A STUDY TO ASSESS THE EFFECTIVENESS OF TACTILE/KINESTHETIC STIMULATION VS OLIVE OIL MASSAGE ON SELECTED BIOPHYSIOLOGICAL PARAMETERS AMONG LOW BIRTH WEIGHT BABIES IN SELECTED HOSPITAL, PERAMBALUR DISTRICT

A DISSERTATION SUBMITTED TO THE TAMILNADU
Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI,
IN PARTIAL FULFILLMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

CHILD HEALTH NURSING

BY

301617554

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OCTOBER – 2018

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EXAMINERS:

1. ……..

2. …….

DECLARATION

I, 301617554, hereby declare that this dissertation entitled "**A STUDY TO ASSESS THE EFFECTIVENESS OF TACTILE / KINESTHETIC STIMULATION VS OLIVE OIL MASSAGE ON SELECTED BIOPHYSIOLOGICAL PARAMETERS AMONG LOW BIRTH WEIGHT BABIES IN SELECTED HOSPITAL, PERAMBALUR DISTRICT"** has been prepared by me under the guidance and direct supervision of **Dr. Mrs. R. JAMUNARANI, M.Sc., (N), Ph.D., Professor cum Principal, and Mrs. P. BEULAH, M.Sc., (N)., PGDSH, Professor cum HOD, Department of Child Health Nursing,** Sresakthimayeil Institute of Nursing and Research, (J.K.K. Nattraja Educational Institution), KUMARAPALAYAM, Namakkal District as the requirement for partial fulfillment of **MASTER OF SCIENCE IN NURSING** degree under **THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY, CHENNAI – 32.** This dissertation has not been previously formed and this will not be used in further for award of any other degree/ diploma. This dissertation represents independent work on the part of the candidate.

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ABSTRACT

Background: Oil massage therapy and tactile / kinesthetic, promotes the weight gain, increases appetite, improve in sucking behavior, thermoregulation, positive effects on neurobehavioral pattern, enhance mother to child bonding and induce sleep, which helps the preterm infants and low birth weight babies to improve health status as like term infants and decreases the mortality, morbidity rate. **Statement of the problem:** A study to assess the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in selected hospital, Perambalur District. **Objectives:** (1) Assess the level of biophysiological parameters before and after tactile/kinesthetic stimulation Vs olive oil massage among low birth weight babies in experimental group I and II. (2) Assess the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II. (3) Compare the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II. (4) Find out the association between the selected demographic variable and post test scores of tactile/kinesthetic stimulation and olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II. **Research design:** Factorial Research Design. **Setting:** The present study was conducted in Ramasamy Hospital, Perambalur district. **Participants:** The total 30 babies out of which 15 babies from experimental group I and 15 babies from experimental group II. **Method:** Prior to the collection of the data, permission was obtained from the managing director, Ramasamy hospital, Perambalur District. The investigator collected the data from

the low birth weight newborn at Ramasamy hospital, Perambalur District. Demographic variables were collected. The bio physiological parameters were monitored. Throughout the procedure aseptic measures were taken. Immediately after pre test the participants randomly assigned to 1 of 2 groups. The participants received allocated treatment as flows. It refers to 10 minutes of tactile and kinaesthetic stimulations which includes 3 minutes of tactile stimulation, 4 minutes of kinaesthetic stimulation followed by 3 minutes of tactile stimulation; thrice a day for 5 days was provided. Olive oil which is used to massage the body in order to improve skin texture and increase thermoregulation in a therapeutic maneuver of manipulating the soft tissues firm strokes with palms of the hands from head to foot for 5 minutes, thrice a day for 5 days. The bio physiological parameters were monitored. Throughout the procedure aseptic measures were taken by the researcher.

Result:

In experimental group I

- The chi square value of gestational age was 4.86 ($p<0.05$)
- The chi square value of birth weight was 5.13 ($p<0.05$)
- The chi square value of gender was 1.35 ($p<0.05$)
- The chi square value of APGAR score was 1.64 ($p<0.05$)
- The chi square value of birth order was 0.33 ($p<0.05$)
- The chi square value of history of antenatal complications of 0.94 ($p<0.05$)
- The chi square value of history of neonatal complications 1.31 ($p<0.05$)

It reveals that there were no significant association found between the post test scores of Experimental group I and demographic variables

In experimental group II

- The chi square value of gestational age was 2.73 ($p<0.05$)
- The chi square value of birth weight was 4.58 ($p<0.05$)
- The chi square value of gender was 1.05 ($p<0.05$)
- The chi square value of APGAR score was 1.45 ($p<0.05$)
- The chi square value of birth order was 1.38 ($p<0.05$)
- The chi square value of history of antenatal complications of 1.81 ($p<0.05$)
- The chi square value of history of neonatal complications 0.58 ($p<0.05$)

It reveals that there were no significant association found between the post test scores of Experimental group II and demographic variables.

Conclusion: From the findings of the study it can be concluded that, there were significant effectiveness of tactile/kinesthetic stimulation and olive oil massage on bio physiological parameters among low birth weight newborn. There were no significant difference in the effectiveness of tactile/kinesthetic stimulation and olive oil massage on bio physiological parameters among low birth weight newborn. There were no significant association between post test scores of bio physiological parameters and their selected demographic variables.

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CHAPTER – I

INTRODUCTION

When you touch baby's finger, child give you sweet and nice sense of life and love it's a new life and new love, new hope and hope for life.

Every year around 21 million low birth weight babies are born. They represent 16 percent of all newborns, but large regional variations exist. The percentage of babies born with LBW is 28 percent in South Asia, 14–15 percent in sub-Saharan Africa and North Africa/the Middle East, and 7–9 percent in Latin America and the Caribbean, East Asia, and industrialized countries in which India constitute about 60%-70% of intrauterine growth retardation and remaining 30%-40% preterm infants born before 37 weeks of gestation. As it is generally recognized that shorter the gestational age, smaller the body, higher is the risk of death, morbidity, poor sucking, loss of weight, respiratory distress, hypothermia and disability which have shown that the mortality rate vary 100 folds across the spectrum.

Most preterm LBW babies and some term LBW babies require special care and attention to feeding. This Facts for Feeding focuses on LBW babies who are medically stable but need extra care to ensure successful feeding. The exact definition of 'medically stable' will vary from program to program. At minimum, the baby is able to breathe without assistance. LBW refers to babies who have a birth weight less than 2500 grams or are born preterm. The same approaches can be used for preterm babies who are not LBW and for term babies, whether they are LBW or not, who have feeding difficulties **(UNICEF, 2018)**.

