

**A PRE-EXPERIMENTAL STUDY TO ASSESS THE
EFFECTIVENESS OF ORAL STIMULATION ON
FEEDING PERFORMANCE AMONG PRETERM
BABIES IN MOSES MATHIAS HOSPITAL,
NAGERCOIL**



BY

301517151

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

OCTOBER 2017

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Certified that this is the bonafide work of

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*At the Annammal College of Nursing,
Kuzhithurai.*

*Submitted in partial fulfillment of the requirements for
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EXAMINERS

1. -----

2. -----

**Dr. J.M. JerlinPriya, M.Sc(N), Ph.D (N).,
Principal**

OCTOBER 2017

DECLARATION

I hereby declare that the present dissertation title as, “**A pre-experimental study to assess the effectiveness of oral stimulation on feeding performance among preterm babies in Moses Mathias Hospital, Nagercoil**” is the outcome of the original research work undertaken and carried out by me under the guidance of **Dr. J.M. JerlinPriya M.Sc(N), Ph.D(N), Principal cum Professor** in the department of Medical Surgical Nursing and **Mrs. Shali, M.Sc(N), Associate Professor** in the department of Child Health Nursing. I also declare that the material of this has not found in any way, the basis for the award of any degree or diploma in this university or any other university.

301517151

M.Sc (N)II Year

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M.Sc. (N) II YEAR

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ABSTRACT

A pre-experimental study to assess the effectiveness of oral stimulation on feeding performance among preterm babies in Moses Mathias Hospital, Nagercoil

INTRODUCTION

Preterm birth also known as premature birth is the birth of a baby at less than 37 weeks of gestation. Preterm babies are not fully prepared to live in the world outside their mother's womb. Premature babies especially those born earliest often have complicated medical problems.

When babies are born prematurely, their digestive systems may not be fully developed. As a result, many of these small infants experience feeding difficulties such as problems establishing nipple feedings at breast or with the bottle. This may occur because the infants can't suck and swallow properly. Gastric residuals occurs when babies cannot completely empty their stomach from a previous feeding.

India is the biggest contributor to the world's prematurity burden, with almost 3.6 million premature births accounting for 23.6% of the around 15 million global pre-term births reported each year. Of these, 13% are live pre-term births. In India, 3,341,000 babies are born each year and 361,600 children under five die due to direct preterm complications.

The India Newborn Action Plan (INAP) was launched in September 2014 with the aim of ending preventable newborn deaths and stillbirths by 2030. The plan aims to attain single digit neonatal mortality and stillbirth rate by 2030.

Simpson, (2002) conducted an experimental study to determine the transition from tube feeding to oral feeding accelerated by oral stimulation in preterm infants. Twenty nine infants (<30 weeks gestation) were randomized to an experimental group and control group. The result showed infants in the experimental group, when compared with their control group were introduced to oral feeding significantly earlier and attained all oral feeding significantly earlier as well.

Preterm infants frequently experience oral feeding difficulties due to under developed oral motor skills and the lack of co-ordination of sucking, swallowing, and respiration. The infants ability to consume all feedings orally while maintaining physiologic stability and weight gain necessary for their discharge. Therefore, difficulty with oral feeding leads to longer hospital stay and higher cost. There is a need for evidenced-based interventions that facilitate development of oral-motor skills, leading to improved oral feeding, thus shortening hospital stay and lowering cost.

STATEMENT OF THE PROBLEM

A pre-experimental study to assess the effectiveness of oral stimulation on feeding performance among preterm babies in Moses Mathias Hospital, Nagercoil.

OBJECTIVES OF THE STUDY

The objectives of the study are

- ❖ To assess the level of feeding performance among preterm babies.
- ❖ To assess the effectiveness of oral stimulation on the level of feeding performance among preterm babies.
- ❖ To associate the posttest level of feeding performance of preterm babies with selected mother and child related variables.

HYPOTHESES

- H₁:** There will be a significant difference in the level of feeding performance before and after giving oral stimulation among preterm babies.
- H₂:** There will be a significant association between the post test level of the feeding performance with selected mother and child related variables.

RESEARCH METHODOLOGY

A pre- experimental study was conducted to assess the effectiveness of oral stimulation on feeding performance among preterm babies in Moses Mathias Hospital, Nagercoil. The level of feeding performance was assessed with the help of modified early

feeding skill assessment scale for preterm babies. In pretest, 50 preterm babies were selected. Among that 20 babies had normal feeding performance and 30 babies had poor and average feeding performance. The samples were collected by using the non-probability convenient sampling technique. The intervention of oral stimulation was given to pre-experimental group. On 5th day after giving oral stimulation posttest was conducted by using the modified early feeding skill assessment scale for preterm babies.

DATA ANALYSIS

Paired 't' test was used to evaluate and compare pretest and posttest level of oral stimulation. Chi square test was used to find out the association between the posttest oral stimulation on feeding performance with their selected mother and child related variables.

RESULT AND SUMMARY

The finding of study shows that there was significant difference between the post-test levels of feeding performance among preterm babies. By comparing the mean pretest score was 15.5 and the mean post test score was 19.6. The mean difference was 4.1 and the standard deviation is 2.76. The obtained 't' test value was 7.68, and the P value was 0.0001 which was highly significant at the level of $P < 0.001$. The result shows that the feeding performance was improved after oral stimulation.

CONCLUSION

The study concluded that, oral stimulation was effective in improving the feeding performance among preterm babies because the oral stimulation was easy to give and shows a better improvement. The nurses can include the oral stimulation in their NICU protocol to improve the feeding performance.

CHAPTER - I

INTRODUCTION

“Every child comes with the message that God is not yet discouraged of man.”

-Rabindranath Tagore

Preterm birth also known as premature birth is the birth of a baby at less than 37 weeks of gestation. Preterm babies are not fully prepared to live in the world outside their mother's womb. Premature babies especially those born earliest often have complicated medical problems. Depending on how early a baby is born, he or she may be late preterm (between 34 & 36 weeks of pregnancy), moderately preterm (between 32 & 34 weeks of pregnancy), very preterm (less than 32 weeks of pregnancy), extremely preterm (born at or before 25 weeks of pregnancy). Most premature births occur in the late preterm stage.

The specific cause of premature birth is not clear. The incidence of prematurity is lowest in the middle to high socio economic classes in which pregnant women are generally in good health, are well nourished, and receive prompt and comprehensive prenatal care. Many factors may increase the risk of premature birth, however, including having a previous premature birth, pregnancy with twins, triplets or other multiples, an interval of less than six months between pregnancies, conceiving through in vitro fertilization, problems with the uterus, cervix or placenta, smoking cigarettes or using illicit drugs, poor nutrition, not gaining enough weight during pregnancy, some infections, particularly in the amniotic fluid and lower genital tract, some chronic conditions, such as high blood pressure and gestational diabetes, being underweight or overweight before pregnancy, stressful life events, such as the death of a loved one or domestic violence, multiple miscarriages or abortions, physical injury or trauma.

It was evident that Prematurity accounts for the largest number of admissions in NICU. Immaturity of most organ systems places infants at risk for a variety of neonatal complications (hyperbilirubinemia, Respiratory Distress Syndrome). The premature babies get cold more easily and they need more help for feeding than full-term babies, because their bodies are not yet fully developed. They may have problems because their organs did not have enough time to develop.

The preterm features includes, small size, with a disproportionately large head, sharper looking, less rounded features than a full-term baby's features, fine hair (lanugo) covering all over the body, low body temperature, especially immediately after birth in the delivery room, due to a lack of stored body fat, labored breathing or respiratory distress, lack of reflexes for sucking and swallowing, leading to feeding difficulties. They may need to stay in hospital longer than babies born later.

Although many premature babies can't breastfeed because, they can't coordinate sucking, swallowing and breathing. Mothers can still pump breast milk. The staff of the intensive care nursery will store it and feed it to the baby by gavage feedings. Feeding is a special attention in the intensive care nursery. Babies born before 32 to 37 of gestation usually can't drink normally from a bottle. Instead, these babies receive nutrients by gavage feedings in which a tube is placed through their mouth or nose into their stomach.

When babies are born prematurely, their digestive systems may not be fully developed. As a result, many of these small infants experience feeding difficulties such as problems establishing nipple feedings at breast or with the bottle. This may occur because the infants can't suck and swallow properly. Gastric residuals occurs when babies cannot completely empty their stomach from a previous feeding. Gastro-esophageal reflex occurs when a small amount of stomach contents, including stomach acid, reflexes or regurgitates into the esophagus. This can be painful to the infant when severe, it may cause signs of distress such as apnea (a condition in which a baby temporarily stops breathing) and abdominal distension (which is an abnormal enlargement or swelling of the stomach). The distension may be a sign of more severe gastro intestinal problems.

Introduction and management of oral feeding for preterm infants is a major challenge for clinicians in the Neonatal Intensive Care Unit. Feeding practices are often inconsistent and contradictory among clinicians and Neonatal Intensive Care Units and based on custom rather than evidence. There is a need to establish a systematic approach, which is evidence based to facilitate decision making and clinical practice. Assisting the preterm infant to achieve the ability to full oral feed takes time and is often a requirement for discharge. To be discharged from hospital, an infant must have a safe and efficient feeding method ideally by breast or bottle. If sucking and oral feeding are developmentally programmed in infants, then maturation to a certain gestational age would be all that is needed. Early introduction of oral

feeding and interventions to facilitate bottle or breast would be unnecessary. However, if practice or experience plays a significant role, then a systematic approach to timing of introduction and transition to oral feeding would be beneficial. Determining the optimal time to introduce oral feeds and strategies for progression would perhaps lead to earlier attainment and discharge from hospital especially in the “healthy” preterm population.

BACKGROUND OF THE STUDY

The last century has witnessed a considerable rise in the survival of young preterm infants with feeding difficulties are to the advances in their care. Sucking is regarded as the best way to feed newborns. However, the sucking skills of preterm infants become mature between 32 and 34 weeks of gestation. Oral feeding difficulties are almost common in preterm babies due to problems in their cardio-respiratory and central nervous systems as well as incomplete development of their oral structures.

One of the most challenging milestones for preterm babies are the acquisition of safe and efficient feeding skills. The majority of healthy fully term babies are born with skills to coordinate their suck, swallow and respiration. However, this is not the case for preterm infants who develop these skills gradually as they transition from tube feeding to suck feeds. For preterm infants the ability to engage in oral feeding behavior is dependent on many factors. The complexity of factors influencing feeding readiness has led some researchers to investigate the use of an individualized assessment of an infant’s abilities. A limited number of instruments that aim to indicate an individual infant’s readiness to commence either breast or bottle feeding have been developed.

Global Scenario

Each year approximately 15 million babies worldwide are born before 37 weeks of gestation. In 2017, complications due to preterm birth lead to the death of approximately one million babies from all countries in the world and infants who survived at risk substantial long-term disability. To put that into perspective, one million deaths in a year means that 2700 babies die every day. The social and economic consequences of preterm birth for families and health systems are profound. Most preterm births take place in the low and middle income countries of Africa and South Asia but preterm birth rates in high income countries. Place of birth determines

survival for preterm babies, higher mortality rates at all gestational ages in low and middle income countries. Preterm birth is a high priority for global maternal and newborn health research. Researchers aim to improve the early detection of women who are at risk, to identify causal pathways for preterm labor and to develop new Tocolytic drugs.

In 2015, preterm birth affected about 1 in every 10 infants born in the United States. Preterm birth rates decreased from 2007 to 2014, and CDC (Centers for Disease Control and Prevention) research shows that this decline is due, in part, to declines in the number of births to teens and young mothers. But more recent data indicate a slight increase in the national preterm birth rate from 2014 to 2015. And, while it's too early to know what caused this increase or if this is the start of trend, we know that racial and ethnic disparities persist. In 2015, the rate of preterm birth among African-American women (13%) was about 50% higher than the rate of preterm birth among white women (9%).

Indian Scenario

According to a report published recently, India has the highest number of deaths due to premature births, and rank 36th in the list of pre-term births globally. The ranking included 199 countries of the 27 million babies born in India annually 3.6 million are born prematurely, of which 303,600 cannot survive due to complications.

India is the biggest contributor to the world's prematurity burden, with almost 3.6 million premature births accounting for 23.6% of the around 15 million global pre-term births reported each year. Of these, 13% are live pre-term births. In India, 3,341,000 babies are born each year and 361,600 children under five die due to direct preterm complications.

The incidence of late pre-term is also rising in India. Late pre-term refers to infants born between 34 and 36 weeks of gestation. States such as Goa, Kerala and Manipur have infant and neonatal mortalities similar to that of developed nations, indicating advanced care of premature babies.

The India Newborn Action Plan (INAP) was launched in September 2014 with the aim of ending preventable newborn death and stillbirth by 2030. The plan aims to attain single digit neonatal mortality and stillbirth rate by 2030.

State Scenario (Tamilnadu)

Shanthirani and Shanthavibala1 (2017), conducted a study about the prevalence of preterm admissions and etiology of preterm labor in newborn care unit

of rural Medical College Hospital, Theni district. Total 2156 cases were admitted in Newborn Intensive Care Unit. 609(28.25%) were preterm babies. 260(12.06%) of total newborn admission were <34 weeks. 349(16.19%) of total newborn admission were 34-37 weeks. The etiology of preterm birth is multifactorial. Prevalent causes of prematurity were anemia 173(28.41%), preterm premature rupture of membrane 150(24.63%) and pregnancy induced hypertension 111(18.23%). Other prevalent causes were oligohydramnios, multiple pregnancies, antepartum hemorrhage, polyhydramnios, fetal distress, gestational diabetes mellitus, and cervical incompetence.

District Scenario (Kanyakumari)

Ramesh Kumar (2016), conducted a study about the prevalence of antenatal steroid coverage to preterm <34-37 weeks admitted in our Neonatal Intensive Care Unit (NICU) and its influence on respiratory morbidity and mortality in Asaripallam Medical College, Kanyakumari district. A total of 163 preterm <34-36/37 weeks admitted during 1 year period in our NICU from January 2016 to December 2016 were analyzed by using statistical graphic methods. Dexamethasone is the standard antenatal steroid used in the institution. About 13.4% (22/163) of preterm received a complete course of antenatal steroid. Nearly 38.65% (63/163) did not receive even a single dose of antenatal steroid. Nearly 44.8% received an incomplete course of antenatal steroid. About 3% of preterm received additional dose of antenatal steroid. Among the no steroid group, incidence of respiratory distress and death were higher compared to the complete course of steroid group. The study shows the reduction in the morbidity and mortality in preterm neonates is facilitated by timely administration of antenatal steroids. Hence, empowering health-care professional about knowledge of antenatal steroid in the prevention of preterm morbidity and mortality is a major contributory factor in further bringing down the neonatal mortality rate in our country.

