

**EFFECTIVENESS OF ORAL STIMULTION ON IMPROVING
SUCKING REFLEX AMONG PRE-TERM INFANTS
IN SELECTED HOSPITALS AT
KANYAKUMARI DISTRICT.**



DISSERTATION SUBMITTED TO
THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY
CHENNAI
IN PARTIAL FULFILLMENT FOR THE DEGREE OF
MASTER OF SCIENCE IN NURSING
APRIL 2012

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BY

MISS. D.BABITHA CHRISTOBEL



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SRI. K. RAMACHANDRAN NAIDU COLLEGE OF NURSING

Affiliated To Tamil Nadu Dr. M.G.R. Medical University,

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STIMULATION ON IMPROVING SUCKING REFLEX AMONG
PRE-TERM INFANTS IN SELECTED HOSPITALS AT
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ACKNOWLEDGEMENT

I thank **GOD ALMIGHTY** for this abundant blessings, guidance, wisdom, courage and strength to do this research study.

At the outset, I the researcher of this study express my heartfelt gratitude to **Mr.R.Vivekanandhan**, Chairman of Sri. K. Ramachandran Naidu College of Nursing and **Mrs.G. PremShantha**, Managing Trustee of Sri. K.Ramachandran Naidu College of Nursing for the precious opportunity of being a part of this esteemed institution.

I consider myself fortunate to have been piloted by **Prof.Mrs.N.Saraswathy, M.Sc(N), Ph.D.**, Principal and Head of the Department in Pediatric Nursing, Sri. K.Ramachandran Naidu College of Nursing, and my research guide who offered constant support, encouragement and guidance throughout my research.

My deepest gratitude and immense thanks to my research co-guide **Mrs.V.Kala, M.Sc(N)**, Reader, Department of Pediatric Nursing for her untiring guidance, timely suggestion and elegant direction in every phase of my study.

I express my humble gratitude to **Mrs.A.Meena, M.Sc(N)**, Lecturer, Department of Pediatric Nursing for her guidance and support for the study.

I am extremely grateful to **Mrs.P.Subhalakshmi, M.Sc.,(N)**, Associate professor, Class Co-ordinator and **Mrs.V.Jaya, M.Sc.(N)**, Lecturer, Assistant Class co-ordinator, for their constant source of inspiration and encouragement, which was a key for the successful completion of this study.

My sincere thanks to **Dr. Daniel Kirubahara Lal, B.Sc., M.B.B.S., D.CH.** Consultant Pediatrician, for his expert guidance to conduct the study.

I express my heartfelt thanks to the **Matron and Staff Nurse**, Flemi Grace Hospital and Williams Hospital who extended their cooperation for the study.

I extend my sincere thanks to all the **Medical and Nursing Experts** who have given their enlighten ideas in giving shape to the study in its early stage.

I also thank all the respondents for their active involvement, trust, co-operation & support which they extended in completing the endeavor. Without their support and co-operation this dissertation completion would not been possible.

I extend my sincere thanks to **Mr.M.Brit, M.Ed, M.Phil.**, for his patience and expertise in editing the content in English.

I am thankful to the **Librarians** of Sri. K.Ramachandran Naidu College of Nursing and Tamil Nadu Dr. M.G.R.Medical University for their cooperation in collecting the related literature for the study.

Words are inadequate to express the affection, inspiration and devotion shown by my father **Mr.V.David**, my mother **Mrs.S.Mabel Stella Bai**, Brother **Mr.Martin**, sisters **Mrs.Ajitha**, **Miss.Beautlin**, & friends for their unending words of encouragement and constant support throughout this study.

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ABSTRACT

A study “to assess the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in selected hospitals at Kanyakumari District” was conducted by Miss.D.Babitha Christobel in partial fulfillment of the requirement for the degree of Master of Science in Nursing at the Sri.K.RamaChandran Naidu College of Nursing, Under the Tamil Nadu Dr M.G.R.Medical University.

The objectives of the study were:

1. To assess the pre-test level of sucking reflex among pre-term infants in experimental and control group.
2. To find out the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in experimental and control group.
3. To compare the pre-test and post-test level of sucking reflex among pre-term infants in experimental group.
4. To compare the pre-test and post-test level of sucking reflex among pre-term infants in control group.
5. To associate the post-test level of sucking reflex among pre-term infants in experimental group and their selected demographic variables.

The following hypotheses were set for the study :

H₁ The mean post-test level of sucking reflex among pre-term infants in experimental group was significantly higher than the mean post-test level of sucking reflex in control group.

- H₂ There was a significant difference between mean pre-test and mean post-test level of sucking reflex among pre-term infants in experimental group.
- H₃ There was a significant difference between mean pre-test and mean post-test level of sucking reflex among pre-term infants in control group.
- H₄ There was a significant association between post-test level of sucking reflex among pre-term infants in experimental group and their selected demographic variables.

The study was based on the modified King's Goal attainment theory. The quantitative research approach was used. The study was conducted in Flemi Grace hospital and William's hospital at Kanyakumari district. The design adopted for the study was quasi experimental pre-test and post-test control group design to evaluate the effectiveness of oral stimulation on improving sucking reflex among pre-term infants. Purposive sampling technique was used to select 60 pre-term infants with 28-32 weeks of gestation in Flemi Grace hospital and William's hospital at Kanyakumari district. Among 60 samples, 30 samples for experimental group and 30 samples for control group.

The data collection tool used for this study was Pre-term Infant Breast Feeding Behavior Scale. The content validity of the tool was established by one medical expert and five nursing experts. Pilot study was conducted to find out the feasibility of the study and plan for data analysis.

Data collection was done and the data obtained were analyzed in terms of both descriptive and inferential statistics.

The major findings of the study were:

1. There was a significant difference in post-test level of sucking reflex of pre-term infants among experimental and control group ($t=71.62$) at $p<0.05$ level.
2. There was a significant difference between pre-test and post-test level of sucking reflex among pre-term infants in experimental group ($t=3.72$) at $p<0.05$ level.
3. There was no statistically significant association between post-test level of sucking reflex among pre-term infants in experimental group and their selected demographic variables.

Based on the findings of the study it was recommended that,

1. Study can be replicated on a large sample.
2. A study can be conducted to assess the effectiveness of oral stimulation on improve the weight gain, decreases the frequency of apnea, decreases stress, increases breast feeding scores.
3. A comparative study can be conducted by using different intervention such as oral stimulation and music reinforcement on improving sucking reflex among pre-term infants.
4. A further study can be conducted to assess the knowledge, attitude, and practice of oral stimulation among nursing personnel.
5. Study could be replicated in different setting with large sample to validate the findings.

Recommendations based on the suggestion of the study subjects:

1. Nurses and health care providers play a vital role in motivating the mothers to provide oral stimulation.
2. Pediatric nurses need to take the responsibility to create awareness among the mothers of pre-term infants regarding oral stimulation.
3. Nursing practice in the community should focus on practice of oral stimulation and improve the sucking reflex among pre-term infants.

CONCLUSION

This study was assessed the effectiveness of oral stimulation on improving sucking reflex among pre-term infants. The mean difference between pre-test and post-test level of sucking reflex among pre-term infants in experimental group was 5.33 at $p < 0.05$ level. The pre-term infants who were received oral stimulation had a significant improvement of sucking reflex compared to the pre-term infants that who were not received oral stimulation.

CHAPTER-I

INTRODUCTION

“Every baby is God’s opinion that the world should go on”

-DorisSmith

BACKGROUND OF THE STUDY

Today’s children are citizens of tomorrow. Children are major consumer of health care. As said by Karl Menninger, “What is done to children, they will do the society”. A newborn infant born at term, between 38 to 42 weeks are called healthy newborn infant. Babies born less than 37 weeks of gestational age are called pre-term babies.

In India 10 to 12 percent of neonates are born before 37 completed weeks. These infants are vulnerable to various physiological handicapped conditions with high mortality rate due to their anatomical and functional immaturity.

The pre-term infant’s need special care in a nursery until the organ systems has developed enough to sustain life without medical support. Common physical signs of prematurity include abnormal breathing pattern, problems feeding due to difficulty sucking or co-ordinating swallowing and breathing, less body fat, thin, smooth, shiny skin, head is larger than body, skull bones are soft, sutures are widely separated, nails are soft, clitoris is hypertrophied and prominent (**wongs2009**).

Pre-term infants often demonstrate oro motor disco-ordination and are unable to suck and feed orally. So the pre-term infant may need external support for his jaw.

The causes of babies born with pre-term are history of pre-term delivery, premature rupture of the membrane, poor nutrition, lack of prenatal care, cervical incompetence, bicornuate uterus, very young mother, too frequent childbirth, anaemia.

Delayed or impaired suck development may result from a variety of causes including insult to the developing brain following hemorrhage or hypoxic, ischemic event, neurogenic or craniofacial anomaly, feeding intolerance, surgery, diabetes or interfere with oro rhythmic pattern formation.

Suck appears in utero during the second trimester and is remarkably stable and well-patterned by 34 weeks, in a pre-term infant. Establishing the sucking pattern of pre-term infant has many benefits; including growth, maturation, and gastric motility and also decreasing stress.

On nutritive sucking improves behavioral state control pre and post-feed, decreases the frequency of apnea and cyanosis, and improves breastfeeding scores. In addition, it accelerates swallow frequency and development with differential effects among pre-term infants with broncho pulmonary disease; promotes development of specific sucking skills and enhances oral feeds. **(Hernandez2007)**.

Oral stimulation accelerates the transition from tube to independent oral feeding and its presumed to enhance the maturation of neural systems responsible for oro-rhythmic activity. Accurate assessment of oro motor disco-ordination in the pre-term infant may also serve as a potent clinical marker for brain development and neuro developmental outcomes **(Hing E, 2004)**.

The mammalian suck is one the earliest-appearing somatic motor rhythms. In the fetus and late gestation human infant, suck regulated primarily by a network known as the Suck Central Pattern Generator(SCPG), which consists of bilateral neural networks within the brainstem and medullary reticular formation.

Among many fascinating features the SCPG can be modulated by the sensory motor cortex and cerebellum. This connection underscores the importance of careful posturing and orientation during clinical testing to help the infant regulate his or her behavioral state because the nature of descending and peripheral inputs to the SCPG will be affected by this regulation. The SCPG is highly responsive to oral stimulation (ie) breast, pacifier, or bottle nipple: tactile and thermal touch (olfactory cues) and orocutaneous entrainment. **(Verner 2007)**.

Sucking reflex is present some of the pre-term babies, usually fades by around three months of age. Sucking reflex is triggered by inserting a finger; pacifier or nipple into the newborn's mouth. Sucking reflex is strongest when the palate is stimulated. (of course a baby will suck when she's hungry but she will also suck when she's not **(Morales, 1999)**).

Sucking not only provides a source of nourishment, it also has a calming effect for babies. The urge to suck is stronger in some babies than in others. Many babies, particularly those under three months of age, will want to suck for periods of time in addition to when they are feeding. Sucking reflex is linked with the rooting reflex and breastfeeding and causes the child to instinctively suck at anything that touches the roof of their mouth and suddenly starts to suck.

Multiple central neural systems control nutritive sucking, including brainstem Central Pattern Generator (CPG) circuitry, which is primarily composed of adaptable networks interneurons that activate lower motor neurons to generate task specific motor patterns. Sensory feedback, and other subcortical and cortical control processes. (Joshi2006).

The ability to synchronize and co-ordinate the suck-swallow-respiratory pattern is posited to reflect the state of motor system integrity and positive neurodevelopment. Sensory feedback plays a significant role in cross-system modulation of motor patterns among suck, swallow and respiration, and as the organism matures it includes the mastication network.(Jones 2007).

Rooting helps the baby become ready to suck. When the roof the baby's mouth is touched, the baby will begin to suck.Pre mature babies also have a hand- to-mouth reflex that goes with rooting and sucking and may suck on fingers or hands. Some treatment methods includes cutaneous stimulation,mouth play, or giving the baby a lot of oral experiences (feeding, touching) to increase awareness of what the mouth can do (Treacy, 2007).

Using theoral stimulation technique, the infant's pacifier is transformed into a "pulsating nipple" that resembles the temporal pattern of well-informed non nutritive sucking bursts. Application of the oro motor entrainment therapy is correlated to the rapid organization of suck in pre-term infants who exhibit poor feeding skills, including improved non nutritive sucking but structure lower non nutritive sucking pattern invariance and a shorter transition to oral feeds.

During entrainment the baby synchronizes his or her oromotor activity to an externally delivered, patterned orocutaneous stimulus. This process represents a powerful method of achieving neural synchrony among sensorimotor pathways of the orofacial system to drive suck development. Therefore, it is not surprising that stimulation of the lips and tongue is a common method used to evoke sucking.**Rohana (2007).**

Oral Stimulation accelerates the transition from tube to oral feedings in pre-term infants (**Montreal, 2006**). This stimulation improves the suckingskillmaturation of pre-term infants (**Brenda, 2008**).

A study conducted that the effects of non-nutritive sucking and oral stimulation on breastfeeding rates for pre-term infants. Pre-term infants were randomized into experimental and control group. The experimental group received sensory-motor-oral stimulation. The experimental group showed significantly higher rates of breastfeeding. Non-nutritive sucking, associated with oral stimulation programs, can contribute to the improvement of breastfeeding among pre-term infants(**Pimenta2000**).

A study conducted that the effect of an oral stimulation program on sucking skill maturation of pre-term infants. Thirty -two preterm infants (13males, 19 females) were randomly placed into experimental and control groups. The experimental group received a daily 15-minute oral stimulation program. Results indicate that the experimental group achieved full oral feedings than the control group.(**Fucile2005**).

A study conducted that the effect of oral support on sucking efficiency in pre-term infants. Thirteen premature infants between 29 and 31 weeks' post conceptional

age were selected from a group of infants at Children's Hospital and Medical Center in Seattle, Washington. They were fed twice within a 26 hour period, once with oral support and once without. This study validates the use of oral support as an effective treatment technique to enhance sucking efficiency in pre-term infants **(Einarsson2005)**.