The miracle of life begins at conception and continuous throughout the life span. The manifestation of this miracle is encountered during new born and infancy. Neonates period is the crucial period for the infant who is facing many of the physiological adjustment for extra uterine existence. Normal birth weight for a healthy infant born at term between 38- 42 weeks should have an average birth weight 2.7 to 3.1kg with a mean of 2.9kg. Infants born at term or post term may weigh less than 2500gm is considered to be low birth weight babies.

The low birth weight as one whose birth weight is 2500grm or less irrespective of the gestational age very low birth weight infants weigh 1500 gram or less and extremely low birth weight infants weigh 1000grms or less. The Incidence of low birth weight is generally highest in those countries where the mean birth weight is low and as such varies from about 5% to 40% of live births .In India about two third of the infants weigh less than 2500grams. The incidence of low birth weight baby more than 20 million are born each year weighing less than 2500grams 5.5 pounds according to WHO for 17 percent of all birth in the developing world. A rate more than double the level in industrialized countries 7 percent infants with low birth are at higher risk of dying during the early months and years. Those who survive are liable to have an impaired immune system and may suffer a higher incidence of such chronic illnesses as diabetes and heart disease in later life **(WHO, 2017)**

Touch is a primary form of human communication and stimulation programs of various kinds influence long term developmental outcome of premature babies through improved neurophysiologic maturation and growth **(Liaw, 2015; Lindrea & Stanton, 2015)**. Although the underlying mechanisms of massage therapy effects

on growth and development are yet unknown, several possibilities have been proposed. One possibility is that massage therapy increases vagal activity, which in turn releases food absorption hormones such as gastric and insulin, thus explaining the weight gain in premature infants **(Field, 2015).**

Massage of newborns can be done by using a lubricant to reduce the friction between the surfaces. In order to choose an appropriate lubricant, availability, cost, and safety need to be considered. Among all lubricants, coconut oil and sunflower oil have been most commonly mentioned in literature about infant massage therapy. Massage is thus an intervention that may be useful in premature infants and newborns with low birth weight. Performing massage therapy for infants in NICU is a kind of alternative treatment that has been the subject of long debates. Studies have also indicated that infants who receive massage are usually better adapted to environmental stressors and suffer less negative effects **(Mary, 2014).**

Weight gain is the most consistent parameter associated with massage therapy in neonates. In a study forty preterm infants (mean gestational age 30 weeks; mean birth weight 1.17 kg) were subjected to tactile/ kinaesthetic stimulation of 45 minutes per day (three sessions of 15 minutes each) for 10 days. It was observed that infants who received massage had 21% greater weight gain (34 vs 28 g). The weight gain was observed to be 47% greater in another study on preterm infants (mean gestational age 31 weeks; mean birth weight 1280 g) who received similar session of massage therapy with weight gain of 21.9%; 4.24g/day. Most of the studies have enrolled medically stable infants>30 weeks of gestation. The effect of massage therapy in infants <30 weeks is not known. Infants who receive massage therapy appear more alert and spend less time in sleep **(Scafidi, et al., 2014).**

In a study by **Kelmanson, et al., (2014),** infants less than 36 weeks of gestation (birth weight < 2.5 kg) subjected to massage till 8 months of age, had improved quality of sleep with less awakening during sleep. These infants were more active during the day. It also hastened the onset of sleep. Preterm infants receiving massage therapy scored better on the Brazelton behaviour assessment scale in terms of 'orientation', 'range of state' 'regulation of state' and 'autonomic stability'. Improved scores on mature habituation, orientation, motor, and range of state behaviour were observed in another study. Preterm infants (mean gestational age 30 weeks) who received moderate pressure therapy (5 days) were less fussy, cried less and showed less stress behaviour. Infants who received oil massage were seen to show fewer stress behaviour in the form of grimacing and clenched fist. Massage treatment improves the mother infant interaction and thus enhances their bonding

Various mechanisms are postulated for the weight gain shown by the infants who receive massage therapy. It was initially thought that weight gain from massage therapy was secondary to increase in caloric consumption resulting from altered sleep-wake pattern. However, in a study by **Dieter, et al (2013)** it was observed that although infants who received massage therapy for 5 days spent less time sleeping, the caloric consumption was same and did not contribute to the observed weight gain. The vagal activity was interpreted from ECG as a measure of heart rate variability. It was also seen that there was a significant increase in gastric motility in post massage period. It was postulated that massage causes increase in vagal activity, hence improved gastric motility; this leads to better absorption of nutrients resulting in better weight gain.

Field, et.al, (2012) documented that massage with oil makes the baby more alert, and shows fewer stress behaviour as compared to those massaged without oil. In a well designed study, three groups via coconut oil, mineral oil and placebo were compared in infants 1.5-2 kg who received massage therapy 4 times a day for duration of first month. Infants who received coconut oil massage showed a better weight gain velocity as compared to mineral oil. In another study, infants massaged with sesame oil showed greater improvement in anthropometric parameters as compared to mustard and mineral oil.

Sankaranarayanan, et.al, (2012) found that what practitioners or mothers use during massage is also an important factor. The authors compared the effect of massage with mineral oil and coconut oil on the weight gain of pre-term infants. The massage was administered since the second day of life during the first month, 4 times per day. The study showed that babies in the group where coconut oil was used showed significantly greater weight gain velocity as compared to the group where mineral oil was used and the placebo group.

Infant massage was introduced formally into the states in 2011, when Vimala Schneider in an orphanage in northern India, developed attiring program for instructions, at the request of child birth educators. An early research study by Rice, 2011, had showed that premature babies who were massaged suggested have weight gain and neurological development over those who were not massaged. From Mc clues training in India her knowledge of Swedish massage and reflexology, along with her knowledge of yoga posters

NEED FOR THE STUDY

About 1.2 million neonates die annually in India alone, amounting to almost one-fourth of all global newborn deaths. Two-third of infant deaths in India occurring the first month of life, and three-fourth of newborn deaths occur in first week and 90 percent of all neonatal deaths occur by the fifteenth day of life. Most (70%) of newborn in India die due to low birth weight, infections and complications of pregnancy **(Field, 2016)**.

Quick weight gain is a critical component of any pre-term infant's development. Smaller body mass in combination with early exposure to the out of womb environment is one of the main contributing factors to weaker body defense as well as delays in the emotional and mental development. There is a correlation between the rise in ADD and autism among children associated with an increased number of premature deliveries. Thus, quick weight gain becomes a great priority **(Lee HK, 2016)**.

