it has no pharmacological side effects. Finding of this study also will help health professionals to plan music therapy in the area, where stress management is practical and certainly it will add value to obstetric and gynaecological nursing.

CONCEPTUAL FRAME WORK

The conceptual frame work for this study was based on sister Callista Roy's Adaptation model[1939] which involves four concepts person, nursing, health and environment.

The adaptive system has four components like input, process, effectors and output.

Person

For the present study, the above mentioned components have been modified as follows.

Roy states that the recipient of nursing care may be an individual, a family , a group, a community, or a society. Each is consider as an adaptive system.

In this study the focus will be on pregnant mothers with stress.

Regulator & cognator subsystem

These two mechanisms are subsystems of the person's adaptive system. Both the subsystem (cognator & regulator subsystem) consist of input, process & output. Regulator subsystem controls internal processes related to physiologic needs. Cognator subsystem control internal process related to higher brain function, such as perception, information processing, learning from past experience, judgements & emotions.In this study the cognator subsystem is the mechanism considered for present study.

Input

Roy says input comes from the external environment as well as from internal. In this study assessment of level of stress using perceived stress scale among pregnant mother will be taken as input**.**

Process

According to the theory process refers to the adaptive changes taking place internally (cognator subsystem) in the system. In this study the process refers to the administration of music therapy that create adaptive changes in a normal pregnant mothers.

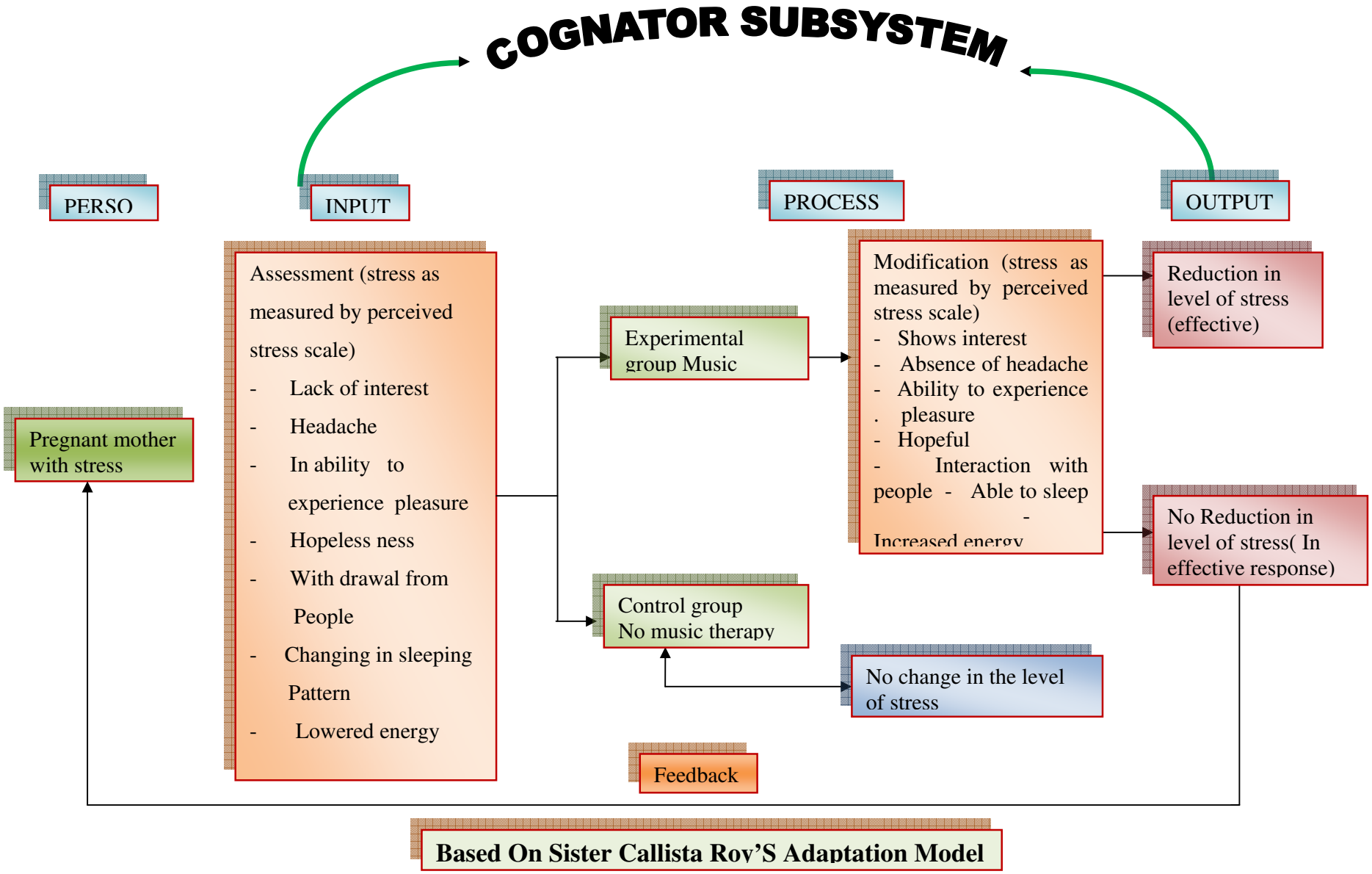
In this study, music therapy is given to the pregnant mother residing in home to cope with stress**.**

Output

Output of the person as a system is the behaviours of the person.Output is characterised as adaptive response or ineffective responses. These behaviours may be observed, measured or subjectively reported and become the feed back to the system. Roy states output of the system as either adaptive response or ineffective responses.

In this study the positive or the negative responses to musictherapy on stress become the output. It can be either positive, reduction in level of stress or negative result, no reduction in stress.

In this case, the negative result becomes the feedback, where it must be reassessed and music therapy is re-administered in the same manner (or) modified way.


COGNATOR SUBSYSTEM
PERSO
INPUT
PROCESS
OUTPUT
Pregnant mother with stress
Assessment (stress as measured by perceived stress scale)
- Lack of interest
- Headache
- In ability to experience pleasure
- Hopeless ness
- With drawal from People
- Changing in sleeping Pattern
- Lowered energy
Experimental group Music
Control group No music therapy
Modification (stress as measured by perceived stress scale)
- Shows interest
- Absence of headache
- Ability to experience . pleasure
- Hopeful
- Interaction with people - Able to sleep -
Increased energy
No change in the level of stress
Reduction in level of stress (effective)
No Reduction in level of stress(In effective response)
Feedback
Based On Sister Callista Roy'S Adaptation Model

CHAPTER II

REVIEW OF LITERATURE

The review of literature was done from published articles, text books, reports and medline search. Literature review is organized and presented under the following headings.

1. General overview of stress among pregnancy

- Causes of pregnancy stress
- Studies related to prevalence of stress & it's effect on maternal & fetal outcome
- Treatment modality available for stress

2. Music therapy in pregnancy

- General overview of music therapy in pregnancy
- Benefits of music therapy in mother & fetus
- Types of music for pregnant mothers
- Studies related to effects of music on stress management

1. General overview of stress among pregnancy

Pregnancy is a time of many changes for a woman: in her body, in her emotions and in the life of her family. As welcome as these changes may be, they often add new stresses to the lives of busy pregnant women who already face many demands at home and at work (Naina Roy, 2008). Stress is a subjective phenomenon and can be defined as an individual's physical and psychological response to a situation where they feel that the demands placed on them exceed their ability to cope.

Pregnancy is a time of great change and many women do feel stressed at some point. This is completely natural and not at all surprising seeing as the have to cope with the responsibilities that filled your life before the fell pregnant as well as prepare yourself, psychologically and physically for a new arrival. While short term stress is not

detrimental to the health of women or the baby and can actually be beneficial in certain circumstances (as it can increase alertness and performance), prolonged periods of stress have been linked to negative health consequences.

Too much stress can be uncomfortable for anyone. In the short term, a high level of stress can cause fatigue, sleeplessness, anxiety, poor appetite or overeating, headaches and backaches. When a high level of stress continues for a long period, it may contribute to potentially serious health problems, such as lowered resistance to infections, high blood pressure and heart disease. High levels of stress also may pose some special risks for pregnant women(Naina Roy, 2008).

CAUSES OF PREGNANCY STRESS (James witherspoon, 2010)

- **Working too much**

More women than ever are in the work force. Maintaining a full time job during pregnancy is very common. Woman typically only get approximately one month off during pregnancy, and therefore, are working all the way through their third trimesters. Even low-stress jobs can cause a mother to experience anxiety.

- **Worrying**

Sometimes too much about difficult pregnancies is unhelpful. Worrying about the reading trustworthiness of doctors and the health of the child can certainly raise stress levels.

- **Financial concerns**

A baby can be expensive. Doctors visits before birth and the expenses after birth are costly. If finances are a concern it can take a toll on the health of the mother and child.

- **Taking care of other children**

Due to the physical restrictions of pregnancy, it can be difficult for a mother to continue caring for other children. Stress can also be added due to the worries associated with preparing other children for the delivery of a sibling.

- **Taking care of the home**

Believe it or not, some psychologists believe that it is natural for a women to want to take care of their home while they are pregnant. This is also known as "nesting" and is seen all over the animal kingdom.

- **Relationships**

Hormone fluctuations can cause considerable mood swings. This can affect many relationships. When a couple's relationship becomes strained, physical ailments can result.