A study conducted that oral stimulation accelerates the transition from tube to oral feedings in pre-term infants. Pre-term infants (n=32) were randomized into an experimental and control group. Infants in the experimental group received an oral stimulation program. Results show that independent oral feeding was attained significantly earlier in the experimental group than the control group.**(Woodwell DA, RechtsteinerEA2006)**.

NEED FOR THE STUDY

Pre-term babies are a global problem particularly in developing countries. In developing countries constitutes 74 percent and developed countries constitute 26 percent babies are pre-term.**(Kull, 2004)**.

Though all countries are affected, the global distribution is uneven; India accounts for 12 lakhs among 50 lakhs pre-term infants are death annually, **(Leung AK&Cho H, 1999)**.

Globally it is estimated that 22 million pre-term infants were born. The highest rates of pre-term birth were in Africa, and North America (11.9% and 10.6% of all birth respectively), and the lowest were in Europe (6.2%).**(Stacy Beck, Daniel Wojdyla 2006)**.

In India pre-term infants more prevalent among rural areas 26% compared to 16.4% in urban areas. **(Joao B. Forter2008)**.

In Tamilnadu 24% babies are pre-term. Approximately 75 percent of peri natal death occurs among pre-term infants. **(Beharman, 2004)**.

Pre-term infants less than 34 weeks of gestation do not have co-ordinate sucking and swallowing movements. Therefore, they are unable to suck at the breast and are liable to get choked. Pre-term infants, especially those less than 30 weeks of gestation may not tolerate enterable feeds initially because of immaturity of gut. Inorder to promote lactation and enable the baby to learn sucking.**(Renato Passini (2007))**.

If the baby is premature, you may notice that he has a combination of sucking issues. The most common are; disorganized or in efficient sucking patterns, weakened lip seal, impaired tongue shaping or movement, weakened stability of the inner cheek, trouble synchronizing the suck and swallow with breathing, poor ability to awaken and to stay at least at the breast, low control of posture, irritability. Babies with respiratory distress syndrome have difficulty synchronizing their sucking, swallowing, and breathing. They cannot withstand long feeds and easily. As a result the baby does not have an adequate intake of nutrition.

Sucking requires appropriate integration and timing of movements of the lips, cheeks, tongue, and palate in order to draw milk into the mouth form a bolus, and propel it to the back of the pharynx to initiate the swallowing reflex. The activity of the oropharyngeal muscles must be coordinated to protect the airway and the nasal passages as the bolus travels to the esophagus **(Knox & Angie, 2005)**.

A patterned oral somato sensory experience through entrainment of neural pathways supporting the orofacial system presents a new neurotherapeutic application of suck in pre-mature infants. A repeated exposure to patterned orocutaneous concurrent with nasogastric tube feed facilitates the development and presumably strengthens neural networks that regulate suck. This intervention is non-invasive, safe and pleasurable for the neonate, as well as quantitative and easily administered in the NICU(**Gheldof N, 2003**).

Oral stimulation therapy provide the infant with additional benefits including improved behavioral state control pre-and post-feed, growth maturation and gastric motility which decreasing stress and enhancing the transition to oral feeds. Orocutaneous stimulation during a 20-minute period, typically paired with gavage feeds upto three times per day for ten days in the NICU until the infant attains 90% to 100% oral feeds for two consecutive days. (**Wing A, 2006**).

Studies suggest that an oral stimulation program (peri and intra oral stimulation with or without nonnutritive sucking) applied to preterm infants for at least ten days in the period of full gavage feeding can facilitate their oral feeding progress. In the studies, the stimulated infants initiated oral feedings, and reached total oral feeding sooner than those in the control group. Moreover, the intervention group demonstrated better sucking and feeding performance during the transition period from tube feeding to full oral feedings(**Tierra Land Mariely 2008**).

A study conducted that the effects of pre-feeding oral stimulation on feeding performance of pre-term infants. Nineteen pre-term infants were included in the study. A five-minute oral stimulation program was applied to infants prior to oral

feeding. Compared to the control condition, infants in the intervention condition achieved a greater intake rate in the initial five minutes of the feeding ($p=0.021$) (Shwu 2004).

A study conducted that the efficacy of sensory-motor-oral stimulation and non-nutritive sucking in pre-term infants. Pre-term infants ($n=98$) were randomized into experimental and control group. Pre-term infants in the experimental group received sensory-motor-oral stimulation. Results show that independent oral feeding was attained significantly earlier in the experimental group than the control group. (Adriana 2006).

Oral stimulation program conducted just before oral feeding is a common intervention used in the NICU to facilitate feeding success of premature infants after the introduction of oral feeding (Rechtsteiner EA, 2006).

During the clinical experience the researcher observed that the pre-term infants have poor suck and oromotor dis-co-ordination. Thus the researcher interested in doing a study regarding oral stimulation on improving sucking reflex which is cheaper, non-invasive, and has no side effects.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in selected hospitals at Kanyakumari district.

OBJECTIVES

1. To assess the pre-test level of sucking reflex among pre-term infants in experimental and control group.

2. To find out the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in experimental and control group.
3. To compare the pre-test and post-test level of sucking reflex among pre-term infants in experimental group.
4. To compare the pre-test and post-test level of sucking reflex among pre-term infants in control group.
5. To associate the post-test level of sucking reflex among pre-term infants in experimental group and their selected demographic variables.

HYPOTHESES

Hypotheses will be tested at $p < 0.05$ level

- H₁ The mean post- test level of sucking reflex among pre-term infants in experimental group will be significantly higher than the mean post- test level of sucking reflex in control group.
- H₂ There will be a significant difference between mean pre-test and mean post-test level of sucking reflex among pre-term infants in experimental group.
- H₃ There will be a significant difference between mean pre- test and mean post - test level of sucking reflex among pre-term infants in control group.
- H₄ There will be a significant association between post -test level of sucking reflex among pre-term infants in experimental group and their selected demographic variables.

OPERATIONAL DEFINITIONS

ASSESS

It is the process of systematically collecting, validating and analyzing the sucking reflex among pre-term infants by Pre-term Infant Breast Feeding Behavior Scale.

EFFECTIVENESS

It refers to the extent to which an oral stimulation improve the sucking reflex of pre-term infants.

ORAL STIMULATION

A fine circular massage on the upper lip and the anterior gum side, for ten minutes and the massage were continued towards the lateral gum side and inside the cheek for five minutes.

SUCKING REFLEX

It refers to the pre-term infant's begins strong movements of circumsolar area in response to oral stimulation.

PRE-TERM INFANTS

It refers to babies born between 28-32weeks of gestation under 1-7 days.

ASSUMPTIONS

1. Pre- term infants have poor suck and oro motor disco-ordination.
2. Oral sensorial and motor stimulation normalize the oral motor reflexes, and increase the milk volumes of pre-term infants.
3. Oral stimulation may improve the sucking reflex of pre-term infants.

DELIMITATIONS

1. The study was delimited to the period of four weeks.
2. The study was delimited to a sample of 60 pre-term babies.

3. The study was delimited to pre-term infants who were admitted in selected hospitals.
4. The study was delimited to pre-term infants with 28-32 weeks of gestation under 1-7 days.

PROJECTED OUTCOME

1. Application of oral stimulation will improve sucking reflex among pre-term infants.
2. The findings of the study will help the nurses to provide oral stimulation to improve sucking reflex among pre-term infants.

CONCEPTUAL FRAMEWORK

Conceptual model presents certain views of phenomena in the world that have profound influences on our perception of that world. A model is a simplification of reality or representation of reality.

The study is mainly focused to find out the effectiveness of oral stimulation to improve the sucking reflex among pre-term infants. In order to improve the sucking reflex investigator administered oral stimulation.

The investigator adopted the King's Goal Attainment theory (1980) as a base for developing the conceptual framework. Imogene King's Goal attainment theory is based on the personal and interpersonal systems, including interaction, perception, communication, transaction, role, stress, growth and development, time and action.

PERCEPTION

Refers to person representation of reality. It is universal yet highly subjective and unique to each person. Hence the investigator perception was pre-term infants have poor sucking reflex.

JUDGEMENT

The investigator judged that oral stimulation improves the sucking reflex among pre-term infants. The investigator to judge the need to improve sucking reflex.

ACTION

The investigator administered oral stimulation to improve the sucking reflex. The pre-term infants mother willingness to accept the oral stimulation to her baby.

REACTION

The investigator and pre-term infants to assess mutual goal setting.

INTERACTION

Refers to verbal and non verbal behavior of individual and the environment or two or more individual with a purpose to achieve goal. It includes the goal directed perception and communication. Here the investigator interacts with the pre-term infants by giving oral stimulation (for 15 minutes thrice daily for five days) to improve the good sucking reflex among pre-term infants.

TRANSACTION

Refers to an observable, purposeful behavior of individual interaction with their environment to achieve the desired goal. At this stage the investigator analyzes sucking reflex among pre-term infants in order to administer oral stimulation. The positive outcome in post test is the good sucking reflex which indicates the effectiveness of oral stimulation.

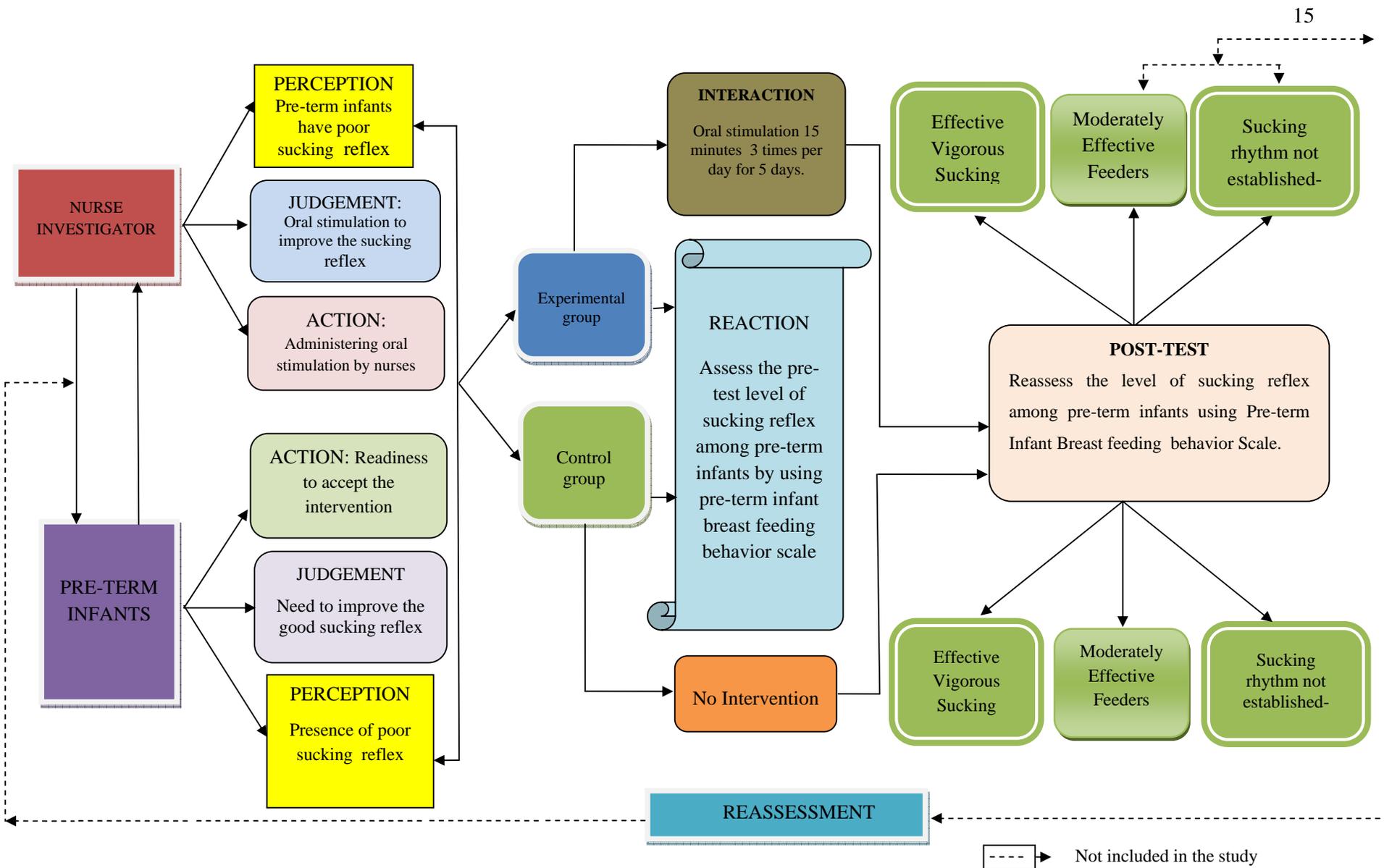


FIG : 1 CONCEPTUAL FRAMEWORK OF MODIFIED KING'S GOAL ATTAINMENT MODEL

CHAPTER-II

REVIEW OF LITERATURE

Review of literature is defined as a critical summary of review on a topic of interest, often prepared to put a research problem in contest(**Polit&Hungler,2006**).

From the collected review of various associated literature and research studies, topics can be divided as follows:

Section A : Studies related to sucking pattern of pre-term infants.

Section B : Studies related to improvement the sucking reflex of pre-term infants after oral stimulation.

Section C : Studies related to other benefits of oral stimulation.

SECTION A: STUDIES RELATED TO SUCKING PATTERN OF PRE-TERM INFANTS

Medoff-Copper(1989) conducted a study that neonatal sucking characteristics. The sucking patterns of 42 pre-term infants whose gestational age at birth was 30 weeks. Sucking characteristics were assessed using breastfeeding scale for a five-minute period. The measured pressures were used to calculate six characteristics of the sucking response: maximum pressure generated, amount of nutrient consumed per suck, number of sucks per episode, the duration or width of maximum pressure of the preterm infant (100.3 \pm 35) was higher, p less than .05, than the maximum pressure of the pre-term infant (8 \pm 33). Sucking profiles of the pre-term infant are significantly different from the full term infant. These sucking profiles can be development as a clinically useful tool for nursing practice.