Preterm delivery (<37 weeks of gestation) complicates almost 10% of births but contributes disproportionately to at least two-thirds of the infant deaths and to a significant amount of neonatal and long-term morbidity. Growth status and velocity are important markers of the health and wellbeing of the preterm newborns. It is recommended that composition of weight gain in the preterm infant approximates that of the fetus at the same post conceptional age. Perinatal hypoxia and poor sucking ability places the preterm infant at risk for malnutrition and weight loss. Topical oil application is suggested to have a positive effect on growth. Massage with oil enhances the positive effects of massage on newborns. The practice of oil

massage has gained favour in neonatal intensive care units in the developed countries as well. Coconut oil is composed entirely of medium chain acids (MCFAs) which provides a source of highly efficient cellular food. When it is applied topically, the cells absorb the MCFAs and convert them into energy. Because MCFAs are used to produce energy rather than packed away into fat cells, coconut oil can be in weight gain. Topically applied coconut oil can be absorbed in neonates and is probably available for nutritional purposes and enhanced weight gain velocity in the preterm babies. Topical oil massage is traditionally practiced in many countries **(Shay Beider, 2015)**.

Ramasundari et al. (2016) assessed the effects of massage on weight gain with 40 premature infants for 10 days. Experimental infants averaged 8g per day more weight gain than the control group infants, even though the groups did not differ on average formula intake per day. Results of replication studies have consistently shown a greater average daily weight gain. In other studies, increased motor activity and alertness, and decreased behavioral distress in premature infants have reported that infants who demonstrate increased alertness in response to touch are more likely to do well while unresponsive infants are likely to do less well.

Klemanson, et.al., (2016) followed 50 pre-mature infants for 8 months who received either regular massages by practitioners (intervention group of 25 infants) or only skin to skin contact (control group of 25 infant). The findings suggest that premature infants who received massage intervention were less likely to snore during sleep, required less feeding on waking-up at night, and were more alert during the day.

Hernandez-Reif, et.al., (2015) examined the level of cortisol in the saliva of pre-term infants and showed that 5-days of massage therapy greatly decreased the cortisol level. Mendes et al. (2008) made a similar conclusion in regard to decreased stress and proper maturation of 52 infants in the intervention group who received regular massage therapy compared to 52 infants in the control group.

A pre experimental study was conducted in Maternity ward, to evaluate the effectiveness of massage therapy on health promotion of newborns. The convenience sampling technique was used. Pre and post assessment was done by using Brazelton's Neonatal assessment scale. The subjects were given massage with coconut oil all over the body except face for 20 minutes per day for five days. The result of the study revealed that health promotion was achieved by applying massage therapy on and the crying spells reduced, feeding frequency increased and sleeping time increased **(Alagurusamy, 2015)**.

A study was conducted to assess the effects of moderate and light pressure massage on the growth and development of young infants. A recent study showed that persons who were given moderate pressure massage when compared with infants who received light massage or vibratory stimulation decrease in heart rate, EEG changes associated with a relaxation response and decrease in stress. Mothers were instructed to massage their newborn infants once per day using either light or moderate pressure. The infants' growth (i.e., weight, length, and head circumference), sleep behavior and performance on the Braselton scale were assessed soon after birth and at one month of age. As compared to infants who received a light pressure massage, infants in the moderate pressure group gained more weight, were of greater length, performed better on the orientation scale of the

Braselton and exhibited less agitated behavior during sleep (**Health and medicine encyclopedia, 2014**).

A study was conducted to the assess effect of massage with coconut oil versus mineral oil and placebo (powder) on growth velocity and neuro-behavior in well term and preterm babies in the premature unit and the postnatal wards of a major teaching hospital in a metropolitan city, Mumbai was evaluated intramural preterm appropriate for gestational age babies weighing between 1500 to 2000 grams and term births weighing more than 2500 grams fulfilling the inclusion criteria constituted the two gestation age categories studied. Babies in each group were randomized to receive massage with either coconut oil, mineral oil or with placebo. Oil massage was given by a trained person from day 2 of life till discharge, and thereafter by the mother until 31 days of age, four times a day. Babies were followed up daily till discharge and every week after discharge for anthropometry. Neurobehavioral outcome was assessed by the Brazelton Score at baseline, day 7 and on day 31. Results showed that Coconut oil massage resulted in significantly greater weight gain velocity as compared to mineral oil and placebo in the preterm babies group and in the term baby group, as compared to the placebo. Preterm infants receiving coconut oil massage also showed a greater length gain velocity compared to placebo group. No statistically significant difference was observed in the neurobehavioral assessment between all three subgroups in term babies as well as in preterm babies (**Mary Alice, 2014**).

From above it is observed that oil massage therapy and tactile / kinesthetic, promotes the weight gain, increases appetite, improve in sucking behavior**,**

thermoregulation, positive effects on neurobehavioral pattern, enhance mother to child bonding and induce sleep the infants, which helps the preterm infants and low birth weight babies to improve health status as like term infants and decreases the mortality, morbidity rate. There are studies proved that the stay hospital significantly reduced by massage therapy. Even though oil massage is traditionally practiced in India, it is not routinely practiced in the hospital setting, if practiced in hospital setting it will play an important role in reduces the infant morbidity and mortality rate and helps to maintain the normal growth pattern .Thus the investigator has taken an effort to promote the weight gain of preterm infants by oil massage in the clinical setting.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in selected hospital, Perambalur District.

OBJECTIVES

1. Assess the level of biophysiological parameters before and after tactile/kinesthetic stimulation Vs olive oil massage among low birth weight babies in experimental group I and II.

2. Assess the effectiveness of tactile / kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

3. Compare the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

4. Find out the association between the selected demographic variable and post test scores of tactile/kinesthetic stimulation and olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

HYPOTHESIS

H_1 : There is significant level of biophysiological parameters before and after tactile/kinesthetic stimulation Vs olive oil massage among low birth weight babies in experimental group I and II.

H_2 : There is significant effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

H_3 : There is significant difference in the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

H_4 : There is significant association between the selected demographic variable and post test scores of tactile/kinesthetic stimulation and olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

OPERATIONAL DEFINITIONS

Effectiveness

It refers to the significant difference between the pretest and post scores of bio physiological parameters among low birth weight babies

Tactile/kinesthetic stimulation

10 minutes of tactile and kinaesthetic stimulations which includes 3 minutes of tactile stimulation, 4 minutes of kinaesthetic stimulation followed by 3 minutes of tactile stimulation, thrice a day for 5 days was provided.