NEED FOR THE STUDY

Preterm infants frequently experience oral feeding difficulties due to underdeveloped oral motor skills and the lack of co-ordination of sucking, swallowing, and respiration. The infant's ability to consume all feedings orally while maintaining physiologic stability and weight gain necessary for their discharge. Therefore, difficulty with oral feeding leads to longer hospital stays and higher cost. There is a need for evidenced-based interventions that facilitate development of oral-

motor skills, leading to improved oral feeding, thus shortening hospital stays and lowering cost. The purpose of this research was to test the newly developed Premature Infant Oral Motor Intervention (PIOMI) beginning at 29 weeks Post Menstrual Age (PMA), before oral feedings were introduced, to determine whether the pre-feeding intervention would result in a shorter transition from gavage to total oral feedings and a shorter Length Of Hospital Stay (LOS). The PIOMI is a 5 minute oral motor intervention that provides assisted movement to activate muscle contraction and provides movement against resistance to build strength. The focus of the intervention is to increase functional response to pressure and movement and control of movements for the lip, cheek, jaw, and tongue. The cheek (internal and external), lips, gums, tongue, and palate were stimulated per specific protocol with finger stroking.

Oral stimulation strategies have proven beneficial in developing oral feeding skills in preterm infants. An entrainment cutaneous stimulus delivered to healthy term infants through 6 months of age was shown to produce harmonic entrainment of Non Nutritive Sucking. This approach is consistent with contemporary ideas on the role of sensory driven neural activity and critical periods during late gestation and early infancy in the formation of functional oro-rhythmic and deglutition networks.

Many preterm infants have respiratory issues, including respiratory distress syndrome, chronic lung disease that required oxygen supplementation ranging from few days to more than 2 months during hospitalization in the NICU. Oro-rhythmic pattern development for suck may be disrupted in these infants who are routinely subjected to abnormal tactile stimulation of sensitive peri-oral and intra-oral tissues during extended periods of intubation and cannulation.

Safe and successful oral feeding implies minimal risk of aspiration and requires proper maturation and co-ordination of sucking, swallowing, and respiration. This is crucial for feed dynamics in the infant, as the anatomical pathway for air and nutrient share the same pharyngeal tract. Coordination of suck-swallow-respiration is attained when the child or infant can take oral feedings with no overt signs of aspiration, oxygen saturation, apnea, or bradycardia, and demonstrate a ratio of 1:1:1 or 2:2:1 suck: swallow: breath.

The survival rates of preterm infants were increased over the last years, but oral feeding difficulties are the most common problems encountered by them. These difficulties may negatively affect attainment of independent oral feeding and lead to prolonged hospital stay, family stress, long term health problems and financial costs.

Caregivers and speech language pathologists that who works in the NICU may use various oral stimulation techniques to facilitate oral feeding among preterm infants. Non Nutritive Sucking (NNS) and pre-feeding oral stimulation are among the most common stimulation techniques in use. These interventions have been proved to be beneficial for oral feeding skills, attainment of full oral feeding, weight gaining and reducing the length of hospital stay. Due to the lack of empirical evidence, caregivers in NICU, while aware of the feeding difficulties of these infants, they are confused about the kind of intervention which is more effective.

Considering all the above mentioned facts the investigator strongly believes that the preterm babies are one of the major concerns they are admitted in the NICU and it is responsibility of the nurse to find out their feeding performance. The study is felt need of time for giving oral stimulation will improve the feeding performance thereby gains weight for preterm babies and shorter hospital stay. Hence the student researcher decided to select this topic.

STATEMENT OF THE PROBLEM

A pre-experimental study to assess the effectiveness of oral stimulation on feeding performance among preterm babies in Moses Mathias Hospital, Nagercoil

OBJECTIVES

The objectives of the study are

- ❖ To assess the level of feeding performance among preterm babies.
- ❖ To assess the effectiveness of oral stimulation on the level of feeding performance among preterm babies.
- ❖ To associate the post test level of feeding performance of preterm babies with selected mother and child related variables.

HYPOTHESES

H₁: There will be a significant difference in the level of feeding performance before and after giving oral stimulation among preterm babies.

H₂: There will be a significant association between the post test level of the feeding performance with the selected mother and child related variables.

OPERATIONAL DEFINITION

Assess

In this study, it refers to the process of measuring the feeding performance of preterm babies after using oral stimulation.

Effectiveness

In this study, it refers to the significant improvement in the oral stimulation of preterm babies which is elicited by the pre-feeding techniques.

Oral stimulation

In this study, it refers to the technique that stroking the gums, palate and cheek with the help of gloved fingers for 3 minutes for three time a day before initiating breast feeding. This has to be followed for 5 days.

Feeding performance

In this study, it refers to the stroking the gums, palate and cheek with gloved little finger enhances sucking reflex which may improve the feeding performance.

Preterm babies

In this study, it refers to one who born before the start of the 37th week of pregnancy and with poor sucking reflex. This gives the baby less time to develop in the womb.

ASSUMPTIONS

The study assumes that

- ❖ the effectiveness of oral stimulation may improve the feeding skills of preterm babies through the pre-feeding performance.
- ❖ oral stimulation of stroking the gums, palate and cheek with gloved little finger enhances sucking reflex which may improve the feeding performance.

DELIMITATIONS

The study was delimited to

- ❖ sample size of 30 preterm babies
- ❖ preterm babies without co-morbid illness
- ❖ preterm babies in selected settings
- ❖ data collection period of one month.

PROJECTED OUTCOME

- ❖ This study helps to assess the feeding performance of preterm babies.
- ❖ This study helps to assess the effectiveness of oral stimulation on the feeding performance of preterm babies.
- ❖ This study helps to assess the association of feeding performance of preterm babies with selected mother and child related variables.

CONCEPTUAL FRAMEWORK

Conceptual framework acts as a building block for the research study. The overall purpose of frame work is to make scientific finding meaningful and generalized. It provides a framework of reference for clinical practice, education and research. Frame work can guide the researcher's undertaking of not only 'what' natural phenomena but also 'why' their occurrence. They also gives direction for relevant questions to practical problems. A conceptual model is a group of concepts and a set of propositions that provides prescription on the major concepts.

Conceptualization refers to the process of defining abstract ideas which are formulated by generalizing particular manifestation of certain behaviors. "A conceptual framework serves as a guide or map to systematically identify a logical precisely relationship between variable".

(Wood and Haber, 1994)

The conceptual framework used for the present study is adopted from **The Helping Art of Clinical Nursing Theory introduced by Ernestine Wiedenbach (1958)**. According to this theory, Prescriptive Theory directs action towards an explicit goal. It consists of three factors identifying the need for help, Ministering to the need and validating the met need. A nurse develops a prescription based on a central purpose and implements it according to the realities of the situation.

According to the theory, components of nursing practice consists of three steps which is directly related to patients care include,

Step 1- Identifying the need for help

Step 2- Ministering to the need

Step 3- Validating the met need

Step 1- Identifying the need for help

The first step is to identify the need to plan further actions to meet them. The need identified among the sample is to improve the feeding performance among

preterm babies. The process began with sample selection on the basis of inclusion criteria followed by the pre-testing the level of feeding performance by Modified Early Feeding Skill Assessment Scale for Preterm Babies.

Step 2- Ministering to the need

The second step refers to the provision of required help to fulfill the identified need. It has two components,

1. **Prescription:** It means fulfillment of central purpose in order to improve the feeding performance by giving oral stimulation.
2. **Realities:** It includes agent, recipient, goal, means and framework. The various aspects which constitute realities are as follows:
 - i) **Agent:** The Researcher is the agent who give oral stimulation.
 - ii) **Recipient:** The preterm babies have poor feeding performance were the recipient.
 - iii) **Goal:** In this study, the goal is to improve the feeding performance.
 - iv) **Means and Activities:** A pre-test was carried out to assess the level of feeding performance, followed by which oral stimulation is giventhree times a day and is monitored by Modified Early Feeding Skill Assessment Scale for Preterm Babies.

Step 3 - Validating the met need

The last step is to validate the met need. In this study, the validation of the need was done by assessing a post-test on 5th day using Modified Early Feeding Skill Assessment Scale for Preterm Babies. The posttest findings showed that significant, improvement in feeding performance and revealed that the mean post-test score, showing the effectiveness of oral stimulation.

SUMMARY

This chapter has dealt with the objectives, the operational definitions, variables, assumptions and hypotheses which are predictive statements of the relationship between the independent and dependent variables, and delimitations of the study. The conceptual framework of the present study was based on the Wiedenbach's Prescriptive theory.

CENTRAL PURPOSE

To improve the level feeding performance

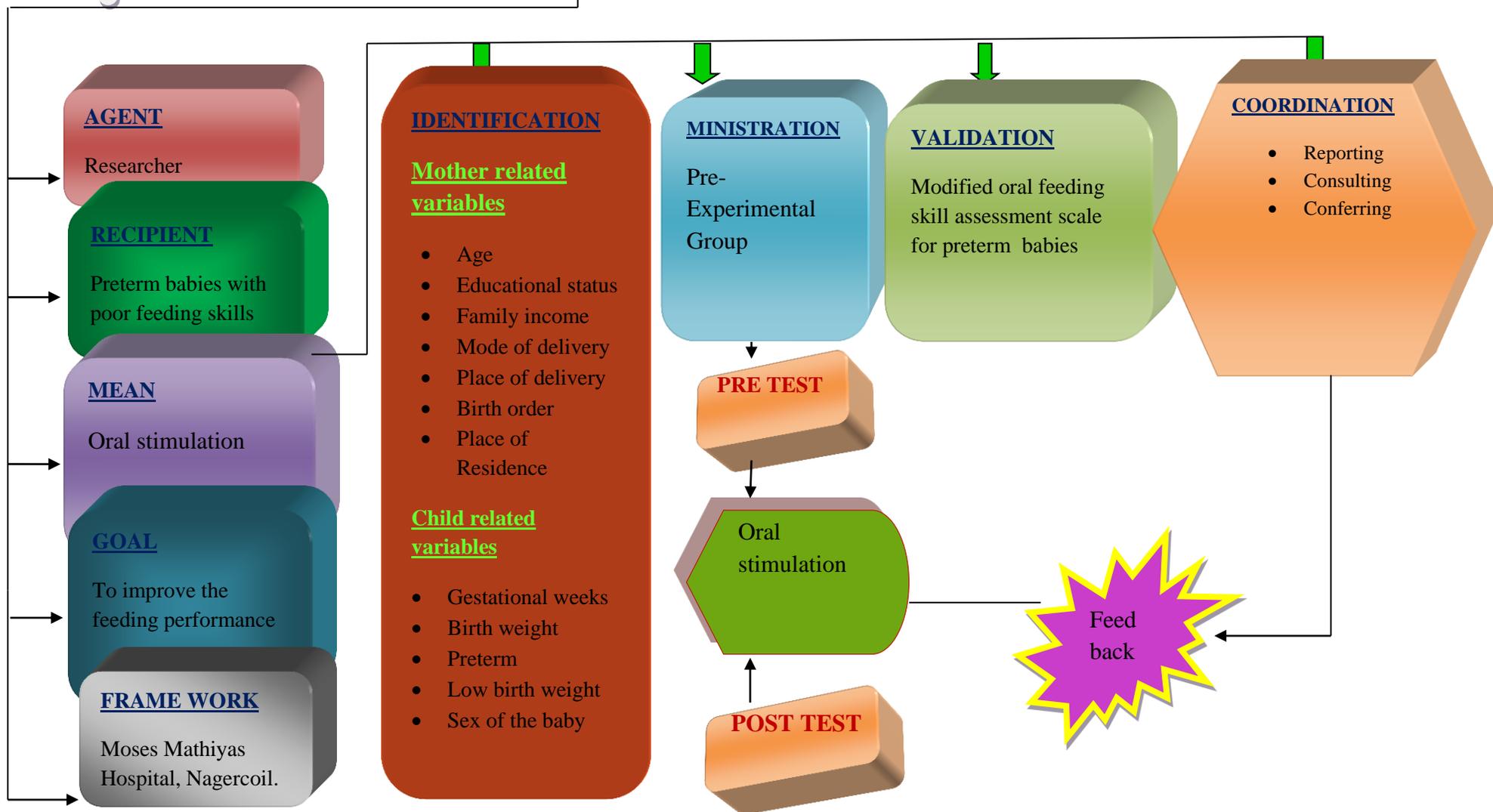
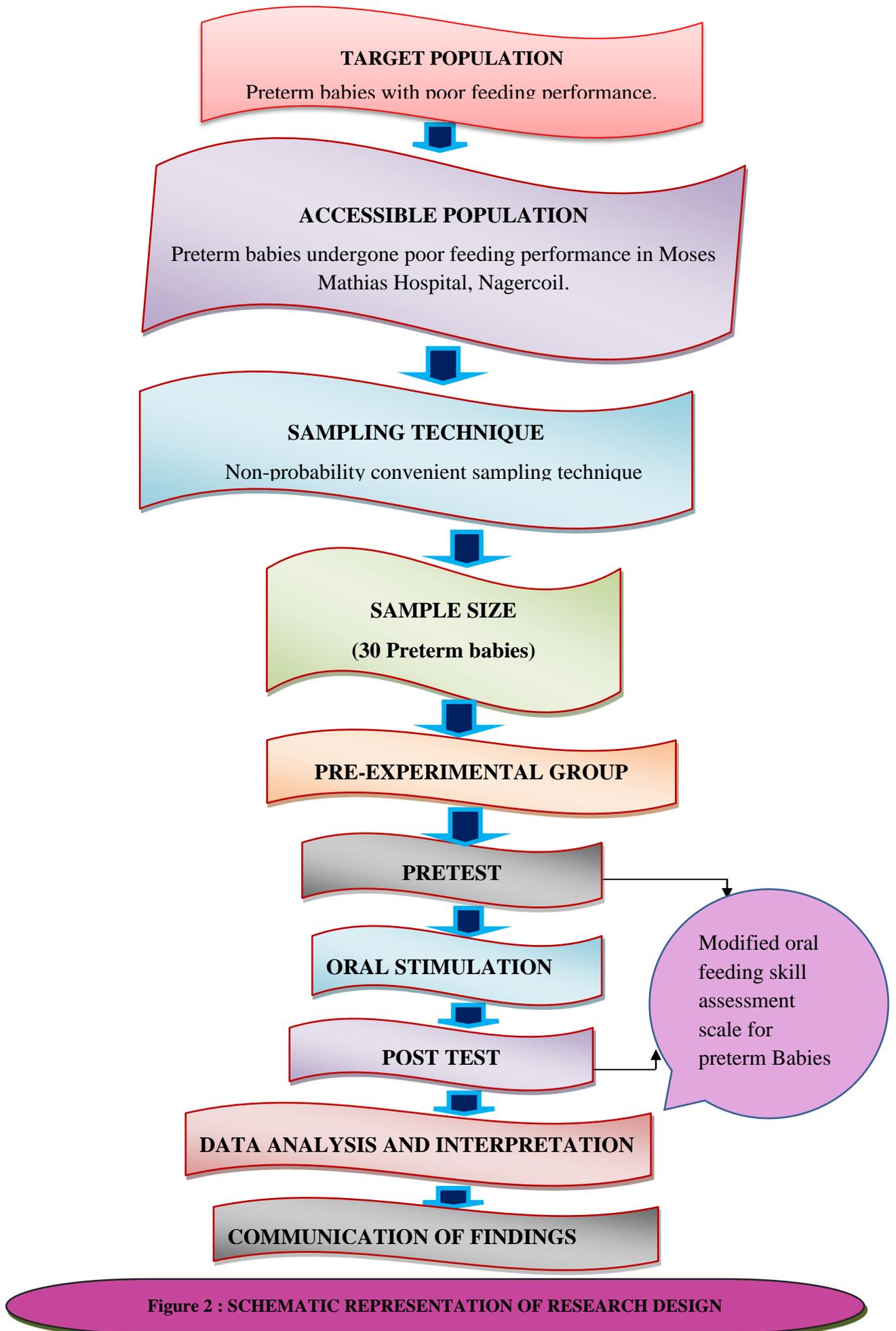