HOW STRESS CONTRIBUTE TO ADVERSE PREGNANCY OUTCOME

Certain stress – relater hormones may play a role. For example , stress may contribute to preterm labor by triggering the release of a hormone called corticotrophin hormone (CRH).CRH, which is produced by the brain and the placenta, is closely tied to labor. It promotes the body to release chemicals called prostaglandins, which help trigger uterine contractions.

Sever or prolonged stress may interfere with the functioning of the immune system. This could cause a pregnant women to be more susceptible to infections involving the uterus. Uterine infections are an important cause of premature birth, especially those occurring at less than 28 weeks of pregnancy.

Stress may affect a women's behaviour. Some women react to stress by smoking cigarettes, drinking alcohol or taking illicit drugs, all of which have been linked to premature birth, low birth weight and other pregnancy complications. Use of alcohol and certain illicit drugs increases the risk of birth defects(Naina Roy, 2008).

STUDIES RELATED TO PREVALENCE OF STRESS & ITS EFFECT ON MATERNAL & FETAL OUTCOME

The physical and mental changes of a pregnant women can affect her stress level. While everyday pressure is a part of modern life, a high level of chronic stress can boost the odds of preterm labor or of delivering a low – birth weight baby.

There are many negative side effects of stress during pregnancy. Studies show that very high levels of stress may contribute to an increased risk of premature delivery or low birth weight babies. Still other studies suggest that overly high stress levels can increase the heart rate, blood pressure and produce chronic anxiety.

None of these side effects are good for the baby. What a pregnant mother eats affects the baby, so too does the stress level and the emotional health of the mother. It is important that stress and anxiety during pregnancy is minimized to provide the baby with an optimal environment to grow. The long-term stress experienced by mothers during pregnancy adversely affects their unborn babies(Julie Robotham, 2008).

Babies exposed to the highest levels of cortisol while in the womb had lower intelligent quotients (IQ) at 18 months, compared with the infants of mothers who were less stressed.

British scientists have found that long-term stress experienced by mothers during pregnancy adversely affects their unborn babies. Researchers led by Vivette Glover at London's Imperial College studied 267 women, taking a blood sample from the mother

and a sample from the amniotic fluid surrounding the baby. The measured levels of a stress hormone called cortisol in both samples. At the age of 17 weeks and older, they found the higher the level of cortisol in the mother's blood, the greater the level of cortisol in the amniotic fluid. There is solid evidence to show that an unborn child may be exposed to maternal stress as early as 17 weeks in development. Stress hormones were a reaction to anxiety and useful in the short term because they helped the body deal with stressful situations. If the stress goes on for a long time, the hormones can affect people's health leading to tiredness, depression and illness, a scientist involved in the study said.

This in turn can lead to health problems such as headaches, upset stomach, rashes, insomnia, ulcers, high blood pressure, heart disease, and stroke. Studies had also showed that children of highly stressed and anxious pregnant women were at double the risk of hyperactivity and attention deficit hyperactivity disorder (ADHD) at the age of four.

Pregnancy can signify major emotional changes in mums-to-be, from mood swings to feeling incredibly anxious, which may well elevate women's stress levels. The researcher said that pregnant women are given adequate support and reassurance from their family, friends and employers, to ensure they have a happy and healthy pregnancy(Julie Robotham, 2008).

Nakamura, Sheps & Arch (2008) conducted a study to determine maternal stress perception which is frequently alleged as a cause of infertility, miscarriages, late pregnancy complications or impaired fetal development. Researcher has assessed in order to provide a mechanistic concept and biological evidence for the link between stress perception and reproductive success. Biological evidence points to an immune-endocrine disequilibrium in response to stress and describes a hierarchy of biological mediators involved in a stress trigger to reproductive failure. Epidemiological evidence presents positive correlations between various pregnancy failure outcomes with pre-conception

negative life events and elevated daily urinary cortisol . Strikingly, a relatively new conceptual approach integrating the two strands of evidence. The researcher suggests the programming of stress susceptibility in mother and fetus via a so-called pregnancy stress syndrome.

Steplewski et al. (1998) conducted a study to determine the level of stress during pregnancy estimated by mothers and average weight of newborns and frequency of low birth weight. They have found that the low birth weight is frequently occurring in Poland--between 7-9% of live births. There are many risk factors, among them behavioural and environmental. In the research were involved 450 mothers of new-born children (the group of cases: untimely, premature delivery or child birth weight below 2500 g) and 450 mothers of new-born children (control group-physiologically delivered). Mothers were asked about their relations to the pregnancy; professional and personal stress during pregnancy was estimated. The research was carried out by use of a questionnaire using the "case-control study". The results were analysed by counting risk ratio coefficient (RR) and correlation coefficient. The researcher showed that there was no relation between acceptation of pregnancy, stress and frequency of low birth weight or the average child birth weight.

Harville, Gunderson, Matthews, Lewis, Carnethon (2010) did a study to evaluate the pre – pregnancy stress reactivity and pregnancy outcome. The objective of this study was to examine the relationship between pre-pregnancy cardiovascular reactivity to stress and pregnancy outcome. The sample included 917 women. Cardiovascular reactivity was measured using a video game, star tracing and cold pressor test. Gestational age and birth weight were based on the women's self-report, with PTB defined as birth <37 weeks' gestation and SGA as weight <10th percentile for gestational age. The researcher used Linear and Poisson regression and generalised estimating equations to model the relationship between reactivity to stress and birth outcomes with control for

confounders. Few associations were seen between reactivity and pregnancy outcomes. Higher pre-pregnancy diastolic blood pressure (adjusted relative risk 1.14; 95% confidence interval [CI] 0.98, 1.34) and mean arterial pressure reactivity (1.15; 0.98, 1.36) were associated with risk of preterm birth at first pregnancy, while small for gestational age was associated with lower systolic blood pressure reactivity (0.76; 0.60, 0.95).Similar result were found for mean arterial pressure. No strong associations were found between higher pre-pregnancy stress reactivity and small – for – gestational age or preterm birth, and stress reactivity did not have a stronger association with birth outcomes.

Li et al. (2010) conducted a study to determine the prenatal stress exposure related to maternal bereavement and risk of childhood overweight. It has been suggested that prenatal stress contributes to the risk of obesity later in life. In a population-based cohort study, the researchers examined whether prenatal stress related to maternal bereavement during pregnancy was associated with the risk of overweight in offspring during school age. The researcher followed 65,212 children born in Denmark from 1970-1989 who underwent health examinations from 7 to 13 years of age in public or private schools in Copenhagen. The researchers identified 459 children as exposed to prenatal stress, defined by being born to mothers who were bereaved by death of a close family member from one year before pregnancy until birth of the child. The results suggested severe pre-pregnancy stress is associated with an increased risk of overweight in the offspring in later childhood.

Beijrs, Jansen, Riksen & de Weerth (2010) conducted a study to determine the maternal prenatal anxiety and stress which can have adverse consequences on the offspring's development. In human studies, physical health outcomes are often restricted to birth complications. The participants of the study were 174 mothers with normal pregnancies and term deliveries (71 firstborns; 91 boys). The mothers filled out third-trimester questionnaires on general and pregnancy-specific anxiety and stress and

provided saliva samples for circadian cortisol. Hierarchical multiple regressions showed that, even after controlling for many relevant confounders, prenatal anxiety and stress predicted a considerable amount of variance in infant illnesses and antibiotic use. 9.3% for respiratory, 10.7% for general, 8.9% for skin, and 7.6% for antibiotic use. This is the first evidence linking maternal prenatal anxiety and stress to infant illnesses and antibiotic use early in life.

Monk et al. (2003) conducted a study to examine the effects of pregnant women's acute stress reactivity and chronic anxiety on fetal heart rate (HR). Thirty - two healthy third trimester pregnant women were instrumented to monitor continuous electrocardiography, blood pressure, respiration, and fetal HR. Subjects completed the trait anxiety subscale of the State Trait Anxiety Index, then rested quietly for a 5-minute baseline period, followed by a 5-minute Stroop color – word matching task and a 5-minute recovery period. Fetal HR changes during women's recovery from a stressful task were associated with the women's concurrently collected HR and blood pressure changes ($r = .63$, $p < .05$). Fetal HR changes during recovery, as well as during women's exposure to the Stroop task, were correlated with their mothers' trait anxiety scores ($r = .39$, $p < .05$ and $r = -.52$, $p < .01$, respectively). The results from this study link changes in fetal behaviour with acute changes in women's cardiovascular activity after psychological stress and women's anxiety status. This indicates that variations in women's emotion - based physiological activity can affect the fetus and may be centrally important to fetal development.

Zhu, Tao, Hao, Sun & Jiang (2010) conducted a study to assess the prenatal life events stress and its implication for preterm birth and infant birth weight. The objective of the study was to evaluate the effects of maternal exposure to severe life events during different stage of gestation on preterm birth and infant birth weight. A sample of 1800

women who delivered after 32 weeks' gestation were assessed with questionnaires that measured stressful life events during different stages of pregnancy. The results revealed an increased risk of preterm birth among women with higher levels of life events stress during the first trimester (adjusted risk ratio, 2.40; 95% confidence interval, 1.13-5.09) and second trimester (adjusted risk ratio, 2.86; 95% confidence interval, 1.26-6.47). Each unit increase of perceived life events stress during first trimester was associated with a 99.09 gram decrease in infant birth weight. As a conclusion, prenatal severe life events, especially in the first trimester, may play an important role in increasing the risk of preterm birth and low birth weight.

While stress is difficult to manage sometimes, expectant mothers who engage in relaxation techniques or other methods of stress management on a regular basis tend to have healthier pregnancies(Kris Bigalk).