Olive oil massage

It refers to vegetable oil which is used to massage the body in order to improve skin texture and increase thermoregulation in a therapeutic maneuver of manipulating the soft tissues firm strokes with palms of the hands from head to foot for 5 minutes, thrice a day for 5 days.

Biophysiological parameters

The physiological parameters were observed and monitored in observational chart. The in vivo measures were used to monitor the heart rate (per min), respiratory rate (per min), temperature (ºC), oxygen saturation (%), and average weight gain/day. The in vitro measures were used to monitor the hematocrit, Haemoglobin at the early morning of first day before starting pre feeding sensory motor skills, after completion of 5 days and 10 days of treatment.

DELIMITATIONS

The study is delimited to

1. Assess the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage
2. Assess the biophysiological parameters
3. Low birth weight babies
4. Selected Hospital, Perambalur.

CONCEPTUAL FRAME WORK

Polit and Hungler (2014) states that conceptual frame work in inter related concepts on abstractions that are assembled together in some National Scheme by their virtue of their relevance to common them. Frame work may serve as a spring board for scientific advancement.

A conceptual frame work is made up of concepts, which are mental images of a phenomenon. Those concepts are linked together to express the relationship between them. It guides the investigator to know what data need to be collected and gives direction to the entire research process.

The investigator developed a conceptual model based on the ANA model (2012) for nursing process.

Assessment

The nurse collects data on patients health status. This information is used for problem identification; Assessment is done based on subjective and objective data.

In this study assessment was done by observing weight before administering olive oil massage and collecting background data of neonates and mothers of neonates.

Planning in this step of the process care plan is formulated it is individualized, based on the assessment and nursing diagnosis. The care plan contains client goal with expected out come and appropriate intervention. Expected outcome are the criteria used to evaluate the effectiveness of care.

The investigator planned to give olive oil massage for low birth weight neonates (weighing more than 1kg 500grams to 2.499 grams) for 3 days after birth. 5 ml olive oil / kg of body weight was used for 15 minutes, morning and evening for 10 days.

Implementation

During this step individualized nursing care is given to client according to the plan. Intervention are continually modified as needed or seemed necessary by an ongoing nursing assessment of the client response.

In this study implementation refers to the administration of olive oil massage for 15 minutes 5 ml /kg of body weight daily morning and evening for 10 days, following the steps in olive oil massage procedure

Evaluation

The nurse determines the client's progress towards meeting expected out come and achieving goals and the success of the nursing intervention. This step provides assistance for the revision of the nursing care plan as and when needed to resolve client's problem.

In this study evaluation was done by recording weight by a standardized electronic weighing scale daily morning before the procedure by the ward sister to avoid bias from the researcher. The average weight neonates were considered to be the post test weight among neonates.

The study aimed to test the effectiveness of olive oil massage on weight gain among low birth weight neonates.

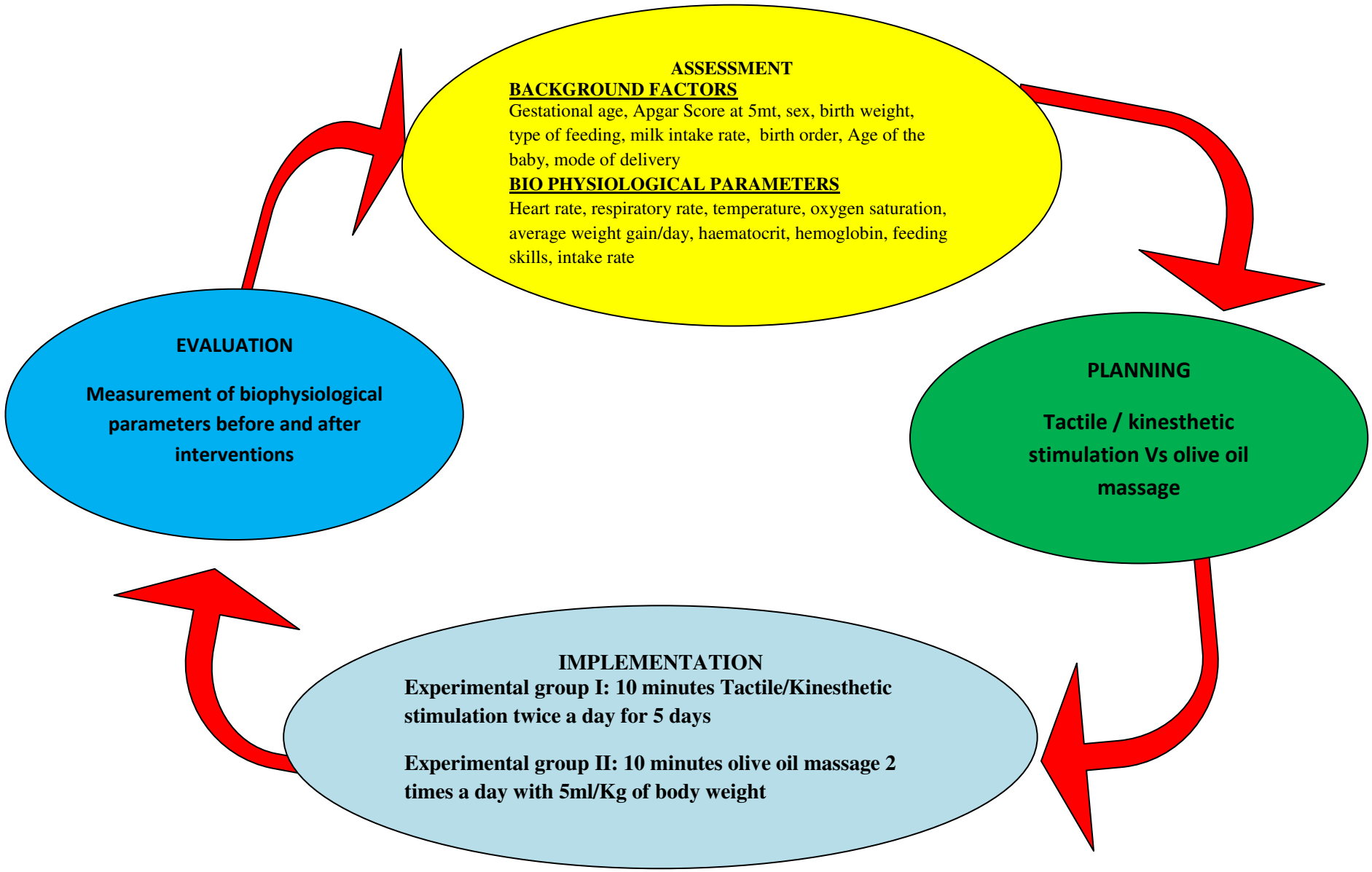


Fig. 1.1: CONCEPTUAL FRAME WORK MODEL BASED ON THE ANA MODEL (2012)