Figure :1 CONCEPTUAL FRAMEWORK BASED ON WIEDENBACH PRESCRIPTIVE THEORY



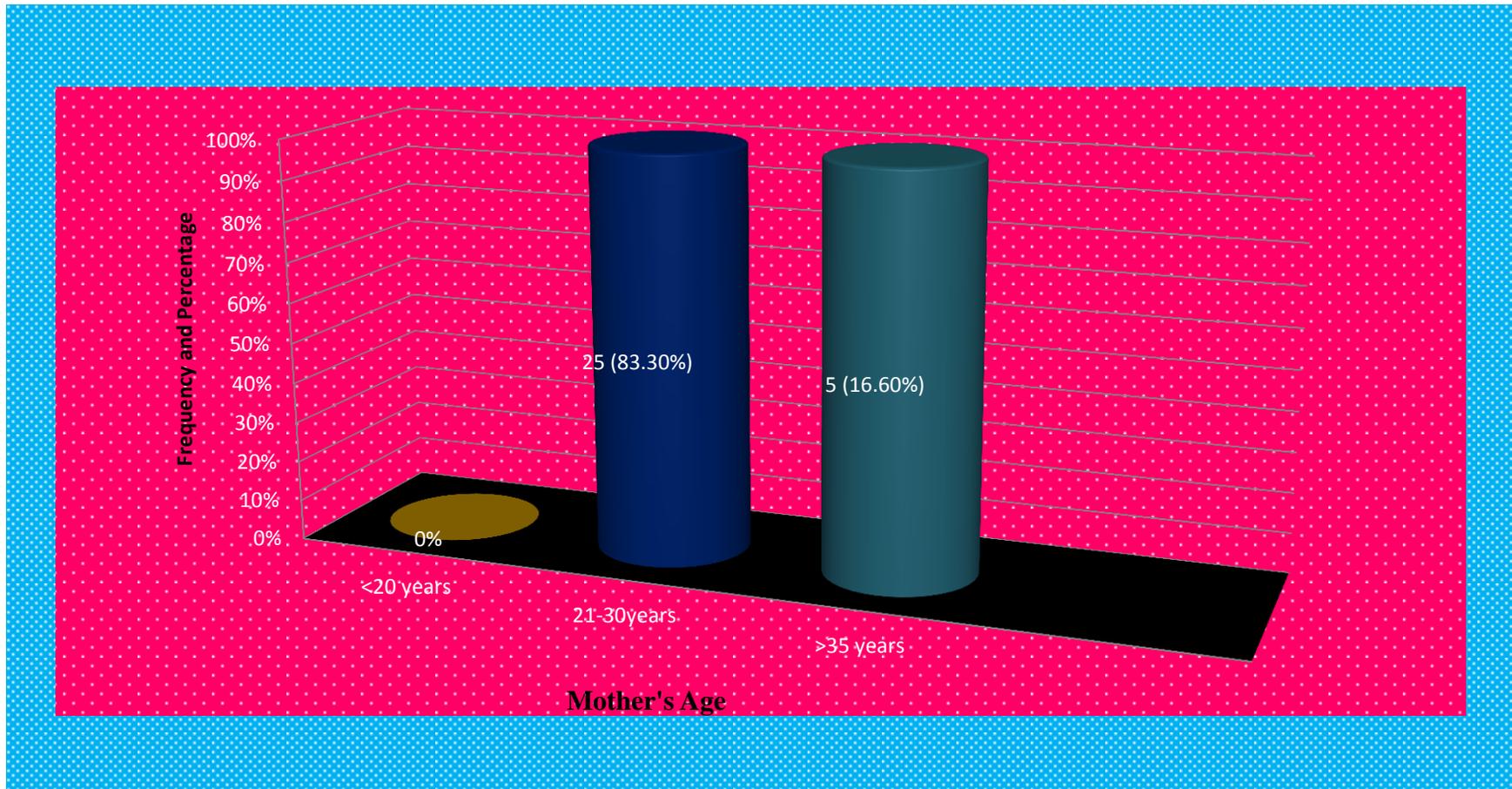


Figure : 3 Frequency and percentage distribution of preterm babies with regard to their mother's age

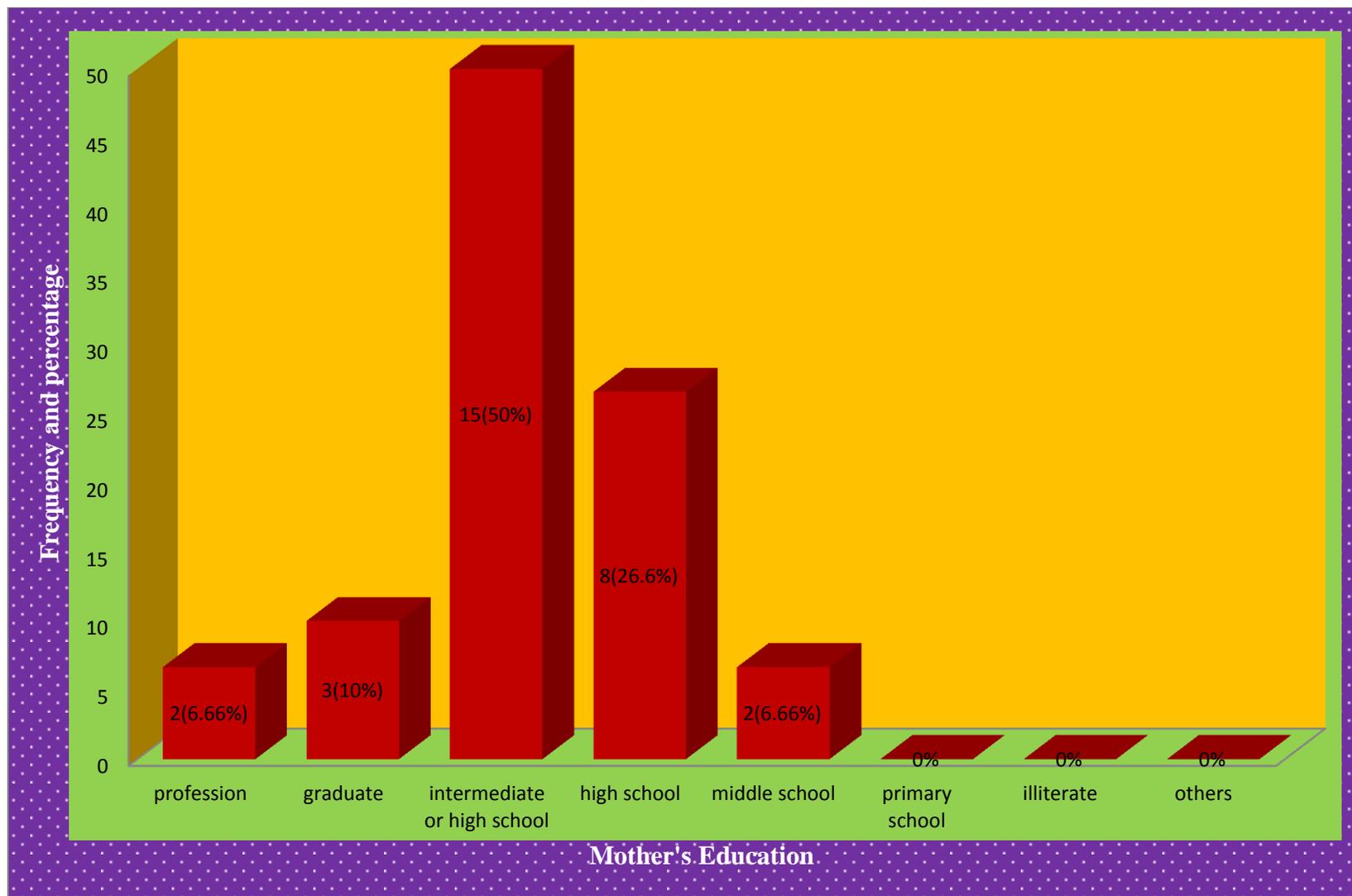


Figure : 4 Frequency and percentage distribution of preterm babies with regard to their mother's education.

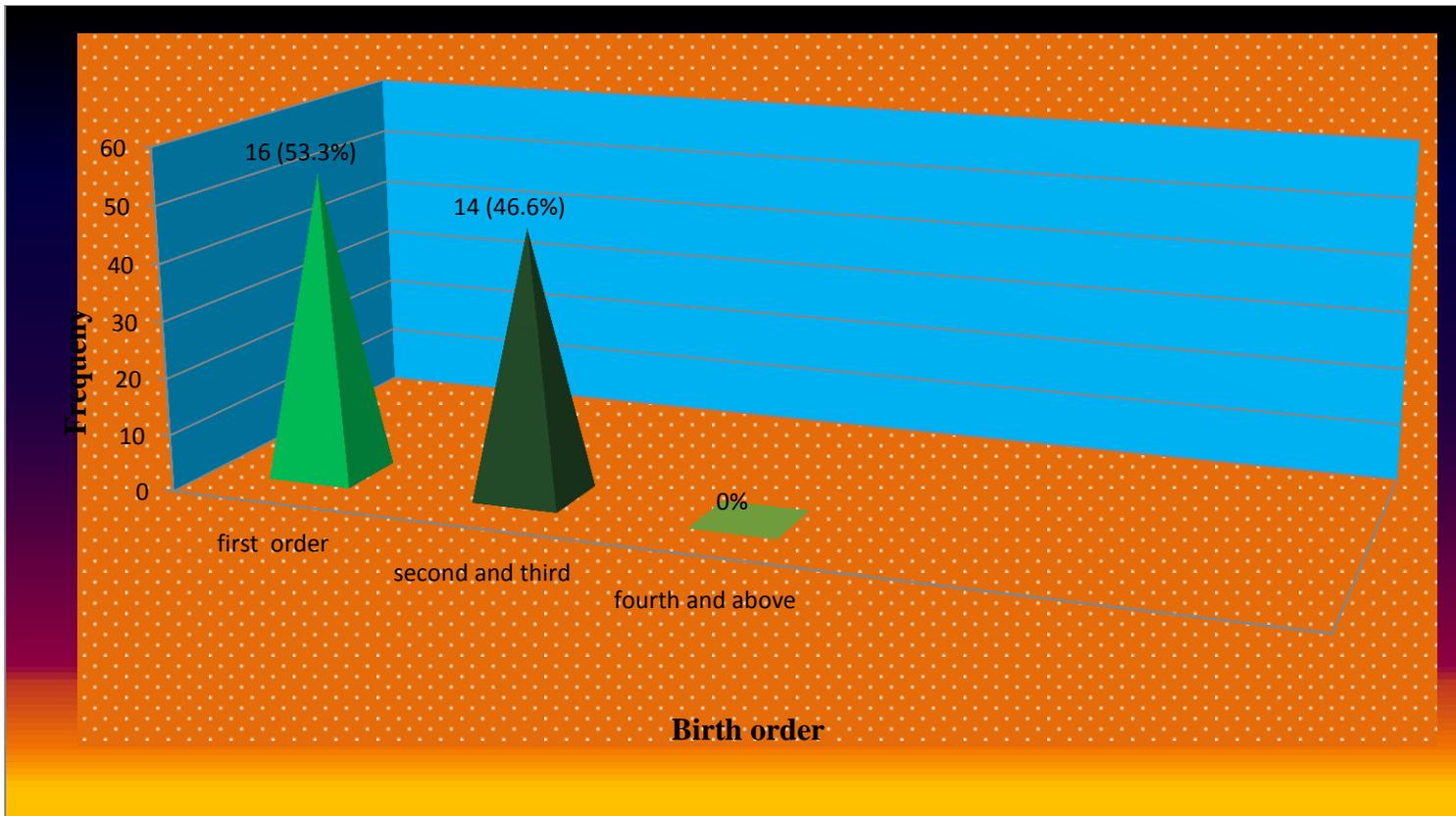


Figure :5 Frequency and percentage distribution of preterm babies with regard to birth order.