TREATMENT MODALITIES AVAILABLE FOR STRESS DURING PREGNANCY

It is common to feel stressed during pregnancy. Women who suffer from medical issues or financial issues during pregnancy are stressed due to their personal problem and women who are not financially insecure or have uncomplicated pregnancy, may feel stressed, because stress is a side effect of pregnancy

1. Take a healthy diet to reduce stress and anxiety. One can take lots of fruits and fruits juices. One should not eat junk food and carbonate drinks as it can provide you energy for same minutes but it is not good for health. Pregnant women can take small meals in short interval throughout the day.
2. Take plenty of sleep and rest.
3. Yoga and medications can prevent stress.

4. Talking to people and communicating may help in reducing stress. One can talk to their partner to feel happy.
5. Reduced your work load. Delegate as you are already stressed. Many pregnant women feel drowsy during daytime. In the first trimester and may not find it easy to concentrate on every day work. Many women have the feeling of depression and mood swings. One can talk to a counsellor to feel happy.
6. Going for a shower, getting a massage or taking aromatherapy help in relieving body ache and stress.
7. Indulge in hobby activities such as **listening to music** or painting.

   One such mode of management is Music Therapy.

2. MUSIC THERAPY IN PREGNANCY

GENERAL OVERVIEW OF MUSIC THERAPY IN PREGNANCY

Music has the power to transform any despair into joy and helps a great deal in the relaxation of the mind, body and soul. In today's times of stress and depression, music therapy is an effective therapy to deal with any emotional or psychological problem. There are many benefits of this healing therapy and accordingly there are different types of music therapy taking into consideration the needs and condition of the patient.

Sound was born with humans. Pleasant tunes transfers good vibrations in the atmosphere. Good and correct music brings forth positive vibrations in the nerves of the listeners. Music is a direct experience before being transformed into thought and feeling. Indian Classical Music has much impact on individual moods and behavior. Certain ragas with specific notes acts positive on individuals mindset. Our Upanishads speaks about the effects of Classical Music on individual life, behavior, environment and one who listens to it with rapt attention. During the early stages of pregnancy, music given to mothers does have very good effect for the fetus**.**

Benefits of music therapy in mothers & fetus(Dr.Mythily)

- Music act on our mind before being transformed into through and feeling
- Music influences the lower and higher cerebral centers of the brain.
- Music therapy stimulate good vibration in the nerves of the listeners.
- Music bring about a sense of mental wellbeing in individuals.
- Music therapy therapy help to clear the junked throught in mind, leads to have positive frame of mind.
- Music training helps to express refined exhibition of emotions & clarity in cognition too.

Mother

The music therapy help in Mother to overcome sleep problems

- To soothes the soul
- Decrease the premature birth rate
- Keep the mother to calm and relaxed

Fetus

The music therapy help in

- Improving breathing pattern of the baby in utero
- Development of the brain structure
- Strengthen learning ability
- Make the fetus' position just before the date of expectancy becomes ideal for normal delivery.

Types of music for pregnant mothers

Music has always been used for meditation, stress relief and so on. Music, in fact, is a part of our celebrations and sadness. But in Rajam's hands ragas have been a source of

therapeutic healing, not just for autistic and hyperactive children, but for those experiencing menopause, thyroid problems and suicidal depression. Through her careful ministration and usage of the particular raga that resonates with the patient, she has brought about remarkable healing. A nonverbal autistic boy named Pranav is now an able singer and communicates freely after two years of her.

A raga is a series of five or more musical notes. Ragas (Sanskrit for colour or passion), are supposed to evoke various moods in the listener. In Hindustani music in particular, certain ragas are specific to different seasons or times of the day. The monsoon ragas, belonging to the Malhar group, are mainly performed during the rains, while morning ragas, such as Bibhas and Bhairavi, or night ragas, such as Kedar, Malkauns, or Naika Kanhra, are performed at specific times of the day.

The Hindustani and Carnatic systems usually have different ragas. There are some ragas which are similar but use different names in both systems. Others have similar names, but differ in the actual form. Also, Hindustani music classifies ragas into ten *thaats* or parent ragas, as organised by Vishnu Narayan Bhatkhande in the early 1900s. The Carnatic system, on the other hand, depends on an older classification having 72 parent ragas. The melodic composition is sung or played, against a musical drone provided by the tanpura, a string instrument. The strings of the tanpura are played in a regular pattern based on the base or tonic note of the raga to provide a rich harmonic drone to the performance(Ustad vilayatkhan & kishori Amonkar's,(2010).

STUDIES RELATED TO EFFECTS OF MUSIC ON STRESS MANAGEMENT

Sidorenko (2000) did a study to evaluate the clinical application of medical resonance therapy music in high- risk pregnancies. The Medical Resonance Therapy

Music (MRT-Music) of the German classical composer and musicologist Peter Huebner is built on this concept of Pythagorean music medicine. Its therapeutic effect may be best explained by the natural phenomenon of resonance between the harmony laws of the microcosm of music and the biological laws of the body. The results received after application of MRT-Music indicate multiple positive effects on the organism of pregnant women both with a healthy pregnancy as with a pathologic one, reducing the rate of premature births very effectively. It demonstrated a powerful anti-stress effect and allowed to reduce the amount of administered pain-killers to pregnant women by the factor 1.5 to 2.0, thus reducing the negative pharmacological load to the foetus. It furthermore reduced labour time and shortened hospital stay. It helped to create optimal conditions for the course of pregnancy and heightened pain sensitivity threshold by means of improving the functional, hormonal, and psycho-emotional conditions of pregnant and lying-in women. Thus, the labour process became more natural, the delivery non-traumatic, and motherhood more happy and safe.

Beddoe & Lee (2008) examined the published evidence on the effectiveness of mind-body interventions during pregnancy on perceived stress, mood, and perinatal outcomes. Studies were categorized by type of mind-body modalities used progressive muscle relaxation was the most common intervention. Other studies used a multimodal psychoeducation approach or a yoga and meditation intervention. Nonetheless, there was modest evidence for the efficacy of mind-body modalities during pregnancy. Treatment group outcomes included higher birthweight, shorter length of labor, fewer instrument-assisted births, and reduced perceived stress and anxiety.There is evidence that pregnant women have health benefits from mind-body therapies used in conjunction with conventional prenatal care.

AL-Qahtni (2005) conducted a study to examine whether prenatal exposure to music and voice alters foetal behaviour and whether foetal response to music differs from human voice. A prospective observational study was conducted in 20 normal term pregnant mothers. Ten foetuses were exposed to music and voice for 15 s at different sound pressure levels to find out the optimal setting for the auditory stimulation. Music, voice and sham were played to another 10 foetuses via a headphone on the maternal abdomen. The sound pressure level was 105 db and 94 db for music and voice, respectively. Computerised assessment of foetal heart rate and activity were recorded. The result revealed that foetuses responded with heart rate acceleration and motor response to both music and voice. This was statistically significant compared to sham. There was no significant difference between the foetal heart rate acceleration to music and voice.

Chen & Huang (2008) conducted a study to examine the effectiveness of listening to lullabies, classical music and sound of nature on psychological stress among pregnant mothers. Randomly assigned 116 pregnant women to a music group and 120 to a control group, were between 18 to 34 weeks pregnant and expected to have uncomplicated vaginal deliveries. Psychological health was assessed using Perceived Stress Scale. The result reveled that music in their daily life had reduced the stress among pregnant mothers.

Chang &Chan [2004] in their abstract on the application of music therapy in maternity nursing. States that music therapy has been used in the care of patients in a variety of fields, to decrease anxiety and enhance health, and has shown promising results. It is reported that pregnancy and childbirth may result in stressful consequences for some women. Midwives are charged with the tasks of assuring the positive aspects of pregnancy and childbirth and meeting the demands of the women in these stressful situations. In

order to create a caring environment, they suggest that music therapy be incorporated into standard maternity care.

The results of research investigating the effect of stress during pregnancy aren't particularly conclusive. However, the general consensus is that while short term stress doesn't influence baby's development, sustained periods of severe stress may increase the risk of preterm labour, low birth weights and complications such as preeclampsia. Thus midwives play a important role in motivating and giving the pregnant mothers to follow stress reduction strategies to combat stress.

CHAPTER - III

RESEARCH METHODOLOGY

'Research methodology is a way to systematically solve the research problem. It consists of various steps that are generally adopted by a researcher in studying the problem along with the logic behind them''[Kothari,1990].

This chapter includes the research approach, research design, the setting, sample and sampling technique .development of the tool, procedure for data collection and plan for data analysis.

RESEARCH APPROACH

Experimental approach was used in this study, to determine the effectiveness of music therapy in reducting of stress among pregnant .mothers.

RESEARCH DESIGN

Non-equivalent control group pretest posttest design was used in this study, which is a type of quasi-experimental design.

SCHEMATIC REPRESENTATION OF THE DESIGN

Group	Measurement of dependent variables	Manipulation of independent variables	Measurement of dependent variables
Experimental group	01	x	02
Control group	02	-	02

Key

01 - Pre assessment of the level of stress.

X - Music therapy.

02 - Post assessment level of stress

Variables

Dependent variable - stress

Independent variable - music therapy

SETTING OF THE STUDY

This study was conducted in a selected area's of Madurai corporation [Sellur, Munichalai & Puthur] which is situated 5-7 kilometers away from Sacred Heart Nursing College.

STUDY POPULATION

The population for the study was pregnant mothers living in selected areas of Madurai District.

SAMPLE

Pregnant mothers who fulfilled the inclusion criteria were selected as samples.