CHAPTER – II

REVIEW OF LITERATURE

Review of literature is a key step in research. It refers to an extensive, exhaustive, and systematic examination of publication relevant to required research. Before any research can be started, whether it is a single study or an extended project, a literature review of previous studies and experiences related to the proposed investigation should be done. It helps to contribute new knowledge, insight and general scholarship of the researchers. The relevant literature searched and organized as follows

I. **Studies related to low birth weight babies**

II. **Studies related to tactile /kinesthetic stimulation on bio physiological parameters**

III. **Studies related to oil massage on bio physiological parameters**

I. STUDIES RELATED TO LOW BIRTH WEIGHT BABIES

Chentil, et.al., (2017) measured to assess the body weight gain of combined acupressure and median massage in premature infants 40 infants were subjected to two groups control group 20, experimental group 20. 15 minutes massage an kneading the points administered to experimental groups three times daily 1 hour before feed. Infant's body weights and the average weight gain of the infants in the experimental group was 32.7 gram. (SD = 8.1) compared with (27.3 grams, SD = 7.7) in the control group while in the 1st week there was no significant differences in

weight gain between the two groups. In the second week, the weight gain observed was significantly higher than that observed in control group.

Ramasundari B, and A. Judee (2016) measured the effectiveness of coconut oil massage on LBW new borns at Om Sakthi Hospital Krihnagiri. 30 newborns delivered by LSCS, weight less then 2.5kg were conveniently selected pre and post assessment was done by brazeltons neonatal behavioural assessment scale. Neonates were given massage with coconut oil all over the body except face for 20 minutes per day for five days. Statistical analysis standard deviation paired ⍰et⍰f test. The mean difference 1.8 with standard deviation 0.388 and paired ⍰et⍰f value of 8.11which was highly significant at ($P < 0.001$) level in sleeping time, crying spell, the mean difference was 0.9 with standard deviation 0.045 and paired ⍰t value of 9.0 which was highly significant at ($P < 0.01$) level feeding frequency the mean difference is 1.07 with standard deviation 0.060 and the paired ⍰et⍰f value of 7.44 showed high level of significance at ($P < 0.001$) massage therapy on newborns crying spell reduced, feeding frequency increased, sleeping time increased.

Lahat.S, et.al., (2015) observed on 10 pre term each infant was given massage three times a day for 15 minutes metabolic measurements were performed by direct calorimeter, using the Delta sac II. Energy expenditure was significantly lower in infants after the day massage therapy period. 59.6 = 3.6 kcal/kg 24 hours, than after the period without 63.1 = 5.4 kcal / kg / 24 hours. ($P = 0.05$) Energy expenditure is significantly lowered 5 days of massage therapy in metabolically and thermally stable pre term infants. This decrease in energy expenditure may be in part responsible for the enhanced growth caused by massage therapy.

Kanho, et.al. (2015) reported the effects of infant massage on weight, height and mother infant interaction. This study was designed as a control group pre-test . post-test design. Massage programs at health district for 4 weeks. Control group N=26, experimental group N=26. By matching the infants age, sex, weight, height and mother infant interaction were measured two times by using video equipment in a room at health centre for 10 minutes. Weight gain and height increases between two groups comparison of the total score of the mother infant interaction between the two groups showed a difference t = 5.21 (P = 0.001) there were also significant difference on maternal response (t = 3.78) (P= 0.001) infant response t = 5.71 between the two groups. Over all the infant massage facilitates the mother infant interaction for infants and mothers who give massage to their babies.

Chattergy, et.al., (2014) conducted a study on infant massage on term normal babies between the age of 1 to 12 months. All the parents were advised to apply a small amount of Nourishing oil using firm but gentle strokes all over the baby. Which was followed by gentle massage .Parents were asked to bring after 7th and 14th day of massage this study observed a significant reduction in the skin dryness, improvement in the softness of the skin, and skin glow. It was noticed that the Nourishing oil was absorbed rapidly, leaving the baby skin soft with a natural, healthy glow and without any greasy after feel. These beneficial effects might have been due to the synergistic actions skin nourishing, emollient, moistening, soothing, antimicrobial, anti inflammatory and anti oxididant of its ingredients.

Tachan, et.al., (2014) observed a study to assess the effect of infant massage on weight gain, physiological and behavioral responses in premature infants. Sample size was 26. 13 in experimental group and 13 in control group. Infants with

gestational age less than 36 weeks at birth, birth weight less than 200grm and no congenital anomalies. The experimental group received the massage intervention twice daily for 10 days. The vagal tone was significantly higher after massage than before massage group. While no change in control group. The experimental group had higher scores for awake state and motor activity than the control group. The experimental group had significantly higher scores for awake state and motor activity than the control group. Significantly greater awake state. Increased motor activity was reported after massage than before massage. Result of this study showed that massage therapy might enhance optimal physiological responses and behavioral organization of premature infants. .

Diego.M, et.al., (2013) conducted a study to assess weight gain among pre term babies after massage. The massaged pre term neonates did not consume more calories than the control neonates, massage increased induced vagal activity which in turn may lead to increased gastric motility and sympathetic and parasympathetic nervous system activity in response to therapy group gained more weight gain than massage therapy massage control group.

Ferber, et.al., (2013) observed the effects of massage therapy on the mother .infant relationship. Mother and infant were placed into one of three groups. The mothers group was the one in which the mothers performed the massage therapy. The staff group was female research assistance performed the massage therapy. Control group infants did not receive massage. Each infant received a massage daily for 10 days. Mothers and research assistants were given training before hand on proper massage technique. After completing massage therapy. Each mother and infant pair were observed in a play situation. These interactions were coded

according to the coding interactive Behavior Manual, a global rating system of parent-child interactions. The infant and mothers in the mothers and staff group had improved mother-infant interactions and increased the social involvement of the infant. This helps establish a more direct benefit of massage.