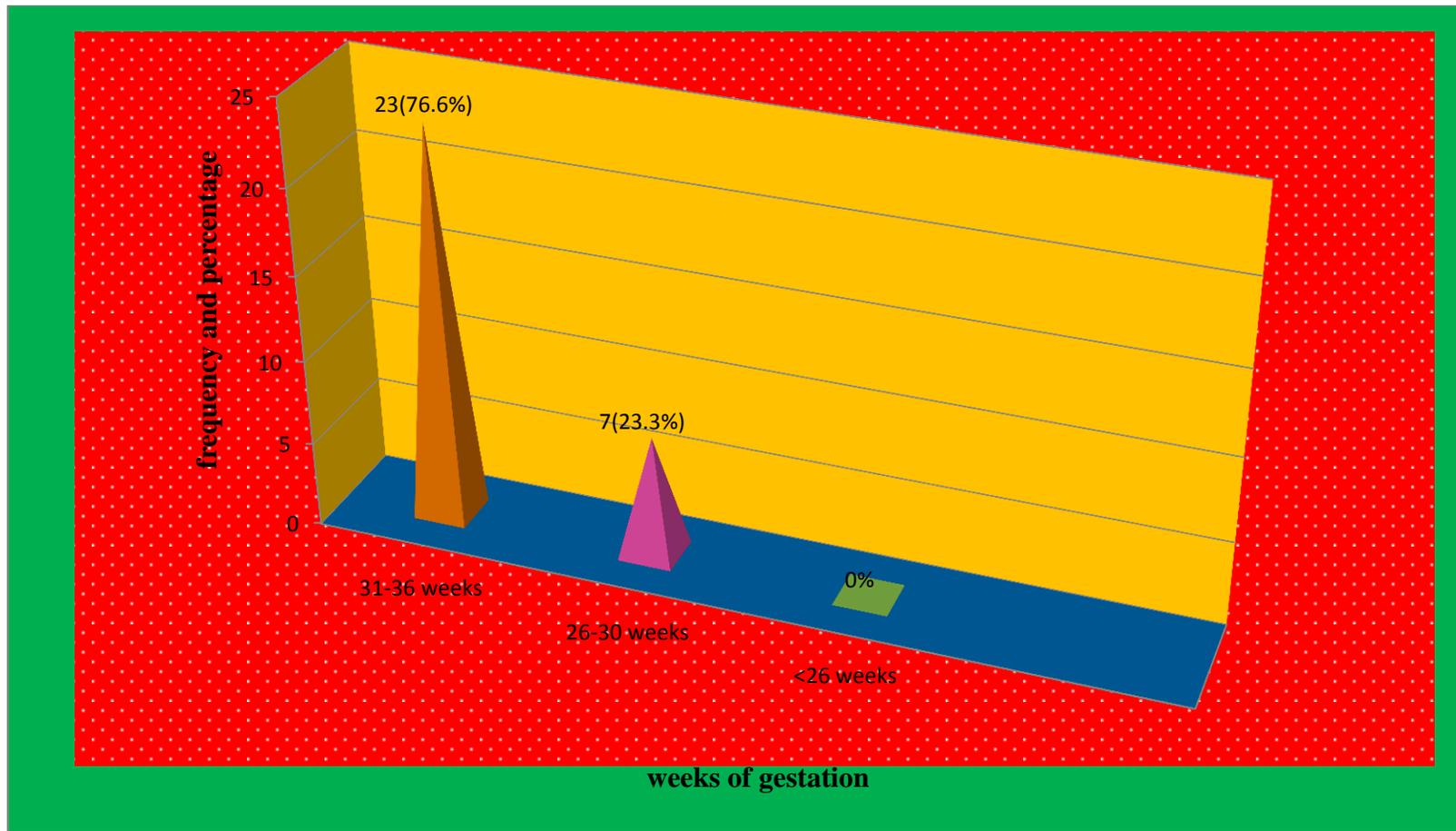


Figure : 6 Frequency and percentage distribution of preterm babies with regard to weeks of gestation.

CHAPTER-II

REVIEW OF LITERATURE

Review of literature is a key step in research process. Review of literature is a systematic identification, scrutiny and summary of written material that contains information on research problem. It refers to extensive, exhaustive and systematic examination of publications relevant to the research project. The researcher analyze the existing knowledge before developing into a new area of study, while conducting a study, when interpreting the results of the study, and when making judgments about application at a new knowledge in nursing practice.

The review of literature is defined as a broad, comprehensive in depth, systematic and critical review of scholarly publications, unpublished scholarly print materials, audio visual materials and personal communications.

(Basavanthappa, 2003)

The researcher presents the review of literature, which helps to study the problem in depth. It also serves as a valuable guide to understand what has been done and what is still unknown and untested.

The reviewed literature provides the evidence of what has been studied in the past and published; paying way for further study in the chosen subject. It justifies the need for study; throws light on the feasibility of the study, reveals methodology and relates the findings from one another with a hope to establish a comprehensive study of scientific knowledge.

The researcher did an extensive search of existing literature and organized it under following headings:

- 1. Empirical studies related to incidence and prevalence of preterm delivery.**
- 2. Empirical studies related to risk factors of preterm delivery.**
- 3. Empirical studies related to feeding performance among preterm babies.**
- 4. Empirical studies related to effectiveness of oral stimulation among preterm babies.**

1. Empirical studies related to incidence and prevalence of preterm delivery.

Jaberi E and Roksana M (2016), conducted a retrospective study of hospital records of premature babies born in all the five governmental tertiary care settings during the time interval of 2013-2015 in Shiraz. The prevalence and health outcomes of preterm deliveries in tertiary care university hospitals were analysed. This study showed that prematurity rate was 12.7%. Among preterm cases, 52.6% were admitted to NICU. RDS occurred among 23.8% of the total premature neonates and 8.2% of the total live births. The incidence of NEC was 10% of the total premature neonates and 0.4% of the total live births. The incidence of sepsis was 5% of the premature neonates and 1.9% of the total live births and the incidence of ROP was 8.5% among the premature neonate. The overall mortality of premature neonates was 9.9% of the total premature neonates and 1.2% of the total live births. Rigorous measures for prevention of premature births and its complications for newborns are required in Iran. In conclusion, this study showed that premature births and its complications for newborn need to be addressed more in Iran.

Myles P (2014), conducted a study on preterm delivery and low birth weight (LBW) in Marathwada region of Maharashtra state. The data was collected on all in-hospital births in the maternity department of Halo Medical Foundation's hospital. Among the 655 live births 6.1% were preterm deliveries and 13.8% were LBW (<2.5 kilograms at birth). The preterm delivery were three times higher and the LBW were double among women <22 years of age compared with older women. The both preterm delivery and LBW were reduced in multigravida women compared with primi gravida women regardless of age. The study concluded that the preterm delivery and LBW were much higher in mothers below 22 years of age.

Rahele Alijahan (2014), conducted a case control study to determine prevalence and risk factors associated with preterm birth in Ardabil, Iran. All the live newborns during the study period were investigated. Of 6705 live births during the study period 346 births occurred in <37 weeks were taken as a case and 589 term neonates were taken as a control group. Data were obtained through review of prenatal and hospital delivery records. Univariate and multivariate logistic regression analysis were applied to obtain magnitude of association between independent variables and preterm birth.

The prevalence rate of preterm birth was 5.1%. History of previous preterm birth, hypertension, Oligohydramnios, spouse abuse, preeclampsia, premature rupture of membrane were determined as significant risk factors for preterm birth. The study concluded that maternal illness and the health care quality delivered to pregnant women may reduce preterm prevalence rate.

Wang (2013), conducted a study to measure the incidence rates of preterm delivery in pregnant women and to explore related potential risk factors. Data was collected from 'Information System of Prevention of Mother-child Management in China. Information regarding demographic characteristics, pregnancy, and pregnancy outcomes were extracted and analyzed. Incidence of preterm delivery was calculated with related potential risk factors explored. 3913 pregnant women were involved in this study, including 336 of them having undergone preterm deliveries (8.6%). Results from univariate and multivariate analyses showed that preterm delivery was associated with factors as: maternal age, ethnicity, education, pregnancy induced hypertension, multiple pregnancy and times of antenatal care visits of the pregnant women. Between 14 to 27 gestational weeks or during the period of less than 14 were more likely to experience preterm delivery

2. Empirical studies related to risk factors of preterm delivery.

TMA Pai (2014), conducted a case control study to identify the risk factors of preterm birth in a secondary care hospital in Southern India. The records of 153 antenatal women with preterm birth were included. Gestational age at delivery and associated risk factors were analyzed. The result showed preterm birth rate was 5.8%. Common risk factors associated with preterm birth were hypertensive disorders of pregnancy (21.4%), height 150 cm (16.8%), premature rupture of membranes (17.5%), and fetal distress (14.9%). Mean birth weight for preterm babies was 2452 grams while the weight of term babies was 2978 grams. The study concluded that the commonest obstetrical risk factor for preterm birth was hypertensive disorders of pregnancy and non-obstetrical risk factor was height 150c m. The percentage of preterm birth was low, comparable to developing countries.

Khattar D (2012), conducted a case control study to determine the residential environmental tobacco smoke (ETS) exposure during pregnancy is associated with low birth weight (LBW) neonates in Tertiary care hospital, Hariyana. The mothers between 20-30 years giving birth to LBW neonate (<2.5 kg) and those whose neonates weighed 2.5 kg at birth. Information was collected on ETS exposure and other risk factors of LBW within 24 hours of delivery. The result shows that preterm pregnancy, low socioeconomic status, previous LBW neonate, no utilization of antenatal care (ANC), severe anemia and ETS exposure were statistically significantly associated with LBW neonate. Hence there is an urgent need to increase awareness about health hazards of ETS during pregnancy and bring about behavioural changes accordingly as a one of the strategies to reduce LBW deliveries in India.

Talsania NJ (2011) conducted a study to determine risk factors associated with preterm delivery, perinatal mortality, and neonatal morbidity in New Civil Hospital, Ahmedabad, India. Women were scored according to their level of risk: no risk, mild risk, moderate risk, and severe risk. The scores based on socio demographic and obstetric data, pallor, maternal weight, 2 or more prior abortions, adolescent pregnancy, prior preterm birth, prior prenatal mortality or stillbirths. Among 696 deliveries, there were 71(10.2%) preterm births, of which 3(2.38%) were among women within the no risk groups. 47(11.10%) from the mild risk group 20(14.08%) from the moderate risk group and 20% from the severe risk group. Neonatal morbidity also increased with the increased level of risk. The study concluded that scoring system used has a higher sensitivity to predicting preterm birth and perinatal mortality among high risk women, and poor sensitivity among low risk women. Moderate and mild risk could be identified with this system and referred for follow-up.

Shivalinga Swamy (2005), conducted a prospective study among 340 pregnant women between 18 and 28 years of age related to association of maternal periodontitis with preterm delivery and low birth weight in the state of Karnataka, India. Subjects filled out a questionnaire and underwent a periodontal examination during the second trimester of pregnancy. The questionnaire included details regarding socioeconomic status, passive exposure to cigarette smoking, medical and reproductive history. Periodontal examination was performed according to the community periodontal index and clinical attachment loss. The result showed that 340

subjects enrolled in the study, 33(9.71%) were either excluded or not available for follow-up. Of the remaining 307 subjects, 126(41.04%) had periodontitis. Among subjects with periodontitis, 15.87% had a preterm birth (PTB) and 34.25% had low birth weight (LBW) infants. The study concluded that the results suggest that periodontitis is an independent risk factor for poor pregnancy outcome.

3. Empirical studies related to feeding performance among preterm babies.

Shamsher Singh Dalal et al. (2015), conducted a study to evaluate the feeding behaviour and performance of preterm neonates receiving feeds by paladai (a small beaked receptacle). Enrolled stable neonates – 10 each in 28–30 weeks [group I] and 31–32 weeks gestation [group II], and offered them paladai feeds. The feeding sessions was recorded on alternate days until they were on full enteral feeds. The outcome variables were (1) feeding behaviour, as assessed by changes in states of wakefulness, oro-motor functions and coordination between breathing and swallowing; feeding performance, as assessed by proficiency and efficiency. A total of 47 and 27 sessions were studied in groups I and II, respectively. The median post conceptional age (PCA) at start of paladai feeding was 30 (range, 29–32) and 32 (31–32) weeks in the two groups. The infants accepted paladai feedings in all behavioural states. In co-ordination between feeding and breathing was observed in about 25% of the sessions in both the groups. Stable preterm neonates can be fed with paladai from 30 weeks PCA. The oro-pharyngeal ability is possibly influenced more by the postnatal experience than by maturity at birth.

Geovana de Paula Bolza (2014), conducted a study to assess the accuracy of the Preterm Oral Feeding Readiness Scale (POFRAS) on the beginning of oral feeding in preterm infants and to verify the concordance between this tool and the Oral Feeding Skill Level.⁸² preterm infants were assessed by POFRAS regarding their readiness to initiate oral feeding and by the oral feeding skill level evaluation during the first oral feeding. POFRAS's accuracy was estimated regarding proficiency by a Receiver Operating Characteristics (ROC) curve POFRAS's global accuracy was of 71.29%. POFRAS's accuracy to initiate oral feeding considering the proficiency was similar to that obtained with the technique of translactation. We observed a weak concordance between the instruments. We suggest that, in clinical practice, both instruments should be used in a complementary manner, since both present important aspects of the

preterm feeding behavior that together will be the better guide to provide an effective and quick transition to full oral feeding in this population.

T.L Crappnell (2012), conducted a study to investigate early medical and family factors associated with later feeding risk in preterm babies. For this longitudinal study, 136 preterm babies are born ≤ 30 weeks of gestation were enrolled. Medical and social background factors were assessed at term equivalent age. Preterm babies underwent magnetic resonance imaging, neurobehavioral evaluation, and feeding assessment. Parent involvement in the neonatal intensive care unit was tracked, and maternal mental health was assessed at discharge. At the age of two years, feeding outcome was assessed using the Eating Subscale of the Infant-Toddler Social Emotional Assessment (n=80). Associations between feeding problems like early medical factors, neurobehavioral functioning, cerebral structure, maternal mental health were assessed. Eighteen (23%) children had feeding problems. Feeding problems were associated with early hypotonia ($p=0.03$; $\beta=0.29$) and lower socioeconomic status ($p=0.046$; $\beta=-0.22$). No association was observed between early medical factors, early feeding performance, cerebral structure alterations or maternal well-being and feeding outcome.

4. Empirical studies related to effectiveness of oral stimulation among preterm babies.

Greene Z (2016), conducted a quasi-randomized study to determine the effectiveness of oral stimulation interventions for attainment of oral feeding in preterm infants born before 37 weeks of gestation comparing oral stimulation intervention with no intervention, standard care, non-oral intervention in preterm infants and reporting at least one of the specified outcomes. This study included 19 randomized trials with a total of 823 participants. Meta-analysis showed that oral stimulation reduced the time of transition to oral feeding compared with standard care (4.06 days) and with another non-oral intervention (7.71 days). The duration of initial hospitalization is also compared with standard care (3.19 days) and with another non-oral intervention (7.71 days). Investigators reported shorter duration of parenteral nutrition for infants compared with standard care (87 days) and another non-oral intervention (1.94 days). The researcher concluded that there is an effect on breastfeeding outcomes and weight gain and to reduce the hospital stay.

Yu-xia Zhang et al. (2014), conducted a study to evaluate the effect of an oral stimulation program on preterm infants. 72 preterm infants were randomly assigned to experimental and control groups. Controls ($n = 36$) received routine care while the experimental group ($n = 36$) received oral stimulation in addition to routine care. Post Menstrual Age, total intake volume, body weight, the transition time from initiation of oral feeding to full oral feeding and feeding efficiency were calculated. Post Menstrual Age and full oral feeding weight were significantly lower in the experimental group ($p < 0.05$). The time from initiation of oral feeding to full oral feeding was significantly shorter in the experimental group ($p < 0.05$) while feeding efficiency was higher in the experimental group ($p < 0.05$) compared to controls. No significant differences existed in hospital stay length or weight gain rate. The study concluded that early oral stimulation program is beneficial in preterm infants

Zhang (2013), conducted the study to evaluate the effectiveness of non-nutritive sucking and oral stimulation, either applied alone or in combination, to reduce the transition time from tube feeding to independent oral feeding. The researcher took 112 preterm infants assigned to three intervention group (non-nutritive sucking, oral stimulation, and combined non-nutritive sucking and oral stimulation). The result showed that the combined non-nutritive sucking and oral stimulation intervention reduced the transition time from introduction to independent oral feeding and enhanced the milk transfer rate.