Pickler (2004) conducted a study that the effects of non-nutritive sucking, breathing, and behavior during breastfeeding of pre-term infants. The convenience sample was composed of ten pre-term infants who were 30 to 32 weeks post conceptual age. Pre-term infants received nutritive sucking before feeding. Sucking was measured using a motor assessment scale. Results show that during breastfeeding well co-ordination of sucking, swallowing, and respiration.

Bromiker R and Arad I (2007) conducted a study that the sucking patterns at introduction of oral feeding\ at pre-term infants. The study was conducted in Hadassah Hebrew University Medical Centre. Infants were assessed at 29-32 weeks post conceptionalage .Seventy infants participated in the study. Sucking parameters were assessed with breastfeeding assessment scale. Oral feedings were initiated earlier. Pre-term infants produced significantly more sucks ($p<0.001$), had a higher suck rate ($p<0.001$). Results shows that different practices in the care of pre-term infants, may play a role in the development of oral feeding.

MoimazZins (2008) conducted a study that association between breast-feeding sucking habits and breast feeding practices. The study was conducted in Paulo State University Child Hospital. A random sample of 100 mothers of pre-term infants with 30-32 weeks of gestation was taken in the study. The prevalence of median duration of sucking habits was assessed. Breast-feeding practice, the exposure factor, was categorized as exclusive breast-feeding, predominant breast-feeding, or weaning. The chi-square test for statistical analyses of data.The study revealed that 75% of infants were being breast-fed. Pacifier use and thumb sucking were common in 55%.

SECTION – B: STUDIES RELATED TO IMPROVEMENT THE SUCKING REFLEX OF PRE-TERM INFANTS AFTER ORAL STIMULATION

Zimmerman P and Barlow (2008) conducted a study that patterned orocutaneous therapy improves sucking and oral feeding in preterm infants. The study was conducted in Kanda's University. Thirty-one pre-term infants (mean gestational age 29.3) who demonstrated minimal non-nutritive suck output and delayed transition to oral feeds. Oral stimulation was provided to 21 infants. Oro cutaneous stimulation that mimics the temporal inorganization of sucking habits. Multilevel regression analyses that treated infants manifest a disproportionate increase in suck pattern stability and percent oral feeding, beyond that attributed to maturational effects alone. The well patterned orocutaneous therapy accelerates non-nutritive suck development and oral feeding success in preterm infants who are at risk for oro motordysfunction.

Dodds (2007) conducted a study that the effect of an oral stimulation program on sucking skill maturation of pre-term infants. The study was conducted in school of physical and occupational therapy and child health center, Canada. Thirty-two preterm infants (13 males, 19 females), appropriate size for gestational age (gestational age at birth 28 weeks), were randomly placed into experimental and control group. The experimental group received daily 15-minute oral stimulation program, consisting of stroking the peri- and intra-oral structures, for ten days before the start of oral feedings. Results indicate that the experimental group achieved full oral feeding seven days sooner than the control group, and demonstrated greater overall

intake(%),rate of milk transfer(ml%min), and amplitude of the expression component of sucking (mmHg).

Bragelien and Markestad(2007) conducted a study that the effect of oral stimulation improves the suck pattern of pre-term infants.Pre-term infants were randomized to receive one daily session of stimulation according to no intervention other than standard nursing care. Of 36 infants, 18 received stimulation and 18 were observed without intervention. Mean gestational age at birth was 31.2weeks (SD 2.4) versus 31.4 (2.3) weeks, $p=0.27$. Result showed that the stimulation programme enhance the feeding performance of pre-term infants.

Einarsson et al., (1994) conducted a study that the effect of oral support on sucking efficiency in preterm infants.Thirteen premature infants between 29 and 31 weeks post conceptional age were selected from a group of infants at Children's Hospital and Medical Center in Seattle, Washington. They were fed twice within a 26 hour period, once with oral support and once without. The order of occurrence of these two conditions was randomly selected without replacement to assure that an equal number of both conditions occurred during the first feed.Only the first two minutes of the feed were used in data analysis. A statistically significant difference($z=2.62,p<.01$,two-tailed) in volume intake occurred between the oral support condition (M=10.9cc) and the no oral support condition(M=4.8CC). This study validates the use of oral support as effective treatment techniques to enhance sucking efficiency in preterm infants.

Boelema et al., (2010) conducted a study that oral stimulation improve the sucking reflex of preterm infants .The study was conducted in Haiaze University. Sucking patterns of 30 preterm infants with 28-32 weeks of gestational age were

calculated. During this time record five to seven feeding episodes that we assessed off-line with the neonatal oral- motor assessment scale (NOMAS). Results show that normal sucking pattern on the second or third day after birth in 27 out of 30 infants. During the following weeks we found abnormal sucking patterns in 23 out of 171 feeding episodes(14%) and normal patterns in 148 episodes (86%). Dysfunctional sucking patterns and problems of coordinating sucking, swallowing, and breathing did not occur. This study demonstrated that oral stimulation improve the sucking reflex of pre-term infants.

Yea-shwu, Wang H, Wendy J&Coster(2007) conducted a study that the effectiveness of cheek and jaw support to improve feeding performance of pre-term infants. The study was conducted in child health centre, Kochi. Twenty pre-term infants served as their own controls. Each infant received either intervention (feeding with oral support) or control (feeding without oral support) for two consecutive days. Infants displayed a greater intake during the intervention feedings, both during the first five minutes ($p=0.046$) and throughout the entire feeding ($p=0.023$). The percentage of leakage during the first 5-minutes feeding was smaller in the intervention condition ($p=0.040$). Findings confirm oral support as a safe and effective strategy to improve the feeding performance of pre-term infants who are poor feeders.

Lau C. Smith (2003) conducted a study that oral stimulation co-ordinate the suck-swallow and respiration in preterm infants. The study was conducted in Baylor College of Medicine. Twelve pre-term (<30 wk of gestation) and eight full-term infants were recruited. Sucking (suction and expression), swallowing, and respiration were recorded simultaneously when the preterm infants began oral feeding. Rate of milk

transfer (ml/min) was used as an index of oral feeding performance. Sucking and swallowing frequencies (#/min), average bolus size (ml), and suction amplitude (mmHg) were measured. Bolus size was correlated with suction amplitude, whereas the frequency of swallowing was sucking frequency. As feeding performance improved, sucking and swallowing frequency, bolus size, and suction amplitude increased.

Almar (2008) conducted a study that oral stimulation increase functional response to pressure and movement and control of movements for the lips, cheeks, jaw, and tongue of pre-term infants. A total of 30 pre-term infants between 29 and 32 weeks were included in the study. The experimental group received premature infant oral motor intervention for 5 consecutive days. The control group did not receive any oral motor intervention. Result shows that oral motor intervention transitioned from their first oral feeding to oral feedings 5 days sooner than controls ($p=0.043$) and were discharged 2.6 days sooner than control group.

Brenda Clain and ZeesKain (2005) conducted a study that assessment of sensorial oral stimulation in infants with suck feeding disabilities. The study was conducted in children's hospital, Brazil. 40 pre-term infants with 28-30 weeks of gestation were randomized in the study. Child lacked five oral reflexes, and two or more abnormal sucking signs, and two or more abnormal oral reflexes. Oral sensorial therapy was performed thrice daily for five days. At the end of therapy, volumes of consumed milk were increased at each feeding (10ml, 0-40 vs. 50ml, 25-60; $p=0.0001$). Sucking rates also increased (22sucks /minute, 10-35 vs. 40.5, 35-48; $p=0.0044$). Oral sensorial stimulation normalizes oral motor reflexes, diminish the clinical abnormal sucking signs and increase milk volumes ingested for nursing.

Gewolb (2001) conducted a study that oro cutaneous stimulation develop sucking rhythm and swallow in preterm infants. The study was conducted in university of maryland school of medicine. The stability of sucking rhythm, as a function of the mean/ standard deviation of the suck interval, as was increasing suck rate ($r=0.379, p<0.03$). In the pre-term infants, sucking pattern correlated with a faster and more stable sucking rhythm and with increasing organization into longer suck and swallow runs. Stable swallow rhythm appears to be established earlier than suck rhythm. Quantitative assessment of the stability of suck and swallow rhythms in preterm infants may allow prediction of subsequent feeding dysfunction as well as more general underlying neurological impairment. Results shows that orocutaneous stimulation develop rhythmic pattern of suck and swallow in pre-term infants.

Saibai(2006) conducted a study that the effect of oral stimulation and oral support on improve the feeding performance of pre- term infants. The study was conducted in child health center, Asia. Pre-term infants (23males,20 females) born between 29 and less than 32 weeks gestational age. Mean birth-weight 1580g were allocated to one of three experimental group. (Stimulation +support(five males,four females); Stimulation(four males,seven females); Stimulation and support (seven males,five females)or a control group. During transition revealed increases in non-nutritive sucking minimizes sucking pressure and in daily bottle feeds ($p<0.001$) for the three experimental groups and in daily milk ingested ($p=0.002$) for the stimulation+support and support groups. We demonstrated that oral support is the result of both the action of chin and cheek support, and the aid to deglutition.

Ivy Rouzan(2008) conducted a study that non-nutritive sucking and oral stimulation on higher rates of breastfeeding for pre-term infants. The study was conducted in child centre in Kolumpu. Ninety-eight pre-tem infants were randomized in this study. Experimental group received sensory-motor-oral stimulation and nutritive sucking, while infants in the control group was not received any sensory-motor oral stimulation. Both were administered from reaching enteral feeding (100 kcal/kg/day) until the beginning of oral feeding. The experimental group showed significantly higher rates of breastfeeding($p < 0.05$). Non-nutritive sucking, associated with oral stimulation programs, can contribute to the improvement of breastfeeding rates among preterm infants.

Brenda Golianu et al., (2007) conducted a study that sucking in preterm infants and the sucking stimulation. Participants of this study were 95 Pre-Term NewBorns(PTNB), 30 Gestational Age (GA), randomly distributed in three groups. Group 1 (G1) control group did not undergo non nutritive sucking stimulation; Group2 (G2) underwent non nutritive sucking stimulation with pacifier; Group 3 (G3), underwent non-nutritive sucking stimulation with a gloved finger. All three groups of pre-term infants underwent weekly non –nutritive sucking stimulations with a gloved finger and, after the beginning of the oral feeding of they underwent non nutritive sucking and nutritive sucking (NS) evaluation. The sucking pattern of pre-term newborns developed due to the corrected gestational age, observing that non nutritive sucking stimulation increased to occurrence probability of labial sealing, rhythm, tongue central groove formation, tongue peristaltic most effective instrument for non-nutritive sucking stimulation.

Amaizu N and Schulman RJ (2008) conducted a study that maturation of oral feeding skills in pre-term infants. The study was conducted in Schneider Children's Hospital. Sixteen pre-term infants (29 to 31 weeks gestation) were recruited. Specific feeding skills were monitored as indirect markers for the maturational process of oral feeding musculature: rate of milk intake (ml/minute; percent milk leakage (lip seal); sucking stage, rate (#/5) and suction/expression ratio; suction amplitude (mm Hg), rate and slope (mm Hg/s); sucking/swallowing ratio; percent occurrence of swallows at specific phases of respiration. Co-efficient Of Variation (COV) was used as indices of functional stability. Over time, feeding efficiency and several skills improved. Components of sucking, swallowing, respiration and their co-ordinate activity matured at different time and rates.

Ashi and Duraj (2008) conducted a study that efficacy of sensory-motor-oral stimulation and non-nutritive sucking in pre-term infants. Pre-term infants born between 29 and 32 weeks of gestational age were included in the study. 98 pre-term infants were randomized into experimental and control group. Pre-term infants in the experimental group received sensory-motor-oral stimulation and pre-term infants in the control group did not receive any oral stimulation. Independent oral feeding was attained significantly earlier in the experimental group than the control group. There was significant difference in length of hospital stay between the two groups $p < 0.01$.

Symington A. Pinelli (2009) conducted a study that oral stimulation modulating effect on the pre-feeding behavioral state of pre-term infants. A crossover design was used in this study. Nineteen pre-term infants who were in the transitional time to full oral feeding served as their own controls. A 10 minutes oral stimulation

program was applied to infants prior to feeding. After receiving oral stimulation a higher percentage of pre-term infants to alert state from sleep or restlessness before feeding ($p=0.016$). In conclusion, Oral stimulation had a modulating effect on the pre feeding behavioural state and beneficial effects on the feeding efficiency of pre-term infants.

SECTION C: STUDIES RELATED TO OTHER BEFEFITS OF ORAL STIMULATION

Fecile S&Gisel E (2002) conducted a study that oral stimulation accelerates the transition from tube to oral feeding in pre-term infants. The study was conducted in MC Gill University, Canada. Pre-term infants ($n=32$) were randomized into an experimental and control group. Infants in the experimental group received an oral stimulation program consisting of stimulation of the oral structure for 15 minutes. Infants in the control group did not receive oral stimulation. Both were administered twice per day for ten consecutive days. Independent oral feeding was attained significantly earlier in the experimental group than the control group. 11 ± 4 days (mean \pm SD) versus 18 ± 7 days, respectively ($P = 0.005$). In conclusion, an early oral stimulation program accelerates the transition to full oral feedings in pre-term infants.

De Marseille (2010) conducted a study that impact of early oral stimulation on reducing cardio respiratory events. The study was conducted in public hospital, Brazil. Pre-term infants born between 26 to 29 weeks of gestational age were randomized into experimental and control group. Infants in the experimental group receive an oral stimulation program consisting of stimulation of the oral structures during ten consecutive days. Infants in the control group receive no stimulation only non-nutritive sucking during feeding. In conclusion, oral stimulation program, before

the introduction of oral feeding enhances the cardio respiratory manifestations (episodes of oxygen desaturations, and /or apnea- bradycardia), and the oral feeding performance in pre-term infants.