Funden E. (2013) observed massage therapy by mothers and trained professionals enhances weight gain in pre term infants study comprised 57 healthy pre term infants assigned to three groups, two treatment group, one group mothers administered the massage other group professional female figure unrelated to the control group over the 10 day study period the two treatment groups gained significantly more weight compared to the control group 291.3 and 311.3 Vs 225.5 grams respectively. Caloric intake /kg did not differ between group. Mothers are able to achieve the same effect size as that of trained professionals.

Talton, et.al., (2012) explains on touch of all kinds is therapeutic .Also explains that touch is an element that can create a warm, caring and patient friendly atmosphere. Talton explains touch as two types. Task touch and caring touch where former is what occurs when there is a physical need. Touch is an important way to establish a good nurse patient relationship. Author says that touch is important for everyone, but is more important for a new born infant as it will contribute or enhance growth and development deprivation of touch in infancy and child hood may result in many behavior problems in later life. It may also result in retardation of growth and development and also set in a feeling of rejection of not being loved or wanted by anyone.

Bramnone J (2011) conducted a study to assess the effectiveness of gentle touch, and massaging the healthy term and medically stable infants. Findings revealed that massaging babies could elicit cutaneous, proprioceptive, vestibular and sensory gestation and it ultimately provides stimulation, organization, communication and emotional exchange. By constant massaging, infants have shown less behavioral distress, more quiet sleep improvement in body weight, reduction in stress and improvement in maternal infant bonding.

II. STUDIES RELATED TO TACTILE /KINESTHETIC STIMULATION ON BIO PHYSIOLOGICAL PARAMETERS

Tiffany (2016) conducted a experimental study**.** Tactile/kinesthetic stimulation was given to 20 preterm neonates (mean gestational age, 31 weeks; mean birth weight, 1,280 g; mean time in neonatal intensive care unit, 20 days) during transitional ("grower") nursery care, and their growth, sleep-wake behavior, and Brazelton scale performance was compared with a group of 20 control neonates. The tactile/kinesthetic stimulation consisted of body stroking and passive movements of the limbs for three, 15-minute periods per day for a 10 days. The stimulated neonates averaged a 47% greater weight gain per day (mean 25 g *v* 17 g), were more active and alert during sleep/wake behavior observations, and showed more mature habituation, orientation, motor, and range of state behavior on the Brazelton scale than control infants. Finally, their hospital stay was 6 days shorter, yielding a cost savings of approximately $3,000 per infant. These data suggest that tactile/kinesthetic stimulation may be a cost effective way of facilitating growth and behavioral organization even in very small preterm neonates.

Cynthia (2015) conducted a study to investigate the neuroendocrine response in preterm infants to a pattern of tactile-kinesthetic stimulation that facilitates their growth and development. Preterm infants (mean gestational age 30 weeks, mean birth weight 1176 gm) received normal nursery care or tactile-kinesthetic stimulation for three 15-minute periods at the start of three consecutive hours each day for 10 days. On day 1 and day 10 of the study, a 24-hour urine sample was collected for norepinephrine, epinephrine, dopamine, cortisol, and creatinine assay and a blood sample was taken by heel stick for cortisol and growth hormone assay. Urine norepinephrine and epinephrine values increased significantly only in the stimulated babies. Urine dopamine and cortisol values increased in both groups, and serum growth hormone decreased in both groups. Individual differences in urine norepinephrine, epinephrine, dopamine, and cortisol values were highly stable across the 10 days despite a 10-fold range of values among the infants. The results of this study suggest that tactile-kinesthetic stimulation of preterm infants has fairly specific effects on maturation and/or activity of the sympathetic nervous system. In addition, this study has defined catecholamine and cortisol secretion across gestational age in normal preterm infants. Finally, these data suggest that highly stable individual levels of catecholamine and cortisol secretion are established by birth in humans.

Storms (2014) investigated the responses to painful and tactile stimulation in preterm and term infants in terms of changes in the plantar skin conductance activity (SCA) and behavioural state. Plantar SCA reflects activity in the sympathetic nervous system. The plantar SCA and behavioural state in response to nociceptive (the heel prick for blood samples, or immunization) and tactile (routine nursery

handling) simulation was recorded in four different groups of infants (n=71): Preterm and term neonatal infants (defined here as up to 1 week old), and preterm and term infants in the postneonatal period. The preterm infants had significant increases in all skin conductance variables during both tactile and nociceptive stimulation ($p<0.02$), except for wave amplitude when newborns were heel pricked. The term infants displayed a more varied picture, but both the number and amplitude of the waves increased significantly during both procedures in the newborn groups, while the postneonatal groups only showed significant increases in wave amplitude during nociceptive stimulation ($p<0.05$). Tactile stimulation of the preterm newborn infants produced significantly higher increases in SCA than nociceptive stimulation ($p<0.01$), while the behavioural state was highest during nociceptive stimulation ($p<0.05$). A gradual change in this relation was seen with advancing total age. Non-painful sensory stimulation of infants, especially the newborn and preterm ones, can produce equal or higher levels of physiological stress activation than painful stimulation. Repeated nociceptive stimulation probably sensitises the infants to pain.

Shafidi (2014) treated forty preterm neonates in an intensive care nursery (Mean gestational age= 31 weeks, Mean birth weight=1274 gms) were randomly assigned to a treatment or control group. The treatment infants received tactile/kinesthetic stimulation (body massage and passive movements of the limbs) for three 15-min periods during three consecutive hours for a 10-day period. At the end of the treatment period the behavioral states and activity level of the neonates were monitored during sleep/wake behavior observations. In addition, neonatal behaviors were assessed on the Brazelton scale. The treated infants averaged a 47% greater weight gain per day (25 vs. 17 grams), and spent more time awake and active

during sleep/wake behavior observations. On the Brazelton scale the treated infants showed more mature orientation, motor, habituation, and range of state behaviors. Finally, the treated infants were discharged 6 days earlier yielding hospital cost savings of $3,000 per infant.

Traut (2013) conduced the clinical trial to evaluate the effectiveness of sensory motor stimulations on physiological parameters among preterm newborn. 5 interventions evaluated in this study were tactile only (T), auditory only (A), auditory, tactile and visual (ATV) and auditory, tactile, visual and vestibular (ATVV) and control group. The 54 preterm were randomly assigned to one of five groups. All the interventions were given with the duration of 15 minutes, once in a day for 4 days. The Repeated measures ANOVA showed that the there were significant difference between the observations in pulse rate, respiratory rate in all intervention groups. The one way ANOVA depicted that, there were significant difference between the groups. The clinical trial results were strongly recommended for the effectiveness of tactile stimulation on physiological parameters either combined with other interventions or alone

Fayed (2013) examined the impact of physical stimulation on weight gain among 60 premature infants. Moderate LBW, stable vital signs and <34 weeks were the inclusion criteria. The intervention group preterm had better weight gain than control group. The significant difference in weight gain between control and experimental group showed the impact of physical stimulation among preterm low birth weight babies. The study recommended for including physical stimulation as a part of clinical practice guidelines in NICU

John (2003) assessed the effectiveness of passive limb movement and body stroking massage on weight gain among preterm was examined. The 15 minutes massage therapy, thrice a day for 5 days was given. Out of 32, 16 preterm newborn were in experimental group and remaining 16 were in control group. The experimental group had 53% increased average weight gain than the control group. The results depicted that the simple massage therapy was a cost-effective treatment modalities to enhance the average weight gain for medically stable preterm infants.