M. Boironetal (2012), conducted a study to compare the effects of oral stimulation with those of oral support on non-nutritive sucking and feeding parameters in preterm infants. Preterm infants (23 males, 20 females) born between 29 and less than 34 weeks' weight 1580g were allocated to one of three experimental groups: (Stimulation +support [five males, four females]; Stimulation [four males, seven females]; and Support[seven males, five females]) or a control group. Non-nutritive sucking pressure and sucking activity were quantified in the gavage and transition periods. Oral support minimizes fluid loss; the jaw, and organizes deglutition. The time of transition, the quantity of milk ingested per day, and the number of bottle feeds per day were recorded. Variables were analyzed by repeated-measures analysis of variance, with birth-weight as covariate (ANCOVA). Transition time was reduced for the Stimulation+ support and Support groups. This study

demonstrated that oral support and oral stimulation enhanced the sucking and feeding in preterm infants.

Yea-Shwu Hwang (2010), conducted a study to investigate the effects of a pre-feeding oral stimulation program on the feeding performance of preterm infants. Cross over design was used in this study. Nineteen preterm infants who were in the transitional time to full oral feeding served as their own controls. A 5-min oral stimulation program was applied to infants prior to feeding in two of 4 feedings on two consecutive days. Feeding, behavioral state, and physiological parameters of infants in the intervention and control feeding conditions were compared. Compared to the control condition, infants in the intervention condition achieved a greater intake rate in the initial 5 min of the feeding. After receiving oral stimulation, a higher percentage of infants moved to the drowsy or quiet alert state from sleep or restlessness before feeding. Oral stimulation had a modulating effect on the pre-feeding behavioral states and short-lived beneficial effects on the feeding efficiency of preterm infants.

Simpson (2002), conducted an experimental study to determine the transition from tube feeding to oral feeding accelerated by oral stimulation in preterm infants. Twenty nine infants (<30 weeks gestation) were randomized to an experimental group and control group. The experimental group was initiated to oral feeding 48 hours after achieving full tube feeding (120 kcal/kg/day) and the feeding progression followed a structured protocol. The oral feeding management of the control group infants (n=16) was left to the discretion of their attending physicians. The result showed that infants in the experimental group, when compared with their control group were introduced to oral feeding significantly earlier and attained all oral feeding significantly earlier as well.

SUMMARY

The chapter had dealt with the review of empirical studies related to incidence and prevalence of preterm delivery, empirical studies related to risk factors of preterm delivery, empirical studies related to feeding performance among preterm babies and empirical studies related to effectiveness of oral stimulation among preterm babies.

CHAPTER-III

RESEARCH METHODOLOGY

Research methodology involves the systematic procedures by which the researcher starts from the initial identification of the problem to its final conclusion. It involves steps, procedures and strategies for gathering and analyzing data in a research investigation.

(Denis F Polit, 2011)

This chapter deals with the research methodology adapted for the proposed study and the different steps undertaken after gathering and organizing data for the investigation. It includes Research approach, Research design, Variables, Settings, Population, Sample, Sample size and Criteria for sample selection. Sampling techniques, Development of the tool, Validity, Reliability, Pilot study, Data collection procedure, Plan for data analysis and Ethical clearance.

RESEARCH APPROACH

The research approach indicates what to collect and how to analyze it. It also suggest possible conclusion to be drawn from the data, in view of the nature of the problem under study and to accomplish the objective of the study.

(Denis F Polit, 2011)

The investigator examined causal relationship to determine the effect of one variable on another. It involves effects of oral stimulation using selected samples. The quantitative research approach was considered to be most appropriate for this study.

RESEARCH DESIGN

Research design is the overall plan for addressing a researcher question, including specifications for enhancing the study's integrity.

(Denis F Polit, 2016)

The research design adopted for present study is Pre - Experimental research design. This is represented below,

O₁	X	O₂
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Keys

O₁ - Pretest assessment of oral feeding performance

X - Oral stimulation

O₂ - Posttest assessment of oral feeding performance

VARIABLES

Variables are defined as “An attribute that varies, that is, taken on different values”.

(Denis F Polit, 2011)

Dependent variable

Dependent variable is defined as “the variable hypothesized to depend on or be caused by another variable of interest.”

(Denis F Polit, 2011)

In this study, the dependent variable is feeding practices among preterm babies.

Independent variable

Independent variable is defined as “the variable that is believed to cause or influence the dependent variable.”

(Denis F Polit, 2011)

Independent variable in this study is oral stimulation by stroking the palate, gums and cheeks.

Extraneous Variables

A variable that confronts the relationship between the independent and dependent variables and that needs to be controlled either statically or in the research design.

(Denis F Polit, 2011)

In this study, it refers to mother’s age, mother’s education, family income, place of delivery, mode of delivery, place of delivery, birth order, gestational weeks at birth, birth weight of the baby, sex of the baby, low birth weight, preterm baby and place of residence.

SETTING OF THE STUDY

Setting refers to physical location in which data collection takes place.

(Denis F Polit, 2011)

In this study, the setting was chosen on the basis of availability of samples and the co-operation extended by the Management and the Health team. The study was conducted in Moses Mathias Hospital, Nagercoil. It is 100 bedded Hospital specialized with the NICU, experienced Neonatologist, Paediatrician, experienced staff nurses and health team.

POPULATION

A population is defined as “the entire set of individuals or objects having some common characteristics.”

(Denis F Polit, 2011)

TARGET POPULATION

Target population is the group of population that the researcher aim to study and to whom these study findings will be generalized.

(Denis F Polit, 2011)

The target population of this study was preterm babies with poor feeding performance.

ACCESSIBLE POPULATION

The accessible population is the list of population that the researcher finds in study.

(Denis F Polit, 2011)

Accessible populations of this study were preterm babies with poor and average feeding performance who are treated in Moses Mathias hospital, Nagercoil.

SAMPLE

Sample is defined as, “a subset of a population comprising those selected to participate in a study.”

(Denis F Polit, 2011)

In this study, sample comprises of preterm babies with poor feeding performance in Moses Mathias Hospital, Nagercoil.

SAMPLE SIZE

Sample size is defined as, “the number of people who participate in a study.”

(Denis F Polit, 2011)

The sample size for the study comprises of 30 preterm babies who fulfilled the inclusion criteria.

SAMPLING TECHNIQUE

Sampling technique is defined as “the process of selecting a portion of the population to represent the entire population.”

(Suresh K Sharma, 2007)

The samples of the present study were selected by non-probability convenient sampling technique. The researcher selected the participants based on the inclusion criteria.

SAMPLING CRITERIA

Sampling criteria involves selecting cases that meet some predetermined criterion of importance. The criteria for sample selection are mainly depicted under two headings, which includes the inclusion criteria and exclusion criteria.

Inclusion criteria

The study included preterm babies

- ❖ who are available at the time of data collection.
- ❖ who are with poor sucking reflex.

Exclusion criteria

The study excluded preterm babies

- ❖ who are with congenital anomalies.
- ❖ whose parents are not willing to do study.
- ❖ whose mother have co-morbid illness.

SELECTION AND DEVELOPMENT OF TOOL

Tool development is a complex and time consuming process. It consists of defining the construct to be measured, formulating the items, assessing the items for content validity, developing instructions for respondents, pre-testing, estimating the reliability and conducting pilot-study.

(Polit and Hungler, 1993)

Data collection is the gathering information needed to address a research problem. The data are collected in the month of June 2017.

The tool was prepared on the basis of objectives of the study. The following methods were used for the development of the tool by the investigator:

- Review of literature from books, journals, other publications and websites.
- Discussion with subject experts like guides, Pediatricians and Biostatistician.
- Review of the standardized tool.

DESCRIPTION OF THE TOOL

The researcher has used the following tools for data collection:

TOOL - I

MOTHER AND CHILD RELATED VARIABLE PROFORMA

The tool consists of 12 items for obtaining information about mother related variables includes mother's age, mother's education, family income, place of delivery, mode of delivery, birth order and place of residence. The child related variables includes gestational weeks at birth, birth weight of the infant, sex of the baby, low birth weight and preterm.

TOOL - II

MODIFIED EARLY FEEDING SKILL ASSESSMENT SCALE FOR PRETERM BABIES

Modified early feeding skill assessment scale for preterm babies was used individually to collect the data with regard to feeding performance.

SCORING PROCEDURES

Modified early feeding skill assessment scale for preterm infants consists of 33 numerically scaled, 0-33 scores. The total maximum and minimum score were 33 and 0 respectively. The score on the numerical scale, 0 and 33 was interpreted as,

S.NO	SCORE	INTERPRETATION
1.	0-11	Poor sucking skill
2.	12-22	Average sucking skill
3.	23-33	Good sucking skill

TESTING OF TOOL

VALIDITY

Content validity is defined as, “the extent to which an instrument accurately reflects the abstract construct (or concept) being examined.”

(Suresh K Sharma 2007)

The content validity refers to the adequacy of the sampling of the domain being studied. Content validity of the tool was obtained after consulting with research guide and getting opinion from five experts in the field of Child Health Nursing, One of the expert was a Paediatrician, and other Bio-statistician. The validations have suggested some specific modifications in the tool. The modification and suggestions of experts were incorporated in the final preparation of the tool for assessing feeding performance.

RELIABILITY

Reliability is defined as, “the degree of consistency or dependability with which an instrument measures an attribute.”

(Denis F Polit, 2011)

Reliability of the tool was established using inter rater reliability method for Modified Early Feeding Skill Assessment Scale for Preterm babies and the reliability was $r=1$, which showed a positive correlation. This score indicates a high correlation and the tool were considered as highly reliable. Hence the tool was considered reliable for proceeding the study.

PILOT STUDY

Pilot study is defined as, “a small-scale version or trial run, done in preparation of a major study.”

(DenisF Polit2011)

Pilot study was conducted in Moses Mathias Hospital, Nagercoil during the month of April, 2017 for a period of one week. Initial permission was sought from the institution and formal permission was sought from the Medical officers for conducting the study. Consent was obtained from the Parents. 15 preterm babies was selected. Among that 5 babies had normal feeding performance and 6 babies had poor and 4 babies had average feeding performance. The sample of 10 preterm babies was selected using Non- probability convenient sampling technique and provided the oral stimulation given by three minutes. Results of the pilot study, gave the evidence that

the tools were reliable. Finding of pilot study also revealed that it was feasible and practicable to conduct the study at the selected settings.

DATA COLLECTION PROCEDURE

The data collection was done for a period of one month from June 1st – June 31st2017 in Moses Mathias Hospital, Nagercoil. Initial permission was obtained from the research ethical committee. Formal permission was obtained from authorities of Moses Mathias hospital at Kanyakumari district. At first, a rapport was established and purpose of the study was explained to parents and staff nurses who are worked in NICU. In pretest, 50 preterm babies were selected. Among that 20 babies had normal feeding performance and 30 babies had poor and average feeding performance. The sample of 30 preterm babies was selected using Non- probability convenient sampling technique. Data collected by using Mother and Child related variable Proforma and Modified Early Feeding Skill Assessment Scale for Preterm Babies.

The researcher has given oral stimulation before giving feeding with gloved little finger by stroking the gums, palate and cheek for three minutes per three times a day. On the 5th day posttest was assessed with the help of modified early feeding skill assessment scale. Towards end, researcher thanked the NICU staff and mothers of preterm babies for their co-operation.

PLAN FOR DATA ANALYSIS

The data analyzes is the systemic organization and synthesis of research data and testing of research hypothesis by using the obtained data.

(Politand Beck, 2007)

Data collected was analyzed using both descriptive and inferential statistics such as mean, standard deviation, chi square and paired ‘t’ test.

DESCRIPTIVE STATISTICS

- ❖ Frequency and percentage distribution was used for distributing mother and child related variables.
- ❖ Frequency and percentage distribution of samples was used to assess the level of feeding performance.
- ❖ Mean and standard deviation was used to assess the effectiveness of oral stimulation on feeding performance among preterm babies.

INFERENCEAL STATISTICS

- ❖ Paired 't' test was used to evaluate and compare pretest and posttest level of oral stimulation.
- ❖ Chi square test was used to find out the association between the posttest oral stimulation on feeding performance with their selected mother related and child related variables.

ETHICAL CONSIDERATION

- ❖ Initial permission was obtained from Institutional review board.
- ❖ The pilot study and main study was conducted only after the approval of the research ethical committee of Moses Mathias Hospital, Nagercoil.
- ❖ Written consent was obtained from each parent before starting the data collection.
- ❖ Assurance was given to each parent regarding the confidentiality of the data collected

SUMMARY

This chapter has dealt with the selection about the research approach, research design, variables, setting of the study, population, selection criteria, development of tool, validity, reliability, pilot study, data collection, plan for data analysis and ethical considerations.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

Data analysis is defined as the method of organizing data in such a way that the research questions can be answered. Interpretation is the process of the results and of examining the simplification of the findings with in a broader context.

(Polit and Beck, 2004)

Statistics is a field of study concerned with techniques or methods of collection of data, classification, summarizing, interpretation, drawing inferences, testing of hypothesis, making recommendation, etc.

(Mahajan, 2004)

This chapter deals with the analysis and interpretation. Analysis and interpretation of data of this study was done by using descriptive and inferential statistics.

OBJECTIVES OF THE STUDY

The objectives of the study are

- To assess the feeding performance among preterm babies.
- To assess the effectiveness of oral stimulation on the level of feeding performance among preterm babies.
- To associate the posttest level of feeding performance of preterm babies with selected Mother and Child related variables.

ORGANIZATION OF THE FINDINGS

The data collected were edited, tabulated, analyzed, interpreted and findings obtained were presented in the form of tables and diagrams represented under the following sections.

SECTION I

- ❖ Data pertaining to frequency and percentage distribution of selected mother related variables.
- ❖ Data pertaining to frequency and percentage distribution of selected child related variables.

SECTION II

- ❖ Data pertaining to frequency and percentage distribution of pretest and posttest level of feeding performance among preterm babies.
- ❖ Data pertaining to effectiveness of oral stimulation in improving feeding performance among preterm babies.

SECTION III

- ❖ Data pertaining to association between posttest level of feeding performance with selected mother related variables.
- ❖ Data pertaining to association between posttest level of feeding performance with selected child related variables.

SECTION I

Table 1: Data pertaining to frequency and percentage distribution of selected mother related variables.