SAMPLE SIZE

The total sample size was 60.Thirty samples were selected for experimental group and thirty samples were selected for control group.

SAMPLING TECHNIQUE

convenience sampling technique was used for this study.

CRITERIA FOR SAMPLE SELECTION

Inclusion criteria

1. Mothers who could speak and understand Tamil / English.
2. Pregnant mothers between 18-34 weeks of gestational age.

Exclusion criteria

1. Pregnant mothers who were mentally ill.
2. Pregnant mother who were not willing to participate.
3. High risk pregnant mothers.

RESEARCH TOOL & TECHNIQUES

The following tools were used for the present study.

Part A:

It consisted of demographic characteristics & obstetrics variables of pregnant mothers. It included age, education, occupation, income, religion,parity,any previous abortion, type of family and area of residence.

Part B:

Perceived Stress Scale was used to assess the level of stress among the pregnant mothers. The Perceived Stress Scale which was developed by D.Jhon & MacArthur is a 10 item self related scale. The perceived stress scale has been reported to be a useful screen for stress in pregnant mothers.(John D. And Catherine T . MacArthur)

Scoring procedure

Each item of the perceived stress scale had 5 opinions and it as follows:

0 – never

1 – almost never

2 – sometimes

3 – fairly often

4 – very often

Items 4, 5, 7 and 8 are the positively stated items & the rest were negatively stated. The total score was calculated & interpreted as follows

Low stress	= 0 - 13
Moderate stress	= 14 - 26
High perceived stress	= 27 – 40

TESTING OF THE TOOL

Reliability

Test –retest method was used to find out the reliability of instrument. The perceived stress scale had demonstrated very good stability with a test – retest correlation of 0.92 over one week.

Validity

The tool was given to 3 experts in the field of obstetric and gynaecology, 1 expert in the field of music,and one expert in the field of psychiatry for estabilishing the validity of tool.

DEVELOPMENT OF INTERVENTION

The instrumental music for the study was selected after consulting Dr.Lakshmi podhuval,Ph.D., Principal college of music. The raga selected for the study is Bhairavi raga, which has been researcher by Dr.T. Mythily,Ph.D, a research scholar, a clinical psychologist, and music therapist working with Apollo Hospital, Chennai, India. The music CD was given to the expert. Based on the expert suggestion the CD was refined and finished.

Definition:

In this study it refers to the administration of instrumental music via walkman for 40 minutes per day for 6 days to pregnant mothers. The instrumental music selected for the study consisted Bhairavi raga

Aim:

It is to help the pregnant mothers with stress to re-alm themselves with insight and to distress.

Steps

1. On day 1, level of stress will be assessed using Perceived Stress
2. The investigator checks with the pregnant mother for her convenient time to listen to music
3. According to the convenience of the pregnant mother, music therapy will be administer via walkman for 6 days. Anywhere between 8am – 4pm.
4. Each session would last for 40 minutes of listening to the instrumental music.
5. After each session, the pregnant mother will be asked qualitatively on their response to music therapy.
6. On day 6, the post-test assessment was done by same Perceived Stress Scale.

PILOT STUDY

In order to test the feasibility of the study , pilot study was conducted among 15 mothers in the same manner as the final study. Data was analysed and the findings revealed that the study is feasible.

DATA COLLECTION PROCEDURE

Formal permission was obtained from Corporation of Madurai. The study was conducted in 3 areas of Madurai District. The test of pregnant mothers was got from the selected PHC (Sellur, Munichalai & Puthur) and the investigator conveniently selected pregnant mothers residing in and around the centre & who fulfilled the inclusion criteria. 30 were selected for control group & 30 for experimental group. Perceived stress scale was used to asses the level of stress of the pregnant mothers. In the first day, level of stress was assessed .1 week of music therapy was administered for pregnant mothers from Monday to Saturday .Instrumental music was given by using walkman. 40 minutes for each individual. The therapy was given any where between 8am – 4pm according to the

convenience of the mothers. On day 6 posttest level of stress was assessed at the end of the week by perceived stress scale on each individual. Pregnant mothers in the control group did not receive music therapy.

Group	I week (sellur)	II week (sellur)	III week (puthur)	IV week (munichalai)	V week (munichalai)
Experimental group	6	5	10	5	4
Control group	5	6	7	6	6

PLAN FOR DATA ANALYSIS

The data analysis was done according to the objectives of the study by using inferential and descriptive statistics.

Descriptive statistics

Frequency percentage and mean were used for analysis of the pretest & posttest assessment.

Inferential statistics

1. Paired "t" test was used to determine the difference between pre-test and posttest stress scoreof experimental in terms of effectiveness of music therapy
2. Independent 't' test was used to determine the difference between post-test stress score of experimental group & control group in terms of effectiveness of music therapy.
3. Chi - square was used to determine the association between selected demographic variables and posttest stress score of pregnant mothers.

PROTECTION OF HUMAN SUBJECTS

The proposed study was conducted after the approval of dissertation committee of the college of nursing. Permission was obtained from the correspondent and the principal of the Sacred Heart Nursing College. Due consent was obtained from the Head of the Maternity Department for the pilot study and main study oral consent of each subject was obtained before starting the data collection and assurance was given to them that the anonymity of each individual would be maintained.

CHAPTER-IV

ANALYSIS AND INTERPRETATION OF DATA

Analysis is a process of organizing and synthesizing data in such a way that researcher questions can be answered and hypothesis tested [polit and Hungler 1999].

This chapter deals with the description of the samples, analysis and interpretation of the data collected and achievement of the objects of the study. The data collected was tabulated and presented below.

The data collected were organized under the following sections

Section I – (Table 1) Frequency and percentage distribution of samples according to demographic characteristic.

Section II -- (Table 2 & 3) Distribution of samples according to the level of stress in experimental and control group.

Section III -- Comparison of mean pretest and posttest level of stress of samples in experimental group.

Section IV -- Comparison of mean posttest level of stress between experimental and control group.

Section V – Association between posttest stress level and selected demographic variables such as age, education, occupation, income, parity, gestational weeks and previous obortion.

Table I

Frequency and percentage distribution of samples according to demographic profile.

Demographic characteristics	Experimental group (n-30)		Control group(n-30)	
	F	**%**	**f**	**%**
Age				
18 - 24	7	23.34	7	23.34
25 - 29	14	46.66	15	50
30 - 34	8	26.66	8	26.66
35 - 39	1	3.34	0	0
Education				
Illiterate	2	6.66	8	26.66
Primary	16	53.34	13	43.34
Secondary	10	33.34	10	33.34
Higher secondary	2	6.66	2	6.66
Graduate	0	0	0	0
Postgraduate	0	0	0	0
Professional	0	0	0	0
Occupation				
Employed	0	0	0	0
Unemployed	30	100	30	100
Income				
<1000	20	66.66	20	66.66
>1000	10	33.34	10	33.34

Obstetric score				
Primi gravid	14	46.66	17	56.66
Multi gravid	16	53.34	13	43.34
Gestational weeks				
18 - 24 weeks	3	10	6	20
25 - 29 weeks	21	70	19	63.34
30 - 34 weeks	6	20	5	16.66
Any previous abortion				
Yes	4	13.34	2	6.66
No	26	86.66	28	93.34

Table I reveals that both in experimental group & control group majority of the mothers belonged to the age group of 25-29 yrs (46.66%respectively & 50%respectively). Regarding educational status 16 out of 30 in experimental group (53.34%)and 13 out of 50(43.34%) in control group had primary school education . In occupational status all the mothers were unemployed. In both the groups majority of mothers (66.66%) had an income of less than Rs1000. Regarding obstetric score majority of pregnant mothers (53.34%)in experimental group were multigravida where as in control group majority(56.66%) were primi gravid. Regarding gestational weeks, in both the groups majority of the mothers had a gestational age of 25-29weeks (70%respectively & 63.34%respectively).In both the group have of them had no previous abortion.

Table -2

Distribution of samples according to the level of stress in experimental group

N=30

Level of Stress	Experimental Group			
	Pretest		Posttest	
	f	%	f	%
Low Stress [0-13]	6	20	28	93.34
Moderate Stress [14-26]	24	80	2	6.66
High perceived stress [27-40]	0	0	0	0

Table -2 depicts the pretest and posttest score of both experimental group. In the experimental group majority of the samples (80%) experienced moderate level of stress and 6 out of 30(20%) had low stress. But in the posttest majority of the samples experienced low level of stress (93.34%), 2 out of 30 (6.66%) had moderate ,none of them experienced high perceived stress.