III. STUDIES RELATED TO OIL MASSAGE ON BIO PHYSIOLOGICAL PARAMETERS

Gongzalez, et.al., (2017) in a randomized controlled study observed sixty clinically stable pre term new born with a corrected gestational age of 30 to 35 weeks receiving enteral nutrition in the hospital nursery 30 were assigned at random oil massage twice day for 10 days. Plus usual nursery care, control group received usual nursery care alone Weight, head circumference, caloric intake, and nutritional method were recorded daily. Group characteristics were compared with analysis of variance, t-test, and chi square test. There were no differences between groups in gender, gestational age, initial weight, head circumference and caloric intake and type of nutrition at baseline. Infants receiving massage had a larger at baseline. Infants receiving massage had a larger weight gain. (188.2= 41.20 gr/kg versus 146.7 = 56.43 gr/kg)$p < 0.001$). Hospital stay was shorter in infants receiving massage and usual nursery care (15.63 = 5.41 day, 19.33 = 7.92 days. ($P = 0.01$). The addition of parent administered oil massage to usual nursery care resulted in increased weight gain and shorter hospital stay. Difference in weight gain between the two groups. In the second week the weight gain observed in the experimental

group was significantly higher than that observed in the control group. Acupressure and meridian massage have a significant effect on weight gain in premature infants. The stimulated infants averaged forty seven percent greater weight gain per day, they were more awake, and active a greater percentage of the behavior time and mature habituation, orientation motor activity and range of state behavior. Stimulated infants were less hospitalized than control group. Study shows that massaged infants showed better weight gain and matured motor activity than control group.

Jhansi.B. (2017) observed a quasi experimental study at st Johns medical college hospital Bangalore to assess the effect of coconut oil massage on 64L B W babies study conducted in neonatal intensive care unit and obstetric wards they were randomly assigned to experimental (n=32) control (n=32) control group received routine nursing care experimental group received 5 minutes of coconut oil 5ml/kg/day massage twice a day after 30- 40 minuets feed massage was given by occupational therapist for a period of 5 days data analyzed using both descriptive and inferential statistics Mean SD student t test chi- square values ANOVA Fishers exact probability and co efficient co relation were used to analyze the data. oil massage was found to be feasible, safe and cost effective. There was no significant change in weight neurobehavioral response of babies in experimental and control group shows there is marginal improvement in mean in experimental group showed more improvement in attention and habituation.($P<0.05$) the study revealed that there was a significant difference in attention and habituation.

Arora.J, et.al., (2016) reported a randomized controlled trail on 62 Low birth weight preterm neonates weighing 3.3pounds born at less than 37 weeks

gestation At Loknayak Jai Prakash Narayan Hospital in New Delhi neonates were assigned to three groups massage with sun flower oil one and half teaspoon /kg / day in each session. Massage with out oil and no massage. both groups were treated four 10 minutes massage daily starting at neck to the waist each limb was then massaged separately in the supine position. Each area received 20 gentle strokes infants in the no massage group were handled and fed in the same way but no massage was given Baseline weight was recorded weight was measured weekly during treatment infants in the treatment group gained an average of 0.8 pounds. No massage groups gained an average of 0.627 pound that oil massage improves weight gain among neonates oil application may have a potential to improve overall growth.

Sankaranarayana.K,, et.al., (2016) observed an open randomized controlled study of oil massage in 224 neonates at LTM medical college Mumbai oil Massage using coconut oil versus mineral oil among new born babies weighing between 1500 to 2000 gram and term babies weighing more than 2500 grams massage were given by a trained person from day 2 of life to 31 days. Setting premature unit and post natal wards babies in each group were randomized to receive massage with coconut oil, mineral oil or with placebo. Oil massage was given in prone and supine position to include head, neck, trunk and extremities. At the end of the massage kinesthetic stimulation was provided in supine position by passive flexion and extension movements of limb at each large joint massage was given up to 31 days the outcome was assessed by the Brazelton score at baseline day 7 and on 31 coconut oil massage showed a greater weight gain velocity as compared to mineral oil and placebo pre term infants receiving coconut oil massage also showed a greater length gain velocity compared to placebo group no statistically

significant difference was observed in the neurobehavioral assessment between all three subgroups in term babies as well as in preterm babies.

Schanbery (2015), measured a study among 93 pre term infants, the mean gestational age infants was 30 weeks, the mean birth weight was 1204 grams and mean duration in the intensive care was 15 days. All the babies were randomly assigned to massage therapy group and control group. 50 babies in the treatment group received daily 15 minutes massage for 10 days. The massage therapy infants gained weight significantly than the infants in the control group, records revealed that babies who had experienced more complications before the study benefited more from the massage therapy. Using these parameters, they predicted that 87% of the infants benefit significantly from the massage therapy.

CHAPTER – III

RESEARCH METHODOLOGY

Abdullah (2004) said that, methodology is a significant part of any study which enables the research to project the research undertaken.

Research methodology is a systematic way to solve the research problem and also to carry out the academic study and research in a correct manner. **(Polit and Beck, 2014)**

This chapter includes research approach, research design, setting of the study, population, sample, sample size, sampling technique, developing and description of the tool, content validity, and reliability of tool, method of data collection and plan for data analysis and interpretation of the data.

RESEARCH APPROACH

The research approach is a basic procedure for the conduction of research study **(B.T. Basavanthappa, 2014).**

"Quantitative Evaluative research approach" is selected for the present study.

RESEARCH DESIGN

It refers to the overall plan for addressing a research question, including specifications for enhancing the integrity of the study. (**Polit & Beck, 2014).**

The research design selected for the present study was Factorial Research Design" to assess the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected physiological parameters among low birth weight newborn in selected hospital, Perambalur district.