N=30

S.No	Mother related Variables	Frequency f	Percentage %
1.	Mother's age a. <20 years b. 21-30 years c. >35 years	0 25 5	0 83.3 16.6
2.	Mother's education a. Profession b. Graduate or Post graduate c. Intermediate or high school d. High school e. Middle school f. Primary school g. Illiterate h. Others	2 3 15 8 2 0 0 0	6.66 10 50 26.6 6.66 0 0 0
3.	Family monthly income a. ≥25000 b. 20000-24999 c. 15000-19999 d. 10000-14999 e. 5000-9999 f. <5000	2 3 10 13 2 0	6.66 10 33.33 43.3 6.66 0
4.	Place of delivery a. Government hospital b. Private hospital c. Home	6 24 0	20 80 0
5.	Mode of delivery a. LSCS b. Normal	22 8	73.3 26.6
6.	Birth order a. First b. Second and third c. Fourth and above	16 14 0	53.3 46.6 0
7.	Place of residence a. Urban b. Rural	26 4	86.6 13.3

Table 1 represents the frequency and percentage distribution of selected mother related variables of preterm babies with regard to mother's age, mother's education, family monthly income, place of delivery, mode of delivery, birth order and place of residence.

With regard to age, majority of 25(83.3%) mothers were found between the age group of 21-30 years, and 5(16.6%) were in the age group of >35years.

With regard to mother's education, majority of 15(50%) mothers had completed intermediate or high school education, 8(26.6%) completed higher secondary education, 3(10%) had obtained graduation or post graduate education and remaining 2(6.66%) mothers had undergone both middle school education and professional courses.

With regard to family monthly income, majority 13(43.3%) of the mothers were earning an income between Rs.10000-14999. 10(33.33%) of the mothers were earning an income between Rs.15000-19999. 3(10%) were earning between Rs.20000-24999. Also a least of 2(6.66%) were earning an income between Rs.5000-9999 and more than Rs.25000 respectively.

With regard to place of delivery, majority 24(80%) of mothers had their delivery in the private hospital and the remaining 6(20%) in the government hospital.

With regard to mode of delivery, majority of mother's 22(73.33%) were delivered through LSCS and least proportion 8(26.6%) were delivered through normal vaginal delivery.

With regard to the birth order, majority 16(53.3%) of the mothers had first child, and the remaining 14(46.6%) of the mothers had second and third child.

With regard to place of residence, majority 26(86.6%) of mothers were from urban background and least proportion of 4(13.3%) were from rural background.

Table 2: Data pertaining to frequency and percentage distribution of selected child related variables.

N=30

S.No	Child related variables	Frequency f	Percentage %
1.	Gestational weeks at birth a. 31-36 weeks b. 26-30 weeks c. <26 weeks	23 7 0	76.6 23.3 0
2.	Birth weight of infant a. <2 kg b. 2-3 kg c. >3 kg	11 17 2	36.6 56.6 6.66
3.	Sex of the baby a. Male b. Female	18 12	60 40
4.	Low birth weight a. Yes b. No	18 12	60 40
5.	Preterm a. Yes b. No	30 0	100 0

Table 2 represents the frequency and percentage distribution of selected child related variables which includes gestational age, birth weight, sex of the baby, low birth weight and preterm.

With regard to gestational weeks at birth, majority of 23(76.6%) babies were delivered during 31-36 weeks of gestation, and remaining 7(23.33%) babies were delivered between 26-30 weeks of gestation.

With regard to birth weight of the child, majority of 17(56.6%) babies weighed between 2-3kg, 11(36.6%) babies had birth weight of more than 2kg and the remaining 2(6.66%) had birth weight of more than 3kg.

With regard to sex of the baby, majority of 18(60%) were males and least of 12(40%) were females.

With regard to low birth weight, majority of preterm babies 18(60%) had low birth weight and 12(40%) had normal birth weight.

With regard to preterm delivery, majority of 30(100%) babies delivered before 37 weeks of gestation.

SECTION II
Testing of hypothesis

H₁: There will be a significant difference in the level of feeding performance before and after giving oral stimulation among preterm babies.

Table 3: Data pertaining to frequency and percentage distribution of pretest and posttest level of feeding performance among preterm babies.

N=30

Grades	Feeding performance				χ^2	P Value
	Pretest		Post test			
	f	%	f	%		
Poor	15	50	0	0	24.84	df=2
Average	12	40	13	43.33		<0.0001
Good	3	10	17	56.66		

(P<0.001)

Table 5 shows the frequency and percentage distribution of pretest and posttest level of feeding performance among preterm babies. During pretest, majority of 12(40%) preterm babies had average feeding performance, 10(33.33%) had good feeding performance and 8(26.6%) had poor feeding performance. Whereas in posttest, 17(56.66%) preterm babies had good feeding performance and 13(56.66%) preterm babies had average feeding. The chi square value was 9.85, P value was <0.0001 which was significant at the level of P<0.001. Hence the result proves that there was a significant difference between feeding performance among preterm babies before and after giving oral stimulation. Hence the research hypothesis **H₁** was accepted.

Table 4: Data pertaining to effectiveness of oral stimulation in improving feeding performance among preterm babies.

(N=30)

S.No	Scores	Mean	Mean difference	SD	Paired 't' test	P Value
1.	Pre test	15.5	4.1	2.76	7.68	df=29 0.0001
2.	Post test	19.6				

(P<0.001)

Table.4 reveals the data pertaining to effectiveness of oral stimulation in improving feeding performance among preterm babies. It shows that the mean pretest score is 15.5 and the mean post test score is 19.6. The mean difference is 4.1 and the standard deviation is 2.76. The obtained t' test value was 7.68, and the P value was 0.0001 which was highly significant at the level of P<0.001. This indicates that the feeding performance was improved after oral stimulation. Therefore research hypothesis **H₁** was accepted.

SECTION III

Testing of hypothesis

H2: There will be a significant association between the posttest level of the feeding performance with selected mother and child related variables.

Table 5: Data pertaining to association between posttest level of feeding performance with selected mother related variables.

N=30

S.No	Mother related variables	Feeding Performance						Chi square χ^2
		Poor		Average		Good		
		f	%	f	%	f	%	
1.	Mother's age							$\chi^2=0.68$ P=0.9538 df=4
	a. <20 years	0	0	0	0	0	0	
	b. 21-30 years	0	0	10	33.31	1	50	
	c. >35 years	0	0	3	0	5	6.66	
2.	Mother's education							$\chi^2=4.7$ P=0.2799 df=14
	a. Profession	0	0	0	0	2	6.66	
	b. Graduate or Post graduate	0	0	1	3.33	2	6.66	
	c. Intermediate or high school	0	0	5	16.6	1	3.33	
	d. High school	0	0	5	16.6	0	33.3	
	e. Middle school	0	0	0	0	3	3	
	f. Primary school	0	0	0	0	2	6.66	
	g. Illiterate	0	0	0	0	0	0	
	h. Others	0	0	0	0	0	0	
3.	Family income							$\chi^2=2.35$ P=0.9684 df=10
	a. ≥ 25000	0	0	0	0	2	6.66	
	b. 2.20000-24999	0	0	1	3.33	2	6.66	
	c. 15000-19999	0	0	4	13.3	6	20	
	d. 10000-14999	0	0	5	16.6	8	26.6	
	e. 5000-9999	0	0	0	0	2	0	
	f. <5000	0	0	0	0	0	0	
4.	Place of delivery							$\chi^2=0.94$ P=0.9188 df=4
	a. Government hospital	0	0	3	0	3	0	
	b. Private hospital	0	0	7	23.3	1	56.6	
	c. Home	0	0	0	0	7	0	
5.	Mode of delivery							$\chi^2=8.67$ P=0.0131** df=2
	a. LSCS	0	0	6	20	1	53.3	
	b. Normal	0	0	7	0	6	3.33	

6.	Birth order							
	a. First	0	0	8	26.66	8	26.6	$\chi^2=0.62$ P=0.9608 df=4
	b. Second and third	0	0	5	16.6	9	6	
	c. Fourth and above	0	0	0		0	11.3	
						0		
7.	Place of Residence							$\chi^2=2.36$ P=0.03073* df=2
	a. Urban	0	0	9	43.3	1	56.6	
	b. Rural	0	0	3	0	7	0	
						1		

(p<0.05*)

Table 5 shows the association between level of feeding performance with selected mother related variables including mother's age, mother's education, family monthly income, place of delivery, mode of delivery, birth order and place of residence. Accordingly, there was significant association found in mode of delivery (0.0131), place of residence (0.03073) and no significant association found with mother's age, mother's education, family monthly income, place of delivery, birth order. Hence the research hypothesis **H₂** was partially accepted.

Testing of hypothesis

H2: There will be a significant association between the posttest level of the feeding performance with selected mother and child related variables.

Table 6 : Data pertaining to association between posttest level of feeding performance with selected child related variables.

(N=30)

S.No	Child related variables	Feeding Performance						Chi square χ^2
		Poor		Average		Good		
		f	%	f	%	f	%	
1.	Gestational weeks at birth							$\chi^2=0.4$ P=0.9825 df=4
	a. 30-36wks	0	0	13	43.33	10	33.33	
	b. 26-30wks	0	0	3	30	4	13.3	
	c. <2 6wks	0	0	0	0	0	0	
2.	Birth weight of infant							$\chi^2=0.7$ P=0.9513 df=4
	a. <2 kg	0	0	3	30	8	26.6	
	b. 2-3 kg	0	0	4	13.3	13	43.33	
	c. >3 kg	0	0	0	0	2	6.66	
3.	Sex of the baby							$\chi^2=0.02$ P=0.99 df=2
	a. Male	0	0	8	26.66	10	33.33	
	b. Female	0	0	5	16.66	7	23.33	
4.	Low birth weight							$\chi^2=1.17$ P=0.5571 df=2
	a. Yes	0	0	8	26.6	10	33.33	
	b. No	0	0	3	10	9	30	
5.	Preterm							$\chi^2=0$ P=1 df=2
	a. Yes	0	0	13	43.33	17	56.66	
	b. No	0	0	0	0	0	0	

(P<0.05)

Table 6 shows the association between level of feeding performance with child related variables including gestational weeks at birth, birth weight of infant, sex of the baby, low birth weight and preterm. Accordingly there was significant association found with child related variables such as gestational weeks at birth (0.9825), birth weight of infant (0.9513), sex of the baby (0.99), low birth weight (0.5571) and preterm (1). There was no significant found between the level of feeding performance with child related variables. Hence the research hypothesis **H₂** was rejected.

SUMMARY

This chapter dealt with analysis and interpretation of data obtained by the researcher. The analysis of the result showed that the effectiveness of oral stimulation on feeding performance among preterm babies.

CHAPTER V

DISCUSSION

This chapter deals with the discussion of the data analyzed based on the objectives and hypotheses of the study. The problem statement was “**A pre-experimental study to assess the effectiveness of oral stimulation on feeding performance among preterm babies in Moses Mathias Hospital, Nagercoil**”. The discussion was based on the objectives of the study and hypotheses mentioned in the study.

OBJECTIVES OF THE STUDY

The objectives of the study are

- ❖ To assess the level of feeding performance among preterm babies.
- ❖ To assess the effectiveness of oral stimulation on the level of feeding performance among preterm babies.
- ❖ To associate the post test level of feeding performance of preterm babies with selected mother and child related variables.

Data pertaining to frequency and percentage distribution of selected mother related variables.

It represents the frequency and percentage distribution of selected mother related variables of preterm babies with regard mother's age, mother's education, family monthly income, place of delivery, mode of delivery, birth order of child and place of residence.

With regard to age, majority of 25(83.3%) mothers were found between the age group of 21-30 years, and 5(16.6%) were in the age group of >35years.

With regard to mother's education, majority of 15(50%) mothers had completed intermediate or high school education, 8(26.6%) completed higher secondary education, 3(10%) had obtained graduation or post graduate education and remaining 2(6.66%) mothers had undergone both middle school education and professional courses.

With regard to family monthly income, majority 13(43.3%) of the mothers were earning an income between Rs.10000-14999. 10(33.33%) of the mothers were

earning an income between Rs.15000-19999. 3(10%) were earning between Rs.20000-24999. Also a least of 2(6.66%) were earning an income between Rs.5000-9999 and more than 25000 respectively.

With regard to place of delivery, majority 24(80%) of mothers had their delivery in the private hospital and the remaining 6(20%) in the government hospital.

With regard to mode of delivery, majority of mothers 22(73.33%) were delivered through LSCS and least proportion 8(26.6%) were delivered through normal vaginal delivery.

With regard to the birth order, majority 16(53.3%) of the mothers had first child, and the remaining 14(46.6%) of the mothers had second and third child.

With regard to place of residence, majority of 26(86.6%) of mothers were from urban background and least proportion of 4(13.3%) were from rural background.

Data pertaining to frequency and percentage distribution of selected child related variables.

It represents the frequency and percentage distribution of selected child related variables which including gestational age, birth weight, sex of the baby, low birth weight and preterm baby.

With regard to gestational weeks at birth, majority 23(76.6%) of babies has been delivered during 31-36 weeks of gestation, and remaining 7(23.33%) between 26-30 weeks of gestation.

With regard to birth weight, majority of 17(56.6%) babies weighed between 2-3kg, 11(36.6%) babies had weight more than 2kg and the remaining 2(6.66%) had weight more than 3kg.

With regard to sex of the baby, majority of 18(60%) were males and least of 12(40%) were females.

With regard to low birth weight, majority of preterm babies 18(60%) had low birth weight and 12(40%) had normal birth weight.

With regard to preterm delivery, majority 30(100%) babies delivered before 37 weeks of gestation.

OBJECTIVE 1:

To assess the level of feeding performance among preterm babies before and after giving oral stimulation.

On analyzing the data during pretest, majority of 12(40%) preterm babies had average feeding performance, 10(33.33%) had good feeding performance and 8(26.6%) had poor feeding performance. Whereas in posttest, 17(56.66%) preterm babies had good feeding performance and 13(56.66%) preterm babies had average feeding performance.

OBJECTIVE 2:

To assess the effectiveness of oral stimulation on the level of feeding performance among preterm babies.

The data pertaining to the effectiveness of oral stimulation in improving feeding performance among preterm babies, the mean pretest score is 15.5 and the mean post test score is 19.6. The mean difference is 4.1 and the standard deviation is 2.76. The obtained t' test value was 7.68, and the P value was 0.0001 which was highly significant at the level of $P < 0.001$. This indicates that the feeding performance was improved after oral stimulation. Therefore research hypothesis H_1 was accepted.

OBJECTIVE 3:

To associate the posttest level of feeding performance of preterm babies with selected mother and child related variables.

The data shows the association between the level of feeding performance and selected mother related variables such as mother's age, mother's education, family monthly income, place of delivery, mode of delivery, birth order and place of residence. Accordingly there was significant association found between the level of feeding performance with mode of delivery (0.0131), place of residence (0.03073) and no significant association found with mother's age, mother's education, family monthly income, place of delivery, and birth order. Hence the research hypothesis H_2 was partially accepted.