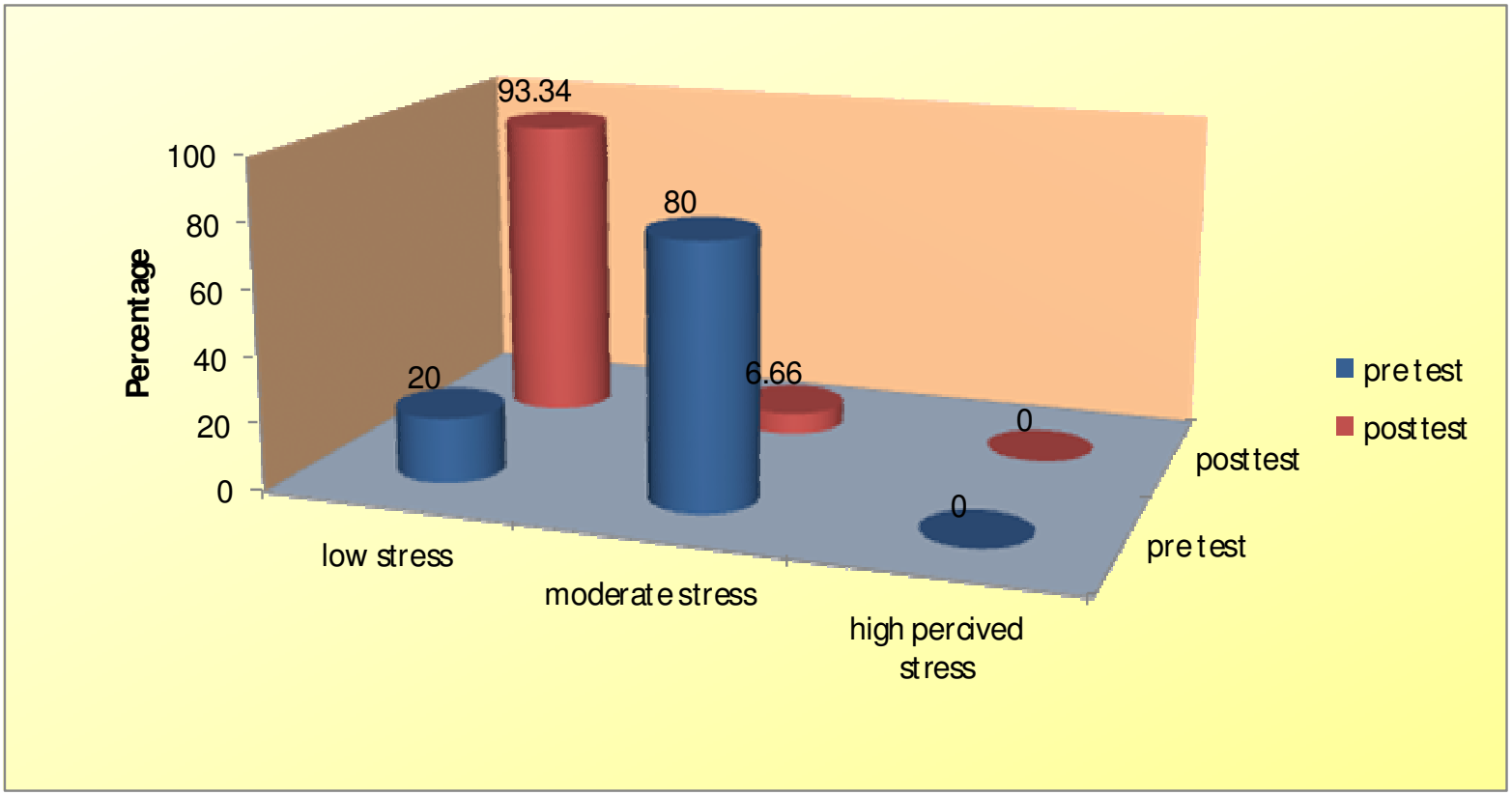


FIGURE 2: DISTRIBUTION OF SAMPLES ACCORDING TO THE LEVEL OF STRESS IN EXPERIMENTAL GROUP

Table 3

Distribution of samples according to the level of stress in control group

N=30

Stress level	Control Group			
	Pretest		Posttest	
	f	%	f	%
Low Stress [0-13]	16	53.34	14	46.66
Moderate Stress [14-26]	14	46.66	16	53.34
High perceived stress [27-40]	0	0	0	0

In control group, in the pretest majority of the samples experienced low level of stress (53.34%), 14 out of 30 (46.66%) experienced moderate level of stress and none of them experienced high perceived stress. In the posttest majority of the samples experienced moderate level of stress (53.34%), 14 out of 30 (46.66%) experienced low level of stress.

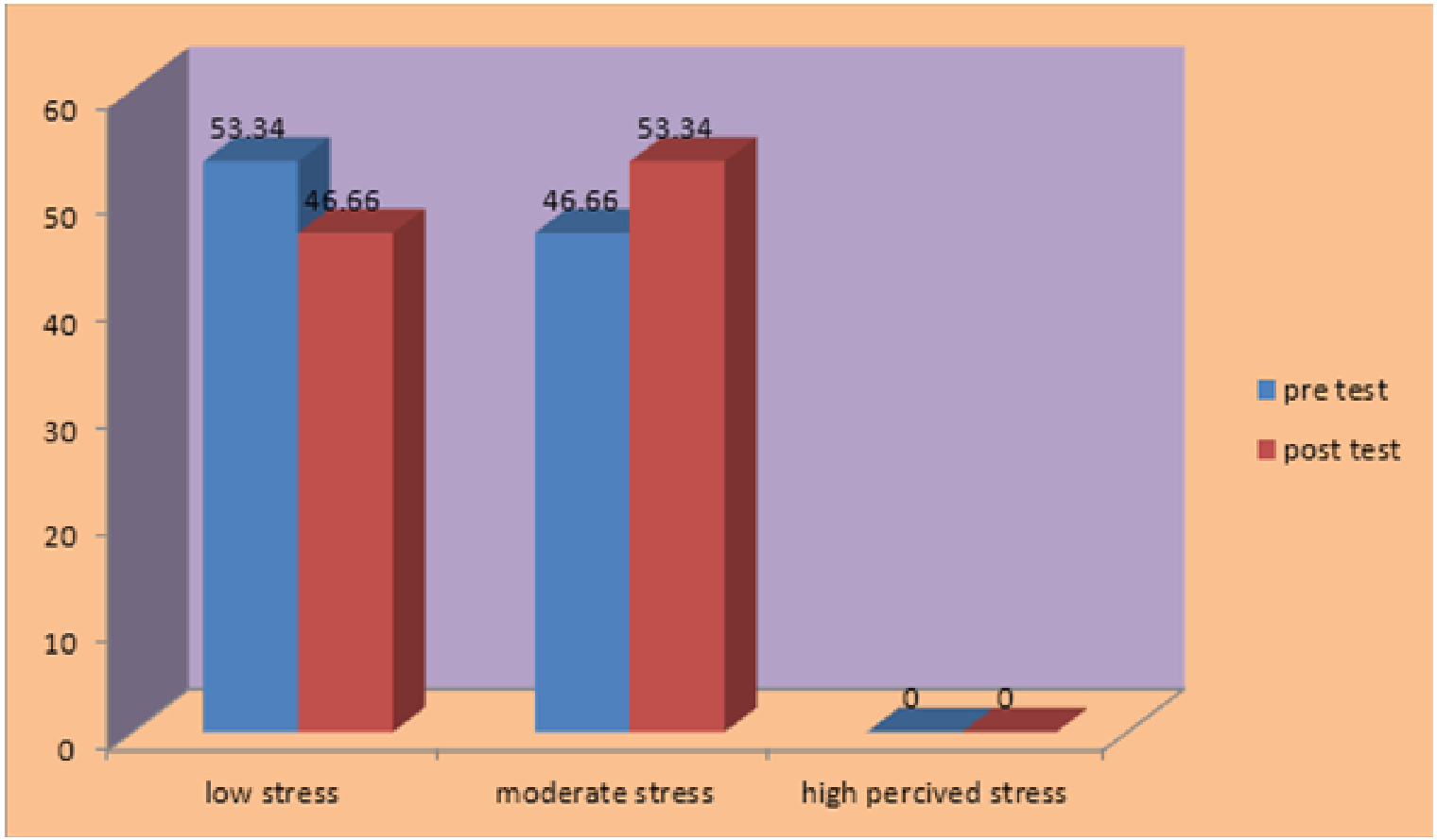


FIGURE 3: DISTRIBUTION OF SAMPLES ACCORDING TO THE LEVEL OF STRESS IN CONTROL GROUP

Table 4

Comparison of mean pretest and posttest level of stress of samples in experimental group

N=30

Measurement	Mean	Mean Difference[MD]	SD	't' value	df	'p' value
Pretest	15.33					
		5.73	2.08	10.48	29	0.05
Posttest	9.6					

Significance at 0.05 level

To compare the mean pretest and posttest stress level of experimental group, null hypothesis was stated as follows:

$H0_1$ - There will be no significant difference between the mean post test stress score and mean pretest score of experimental group.

Table 4 represents that in experimental group the mean post test stress score (9.6) was lower than the mean pretest stress score (15.33). The obtained 't' value (10.48) was statistically significant at 0.05 level.

This indicate that the mean difference of 5.73 is a true difference & has not occurred by chance. The above findings supports the research hypothesis .So the researcher rejected the null hypothesis.