Hellen P.Pimenta, Maria E, and Moreira L (2004) conducted a study that the effects of oral stimulation improve the nutritive sucking rates for pre-term infants. The study was conducted in child health center, New York. Pre-term infants were randomized into experimental and control group. Ninety-eight pre-term infants were randomized in the study. The experimental group received sensory-motor- oral stimulation and non-nutritive sucking, while infants in the control group did not receive oral stimulation. Both were administered from reaching enteral feeding (100 kcal/kg/day) until the beginning of oral feeding. Fifty-nine infants (61.5%) were breastfeeding at the time of hospital discharge, 31(36.9%) at 3 months, and only 18(20.5%) at six months of corrected age. At discharge, 46.9% of the control group and 76.5% of the experimental group were breastfeeding. The experimental group showed significantly higher nutritive sucking rates ($p < 0.05$).

Brenda L (2001) conducted a study that the effect of the Premature Infant Oral Motor Intervention (PIOMI) on feeding progression of pre-term infants. The study was conducted in McGill University. A total of 19 infants from one level III NICU born between 26 and 29 weeks. Ten in the experimental group and nine in the control group. A randomized, blinded, clinical trial was conducted to examine outcomes related to the newly developed PIOMI. Beginning at 29 weeks, the experimental group received the PIOMI for seven consecutive days. The control group did not receive any intervention. The PIOMI was well tolerated by 29-weeks as evidenced by physiological and behavioral cues, infants who received the once-daily

PIOMI transitioned from their first oral feeding to oral feedings five days sooner than controls ($p=0.043$) and were discharged 2.6 days sooner than control group. This work supports further study on the use of the PIOMI with pre-term infants to enhance oral feeding skills of pre-term infants.

John N.I. and Dieter Maria(2002) conducted a study that oral stimulation improve the growth and maturation of pre-term infants .The study was conducted in Children's Hospital,New York. Oro motor intervention was provided to 16 pre-term neonates (mean gestational age, 30.1 weeks). Their weight gain, formula intake, kilocalories, stooling and sleep/wake behaviour were compared with a group of 16 control infants (mean gestational age,31.1 weeks; mean birthweight 1421g).The oromotor intervention group averaged 53% greater daily weight gain than the control group. Pre-term infants gained more weight and slept less with just five days of oromotor intervention in contrast to ten days in previous studies. Results support the continued use of oromotor intervention as a cost-effective therapy for pre-term infants.

Negishi (2005) conducted a studythat the effect of oral stimulation enhance the maturation of neural systems of pre-term infants. The study was conducted in Hebrew children's hospital. Twenty pre-term infants (29 weeks gestation) were recruited. Pre-term infants were randomized into experimental and control group. Infants in the experimental group received sensory oral motor intervention and the control group did not receive any oral stimulation. Results shows that oral stimulation enhance the maturation of neural systems of pre-term infants.

Anuj and Simon (2007) conducted a study that oral sensorial and motor stimulation diminish the clinical abnormal sucking signs of pre-term infants. The study was conducted in pediatric centre, Israel. 34 pre-term infants gestational age with 29-31 weeks were randomized into experimental and control group. Pre-term infants in the experimental group received sensory- motor- oral stimulation and the control group was not received any oral stimulation. Abnormal sucking signs decreased in the experimental group than the control group respectively $p < 0.001$. Results shows that oral stimulation decrease the abnormal sucking signs of pre-term infants.

Lynda Law Harrison (2007) conducted a study that oral stimulation reduces stress in pre-term infants in neonatal intensive care unit, Chicago. Nineteen pre-term infants were randomized in the study. A ten minutes oral stimulation was applied to pre-term infants on two consecutive days in the experimental group. Infants in the experimental group was reduced stress level ($p=0.002$). After receiving oral stimulation, a higher percentage of pre-term infants moved to the alert state from stress. Results showed that oral stimulation reduce stress in pre-term infants.

Janet Pinell and Amanda J. Symington (2006) conducted a study that oral stimulation for promoting physiologic stability and nutrition in pre-term infants. The study was conducted in the Children's Hospital, Canada. Pre-term infants ($n=98$) were randomized into an experimental and control group. Pre-term infants in the experimental group received sensory- motor- oral stimulation. Infants in the control group was not received any sensory-motor oral stimulation. Results showed that pre-term infants in the experimental group achieved good physiologic stability ($p=0.0002$) and nutrition ($p=0.016$) than the control group.

Ariane Hohoff and Heike Rabe (2008) conducted a study that Oral –Motor- Intervention for reducing pediatric feeding problem. The study was conducted in Brighton and Sussex University Hospital, UK. A convenience sample of 19 pre-term infants born between 28 and 31 weeks and children with developmental delays often has feeding difficulties from oral-motor problem. The experimental group received a five-minutes oral stimulation intervention for seven consecutive days. Results showed that experimental group has relieved from feeding difficulties ($p=0.043$) than the control group.

Vergara (2008) conducted a study that the effect of oral motor intervention decreases the length of hospital stay in pre-term infants. The study was conducted in Children's Hospital, Hamilton. A randomized, blinded, clinical trial was conducted to examine outcomes related to the newly developed premature infant oral motor intervention. Beginning at 29 weeks, the experimental group the pre-mature infant oral motor intervention for seven consecutive days. The control group did not receive any oral motor intervention. The results shows that the pre-mature infant oral motor intervention was well tolerated by 29-weeks as infants in the experimental group have decreased length of hospital stay ($p=0.021$).

Julie (2008) conducted a study that the effect of oral stimulation improve the gastric motility of pre-term infants. The study was conducted in Pediatric centre, Israle. Pre-term infants ($n=60$) were randomized into experimental and control group. Pre-term infants in the experimental group received sensory motor oral stimulation. Infants in the control group did not receive any oral motor stimulation. Results showed that pre-term infants in the experimental group has improvement in gastric motility ($p=0.001$) than the control group.

CHAPTER-III

RESEARCH METHODOLOGY

Research methodology refers to the techniques used to structure a study and to gather and analyze information in a systematic fashion (Polit & Hungler, 2008).

Research methodology includes the steps, procedures and strategies for gathering and analyzing the data in the research investigation.

This chapter consists of research design, variables in the study, setting, population, criteria for selection of sample, sample, sample size, sampling technique, development and description of the tool, scoring procedure, content validity, reliability, pilot study, data collection procedure and plan for data analysis.

RESEARCH APPROACH

Quantitative research approach was adopted in this study.

RESEARCH DESIGN

Research design adopted for this study was quasi experimental pre-test and post-test control group design. It can be diagrammatically represented as

Group	Pre-test	Intervention	Post-test
Experimental	O ₁	x	O ₂
Control	O ₁	-	O ₂

Fig : 2 Schematic representation of research design

Key:

O ₁	-	Pre-test of experimental group.
O ₂	-	Post-test of experimental group.
X	-	Intervention (Oral stimulation)
-	-	No intervention
O1	-	Pre-test of control group.
O2	-	Post-test of control group.

VARIABLES**INDEPENDENT VARIABLE**

Oral stimulation.

DEPENDENT VARIABLE

Sucking reflex.

SETTING OF THE STUDY

The study was conducted in the Flemi Grace Hospital, Thickenamcode and William Hospital, Marthandam. Flemi Grace Hospital is ISO:9001-2008 certified organization and the William's Hospital is ISO: 9001-2006 certified organization. These hospitals had multi speciality centre with 24 hours emergency care. The census of the pre-term babies in the NICU of Flemi Grace Hospital was 2 to 3 pre-term infants per day, 14 to 21 pre-term infants per week, 56 to 84 pre-term infants per month. The census of the pre-term babies in the NICU of William's hospital was 1 to 2 pre-term infants per day, 7 to 14 pre-term infants per week, 28 to 56 pre-term infants per month. The settings were chosen on the basis of feasibility, availability of adequate sample and the familiarity of the investigator with the settings.

POPULATION

Pre-term infants with the gestational age of 28 to 32 weeks who were admitted in selected hospitals.

SAMPLE

The study samples were pre-term infants 28 to 32 weeks of gestational age admitted in selected hospitals and those who fulfilled the inclusive criteria of the study.

SAMPLE SIZE

Total sample size was sixty pre-term infants. Among thirty of them in experimental group and remaining thirty pre-term infants in control group.

SAMPLING TECHNIQUE

The samples were selected by using of purposive sampling technique. Approximately sixteen pre-term infants per week were selected by the researcher.

CRITERIA FOR SAMPLE SELECTION

INCLUSIVE CRITERIA

1. The pre-term infants in the age group of 1 to 7 days and those admitted in selected hospitals.
2. The pre-term infants who are born with the gestational age of 28 to 32 weeks.
3. Both males and females.
4. The mothers who were willing to participate their pre-term infants in this study.

EXCLUSIVE CRITERIA

1. The pre-term infants who are critically ill.
2. The pre-term infants who are having congenital anomalies.

DEVELOPMENT AND DESCRIPTION OF TOOL

The tool was developed after extensive review of literatures, internet search and questionnaires.

PART-I

Questionnaires to collect demographic data of the samples which consists of five items. They were age, gender, gestational age, birth weight, type of delivery.

PART-II

Pre-term infant breast feeding behavior scale is a standardized tool. It consists of 4 items. It includes readiness to feed, rooting, fixing (latch-on), sucking pattern.

SCORING KEY

PRE-TERM INFANT BREAST FEEDING BEHAVIOR SCALE

- Score of 10-12 --- Effective vigorous sucking
- Score of 7-9 --- Moderately effective feeders
- Score of 0-6 --- Effective sucking rhythm not established

INTERVENTION

The procedure was on the first day the investigator done the pre-test using pre-term infant breast feeding behavior scale and assessed the level of sucking reflex in experimental and control group. Oral Stimulation was explored by fine circular massage on the upper lip and the anterior gum side for ten minutes and the massage was continued towards the lateral gum side and inside the cheeks for five minutes to

the experimental group. No intervention was given to the control group. Sixth day post-test level of sucking reflex assessed using pre-term infant breast feeding behavior scale in experimental and control group.

CONTENT VALIDITY

Validity refers to the degree to which an instrument measures what it is supposed to measure. The content of the tool was established on the basis of opinion of one medical expert and five nursing experts in the field of pediatrics.

RELIABILITY OF THE TOOL

Hence the tool was standardized pre-term infant breast feeding behavior scale and universally acceptable one. There was no modification done. Thus the researcher did not check the reliability.

PILOT STUDY

It is a rehearsal for the main study. The researcher got permission from principal and research ethical committee of Sri. K. Ramachandran Naidu College of Nursing and head of the department of child health nursing. A formal permission was obtained from the director of Neyyoor hospital at Kanyakumari district. The pilot study was conducted in NICU for the period of one week (28.03.2011 to 02.04.2011) from 9am to 6pm.

The concerned ward in charge and duty doctors was also informed and their co-operation was obtained. The sample size was six pre-term infants and they were selected by using purposive sampling techniques. In that three of them were allotted to experimental group and three of them to control group.

Rapport was established with the mothers and a brief introduction about the study was given. Consent was obtained from each mother and reassurance was provided that the collected data would be kept confidential. The data related to demographic variables were collected from the medical records. Oral stimulation was explored by fine circular massage on the upper lip and the anterior gum side for ten minutes and the massage was continued towards the lateral gum side and inside the cheeks for five minutes. The control group was not received any oral stimulation. Assessment of sucking reflex was done by pre-term infant breast feeding behavior scale. The results of the pilot study showed that the experimental group had a favorable sucking reflex as compared to the control group. The study was found to be feasible and hence the same procedure was decided to be followed in the main study. There was no modification made in the tool after pilot study. The samples selected for the pilot study were not included for the main study.

PROCEDURE FOR DATA COLLECTION

The researcher got permission from principal and research ethical committee of Sri. K. Ramachandran Naidu College of Nursing and head of the department of child health nursing. Before the data collection a formal permission was obtained from the directors of selected hospitals. The institutional ethics review board approved the protocol.

Data collection period was between 4.4.2011-30.4.2011 during 8.00a.m to 4.00 p.m. Pre-term infants who required oral stimulation were selected by purposive sampling technique according to the inclusive criteria after obtaining the consent from the mothers of the pre-term infants. The researcher collected the pre-term infants demographic data from the medical records. Oral stimulation was explored by a fine

circular massage on the upper lip and the anterior gum side for ten minutes and the massage was continued towards the lateral gum side and inside the cheeks for five minutes. The control group was not received oral stimulation. After the procedure, the researcher assessed the pre-term infants sucking reflex about two minutes with pre-term infant breast feeding behavior scale. The data were collected approximately three to four study subjects per day.

PLAN FOR DATA ANALYSIS

The data were analyzed by using descriptive and inferential statistics.

DESCRIPTIVE STATISTICS

1. Frequency and percentage distribution were used to analyze the demographic data.
2. Mean and standard deviation were used to assess the effectiveness of oral stimulation on improving sucking reflex among pre-term infants.

INFERENTIAL STATISTICS

1. Unpaired and paired 't' test was used to compare the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in experimental and control group.
2. Chi-square test was used to find out the association of the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in experimental group.

PROTECTION OF HUMAN RIGHTS

The researcher got permission from principal and research ethical committee of Sri. K. Ramachandran Naidu College of Nursing and HOD of pediatric nursing. A formal permission was obtained from the director of selected hospitals for conducting main study. Rapport was established with the mothers and a brief introduction about the study was given. Consent was obtained from each mother and reassurance was provided that the collected data would be kept confidential. Throughout the data collection period the study subjects had no adverse effects because of the intervention done by the researcher.