The association between the level of feeding performance and the selected child related variables such as gestational weeks at birth (0.9825), birth weight of infant (0.9513), sex of the baby(0.99), low birth weight (0.5571) and preterm(1).

There was no association found between the level of feeding performance in child related variables. Hence the research hypothesis H_2 was rejected.

SUMMARY

This chapter deals with the objectives of the study, major findings of the mother related variables and child related variables of preterm babies, description of effectiveness of oral stimulation, association between post test level of feeding performance with the selected mother related variables and child related variables among preterm babies.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATION AND RECOMMENDATION

This chapter deals with the summary of the study and the conclusion drawn, findings, conclusion drawn, nursing implications of the study for different areas like nursing practice, nursing education, nursing administration and nursing research and also includes the recommendation for future research in the field.

SUMMARY

The summary includes the objectives of the study, description of procedure, major findings, conclusion and recommendations for future research study on **“A pre-experimental study to assess the effectiveness of oral stimulation on feeding performance among preterm babies in Moses Mathias Hospital, Nagercoil”**.

THE OBJECTIVES OF THE STUDY

The objectives of the study are

- ❖ To assess the level of feeding performance among preterm babies.
- ❖ To assess the effectiveness of oral stimulation on the level of feeding performance among preterm babies.
- ❖ To associate the post test level of feeding performance of preterm babies with selected mother and child related variables.

HYPOTHESES

H₁ : There will be a significant difference in the level of feeding performance before and after giving oral stimulation among preterm babies.

H₂: There will be a significant association between the post test level of the feeding performance with the selected mother and child related variables among preterm babies.

The conceptual framework used for the present study is adopted from **The Helping Art of Clinical Nursing Theory** introduced by Ernestine Wiedenbach

(1958). According to this theory, Prescriptive Theory directs action towards an explicit goal. It consists of three factors: identifying the need for help; Ministering to the need, validating the met need. A nurse develops a prescription based on a central purpose and implements it according to the realities of the situation.

According to the theory, components of nursing practice consists of three steps which is directly related to patients care include,

Step 1- Identifying the need for help

Step 2- Ministering to the need

Step 3- Validating the met need

The investigator organized the Review of literature under the following headings

1. Empirical studies related to incidence and prevalence of preterm delivery.
2. Empirical studies related to risk factors of preterm delivery.
3. Empirical studies related to feeding performance among preterm babies.
4. Empirical studies related to effectiveness of oral stimulation among preterm babies.

The content validity of the tool was obtained after consulting with the research guide and getting opinion from five experts in the field of Child Health Nursing. One of the expert was a Doctor and other a Biostatistician. Reliability of the tool was calculated by Karl Pearson coefficient formula method. In this study the reliability of the tool was $r=1$.

Pilot study was conducted in Moses Mathias Hospital, Nagercoil during the month of April, 2017 for a period of one week. Initial permission was sought from the institution and formal permission was sought from the Medical officers for conducting the study. Consent was obtained from the Parents. 15 preterm babies was selected. Among that 10 babies had normal feeding performance and 6 babies had poor and 4 babies had average feeding performance. The sample of 10 preterm babies was selected using Non- probability convenient sampling technique. 10 preterm babies were selected and provided the oral stimulation given by three minutes. Results of the pilot study, gave the evidence that the tools were reliable. Finding of pilot study also revealed that it was feasible and practicable to conduct the study at the selected settings.

The data collection was done for a period of one month from June 1st – June 31st 2017 in Moses Mathias Hospital, Nagercoil. Initial permission was obtained from the

research ethical committee. Formal permission was obtained from authorities of Moses Mathias hospital, Nagercoil. At first, a rapport was established and purpose of the study was explained to parents and staff nurses who are worked in NICU. In pretest, 50 preterm babies were selected. Among that 20 babies had normal feeding performance and 30 babies had poor and average feeding performance. The sample of 30 preterm babies was selected using Non-probability convenient sampling technique. Data collected by using Mother and Child related variable Proforma and modified early feeding skill assessment scale for preterm babies. The researcher has given oral stimulation before giving feeding with gloved little finger by stroking the gums, palate and cheek for three minutes per three times a day. On the 5th day posttest was assessed with the help of modified early feeding skill assessment scale. Collected data were analyzed and interpreted as per the objectives of the study by using the descriptive statistics (frequency and percentage) and inferential statistics (chi-square) results were calculated.

FINDINGS

Major findings of the study are presented under the followings:

Findings related to selected mother related variables among preterm babies.

It represents the frequency and percentage distribution of selected mother related variables of preterm babies with regard to mother's age, mother's education, family monthly income, place of delivery, mode of delivery, birth order, and place of residence.

With regard to age, majority of 25(83.3%) mothers were found between the age group of 21-30 years, and 5(16.6%) were in the age group of >35years.

With regard to education, majority of 15(50%) mothers had completed intermediate or high school education, 8(26.6%) completed higher secondary education, 3(10%) had obtained graduation or post graduate education and remaining 2(6.66%) mothers had undergone both middle school education and professional courses.

With regard to family monthly income, majority 13(43.3%) of the mothers were earning an income between Rs.10000-14999. 10(33.33%) of the mothers were earning an income between Rs.15000-19999. 3(10%) were earning between Rs.20000-24999. Also a least of 2(6.66%) were earning an income between Rs.5000-9999 and more than Rs.25000 respectively.

With regard to place of delivery, majority 24(80%) of mothers had their delivery in the private hospital and the remaining 6(20%) in the government hospital.

With regard to mode of delivery, majority of mother's 22(73.33%) were delivered through LSCS and least proportion 8(26.6%) were delivered through normal vaginal delivery.

With regard to the birth order, majority 16(53.3%) of the mothers had first child, and the remaining 14(46.6%) of the mothers had second and third child.

With regard to place of residence, majority 26(86.6%) of mothers were from urban background and least proportion of 4(13.3%) were from rural background.

Findings related to selected child related variables among preterm babies.

It represents the frequency and percentage distribution of selected child related variables which includes gestational age, birth weight, sex of the baby, low birth weight and preterm.

With regard to gestational weeks at birth, majority 23(76.6%) of babies has been delivered during 31-36 weeks of gestation, and remaining 7(23.33%) between 26-30 weeks of gestation.

With regard to birth weight, majority of 17(56.6%) babies weighed between 2-3kg, 11(36.6%) babies had weight more than 2kg and the remaining 2(6.66%) had weight more than 3kg.

With regard to sex of the baby, majority of 18(60%) were males and least of 12(40%) were females.

With regard to low birth weight, majority of preterm babies 18(60%) had low birth weight and 12(40%) had normal birth weight.

With regard to Preterm delivery, majority 30(100%) babies delivered before 37 weeks of gestation.

Findings related to level of feeding performance before and after oral stimulation among preterm babies.

It represents that frequency and percentage distribution of pre test and post test level of feeding performance among preterm babies. During pretest, majority of 12 (40%) preterm babies had average feeding performance, 10(33.33%) had good feeding performance and 8(26.6%) had poor feeding performance. Whereas in

posttest, 17(56.66%) preterm babies had good feeding performance and 13(56.66%) preterm babies had average feeding. The chi square value was 9.85, P value was <0.0001 which was significant at the level of $P<0.001$. Hence the result proved that there was a significant difference between feeding performance among preterm babies before and after giving oral stimulation. Hence H_1 was accepted.

Findings related to association between posttest level of feeding performance with selected mother related variables.

The data shows the association between the level of feeding performance and selected mother related variables such as mother's age, mother's education, family monthly income, place of delivery, mode of delivery, birth order and place of residence. Accordingly there was significant association found between the level of feeding performance with mode of delivery (0.0131), and place of residence (0.03073). There was no significant association found with mother's age, mother's education, family monthly income, place of delivery, and birth order. Hence the research hypothesis H_2 was partially accepted.

Findings related to association between posttest level of feeding performance with selected child related variables.

The association between the level of feeding performance and the selected child related variables such as gestational weeks at birth (0.9825), birth weight of infant (0.9513), sex of the baby(0.99), low birth weight (0.5571) and preterm(1). There was no association found between the level of feeding performance with selected child related variables. Hence the research hypothesis H_2 was rejected.

CONCLUSION

The main conclusion of the study was the oral stimulation is effective to improve the feeding performance which is denoted in the significant improvement in feeding performance.

IMPLICATIONS OF THE STUDY

Based on the findings researcher recommended the implications on nursing practice, nursing administration, nursing education and nursing research.

Nursing practice

- ❖ The findings of the study revealed that oral stimulation can be included for nursing management after preterm delivery.
- ❖ Oral stimulation can be imparted to nursing students to improve skill in providing care under their knowledge on evidence based practice.
- ❖ In service education can be provided by the nursing personnel to help preterm babies to gain adequate feeding and health.
- ❖ Nurses are in best position to impart the oral stimulation for preterm babies.
- ❖ Nurses play an important role in primary health care by early detection and prevention of preterm deliveries.

Nursing administration

- ❖ The nurse administrators can initiate the oral stimulation to improve the oral feeding and promote the feeding skills like in-service education and continuing nursing education programmes.
- ❖ This enables the nurse to update the knowledge and to render the effective care to public.
- ❖ The nurse administrator can train the nurses to identify the level of feeding skills to give counseling and teaching regarding management of preterm babies.

Nursing education

- ❖ With the emerging health care demanding and newer trends in field of nursing, education must focus on the innovations to enhance the nursing care.
- ❖ Nurses could learn about the assessment of feeding skills with the gloved fingers.
- ❖ Nursing students should be taught about the importance of oral stimulation thereby they can help preterm babies to overcome the feeding difficulties.

Nursing research

- ❖ The professionals and the students can conduct many studies in different methods to bring about the newer perspectives in nursing care.
- ❖ Nurse researcher should challenge to perform scientific work and take part in assessment, applications, evaluation of oral stimulation methods with preterm.

RECOMMENDATIONS

- ❖ A similar study may be conducted with maximum time and extended days which may yield more reliable results.
- ❖ The similar study can be conducted by selecting a larger sample on a longterm basis.
- ❖ The study can be conducted in different settings with similar facilities.
- ❖ A comparative study can be conducted with control and experimental group.

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ELECTRONIC SEARCH

Oral stimulation among preterm babies.

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ANNEXURE I
LETTER SEEKING PERMISSION TO CONDUCT THE STUDY.



Annammal College of Nursing

(Approved by Govt. of Tamilnadu, TN Nurses & Midwives Council,
Indian Nursing Council and Affiliated to The Tamilnadu Dr. MGR Medical University)
Annammal Hospital Campus, KUZHITHURAI - 629 163
K.K. Dist, Tamil Nadu. Ph : 04651 - 260614, Fax : 04651 - 260605
www.annammalnursing college.com E-mail : annammalcollege2007@yahoo.co.in

Dr. Sheeba Jayal MBBS, DGO
Chairperson

Date: 5-6-2017

To

The Chief Medical Officer,
Moses Mathias Hospital,
Nagercoil,
Kanyakumari District.

Madam/sir,

Sub: Seeking permission to conduct the Research study .

Ms. Anchu.S.S, a bonafide II year M.Sc Nursing student of Annammal College of Nursing, is approaching you to conduct a Research study on "A Pre-experimental study to find the effectiveness of Oral Stimulation on feeding performance among preterm babies in Moses Mathias Hospital, Nagercoil" which she has to be complete as a partial fulfillment of university requirement for the award of Master of Science in Nursing Degree.

In this regard, I request you to give her permission to conduct the research study in your hospital.

Thanking you

Yours sincerely,



[Signature]
Dr. J.M. Jerla Priya, M.Sc(D), Ph.D(N),
Principal,
Annammal College of Nursing,
Kuzhithurai - 629 163,
Kanyakumari District.

"What we are is gift of god and What we become is gift to god"

ANNEXURE II
LETTER GRANTING PERMISSION TO CONDUCT THE STUDY.

MOSES MATHIAS HOSPITAL

K.P. ROAD, MATHIAS NAGAR,
NAGERCOIL - 629 001.

Dr. M.J. MOSES, M.B.B.S., D.O., D.L.O.

Dr. ANAND PETERS, M.D., (USA) AB Neonatology, FAAP

Dr. VENITA PETERS, M.D., (USA) D.G.O. MAAFP (USA)

Phone No. : 04652-279501

Fax : 04652-278626

Mobile : 9488069501

Helpline : 9087769501

01/08/2017

TO WHOMSOEVER IT MAY CONCERN

ANCHU S.S, a student of MSc (N) program from Annammal College of Nursing, Kuzhithurai, conducted a study on “ **A pre-experimental study to assess the effectiveness of oral stimulation on feeding performance among preterm babies in Moses Mathias Hospital, Nagercoil**”. As a part of her study, she conducted her research in our hospital in an excellent manner with good dedication and in a pleasant way.

We wish all the very best to ANCHU S.S for a very successful career.


Dr. Anand Peters,

Consultant Neonatologist.

Dr. ANAND PETERS, MBBS., FAAP (USA)
ATTENDING NEONATOLOGIST
Regn. No. 45271



ANNEXURE III

PERMISSION LETTER FROM ETHICAL COMMITTEE

Valid from: 2016

Valid to: 2017

Name of the Investigator: Ms. Anchu. S.S

The Ethical committee meeting held on 07-03-2015 had reviewed the project titled "A Pre- experimental study to assess the effectiveness of oral stimulation on feeding performance among preterm babies in Moses Mathias hospital, Nagercoil". The proposal was submitted before the ethical committee for the acceptance and found to be acceptable on ethical grounds. The ethical committee held responsibility and accountability for the investigator for any other administrative approvals that may pertain to this research. This has to be carried out according to conditions outlined in the original protocol submitted for ethical review.

This certificate of approval is valid for the time period provided, there is no change in the methodology protocol or consent process and documents.

Any significant change should be reported to guide for its considerations in advance for its implementation.

Signature of Ethical Committee members:

- 1) **Dr. Sheeba Jayalal, M.B.B.S, D.G.O.,** 
Chief Medical Officer.
- 2) **Dr. Jayalal, M.S.,F.I.C.S., (Germany), M.B.A., F.I.A.G.E.S** 
Chief Surgeon.
- 3) **Dr. Jerlin Priya, M.Sc(N),PhD(N)** 
Research Guide & Advisor.
- 4) **Mr. Theodre Samuvel, M.Sc(Psychology)** 
Psychologist.
- 5) **Mrs. Ahitha, M.Sc(N)** 
Class Coordinator.
- 6) **Mrs. Shali, M.Sc(N)** 
Subject Guide.

ANNEXURE IV

LETTER SEEKING EXPERTS OPINION FOR VALIDATING THE TOOL.