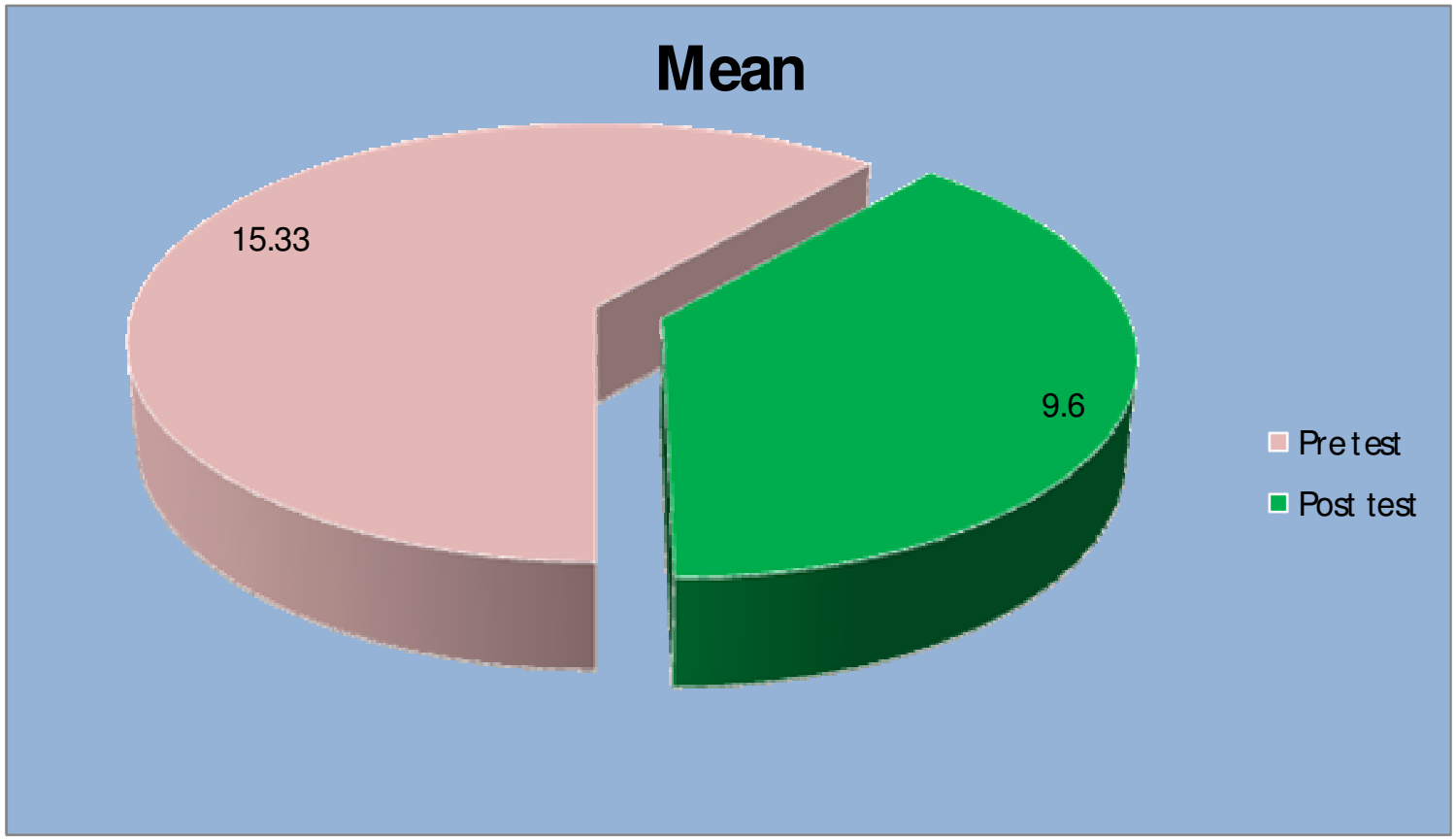


FIGURE 4: COMPARISON OF MEAN PRETEST AND POSTTEST LEVEL OF STRESS OF SAMPLES IN EXPERIMENTAL GROUP

Table 5

Comparison of mean post level of stress between experimental and control group.

N=60

Group	Mean Differences	Mean	SD	't' value	d f	'p' value
Experimental group	7.6	6.43	2.08	6.19	58	0.05
Control group	14.03		3.67			

Significance at 0.05 level

To compare the mean post test stress level of the experimental group and the control group, null hypothesis was stated as follows,

HO_2: There will be no significant differences between the mean post test stress score level of experimental group and mean post test stress score of control group.

Table 5 summarise that the mean post stress score level 7.6 of the experimental group is lesser than the mean post test stress score of 14.03 the control group. The obtained 't' value 6.19 is statistically significant at 0.05 level. This indicate the mean difference of 6.43 is a true difference and has not occurred by chance. So the researcher accepts the research hypothesis and rejects the null hypothesis.

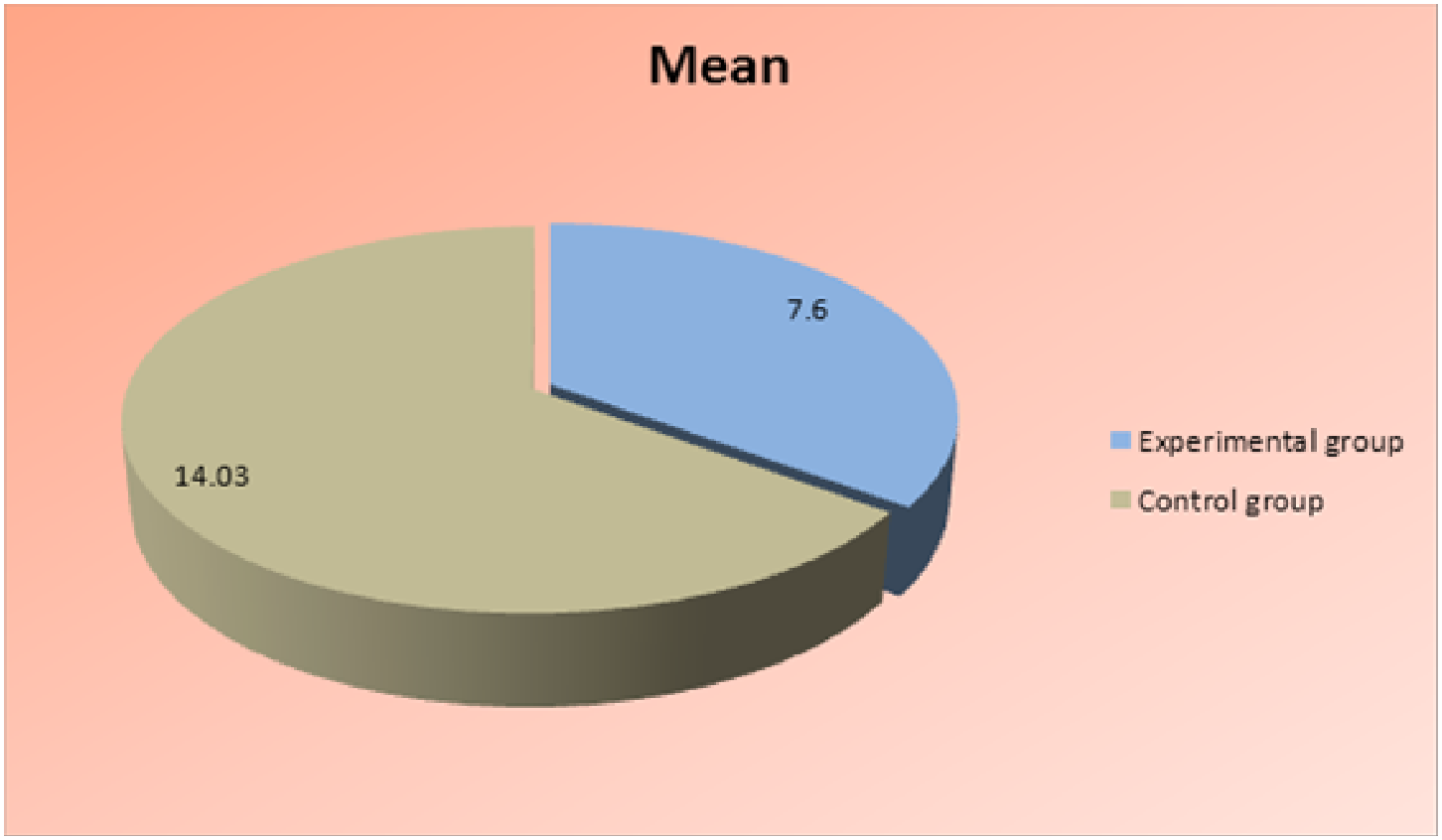


FIGURE 5 COMPARISON OF MEAN POST LEVEL OF STRESS BETWEEN EXPERIMENTAL AND CONTROL GROUP

Table 6

Association between posttest stress level and selected demographic variable of pregnant mothers in experimental group.

Demographic variables	Below mean	Above mean	Total	X2	df	Post test mean stress score
Age						
18 – 29	12	9	21	0.402	1	9.42
30-39	4	5	9			10
Education						
Illiterate & primary	8	10	18	1.424	1	9.94
Secondary & higher secondary	8	4	12			9.08
Income						
< 1000	9	11	20	1.695	1	10
> 1000	7	3	10			8.8
Obstetric score						
Primi gravid	8	6	14	0.14	1	9.57
Multi gravid	8	8	16			8.25
Gestational weeks						
18-29 wks	12	12	24	0.535	1	9.66
30-34 wks	4	2	6			9.33
Any previous abortion						
Yes	1	3	4	1.417	1	10.75
No	15	11	26			9.42

To find out an association between level of stress and demographic variables, the null hypothesis was stated as follows:

Table 6 revels that belong to the age group of 18-29yrs the mean post stress score 9.42 &30-39yrs were 10, Regarding education illiterate & primary 9.94 & secondary & higher secondary 9.08, income of less than Rs.1000 were mean post stress score of 10 & more than Rs.1000 were 8.8, in obstetric score primi gravid, the mean post stress score of 9.57 & multi gravid were 8.25.In gestational weeks, 18-29weeks of pregnant mothers had mena post stress score of 9.66 &30-34weeks of mo ther had 9.33, in previous abortion, the mean post stress score 10.75% said yes & 9.42% said No.

The chi square value of demographic variables were not significant at 0.05 level. This shows that there was no association between the demographic variables and level of stress. So the researcher rejects the research hypothesis and accepts the null hypothesis.