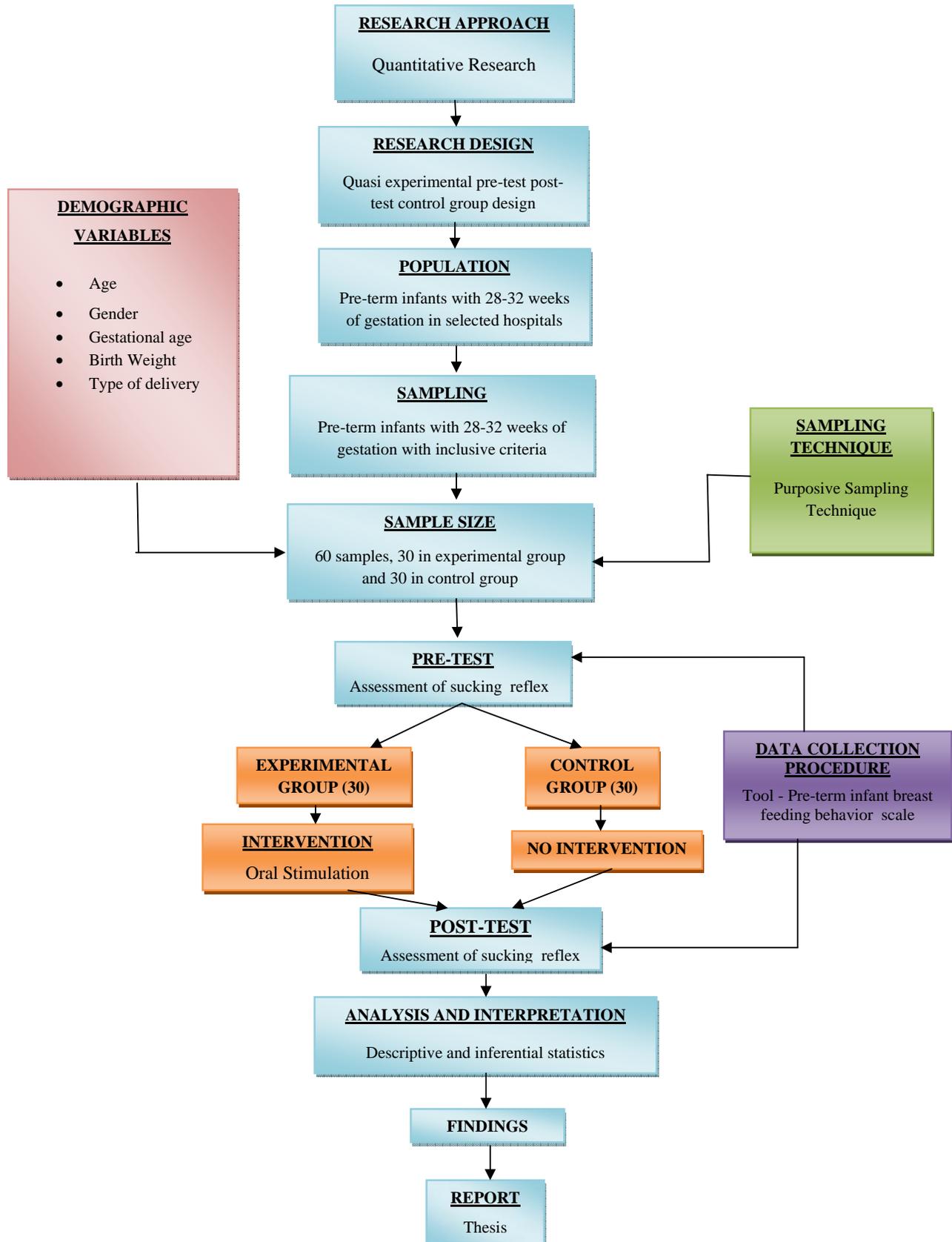


Fig: 3 Schematic representation of research methodology

CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION

Data analysis is the systematic organization and synthesis of research data and the testing of research hypothesis using those data (Polit & Hungler, 2003).

This chapter deals with the analysis and interpretation of collected data from 60 pre-term infants to assess the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in selected hospitals.

ORGANIZATION OF DATA

The data has been tabulated and organized as follows:

Section A : Analysis of demographic variables of pre-term infants among experimental and control group.

- Frequency and percentage distribution of demographic variable of pre-term infants among experimental and control group

Section B : Frequency and percentage distribution of sucking reflex among pre-term infants in experimental and control group.

- Frequency and percentage distribution of sucking reflex among pre-term infants in experimental and control group.

Section C : Comparison of pre-test and post-test level of sucking reflex of pre-term infants between experimental and control group.

- Comparison of pre-test and post-test level of sucking reflex among pre-term infants in experimental group.
- Comparison of pre-test and post-test level of sucking reflex among pre-term infants in control group.
- Comparison of post- test level of sucking reflex of pre-term infants among experimental and control group.

Section D : Association of post-test level of sucking reflex among pre-term infants in experimental group and their demographic variables

- Association of sucking reflex among pre-term infants in experimental group and their demographic variables

SECTION - A

ANALYSIS OF DEMOGRAPHIC VARIABLES AMONG PRE-TERM INFANTS IN EXPERIMENTAL AND CONTROL GROUP

Table- 1 Frequency and percentage distribution of demographic variable of pre-term infants among experimental and control group.

(N=60)

S. No.	Demographic Variables	Experimental Group		Control Group	
		f	%	f	%
1.	Age				
	a)1-4 days	15	50	14	46.66
	b) 5-7 days	15	50	16	53.33
2.	Gender				
	a) Male	12	40	11	36.66
	b)Female	18	60	19	63.33
3.	Gestational age				
	a)28-30 weeks	15	50	16	53.33
	b)31-32 weeks	15	50	14	46.66
4.	Birth Weight				
	a) 1.5-2kg	13	43.33	14	46.66
	b)2.1-2.5 kg	17	56.66	16	53.33
5.	Type of delivery				
	a)Normal	15	50	16	53.33
	b) LSCS	15	50	11	36.66
	c) Forceps	0	-	3	10

In the experimental group, 15(50%) pre-term infants age between 1-4 days and 15(50%) pre-term infants age between 5-7 days. In the control group, 14(46.66%) pre-term infants age between 1-4 days and 16(53.33%) pre-term infants age between 5-7 days.

With regard to gender classification,12(40%) pre-term infants were males and 18(60%) pre-term infants were females in the experimental group. In the control group,11 (36.66%) pre-term infants were males and 19(63.33%) pre-term infants were females.

With regard to birth weight, 13(43.33%) pre-term infants birth weight between 1.5-2kg and 17 (56.66%) pre-term infants birth weight between 2.1-2.5 kg in the experimental group. In the control group, 14 (46.66%) pre-term infants birthweight between 1.5-2 kg and 16(53.33%) pre-term infants birth weight between 2.1-2.5kg.

With regard to gestational age, 15 (50%) pre-term infants were 28-30 weeks of gestation and 15(50%) pre-term infants were 31-32 weeks of gestation in the experimental group. In the control group, 16(53.33%) pre-term infants were 28-30 weeks of gestation and 14 (46.66%) pre-term infants were 31-32 weeks of gestation.

With regard to type of delivery, 15(50%) pre-term infants were born by normal vaginal delivery and 15(50%) pre-term infants were born by lower segmental caesarean section and no pre-term infants were born by forceps delivery in the experimental group. In the control group, 16(53.33%) pre-term infants were born by normal vaginal delivery and 11(36.66%) pre-term infants were born by lower segmental caesarean section and 3(10%) pre-term infants were born by forceps delivery.

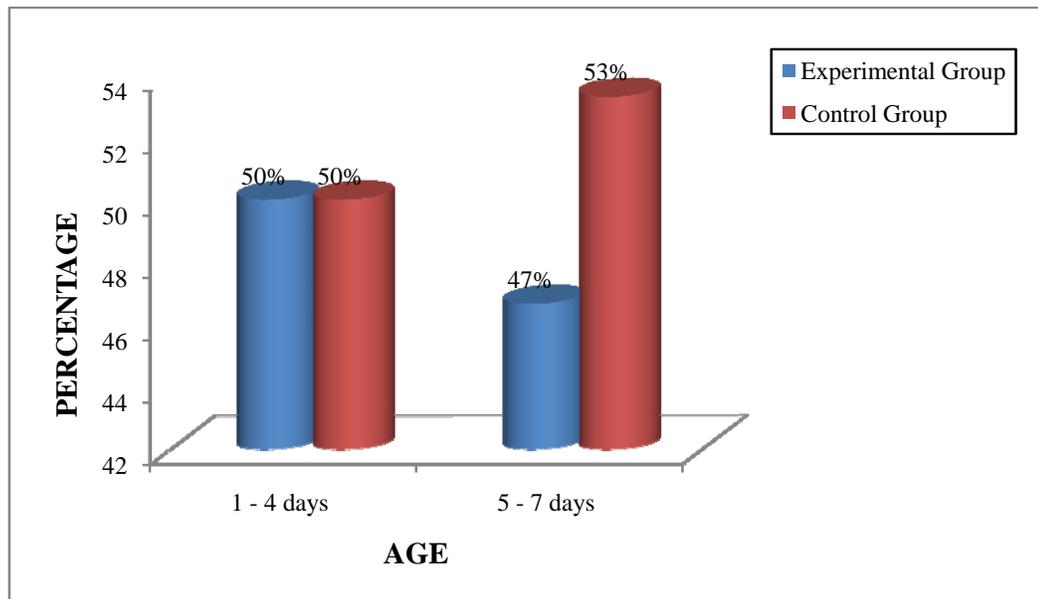


Figure-4: Percentage distribution of demographic variables of age of pre-term infants among experimental and control group.

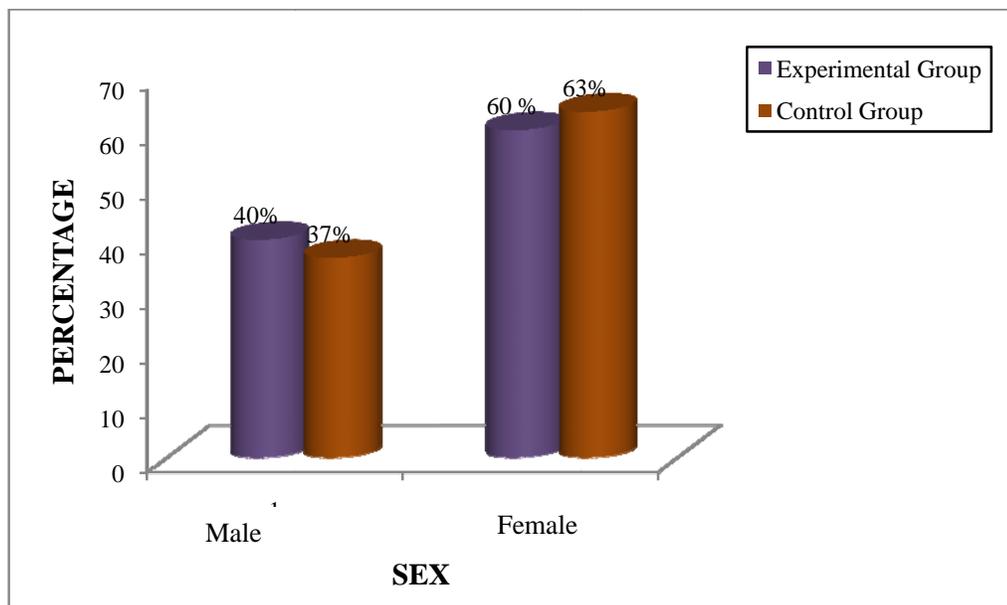


Figure-5: Percentage distribution of demographic variables of sex of pre-term infants among experimental and control group.

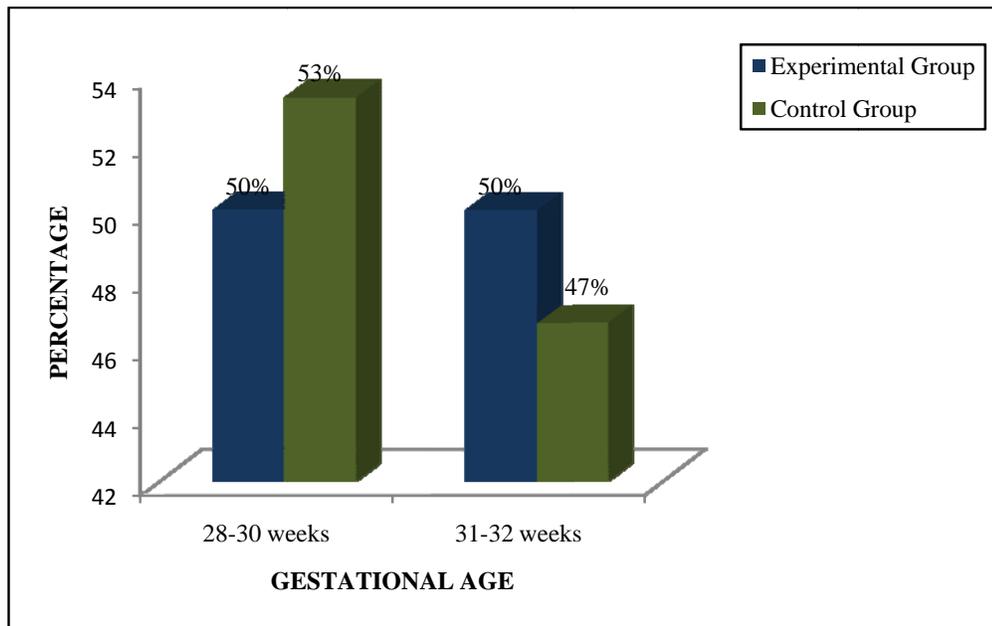


Figure6: Percentage distribution of demographic variables of gestational age of pre-term infants among experimental and control group.

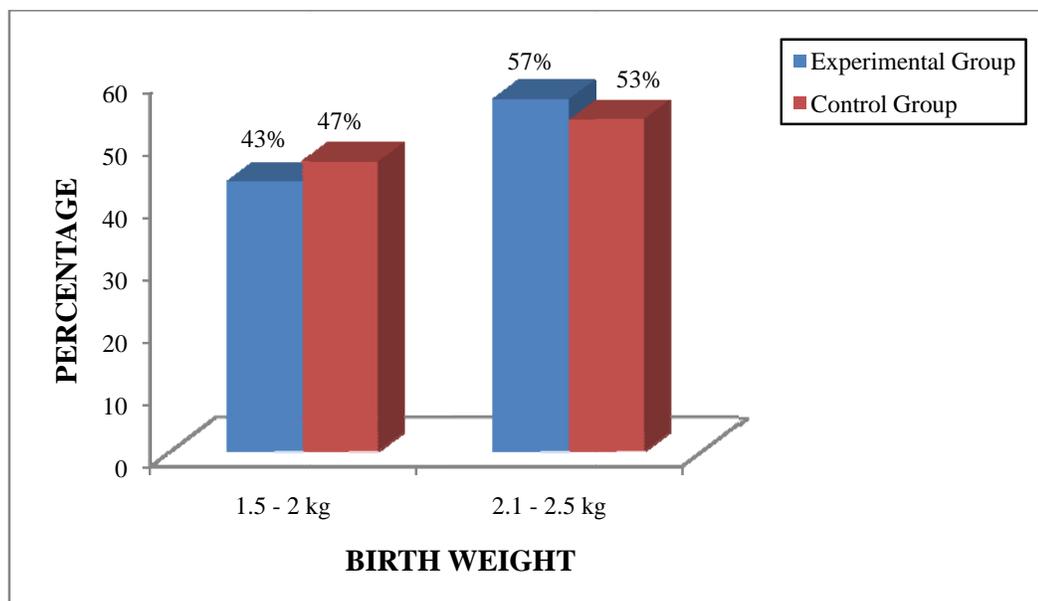


Figure7: Percentage distribution of demographic variables of birth weight of pre-term infants among experimental and control group.