Annammal College of Nursing

(Approved by Govt. of Tamilnadu, TN Nurses & Midwives Council,
Indian Nursing Council and Affiliated to The Tamilnadu Dr. MGR Medical University)
Annammal Hospital Campus, KUZHITHURAI - 629 163
K.K. Dist, Tamil Nadu. Ph : 04651 - 260614, Fax : 04651 - 260605
www.annammalnursing college.com Email : annammalcollege2007@yahoo.co.in

Dr. Sheeba Jayal MBBS, DGO
Chairperson

Date : 10/2/17

To Mrs. Anul sibi
Associate professor
cal college of nursing, Marthandam

Madam/sir,

Sub: M.Sc Nursing Programme - Dissertation - Validation of study tool request -
reg.

Ms. Anchu. S. S, a bonafide II year M.Sc Nursing student of Annammal College of Nursing is approaching you to obtain validation her study tool pertaining to her dissertation in partial fulfillment of the requirements for the degree of Master of Science in Nursing. The selected topic is

“A Pre experimental study to find the effectiveness of oral stimulation on feeding performance among preterm babies at selected hospitals at kanyakumari district”.

In this regard I request you to kindly extent possible technical guidance and support for successful completion of dissertation.

I enclosed here with a check list for your evaluation.

Thanking you



Yours sincerely,

[Signature]
Principal.
ANNAMMAL COLLEGE OF NURSING
KUZHITHURAI - 629 163

Our Motto : "Heal us to Heal others"

“What we are is gift of god and What we become is gift to god”

ANNEXURE V

VALIDATION FOR RESEARCH TOOL

Instructions

The expert is requested to go through the following criteria for evaluation. Three columns are given for responses and a column for remarks. Kindly place tick mark in the appropriate column and give remarks.

S. NO	CRITERIA	1	2	3	REMARKS
1	Content ➤ Adequacy ➤ Relevance ➤ Organized				
2	Language ➤ Simplicity ➤ Clarity ➤ Relevant				
3	Scoring ➤ Easy to score ➤ Clarity ➤ Relevant				
4	Practicability ➤ Procedure ➤ Utility ➤ Feasibility				

Interpretation of column:

- Column I : Meets the criteria.
 Column II : Partially meets the criteria.
 Column III : Does not meets the criteria.

Designation

Signature of the Expert

ANNEXURE VI
LIST OF EXPERTS

- 1. Dr. Sampath, MBBS., DCH.,**
Rtd, J. D of Health service, Annammal Hospital
Kuzhithurai, Kanyakumari District, Tamilnadu.
- 2. Mrs. Arul Sili Ninchal. A, M.Sc(N),**
Associate Professor,
C.S.I College of Nursing, Marthandam.
- 3. Prof. A. Mahizh M.Sc(N),**
Professor cum Principal
Grace College of Nursing, Padanthalumoodu.
- 4. Prof. Kavitha.C.V M.Sc(N),**
Principal,
Saraswathy College of Nursing, Parassala.
- 5. Prof. Zoe Sobhana Alexander**
Principal
White Memorial College of Nursing, Attoor.
- 6. Mrs. Malchija, M.Sc(N),**
Associate Professor
C.S.I College of Nursing, Neyyoor
- 7. Mr. Senthil Kumar, M.Sc, M.Ed.,**
Professor of Bio-statistics

ANNEXURE VII

RESEARCH PARTICIPANT CONSENT FORM

Dear participant,

I am Anchu .S.S.S II Year M.Sc Nursing student of Annammal College of Nursing, Kuzhithurai. As a part of my academic requirement, I am conducting a study on A pre-experimental study to assess the effectiveness of oral stimulation on feeding performance among preterm babies in Moses Mathias Hospital, Nagercoil. The findings of the study will be helpful in prevention of further complication among preterm babies with poor feeding performance. The study does not possess any threat to health and wellbeing; rather it increases your knowledge. I hereby seek your consent for your baby and co-operation to participate in this study. Please be frank and honest in your responses. The information collected will be kept confidential and anonymity will be maintained.

Signature of the researcher

I hereby give my consent to participate in the study.

Place:

Date:

Signature of the participant

ஆராய்ச்சி ஒப்புதல் படிவம்

அன்பார்ந்த பங்கு பெறுபவரே

நான் அன்னம்மாள் செவிலியர் கல்லூரியில் செவிலியர் பயிற்சியில் முதுகலைப் பட்டம் பெறுவதற்கு பயிற்சியின் ஒருபகுதியாக வாய்வழி துண்டுதல் மூலம் குறைமாத குழந்தைகளின் பால் குடிக்கும் செயல்திறனை மேம்படுத்துதல் பற்றிய ஆராய்ச்சி செய்கிறேன். இதற்கு தங்களுடைய அனுமதியையும், ஒத்துழைப்பையும். தயவு செய்து உங்களுடைய பதில்கள் உண்மையாகவும் வெளிப்படையாகவும் இருக்கவேண்டுகிறேன். உங்கள் பதில்கள் அனைத்தும் பாதுகாக்கப்படும் என உறுதி அளிக்கிறேன்.

ஆராய்ச்சியாளரின் கையொப்பம்

நான்இந்த ஆராய்ச்சியில் பங்கு பெற சம்மதிக்கிறேன்.

இடம்:

நாள்:

பங்குபெறுவோரின் கையொப்பம்

ANNEXURE VIII

CERTIFICATE OF ENGLISH EDITING

TO WHOMEVER IT MAY CONCERN

This is to certify that the dissertation, on “A pre-experimental study to assess the effectiveness of oral stimulation on feeding performance among preterm Babies in moses mathias hospital, Nagercoil ” by Ms.Anchu S.S., 2nd year MSc(N) student of Annammal College of Nursing was edited for English language appropriateness by

.....




Signature

SHEEBA JACOB
H.S.S. TEACHER (ENGLISH)
GOVT. HIGHER SECONDARY SCHOOL
PAZHAMTHOTTAM, ERNAKULAM

ANNEXURE IX
CERTIFICATE OF TAMIL EDITING
TO WHOMEVER IT MAY CONCERN

This is to certify that the dissertation, "A Pre- experimental study to assess the effectiveness of oral stimulation on feeding performance among preterm babies in Moses Mathias hospital, Nagercoi" by Anchu. S.S, 2nd year MSc(N) student of Annammal College of Nursing was edited for Tamil language appropriateness by

G.L. Jose Bensigar
17/8/17

Signature

G.L. JOSE BENSIGAR
HEADMASTER
ST. MARY'S HR. SEC. SCHOOL
MELPALAI - 629 152
KANYAKUMARI DISTRICT

ANNEXURE X
TOOL FOR DATA COLLECTION (ENGLISH AND TAMIL)
TOOL I

SAMPLE NO :

MOTHER AND CHILD RELATED VARIABLE PROFORMA

Identification data

Name of the baby:

Age in days :

IP No. :

Address :

Diagnosis :

MOTHER RELATED VARIABLE PROFORMA

Instruction : kindly place a tick mark against the option which you feel as appropriate.

1. Mother's age

- a) <20 years
- b) 20-35 years
- c) >35 years

2. Mother's education

- a. Profession
- b. Graduate or Post graduate
- c. Intermediate or high school
- d. High school
- e. Middle school
- f. Primary school
- g. Illiterate
- h. Others

3. Family income

- a. ≥ 25000
- b. 2.20000-24999
- c. 15000-19999
- d. 10000-14999
- e. 5000-9999
- f. < 5000

4. Place of delivery

- a. Government hospital
- b. Private hospital
- c. Home

5. Mode of delivery

- a. Caesarean
- b. Vaginal delivery

6. Birth order

- a. First
- b. Second and third
- c) Four and above

7. Place of Residence

- a. Urban
- b. Rural

CHILD RELATED VARIABLES

1. Gestational weeks at birth

a. 26-30 Wks

b. 30-36 Wks

c. <26 Wks

2. Birth weight of infant

a. <2 Kg

b. 2-3Kg

c. >3 kg

3. Sex of baby

a. Male

b. Female

4. Low birth weight

a. Yes

b. No

5. Preterm

a. Yes

b. No

TOOL II

MODIFIED EARLY FEEDING SKILL ASSESSMENT SCALE FOR PRETERM BABIES

Description of the Tool

Modified early feeding skill assessment scale for preterm infants consists of 0-33 scores. The total maximum and minimum score were 33 and 0 respectively. Totally 11 components were there. For each component 4 grades were given as 0, 1, 2 & 3.

Oral feeding readiness

- a) Able to hold body in flexed position. Yes / No
 b) Demonstrate energy for feeding. Yes/ No

S.No	Components	Grade			
		0	1	2	3
I	Oral feeding skill				
a.	Ability to remain engaged in feeding 0 = Not engaged 1 = Less engaged 2 = Partially engaged 3 = Completely engaged				
b.	Predominant muscle tone 0 =No tone 1 = Hypotonic 2 = Variable muscle tone 3 = Flexed position				
II	Ability to organize oral motor functioning				
a.	Open mouth promptly when lips are stroked at feeding onsets. 0 =None 1 = Some 2 = Most 3 = All				
b.	Maintain smooth, rhythmic pattern of sucking 0 =Absence of sucking 1 = Sucks in short bursts 2 = Sucks with breaths interspersed 3 = Sucks with long bursts				
III	Ability to co-ordinate swallowing and breathing				
	0 =Poor				

	1 = Average 2 = Good 3 = Very Good				
IV	Ability to maintain physiologic stability				
a.	Baby's colour 0 = Pink 1 = Red and white 2 = Pale colour 3 = Bluish discoloration				
b.	Oxygen saturation 0 = 60-69% 1 = 70-79% 2 = 80-89% 3 = 90-100%				
c.	Heart rate 0 = Less than 80 beats/min 1 = 80-100 beats/min 2 = 100-120 beats/min 3 = 120-140 beats/min				
d.	Respiratory rate 0 = Below 20 breaths/min 1 = 20-30 breaths/min 2 = 30-35 breaths/min 3 = 35-40 breaths/min				
e.	Effort of breathing 0 = Absent 1 = Wheezing 2 = Arrhythmic 3 = Rhythmic				
V	Oral feeding recovery				
	Predominant state 0 = Quiet Alert 1 = Drowsy 2 = Sleep 3 = Fuss/cry				
Total					

Score Interpretation

Total score: 33

S. No	Score interpretation	Feeding performance
1.	0-11	Poor
2.	12-22	Average
3.	22-33	Good

பகுதி I

நோயாளியின் பொது விவரம்

பயிற்சிக்கு தேர்வு செய்த நபரின் எண்ணிக்கை

குறிப்பு: கீழே கொடுக்கப்பட்டள்ள கேள்விகளுக்கு சரியான விடையை தேர்ந்தெடுத்து அதற்குரிய கட்டத்தில் சரி என குறியிடுக

நோயாளியின் பொது விவரம்

குழந்தையின் பெயர் :

வயது :

சேர்க்கை எண் :

முகவரி :

அம்மா சம்மந்தமான காரணங்கள்

1. .அம்மாவின் வயது

அ) 20 வயதிற்கு கீழ்

ஆ) 20-35 வயது

இ) 35 வயதிற்கு மேல்

2. .அம்மாவின் படிப்பு

அ) மேல்நிலைக்கு கீழ்

ஆ) மேல்நிலை

இ) மேல்நிலைக்கு மேல்

3. . குடும்ப ஆண்டு வருமானம்

அ) போதுமானது

ஆ) பற்றாக்குறை

4. . பிரசவம் நடைபெற்ற இடம்

அ) அரசு மருத்துவமனை

ஆ) தனியார் மருத்துவமனை

இ) வீடு

5. . பிரசவம் நடைபெற்ற முறை

அ) அறுவை சிகிச்சை

ஆ) சுக பிரசவம்

7. தங்கும் இடம்

அ) நகரம்

ஆ) கிராமம்

8 பிறப்பு வரிசை

அ) ஒன்று

ஆ) இரண்டு மற்றும் மூன்று

இ) நான்கு அதற்கு மேல

குழந்தை சம்மந்தமான காரணிகள்

1. . கர்ப்பக் காலம்

அ) 26-30 வாரம்

ஆ) 30-36 வாரம்

இ) 26 வாரத்திற்கு கீழ்

2. பிறப்பு எடை

அ) 2 கிலோவுக்கு கீழ்

ஆ) 2-3 கிலோ

இ) 3 கிலோவுக்கு மேல்

3. . குழந்தையின் இனம்

அ) ஆண்

ஆ) பெண்

4.. குறைந்த எடை உடைய குழந்தை

அ) ஆம்

ஆ) இல்லை

5. . குறை பிரசவ குழந்தை

அ) ஆம்

ஆ) இல்லை

ANNEXURE XI
MASTER SHEET FOR MOTHER RELATED VARIABLES

Sl. No	Mother's age	Mother's education	Family monthly income	Place of delivery	Mode of delivery	Birth order	Place of residence
1	b	c	e	a	b	a	a
2	b	c	b	b	b	a	a
3	b	c	c	b	a	b	a
4	b	c	c	a	a	a	a
5	b	b	a	a	a	a	b
6	b	c	c	a	a	b	a
7	c	c	c	a	a	b	a
8	b	c	a	a	a	b	a
9	b	c	d	a	b	a	a
10	b	e	d	a	b	b	a
11	b	a	d	a	a	b	a
12	c	d	d	a	a	a	a
13	c	b	d	b	a	a	b
14	c	d	d	a	b	a	a
15	b	c	d	a	a	a	a
16	b	c	b	a	a	b	a
17	b	c	c	b	a	b	a
18	b	d	d	a	a	b	a
19	c	b	d	a	b	b	a
20	b	e	c	a	a	a	b
21	b	d	e	a	a	a	a
22	b	c	c	a	a	b	a
23	b	c	d	a	b	b	a
24	b	a	c	b	a	a	b
25	b	d	b	b	a	b	a
26	b	d	d	a	b	a	a
27	b	c	c	a	a	b	a
28	b	c	c	a	a	a	a
29	b	d	d	a	a	a	a
30	b	d	d	a	a	a	a

DATA CODE SHEET FOR CHILD

S. No	Gestational weeks at birth	Birth weight of infant	Sex of the baby	Low birth weight	Preterm
1	a	a	a	a	a
2	b	b	a	a	a
3	b	a	b	a	a
4	a	b	a	b	a
5	a	b	a	b	a
6	a	a	b	b	a
7	a	a	a	a	a
8	b	a	b	b	a
9	b	b	b	b	a
10	a	c	a	a	a
11	a	b	a	b	a
12	a	b	a	a	a
13	b	b	b	b	a
14	a	a	b	a	a
15	a	a	a	b	a
16	b	b	b	b	a
17	a	b	a	a	a
18	a	b	a	b	a
19	a	a	a	b	a
20	b	a	a	a	a
21	a	a	a	a	a
22	a	b	a	a	a
23	a	b	a	a	a
24	a	b	b	a	a
25	a	b	a	a	a
26	a	a	a	a	a
27	a	b	b	a	a
28	a	c	b	a	a
29	a	b	b	b	a
30	a	b	b	a	a

ANNEXURE XII