CHAPTER - V

DISCUSSION

The aim of this study was to evaluate the effectiveness of music therapy on stress among the pregnant mothers in selected area of Madurai District.The study consisted of 30 samples in experimental group and 30 samples in control group.The tool used was perceived stress scale. The findings of the study are discussed in this chapter with reference to the objectives of the study:

Regarding the demographic data, majority of the pregnant mothers belonged to the age group of 25-29yrs in both the groups (46.66% in experimental group & 50% in control group). Most of the mothers in both the groups had primary level of education.Almost 2/3rd of the sample in both the groups were hailingfrom poorer socio economic status. Most of them (53.34%) were multigravida in experimental group and most (56.66%) were primi gravid in control group. By and large, most of the samples from both the groups had a gestational age 25-29weeks of gestation.

The first objectives of the study was to findout the level of stress experienced by the pregnant mothers before and after music therapy in experimental group.

The total scores were tabulated (Table -2) and revealed that 20% pregnant mothers suffered from low level of stress and 80% pregnant mothers suffered from moderate level of stress in experimental group in pretest but in posttest majority (93.34%) of pregnant mothers had low level of stress. There was a significant reduction in the moderate level of stress from 80% to 6.66%. The above findings clearly portrays the mediating effect of music on stress among pregnant mothers.

Prenatal stress is associated with maternal and fetal complications like miscarriages, late pregnancy complications or impaired fetal development [Nakamura, Sheps&Arck (2008)]. With the view of having a healthy pregnancy, it is important that midwives positive maternal &fetal outcome, motivate the pregnant mothers to adopt stress reducing strategies.

The second objective of the study was to determine the pretest and posttest level of stress experienced by the pregnant mothers in the control group.

In the control group the stress scores remained the same in both pretest&posttest(i.e) (53.34%) had low level of stress and (46.66%) of them had moderate level of stress[Table no.3].

The reason the investigator attributes for the above findings is that the pregnant mothers in the control group did not adopt any specificstress reducing strategies.Probably they were held up with the choses of daily living like household work, looking after older siblings etc and unable to spend time on leisure activities. The results clearly highlights the importance of instructing the pregnant mother to follow certain stress reduction strategies.

The third objective of the study was to evaluate the effectiveness of music therapy on stress among pregnant mothers.

In comparing the mean pretest&posttest level of stress of samples in the experimental group.There was marked reduction in the level of stress after music therapy proving the efficacy of music therapy. The obtained 't' value 10.48 was statistically highly significant at 0.05 level of significance. There was also a

statistically significant difference between the mean posttest level of stress of experimental and control group [('t' value 6.19;(p-0.05)].

A vast arrayofliterarure supports the ill effects of stress during pregnancy on maternal &fetaloutcome.To quote few.

Fetus

A number of studies suggest that high levels of stress in pregnancy may contribute to premature birth and low birthweight. Babies born too small and too soon are at increased risk for health problems during the newborn period, lasting disabilities (such as mental retardation and cerebralpalsy) and even death.

Some studies suggest that high levels of stress in pregnancy may affect a child's mental and emotional development. Maternal stress may contribute to learning problems, such as difficulty paying attention, and to increased anxiety and fearfulness. It is not known how maternal stress may cause these problems. However, some studies suggest that stress – related hormones in the mother's blood may cross the placenta and affect the fetus's developing brain(Naina Roy, 2008).

Pregnant mother

Too much stress can be uncomfortable for anyone. In the short term, a high level of stress can cause fatigue, sleeplessness, anxiety, poor appetite or overeating, headaches and backaches. When a high level of stress continues for a long period, it may contribute to potentially serious health problems, such as lowered resistance to infections, high blood pressure and heart disease. High levels of stress also poses some special risks for pregnant women.

Some studies suggest that women who experience negative life evens, such as divorce, death in the family, serious illness or loss of a job, may be at increased risk

of having a premature (born before 37 completed weeks of pregnancy) and/or low birthweight (less than 5½ pounds) baby(Naina Roy, 2008).

A resent study found that low- income women with chronic stress (resulting from difficulty obtaining food, caring for a child with a chronic illness or being unemployed) were at increased risk of having a low-birthweight baby.

Some women may experience serious chronic stress over the pregnancy itself, possibly increasing their risk of adverse pregnancy outcomes.These women may be especially worried about the health of their baby or about how they will cope with labor and delivery.Thus it become importance to reduce stress among pregnant mothers.

There is research evidence that pregnant women have health benefits from mind-body therapies used in conjunction with conventional prenatal care in reducing the stress and improving the mood, [Beddoe&Lee (2008)].

One such mind – body intervention is music therapy. Music has the power to transform any despair into joy and helps a great deal in the relaxation of the mind, body and soul. In today's times of stress and depression, music therapy is an effective therapy to deal with any emotional or psychological problem.

The valid contribution of music therapy in reducing stress among pregnant mothers is elaborated below long with verbatim of the pregnant mothers which still is alfresh in the memory of the researcher.

- **Music creates a sense of relaxation and calmness.**

"A mother expressed her feelings as she felt relaxed and a change in mood was experienced.''

"A mother said Iam able to feel ease and communicate well with fellow others.''

•Music therapy enhance peace of mind.

"A mother says Iam able to feel that there was a reduction in the level of stress, as experienced by feeling of peace of mind.''

"A mother expressed her feeling as she felt calmness.''

The findings of the present study configure with the following literature:-

A study conducted by Chang, Chen & Huang (2008) examined the effectiveness of listening to lullabies, classical music and sounds of nature on psychological stress among Taiwanese pregnant women. The results showed that, before they took part in the study, women in the music group scored 17.44 on the Perceived Stress Scale, which ranges from zero to 30. After the intervention their stress levels had dropped by an average of 2.15, which is statistically significant.

In the present study

A study conducted by AL.Qahtani (2005) examined whether prenatal exposure of music and voice alters foetal behaviour and whether foetal response to music differs from human voice. Foetuses responded with heart rate acceleration and motor response to both music and voice. This was statistically significant difference between the foetal heart rate acceleration to music and voice.

The fourth objectives of the study was to associate the post level of stress with the selected demographic variables of stress among pregnant mothers in experimental group.

There was no statistically significant association between the level of stress and the demographic variables of pregnant mother at **0.05** level of significance.

Age

Inferential statistics further elicited that age was not associated with level of stress of the pregnant mothers. This emphasizes that both the elderly & young mothers equally benefited by music therapy. But looking at the mean scores, it portrayed that elderly pregnant mothers had lesser stress scores compared to the young pregnant mothers (9.42)**.**

Education

Respective of the educational status of the pregnant mothers, with or without education had greatly benefited from music therapy. This conclusion was drawn from the no association status between the post intervention level of stress and their education status. This reflects that music therapy permeates all educational background becuse it communicates a universal language.But looking at mean stress score **9.94** were illiterate & primary and **9.08** were secondary & higher secondary.

Income

Even though study findings were in the predicted direction i.e., the inadequate income group having a higher stress score and the adequate income group having a lower stress score, there was no statistically association found between the income and music therapy.

Obstetric score

This emphasizes that both the primi gravid & multi gravid equally benefited by music therapy.But looking at the mean score, it portrayed that multi gravid had lesser stress scores compared to the primi gravid (9.57) & (8.25).

Gestational weeks

There was no statistically significant association found between the gestational weeks and music therapy. With regard to gestational weeks the mother with 18-29weeks had a mean posttest stress score of 9.66and mothers with 30-34weeks had 9.33.Each pregnant women would have got accustomed to the routine of the home causing boredom, loneliness, and hopelessness. The investigator is of opinion that music therapy through the various sessions had given the pregnant mother an opportunity to practice something new letting out negative feelings, boredom and hopelessness giving a new sense of hope about future. These effects after music therapy could have mediated the effects of stress.

Any previous abortion

With regard to previous abortion mother who had previous abortion had a high posttest mean stress score 10.75 than the mother who had no previous abortion 9.42.There was no statistically association found between the previous abortion and music therapy.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATION AND RECOMMENDATION

This chapter contains the summary of the study and conclusion drawn. It clarifies the limitations of the study and the implications. The recommendations are given for different areas like nursing education, administration, nursing practice and nursing research.

Summary

This study was undertaken to determine the effectiveness of music therapy on stress among pregnant mothers in selected areas of Madurai District. The study was conducted at sellur, munichalai & puthur areas of Madurai District. Convenience sampling technique was used to select the samples. Tool used for the study was Perceived Stress Scale. Music therapy was administered to pregnant mothers for a period of one week. Data were analyzed using inferential and descriptive statistics.

Major finding of the study

Majority of the mothers belonged to the age group of 25-29yrs (46.66%) in experimental group & (50%) in control group. Regarding educational status 16 out of 30 in experimental group (53.34%) and 13 out of 50 (43.34%) in control group had primary school education. All the mothers were house wifes. In both the group majority of mothers (66.66%) had an income of less than Rs.1000. Regarding obstetric score majority of pregnant (53.34%) in experimental group were multigravida where as in control group majority (56.66%) were primi gravid. Regarding gestational weeks, in both the groups majority of the mothers had a gestational age of 25-29weeks (70%) and (63.34%). In both the group had no previous abortion.

- In the experimental group, majority of the samples (80%) experienced moderate level of stress in the pretest where as in posttest majority of the samples experienced low level of stress (93.34%).
- In control group, in the pretest, majority of the samples experienced low level of stress (53.34%) 14 out of 30 (46.66%) experienced and none of them experienced high perceived stress.
- In experimental group the mean posttest stress score 9.6 was lower than the maen pretest stress score 15.33. The obtained value 10.48 was statistically significant at 0.05 level.
- The mean post stress score level 7.6 of the experimental group was lesser than the mean posttest stress score 14.03 of the control group. The obtained 't' value 6.19 was statistically significant at 0.05 level. This indicates that the mean difference of 6.43 is a true difference.
- There was no statistically significant association between the level of stress and the demographic variables of the pregnant mothers at 0.05 level of significance.