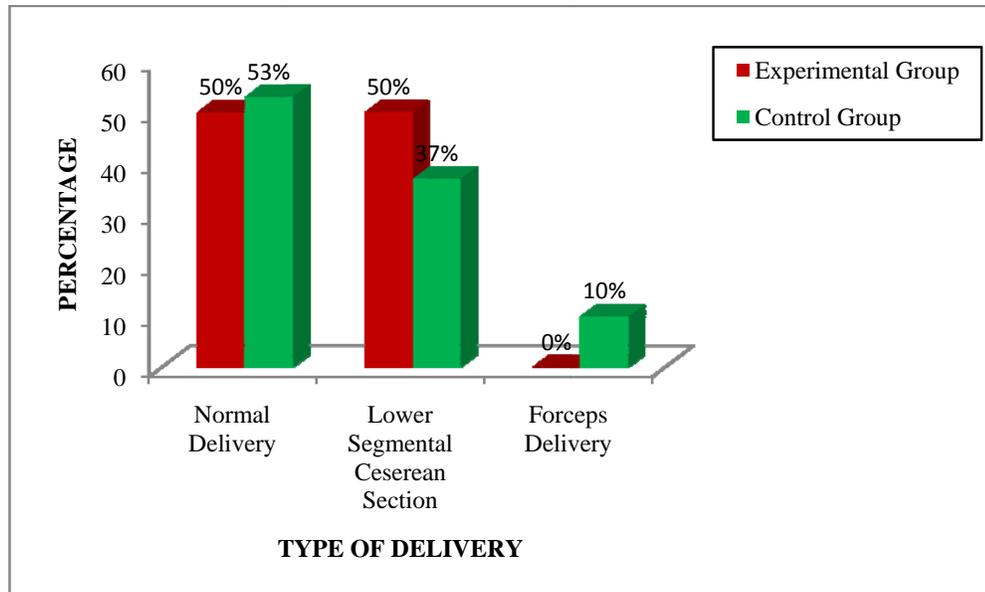


Figure8: Percentage distribution of demographic variables of type of delivery of pre-term infants among experimental and control group.

SECTION-B

**FREQUENCY AND PERCENTAGE DISTRIBUTION OF
SUCKING REFLEX AMONG PRE-TERM INFANTS IN
EXPERIMENTAL AND CONTROL GROUP**

Table 2 : Frequency and percentage distribution of sucking reflex among pre-term infants in experimental and control group.

(N=60)

Sucking Reflex	Experimental Group				Control Group			
	Pre-test		Post-test		Pre-test		Post-test	
	f	%	f	%	f	%	f	%
Effective vigorous sucking	-	-	16	53.33	-	-	-	-
Moderately effective feeders	6	20	14	46.66	2	6.66	3	10
Sucking rhythm not established	24	80	-	-	28	93.33	27	90

Table-2 depicts the frequency and percentage distribution of sucking reflex among pre-term infants in experimental and control group.

With regard to sucking reflex of pre-term infants, in the pre-test level of the experimental group, no pre-term infants had effective vigorous sucking, and 6 (20%) pre-term infants were moderately effective feeders, and 24 (80%) pre-term infants had effective sucking rhythm not established. In the post-test level of the experimental group, 16 (53.33%) pre-term infants had effective vigorous sucking and 14 (46.66%)

pre-term infants were moderately effective feeders and no pre-term infants had effective sucking rhythm not established.

In the pre-test level of control group, no pre-term infants had effective vigorous sucking and 2 (6.66%) pre-term infants were moderately effective feeders and 28(93.33%) pre-term infants had effective sucking rhythm not established. In the post-test level of control group, no pre-term infants had effective vigorous sucking and 3 (10%) pre-term infants were moderately effective feeders and 27 (90%) pre-term infants had effective sucking rhythm not established.

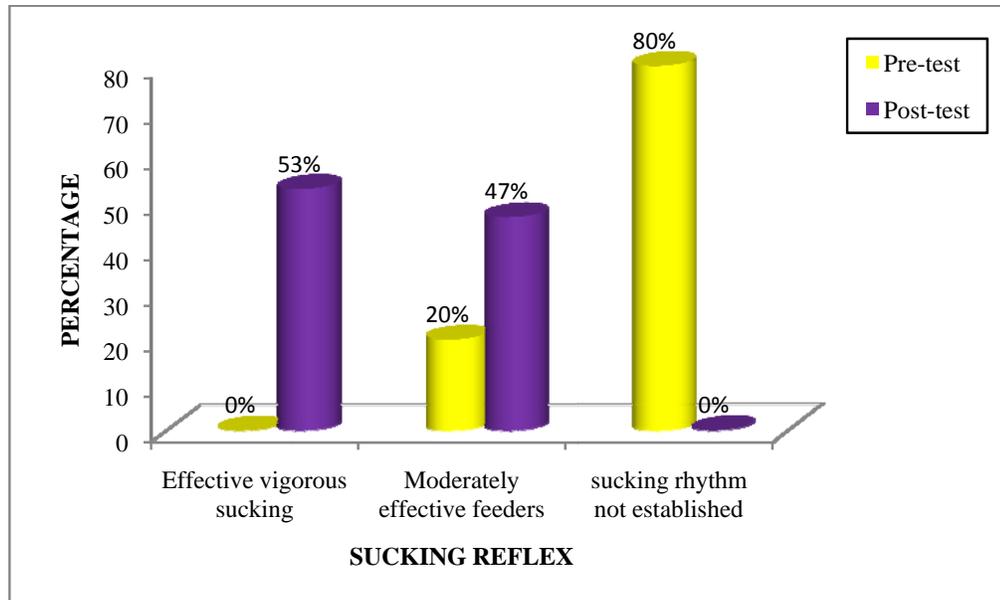


Figure9:Percentage distribution of sucking reflex of pre-term infants among experimental group.

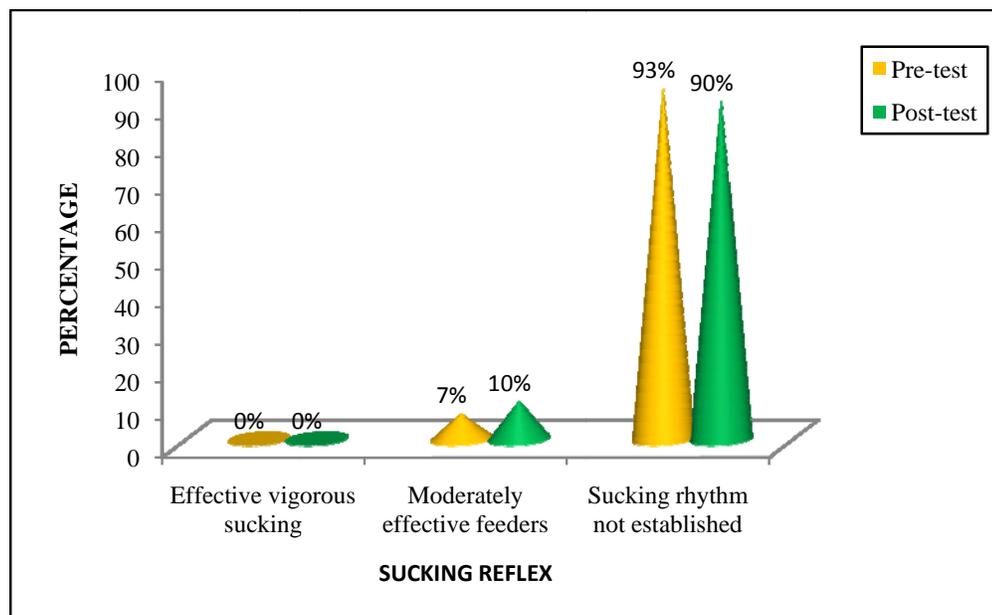


Figure10:Percentage distribution of sucking reflex of pre-term infants among control group.

SECTION-C

COMPARISON OF PRE-TEST AND POST-TEST LEVEL OF SUCKING REFLEX OF PRE-TERM INFANTS AMONG EXPERIMENTAL AND CONTROL GROUP.

Table-3: Comparison of pre-test and post-test level of sucking reflex among pre-term infants in experimental group.

(N=30)

Experimental group	Mean	S.D	M.D	't' value
Pre-test	5.23	0.22	5.33	3.72
Post-test	10.56	0.4		S

S- Significant

Table-3 reveals that the comparison of pre-test and post-test level of sucking reflex among pre-term infants in experimental group.

The pre-test mean value was 5.23 with standard deviation of 0.22. The post-test mean value was 10.56 with standard deviation of 0.4. The mean difference is 5.33. The calculated "t" value was 3.72 indicating that there was significant difference in pre and post-test level of sucking reflex among pre-term infants in experimental group at $p < 0.05$ level.

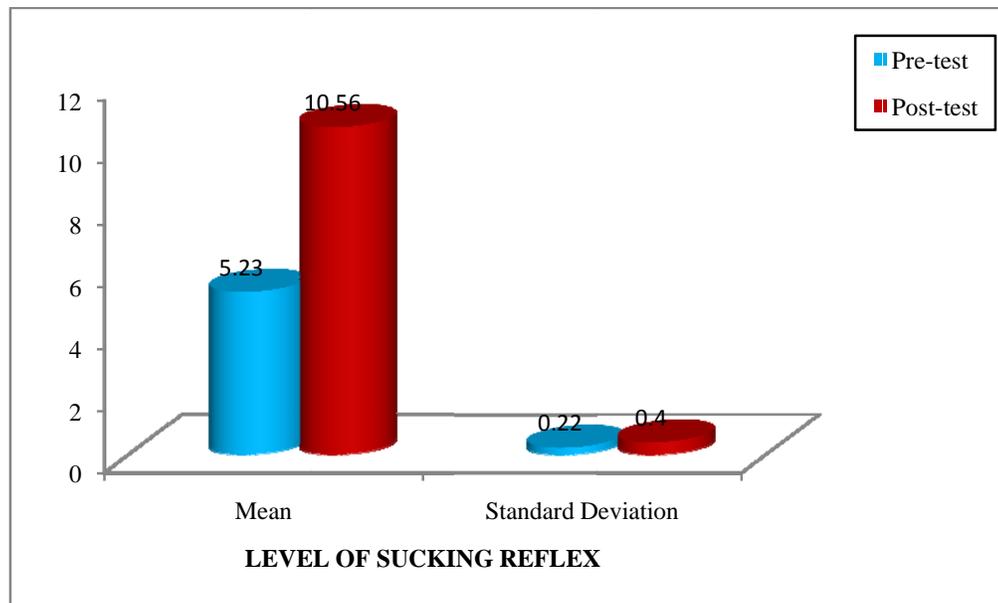


Figure11: Comparison of pre-test and post-test level of sucking reflex among pre-term infants in experimental group

Table-4: Comparison of pre-test and post-test level of sucking reflex among pre-term infants in control group.

(N=30)

Control group	Mean	S.D	M.D	't' value
Pre-test	4.66	0.23	0.17	0.44
Post-test	4.83	0.23		NS

NS- non significant

Table-4 reveals the comparison of pre-test and post-test level of sucking reflex among pre-term infants in control group.

The pre-test mean value was 4.66 with standard deviation of 0.23. The post-test mean value was 4.83 with standard deviation of 0.23. The mean difference is 0.17. The calculated "t" value was 0.44 indicating that there was no significant difference in pre-test and post-test level of sucking reflex among pre-term infants in control group at $p < 0.05$ level.

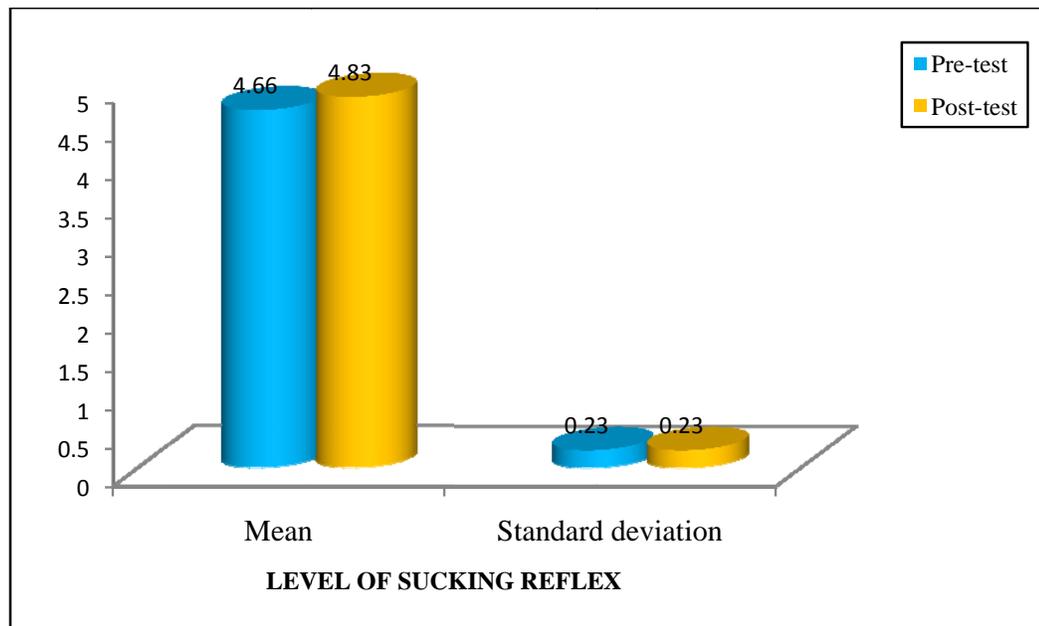


Figure12: Comparison of pre-test and post-test level of sucking reflex among pre-term infants in control group.

Table-5: Comparison of post-test level of sucking reflex of pre-term infants between experimental group and control group.

(N=60)

Groups	Mean	S.D	't' value
Experimental Group	10.56	0.4	71.62
Control Group	4.83	0.23	S

S- Significant

Table 5 reveals that comparison of post-test level of sucking reflex of pre-term infants between experimental group and control group.

With regard to the experimental group the post-test mean value was 10.56 with standard deviation of 0.4. In control group the mean value was 4.83 with standard deviation of 0.23. The calculated 't' value was 71.62 indicating that there was significant difference in post-test level of sucking reflex of pre-term infants among experimental and control group at $p < 0.05$ level.

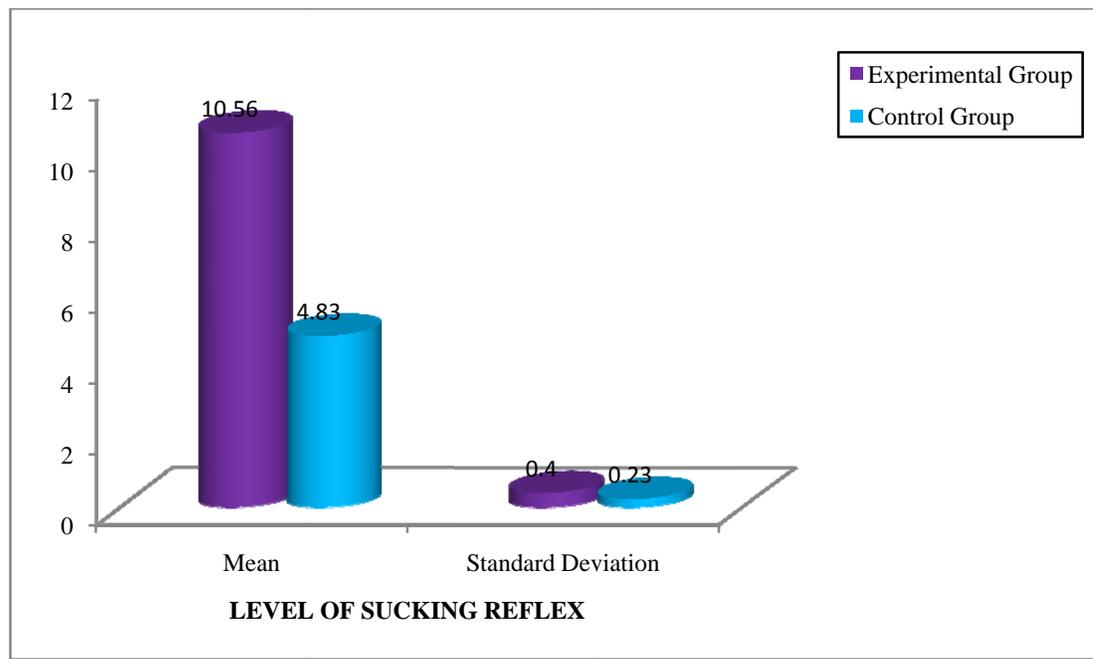


Figure13: Comparison of post-test level of sucking reflex of pre-term infants between experimental and control group.

SECTION – D

**ASSOCIATION OF POST-TEST LEVEL OF SUCKING REFLEX
AMONG PRE-TERM INFANTS IN EXPERIMENTAL GROUP
AND THEIR DEMOGRAPHIC VARIABLES**

Table-6: Association of sucking reflex among pre-term infants in experimental group and their demographic variables

(N=30)

S. No	Demographic Variables	No	Effective vigorous sucking		Moderately effective feeders		Sucking rhythm not established		Chi-square
			f	%	f	%	f	%	
1.	Age								1.132
	1-4 days	15	7	23.33	8	26.66	--	--	df=1
	5-7 days	15	9	30	6	20	--	--	NS
2.	Gender								1.831
	Male	12	10	33.33	2	6.66	--	--	df=1
	Female	18	6	20	12	40	--	--	NS
3.	Gestational Age								
	28-30 weeks	15	10	33.33	5	16.66	--	--	0.163
	31-32 weeks	15	6	20	9	30	--	--	df=2 NS
4.	Birth Weight								0.072
	1.5-2kg	13	6	20	7	23.33	--	--	df=1
	2.1-2.5kg	17	10	33.33	7	23.33	--	--	NS
5	Type of Delivery								
	Normal	15	6	20	9	30	--	--	0.163
	LSCS	15	10	33.33	5	16.66	--	--	df=2
	Forceps	0	-	-	-	-	--	--	NS

NS-Non significant

Chi Square test was carried out to find out association between age, gender, gestational age, birth weight, type of delivery and sucking reflex of experimental group.

In experimental group, the calculated chi –square value was 1.132, 1.831, 0.163, 0.072, 0.163, respectively which showed that there was no association between demographic variables of pre-term infants and sucking reflex at $p < 0.05$ level.

CHAPTER-V

DISCUSSION

This chapter deals with the discussion of the result of the data analysis to evaluate the effectiveness of oral stimulation on improving sucking reflex of pre-term infants. The discussion is based on the objectives of the study and the hypothesis specified in the study.

MAJOR FINDINGS OF THE STUDY

The major findings of the study were :

1. With regards to sex, 60% of the pre-term infants in both experimental and control groups are female.
2. With respect to pre-test level of sucking reflex, no pre-term infants had effective vigorous sucking in the experimental and control group. In the post-test level of the experimental group, 53.33% pre-term infants had effective vigorous sucking in the experimental group and no pre-term infants had effective vigorous sucking in the control group.
3. In experimental group the mean pre-test score was 5.23 and the mean post-test score was 10.56. The mean difference is 5.33. The calculated “t” value was 3.72.
4. In control group the mean pre-test score was 4.66 and the mean post-test score was 4.83. The mean difference is 0.17. The calculated “t” value was 0.44.
5. In experimental group the post-test mean score was 10.56. In control group the post-test mean score was 4.83. The calculated 't' value was 71.62.

6. With regards to association there was no association of post-test level of sucking reflex and their selected demographic variables at $p < 0.05$ level.

The first objective was to assess the pre- test level of sucking reflex among pre-term infants in experimental and control group.

With regard to sucking reflex of pre-term infants, In the pre-test level of the experimental group, no pre-term infants had effective vigorous sucking, and 6 (20%) pre-term infants were moderately effective feeders, and 24 (80%) pre-term infants had effective sucking rhythm not established. In the pre-test level of control group, no pre-term infants had effective vigorous sucking and 2 (6.66%) pre-term infants were moderately effective feeders and 28(93.33%) pre-term infants had effective sucking rhythm not established.

The second objective was to find out the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in experimental and control group.

The study results show that there was a significant improvement in sucking reflex after oral stimulation for pre-term in experimental group.

With regard to sucking reflex of pre-term infants, in the pre-test level of the experimental group, no pre-term infants had effective vigorous sucking, and 6 (20%) pre-term infants were moderately effective feeders, and 24 (80%) pre-term infants had effective sucking rhythm not established. In the post-test level of the experimental group, 16 (53.33%) pre-term infants had effective vigorous sucking and 14 (46.66%) pre-term infants were moderately effective feeders and no pre-term infants had effective sucking rhythm not established.

The pre-test mean value was 5.23 with standard deviation of 0.22. The post-test mean value was 10.56 with standard deviation of 0.4. The mean difference is 5.33. The calculated “t” value was 3.72 indicating that there was significant difference in pre and post-test level of sucking reflex among pre-term infants in experimental group at $p < 0.05$ level.

The hypothesis (H_1) stated that "The mean post-test level of sucking reflex among pre-term infants in experimental group will be significantly higher than the mean post-test level of sucking reflex in control group at $p < 0.05$ level. In this study the mean post-test level was significantly higher in experimental group than the control group. Thus the hypothesis was accepted.

The above result was supported by **Bragelien and Markestad(2007)** conducted a study that the effect of oral stimulation improve the suck pattern of pre-term infants. Pre-term infants were randomized to receive one daily session of stimulation according to no intervention other than standard nursing care. In 36 infants, 18 received stimulation and 18 were observed without intervention. Mean gestational age at birth was 31.2 weeks (SD 2.4) versus 31.4 (2.3) weeks, $p = 0.27$. Result showed that the stimulation program enhance the feeding performance of pre-term infants.

The third objective was to compare the pre-test and post test level of sucking reflex among pre-term infants in experimental group.

The pre-test mean value was 5.23 with standard deviation of 0.22. The post-test mean value was 10.56 with standard deviation of 0.4. The mean difference is 5.33. The calculated “t” value was 3.72 indicating that there was significant difference in pre

and post-test level of sucking reflex among pre-term infants in experimental group at $p < 0.05$ level.

The hypothesis (H_2) "There is a significant difference between mean pre-test and mean post-test level of sucking reflex among pre-term infants in experimental group at $p < 0.05$ level". In this study there was a significant difference between pre-test and post-test level of sucking reflex among pre-term infants in experimental group. Thus the hypothesis was accepted.

The above result was supported by **Vergara&Bigby(1996)** conducted a quasi experimental study that the effect of an oral stimulation program on improve the sucking skill maturation of pre-term infants. Thirty-two pre-term infants,(13 males,19 females) were randomly placed into experimental and control group. The experimental group received a daily 10 minutes oral stimulation program. Results indicate that the experimental group achieved full oral feedings seven days sooner than the control group. The stimulation program enhanced the expression component of sucking, resulting in better oral feeding performance.

The fourth objective was to compare the pre-test and post- test level of sucking reflex among pre-term infants in control group.

The pre-test mean value was 4.66 with standard deviation of 0.23. The post-test mean value was 4.83 with standard deviation of 0.23. The mean difference is 0.17. The calculated "t" value was 0.44 indicating that there was no significant difference in pre-test and post-test level of sucking reflex among pre-term infants in control group at $p < 0.05$ level.

The hypothesis (H₃) "There is a significant difference between mean pre-test and mean post-test level of sucking reflex among pre-term infants in control group at $p < 0.05$ level". In this study there was no significant difference between pre-test and post-test level of sucking reflex among pre-term infants in control group. Thus the hypothesis was rejected.

The fifth objective was to associate the post-test level of sucking reflex among pre-term infants in experimental group and their selected demographic variables.

Chi Square test was carried out to find out association between age, gender, gestational age, birth weight, type of delivery and sucking reflex of experimental group.

In experimental group, the calculated chi-square value was 1.132, 1.831, 0.163, 0.072, 0.163, respectively which showed that there was no association between demographic variables of pre-term infants and sucking reflex at $p < 0.05$ level.

Hence the research hypothesis (H₄) stated that "There is a significant association between the post-test level of sucking reflex among pre-term infants in experimental group and their selected demographic variables".

In this study there was no significant association among the post-test level of sucking reflex of experimental group and their selected demographic variables.

From the above analysis and interpretation, the hypothesis (H₁) "The mean post-test level of sucking reflex among pre-term infants in experimental group will be significantly higher than the mean post-test level of sucking reflex in control group", (H₂) "There will be a significant difference in mean pre-test and mean post-test level

of sucking reflex among pre-term infants in experimental group" was accepted and (H₃) "There will be a significant difference in mean pre-test and mean post-test level of sucking reflex among pre-term infants in control group" and the hypothesis (H₄) "There will be a significant association between the post-test level of sucking reflex among pre-term infants in experimental group and their selected demographic variables" was rejected.

The above acceptance of (H₁) and (H₂) was attributed to effectiveness of oral stimulation on improving sucking reflex among pre-term infants.

CHAPTER-VI

SUMMARY, CONCLUSION, IMPLICATION, LIMITATIONS AND RECOMMENDATIONS

This chapter deals with summary, conclusion, implications, limitations and recommendations which creates a base for evidenced based practice.

SUMMARY

Pre-term babies are a global problem particularly in developed countries. Pre-term infants demonstrate oromotor disco-ordination and are unable to suck and feed orally. Sucking reflex is an automatic response. Establishing the sucking pattern of pre-term infants has many benefits including growth, maturation, and gastric motility and also decreasing stress. Stimulation of the lips and tongue is a common method used to evoke sucking.

Orocutaneous stimulation techniques designed to entrain the suck central pattern generator in pre-term infants. Application of oromotor entrainment therapy is correlated to the rapid organization of suck in pre-term infants. This process represents a powerful method of achieving neural synchrony among sensorimotor pathways of the orofacial system to drive suck development.

Several studies conducted oral stimulation on improve the sucking reflex among pre-term infants.

The aim of the study was to assess the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in experimental and control group.

The methodology of study was quasi experimental pre-test and post-test control group design. The setting was NICU in Flemi Grace Hospital, Thikkanamcodeand Williams Hospital, Marthandamat Kanyakumari District. The sample size was 60 pre-term infants, in which 30 pre-term infants in experimental group and 30 pre-term infants in control group.

The objectives of the study were :

1. To assess the pre-test level of sucking reflex among pre-term infants in experimental and control group.
2. To find out the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in experimental and control group .
3. To compare the pre-test and post-test level of sucking reflex among pre-term infants in experimental group.
4. To compare the pre-test and post-test level of sucking reflex among pre-term infants in control group.
5. To associate the post-test level of sucking reflex among pre-term infants in experimental group and their selected demographic variables.

The hypotheses were set by :

Hypotheses was tested at $p < 0.05$ level

- H₁ The mean post-test level of sucking reflex among pre-term infants in experimental group was significantly higher than the mean post-test level of sucking reflex in control group.