CONCLUSION

These findings of the study have discussed interms of the objectives, theoretical base and hypotheses.The following conclusions were drawn from the study findings.

1. Most of the pregnant mothers suffered from either mild or moderate stress.
2. Music therapy was effective in reducing the level of stress among pregnant mothers.

IMPLICATIONS

Music therapy is a nurse- initiated intervention that has the advantage of being cost effective, therapeutic for the stress among pregnant mother. Music therapy has proven to be a valuable intervention for the stressed mothers. Music therapy helps mothers work through stress by its antistress action and its calming action. This complementary therapy is safe effective alternative to drug therapy for mild to moderate stress. Complementary therapies are of particular importance for people who re unable to or uninterested in taking medications.

Implications for nursing practice

1. The study findings revealed the importance of nurse's role in reducing stress among the pregnant mother using a cost effective, safe, non pharmacological treatment, that is music therapy.
2. Study findings signify the importance of motivating pregnant mothers to listen to music to relieve stress where literature reveals lack of intervention on stress.
3. Midwives need to be trained in administering music therapy & other complimentary therapy.

Implications for nursing education

1. Current concepts and trends in pregnancy stress should be included in nursing curriculum.
2. Post graduate nursing students should be trained in administering complimentary therapy.
3. Nursing personnel working in antenatal ward and primary health center should be given in service education regarding complimentary therapy.

Implication for nursing research

The finding of the present study has added knowledge to the already existing literature and the implication for the nursing research are given in the form of recommendation. This study can be a baseline for future studies to build upon and motivate other investigators to conduct further studies**.**

Implications for nursing administration

1. The nursing administrators especially of nursing homes and antenatal wards can organize continuing nursing education on stress and music therapy.
2. The administrators can encourage the midwives to use different safe, cost effective, psychotherapeutic intervention in reducing stress among pregnant mothers**.**
3. A considerable amount in the budget can be allocated for organizing the continuing nursing education programme**.**
4. In clinical areas, administrators can make arrangements for music to be played.

Limitations

1. The study was conducted stress among pregnant mothers with out complication from a selected areas of Madurai District. So generalization must be done with caution.
2. This study was done on a small sample size of 30 in control group and 30 in experimental group, hence generalization is possible only for the selected participants.

Recommendations for further study

On the basis of the present study the following recommendation have been made for further study.

1. A longitudinal study can be undertaken to see the long term effect of music therapy in reducing the level of stress.
2. Same study can be conducted with large sample size to generalize the findings.
3. A similar kind of study can be conducted to assess the effect of music therapy on depression, self esteem, family coping and life satisfaction.
4. A qualitative approach can be applied in studying the effect of music therapy on stress.
5. **5** A similar kind of study can be conducted to assess the effect of music therapy on stress among pregnant mothers and fetal outcome.

Summary

This chapter dealt with summary of the study, major findings of the study discussion, conclusion, implication to the field, limitations of the study and recommendation for further studies.

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APPENDIX- I

COPY OF LETTER SEEKING PERMISSION FROM THE CORPORATION OF MADURAI TO CONDUCT THE STUDY

Ref: UT:SHNC 2010

Sacred Heart Nursing College
Ultra Trust,4/235,college Road
Thasildhar Nagar,
Madurai

To
The Medical officer,
Madurai Corporation,
Madurai.

Respected Sir/ Madam,

Sub: Sacred Heart Nursing College, Madurai-Project work of M.Sc., (N) student – permission requested –Reg.

We wish to state that …… final year M.Sc., (N) student of our college has to conduct a Research project, which is to be submitted to the Tamilnadu Dr. M.G.R Medical University, Chennai in partial fulfillment of University requirements.

The topic of research project is **'A study to assess the effectiveness of music therapy on stress among pregnant mothers in selected areas of Madurai District.**.

We therefore request you to kindly permit her to do the research work under your valuable guidance and suggestions.

Thanking You,

Yours faithfully,
Principal,
Sacred Heart Nursing College
Ultra Trust, Madurai-20.

APPENDIX II-A

LETTER REQUESTING OPTIONS AND SUGGESTIONS OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY AND VALIDITY OF TOOL

From

Sacred Heart Nursing College
Ultra Trust,4/235,college Road
Thasildhar Nagar,
Madurai

To

SUB: Requesting and suggestion of experts for the content validity and validity of tool

Respected Sir/Madam

I am a post graduate student (Obstetrics and Gynacological nursing) of The Sacred Heart Nursing College. I have selected the below mentioned topic of the research project submitted to DR.M.G.R. Medical university, Chennai as a fulfilment of master of science in nursing.

TITLE OF THE TOPIC :

A study to evaluate the effectiveness of music therapy on stress among pregnant mothers in selected areas of Madurai District.

With regard to this may I kindly request you to content and validate my tool for its relevancy. I am enclosing the objectives of the study. I would be highly obliged and remain thankful for your great if you could validate and send it as early as possible.

Thanking you.

Place :

Date :

Your's faithfully,

(S.Kalaivani)

APPENDIX - II(B)

LIST OF EXPERTS CONSULTED FOR THE TOOL VALIDITY OF RESEARCH TOOL

1. **Dr.Helen, M.D, DGO**
   Assistant professor,
   Government Rajaji Hospital,
   Madurai.

2. **Mr.G.S.Ramesh Kumar, M.Sc.,(N)**
   Professor in psychologist,
   Bishop college of nursing,
   Dharapuram **.**

3. **Dr.Lakshmi Podhuval, Ph.D.**
   Principal,Sri Satguru Sangeetha Vidyalayam,
   College of Music,
   Thallakulam, Madurai

4. **Mrs.Murugalakshmi, M.Sc(N).,**
   Lecture, Obstetric and Gynecological Nursing,
   Sacred Heart nursing College ,
   Madurai.

5. **Mrs.Mary Sumathi, M.Sc(N).,**
   HOD of Obstetric and Gynecological Nursing,
   Sara College of Nursing
   Dharapuram.

6. **Mrs.Santhi, M.Sc(N).,**
   Associate Professor,
   CSI Jeyaraj Annabakiyam College of Nursing,
   Madurai.

APPENDIX III-A

A QUESTIONNAIRE TO ASSESS THE LEVEL OF STRESS AMONG PREGNANT MOTHERS

1.	sample No	:	
2.	age (in year)	:	a) 18 – 24
			b) 25 – 29
			c) 30 – 34
			d) 35 - 39
3.	Education	:	a) Illiterate
			b) Primary
			c) Secondary
			d) Higher secondary
			e) Graduate
			f) Post graduate
			g) Professionals
4.	Occupation	:	a) Employed
			b) Un employed
5.	Marital status	:	a) Married
			b) Unmarried
			c) Living alone
6.	Economic status	:	a) Poor
			b) Middle class
			c) High class
7.	Obstetric store	:	a) Primi mother
			b) Multi gravid
8.	Gestational weeks	:	a) 18 – 24 wks
			b) 25 – 29 wks
			c) 30 – 34 wks
9.	Any previous abortion	:	a) Yes
			b) No

APPENDIX III - B

PERCEIVED STRESS SCALE

1. In the last month, how often you have been upset because of something that happened unexpectedly?
2. In the last month, how often you felt that you were unable to control the important things in your life?
3. In the last month, how often you felt nervous and stressed?
4. In the last month, how often you felt confident about your ability to handle your personal problems?
5. In the last month, how often you felt that things were going in your way?
6. In the last month, how often you found that you could not cope with all the things that you have to do?
7. In the last month, how often you have been able to control irritations in your life?
8. In the last month, how often you felt that you were on top of things?
9. In the last month, how often have you been angered because of things that happened that was beyond your control?
10. In the last month, how often have you felt that difficulties were piling up so high that you could not overcome them?

APPENDIX IV - A

SCORING KEY TO PERCEIVED STRESS SCALE (ENGLISH)

S. No	Questions	Never 0	Almost Never 1	Some times 2	Fairly often 3	Very often 4
1.	In the last month, how often you have been upset because of something that happened unexpectedly?					
2.	In the last month, how often you felt that you were unable to control the important things in your life?					
3.	In the last month, how often you felt nervous and stressed?					
4.	In the last month, how often you felt confident about your ability to handle your personal problems?					
5.	In the last month, how often you felt that things were going in your way?					
6.	In the last month, how often you found that you could not cope with all the things that you have to do?					
7.	In the last month, how often you have been able to control irritations in your life?					
8.	In the last month, how often you felt that you were on top of things?					
9.	In the last month, how often have you been angered because of things that happened that was beyond your control?					
10.	In the last month, how often have you felt that difficulties were pilling up so high that you could not overcome them?					

Figuring PSS score

You can determine your PSS score by following these directions:

First, reverse your score for questions 4, 5, 7 & 8. On these four questions, change the scores like this : 0=4, 1=3, 2=2, 3=1, 4=0.

Now add up your score for each item to get a total.

My total score is _____.

Individual scores on the PSS can range from 0 to 40 with higher scores indicating higher perceived stress.

Scores ranging from 0- 13 would be considered low stress.

Scores ranging from 14- 26 would be considered moderate stress.

Scores ranging from 27- 40 would be considered high perceived stress.