- H₂ There was significant difference between mean pre-test and mean post-test level of sucking reflex among pre-term infants in experimental group.
- H₃ There was significant difference between mean pre- test and mean post- test level of sucking reflex among pre-term infants in control group.
- H₄ There was significant association between post-test level of sucking reflex among pre-term infants in experimental group and their selected demographic variables.

The Assumptions of the study were:

1. Pre-term infants have poor suck and oro-motor disco-ordination.
2. Oral sensorial and motor stimulation normalize the oral motor reflexes, and increase the milk volume of pre-term infants.
3. Oral stimulation may improve the sucking reflex of pre-term infants.

The review of literature related studies which provided strong foundation for the study.

It includes

Section A: Studies related to sucking pattern of pre-term infants.

Section B: Studies related to improvement the sucking reflex of pre-term infants after oral stimulation.

Section C: Studies related to other benefits of oral stimulation.

The conceptual framework of this study was based on King's Goal attainment theory and it provided a complete framework for achieving the central purpose of the study.

The research design adopted in this study was quasi experimental pre-test and post- test control group design.

Researcher selected the pre-term infants, by using purposive sampling technique.

The content validity of the tool was established by one medical expert and five nursing experts in the field of pediatrics.

Pilot study was conducted in Neyyoor hospital and the findings revealed that the tool was feasible, reliable and practicable to proceed with the main study.

The main study was conducted in NICU of Flemi Grace Hospital and William Hospital at Kanyakumari District.

Samples of 60 pre-term infants were selected by purposive sampling technique. The collected data was analyzed and interpreted based on objective using descriptive and inferential statistics.

The findings of the study revealed that there was a significant difference on sucking reflex of pre-term infants among experimental and control group. There was no significant association of sucking reflex among experimental group and their selected demographic variables. (age, gender, gestational age, birth weight, type of delivery).

CONCLUSION

This study was assessed the effectiveness of oral stimulation on improving sucking reflex among pre-term infants. The mean difference between pre-test and post-test level of sucking reflex among pre-term infants in experimental group was 5.33 at $p < 0.05$ level. The pre-term infants who were received oral stimulation had a significant improvement of sucking reflex compared to the pre-term infants that who were not received oral stimulation.

IMPLICATIONS

Investigator has derived from the study that the following implications are of vital concern in the field of nursing practice, nursing education and nursing administration and nursing research.

IMPLICATIONS FOR NURSING PRACTICE

1. Nurses should be equipped with updated knowledge about improvement of sucking reflex among pre-term infants.
2. Pediatric nurses need to take the responsibility create awareness among the mothers of pre-term infants regarding oral stimulation.
3. Nurse should use wide variety of intervention for improve the sucking reflex.
4. Nurses and health care providers play a vital role in normalizing the oral motor reflexes.
5. Nursing practice in the community should focus on improve sucking reflex and diminish abnormal sucking signs.
6. Develop skills in planning nursing care for effective management and improving the sucking reflex using oral stimulation.

IMPLICATIONS FOR NURSING EDUCATION

1. The Nurse educator should emphasize health education on oral stimulation program.
2. Students should be encouraged to identify the abnormal sucking signs and to teach the mothers of pre-term infants.
3. The Nurse educators should arrange for the in-service education programme (seminars, workshops) for student nurses regarding oral stimulation program.
4. The Nurse educator can provide an opportunity for students to actively participate in implementation of oral stimulation.

IMPLICATIONS FOR NURSING ADMINISTRATION

1. Collaborate with the governing bodies as well as the hospital administration to formulate standard protocols and policy to emphasize nursing care.
2. Nursing administration ensures that the implementation of nursing intervention which is research based and clinically effective in promoting the health and to introduce evidence based practice based on the research finding.
3. The Nursing administrators should concentrate on periodical conduction of refresher courses to update the knowledge of nurses and in-service education in oral stimulation program.

IMPLICATIONS FOR NURSING RESEARCH

1. Nurse researcher should disseminate the findings of the studies through conference, seminar and publishing in professional journals.
2. As there is a limited study on this area, nursing researcher should encourage and conduct further researches related to oral stimulation on improving sucking reflex among pre-term infants.
3. The findings of the research study will help in building and strengthening the body of knowledge.
4. Evidenced based nursing practice must takes in order to increase the knowledge about various interventions on improve the sucking reflex among pre-term infants.

LIMITATIONS

During the period of study the limitations faced by the investigator were as follows,

1. The study was limited to the small samples.
2. The investigator had difficulty in collecting study material for review from the Indian context.
3. Generalization could be better if large samples are included.

RECOMMENDATIONS

Based on the findings of the present study the following recommendations are made:

1. Study can be replicated on a large sample.
2. A study can be conducted to assess the effectiveness of oral stimulation on improve the weight gain, decreases the frequency of apnea, decreases stress, increases breast feeding scores.

3. A comparative study can be conducted by using different intervention such as oral stimulation and music reinforcement on improving sucking reflex of pre-term infants.
4. A further study can be conducted to assess the knowledge, attitude, and practice of oral stimulation among nursing personnel.
5. Study could be replicated in different setting with large sample to validate the findings.

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APPENDIX–A

LETTER SEEKING PERMISSION FOR CONDUCTING THE STUDY



SRI K. RAMACHANDRAN NAIDU COLLEGE OF NURSING

Approved by Govt. of Tamilnadu and Indian Nursing Council / T.N.C
Affiliated to the Tamilnadu Dr. M.G.R. Medical University

K. R. Naidu Nagar - 627 753, Paruvakudi Village, Post Bag No 1, Karivalam (via)
Sankarankovil (Tk), Tirunelveli (Dt), Ph. : 04636 - 260950, Fax : 04636 - 260377. E - Mail : srikncon@yahoo.com

31.03.2011

To

Dr. W. JEYASINGH DAVID, M.B.B.S., DCH,
Director,
William Children Hospital,
Marthandam – 629 165,
Kanyakumari District.

Ms. D. Babitha Christobel is a bonafide student of our college studying in M.Sc., (N) Programme. As a partial fulfillment of the university requirement for the award of M.Sc., (N) degree, She needs to conduct research project.

Her chosen research project is as follows “**A study to assess the effectiveness of oral stimulation on improving sucking reflex among pre-term infants admitted in William Children Hospital at Marthandam, April 2011**”.

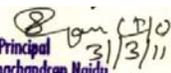
She will abide by the rules and regulations of the hospital and adhere to hospital policies during her period of data collection. Permission may kindly be granted to her for conduction of the study at your hospital.

Further details of the proposal project will be furnished by the student personally, Confidentiality will be ensured in the research project.

Thanking you

Yours faithfully


Dr. W. JEYASINGH DAVID, M.B.B.S., D
WILLIAM CHILDREN HOSPITAL
MARTHANDAM - 629 165
Kanyakumari Dist., Tamil Nadu
Reg. No: 20634


Principal
Sri K. Ramachandran Naidu
College of Nursing
K.R. Naidu Nagar - 627 753, Karivalam (Via)
Sankarankovil (T.K.) Tirunelveli Dt.,



SRI K. RAMACHANDRAN NAIDU COLLEGE OF NURSING

Approved by Govt. of Tamilnadu and Indian Nursing Council / T.N.C.
Affiliated to the Tamilnadu Dr. M.G.R. Medical University

K.R. Naidu Nagar - 627 753, Paruvakudi Village, Post Bag No.1, Karivalam (via)
Sankarankovil (Tk), Tirunelveli (Dt), Ph. : 04636 - 260950, Fax : 04636 - 260377. E - Mail : srikrncon@yahoo.com

31.03.2011

To

The Director,
Flemi Grace Hospital,
Valuthalampallam,
Thickanamcode (Po)
Kanyakumari District.

Ms. D.Babitha Christobel is a bonafide student of our college studying in M.Sc (N) programme. As a partial fulfillment of the university requirement for the award of M.Sc (N) degree, She needs to conduct research project.

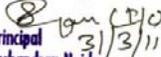
Her chosen research project is as follows **"A study to assess the effectiveness of oral stimulation on improving sucking reflex among pre-term infants admitted in Flemi Grace Hospital at Thickanamcode, April 2011."**

She will abide by the rules and regulations of the hospital and adhere to hospital policies during her period of data collection. Permission may kindly be granted to her for conduction of the study at your hospital.

Further details of the proposal project will be furnished by the student personally, Confidentiality will be ensured in the research project.

Thanking you


Dr. DANIEL KIRUBAHARA LAL
B.Sc., M.B.B.S., DCH.
Reg. No. 51801
FLEMY GRACE HOSPITAL
MUKKADU, CHEMPONVILAI - 629 804
KANYAKUMARI DISTRICT

Yours faithfully

Principal
Sri K. Ramachandran Naidu
College of Nursing
K.R. Naidu Nagar - 627 753, Karivalam (Via)
Sankarankovil (T.K.) Tirunelveli Dt.,
31/3/11

APPENDIX B

**LETTER SEEKING EXPERTS OPINION FOR CONTENT
VALIDITY**

FROM:

Ms .D.BabithaChristobel,
M.Sc Nursing II Year,
Sri.K.Ramachandran Naidu College Of Nursing,
Sankarankoil.

TO:

SUBJECT: seeking validation of tool and content validity

RESPECTED Sir/ Madam,

I am II year student of M.sc nursing studying at Sri K Ramachandran Naidu College of nursing, Tamilnadu Dr.MGR Medical University working on dissertation titled,

“A study to assess the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in selected hospitals”.

The dissertation is to be submitted to the Tamilnadu Dr.MGR Medical University, as a partial fulfillment for the requirement of M.sc nursing degree. Hence I request you to kindly evaluate the tool items and give your valuable opinion and suggestions for improvement of this tool. I would be highly obliged and thankful to hear from you.

Thanking you in anticipation.

Yours Sincerely

Enclosures:

- 1.Statement of the problem(D.BABITHACHRISTOBEL)
- 2.Research tool
- 3.Scoring key
- 4.Self addressed envelop

APPENDIX – C

LIST OF EXPERTS FOR CONTENT VALIDITY

1. Dr.(Mrs).ReenaEvecy, M.sc (N), PhD,
Principal,
St.xavier catholic college of nursing,
Chungankadai,
Kanyakumari District.

2. Mr. NandeeshJ.Geruda,
Principal,
GangothriCollege of nursing,
Rajiv Gandhi Nagar,
Viswaneedam (p.o),
Bangalore.

3. Dr.(Mrs).Judi, M.sc (N), PhD,
Principal,
VelR.SCollege of nursing,
Vellanoor, Avadi,
Chennai.

4. Mrs.F.Malchijah, M.sc (N),
HOD of pediatric nursing,
Christian college of nursing,
Neyoor(p.o),
Kanyakumari District.

5. Mrs.KalaiKuruSelvi, M.sc (N),
HOD of pediatric nursing,
Matha College of nursing,
Mana Madurai,
Sivagangai District.

6. Dr. Daniel KirubaharaLal B.Sc., M.B.B.S., D.CH.,
Consultant Pediatrician,
Flemi Grace Hospital,

Thickanamcode.

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Miss.D.BabithaChristobel** II year. M.Sc. Nursing student of Sri. K. Ramachandran Naidu College of Nursing, Sankarankovil (Tk), Tirunelveli, has done a dissertation study on “to assess the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in selected hospitals. This study was edited for English language appropriateness.

Signature

(Mr.M.Brit, M.A., M.Ed., M.Phil)

APPENDIX – E

INFORMED CONSENT

Good Morning,

I, **Miss.D.BabithaChristobel**, M.sc Nursing II Year student of Sri.KRamachandran Naidu College of Nursing, conducting a study “to assess the effectiveness of oral stimulation on improving sucking reflex among pre-term infants in selected hospitals”, as a partial fulfillment of the requirement for the degree of M.Sc Nursing under The Tamil Nadu Dr. M.G.R Medical University. The pre-term infants will be given oral stimulation thrice daily for 15 minutes and pre-term infants sucking reflex will be assessed using a pre-term infant breast feeding behavior scale.

I assure you that information obtained will be kept confidential. So, I request you to kindly co operate with me and participate in this study by giving your frank and voluntary consent.

Thank you.

Signatureof Pre-term infant’s mother

(Name of the Mother)

APPENDIX – F

COPY OF THE TOOL FOR THE DATA COLLECTION

SECTION-A

Demographic Variables

1. Age of the 1child

- a) 1-4 days
- b) 5-7 days

2.Sex of the child

- a) Male
- b) Female

3. Gestational age

- a) 28-30 weeks
- b) 31-32weeks

4. Birth Weight

- a) 1.5- 2kg
- b) 2.1-2.5 kg

5. Type of delivery

- a) Normal Vaginal Delivery
- b) Lower Segmental Caesarean Section
- c) Forceps delivery

SECTION: B

PRE-TERM INFANT BREAST FEEDING BEHAVIOR SCALE

	3	2	1	0
Readiness to feed	Started to feed readily without effort	Needed mild stimulation to start feeding	Needed vigorous stimulation to feed	Cannot be roused
Rooting	Rooted effectively at once	Needed coaxing to root	Rooted poorly, even with coaxing	Did not try to root
Fixing (latch-on)	Started to feed at once	Took 3-10 minutes to start feeding	took > 10 minutes to start feeding	Did not feed
Sucking pattern	Sucked well on one or both breasts.	Sucked on and off but needed encouragement	Some sucking efforts for short periods.	Did not suck

SCORING KEY

Interpretation

- Score of 10-12 - Effective vigorous sucking
- Score of 7-9 - Moderately effective feeders
- Score of 0-6 - Effective sucking rhythm not established

INTERVENTION

The procedure was on the first day the investigator done the pre-test using pre-term infant breast feeding behavior scale and assessed the level of sucking reflex in experimental and control group. Oral Stimulation was explored by fine circular massage on the upper lip and the anterior gum side for ten minutes and the massage was continued towards the lateral gum side and inside the cheeks for five minutes to the experimental group. No intervention was given to the control group. Sixth day post-test level of sucking reflex assessed using pre-term infant breast feeding behavior scale in experimental and control group.



Oral Stimulation was explored by fine circular massage on the upper lip and the anterior gum side for ten minutes



Massage was continued towards the lateral gum side and inside the cheeks for five minutes.