Factorial research design:- It refers to an experiment in which the effectiveness of two different treatments were compared. Each treatment is applied in many experimental units instead of one. By doing so that statistical accuracy of the experiments is increased.

Figure 3.1 Diagrammatic representation of research design

Randomly allocated schooler	Pre test	Treatment	Post test
Experimental group I	O_1	X_1	O_2
Experimental group II	O_1	X_2	O_2

SYMBOLS

O_1- Pre-test on bio physiological parameters in experimental group I and II

X_1 – Tactile/kinesthetic stimulation

X_2 - Olive oil massage

O_2- Post-test on bio physiological parameters in experimental group I and II

SETTING OF THE STUDY

Research settings are specific places in a research where data collection is to be made. The selection of setting was done based on feasibility of conducting the study, availability of subject and permission of authorities**. (Polit and Beck, 2013).**

The study was conducted in Ramasamy Hospital, Perambalur district.

VARIABLES

Variables are characters that can have more than one value. The categories discussed in a present study are:

Independent variable

According to **Polit and Hungler (2013),** the variable that is believed to care or influence the behaviour and ideas.

In this present study, the independent variables were tactile/kinesthetic stimulation Vs Olive oil massage

Dependent Variable

According to **Polit and Hungler (2013),** the dependent variable is the researcher is interested in understanding, explaining, and proceeding.

In this present study, the dependent variable refers to bio physiological parameters among low birth weight babies

POPULATION

Population refers to the entire aggregation or totality of all the objects, subjects or number that confirm to a set of specification. **(Polit and Beck, 2013)**

The population for the present study was low birth weight babies.

SAMPLE

A sample is the portion of the population that has been selected to represent the population of interest. (**Talbott, 2010).**

The sample for the present study was low birth weight babies admitted in selected hospital, Perambalur district.

SAMPLE SIZE

Sample size is normally decided by nature of the study, nature of the population, type of sampling technique, total variable, statistical test adopted for data analysis and sensitivity measures and attrition. (**Polit and Beck, 2013)**

The total sample size selected for this was 30 babies out of which 15 babies from experimental group I and 15 babies from experimental group II.

SAMPLING TECHNIQUE

According to **Polit and Beck (2013),** sampling technique refers to the process of selecting a portion of the population to represent the entire population. In this present study Simple random sampling technique was used to select the low birth weight babies.

CRITERIA FOR SAMPLE SELECTION

a) Inclusion criteria

The newborn with

- Low birth weight < 2.5 kgs
- both genders
- born between 36 weeks and 40 weeks of gestation
- who were medically stable preterm
- who demonstrate behavioral tolerance of care giving
- who is present during the period of data collection

Congenital malformations including chromosomal disorders, malformations of head and face, neurological, cardiac, digestive or pulmonary malformations were excluded. Those who acquired hospital associated infection during study were excluded from the study.

b) Exclusion criteria:-

The newborn with

- Congenital malformations including chromosomal disorders, malformations of head and face
- Neurological, cardiac, digestive or pulmonary malformations
- who acquired hospital associated infection during study

DEVELOPMENT OF TOOL

The investigator develops a observational tool. The tool is finalized based on response during preliminary study and suggestion from experts.

Section A:-

It consists of demographic variables of low birth weight babies i.e., gestational age, birth weight, gender, APGAR score, birth order of the child, family history of preterm birth, history of antenatal complications, history of post natal complications.

Section-B:-

Consisted of observational chart on physiological parameters which includes the heart rate (per min), respiratory rate (per min), temperature (ºC), oxygen saturation (%), average weight gain/day, haematocrit and haemoglobin.

SCORING PROCEDURE

The physiological parameters were observed and monitored in observational chart. The in vivo measures were used to monitor the heart rate (per min), respiratory rate (per min), temperature (ºC), oxygen saturation (%), and average weight gain/day. The in vitro measures were used to monitor the hematocrit, Haemoglobin at the early morning of first day before starting pre feeding sensory motor skills, after completion of 5 days and 10 days of treatment.

VALIDITY

The content validity refers to the degree to which an instrument measures what is supposed to measure. (Polit and Beck, 2013).

The content validity of demographic variables and observational check list on dyscalculia was validating in consultation with guides and experts. The experts are paediatric pediatrician and statisticians. The tool was modified according to the suggestions and recommendations of the experts.

RELIABILITY

According to **Polit and Beck (2013),** reliability of research instruments defined as the extent to which the instrument has the same results on repeated measures.

The reliability of the tool was tested by test retest method to assess the stability by using Karl Pearson correlation coefficient method and the value was found to be reliable (r=0.98).

DATA COLLECTION PROCEDURE

Data collection is the gathering of the information to address the research problem. The word "data" means information i.e. systematically collected in the course of study.

Talbott (2010) refers data collection as gathering of information from the sampling unit. The researcher plan typically specifies procedures for actual collection of data. The researcher must be sure that enough material is available to

complete the study that the participants are informed that the schedules do not conflict.

Permission from the concerned authority

Prior to the collection of the data, permission was obtained from the Managing Director of selected hospital Perambalur District. The researcher explained the purpose and method of the study in order to get the co-operation from the management.

Period of data collection

The data was collected 6 weeks. The investigator collected the data from the low birth weight newborn at selected hospital, Perambalur District.

Pre test

Demographic variables were collected. The bio physiological parameters were monitored. Throughout the procedure aseptic measures were taken. Immediately after pre test the participants randomly assigned to 1 of 2 groups. The participants received allocated treatment as flows.

Implementation of Tactile/kinesthetic stimulation

It refers to 10 minutes of tactile and kinaesthetic stimulations which includes 3 minutes of tactile stimulation, 4 minutes of kinaesthetic stimulation followed by 3 minutes of tactile stimulation; thrice a day for 5 days was provided.

Implementation of Olive oil massage

Olive oil which is used to massage the body in order to improve skin texture and increase thermoregulation in a therapeutic maneuver of manipulating the soft tissues firm strokes with palms of the hands from head to foot for 5 minutes, thrice a day for 5 days.

Post test

The bio physiological parameters were monitored. Throughout the procedure aseptic measures were taken by the researcher**.**

PLAN FOR DATA ANALYSIS

- Distribution of demographic variable between experimental group I and II was analyzed by frequency and percentage

- Effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected physiological parameters among low birth weight was analyzed by using mean, SD and paired ‘t’ test and unpaired ‘t’ test.

- Association between the distribution of demographic variables and post test scores of bio physiological parameters in experimental group I and experimental group II was analyzed by using Chi square test.

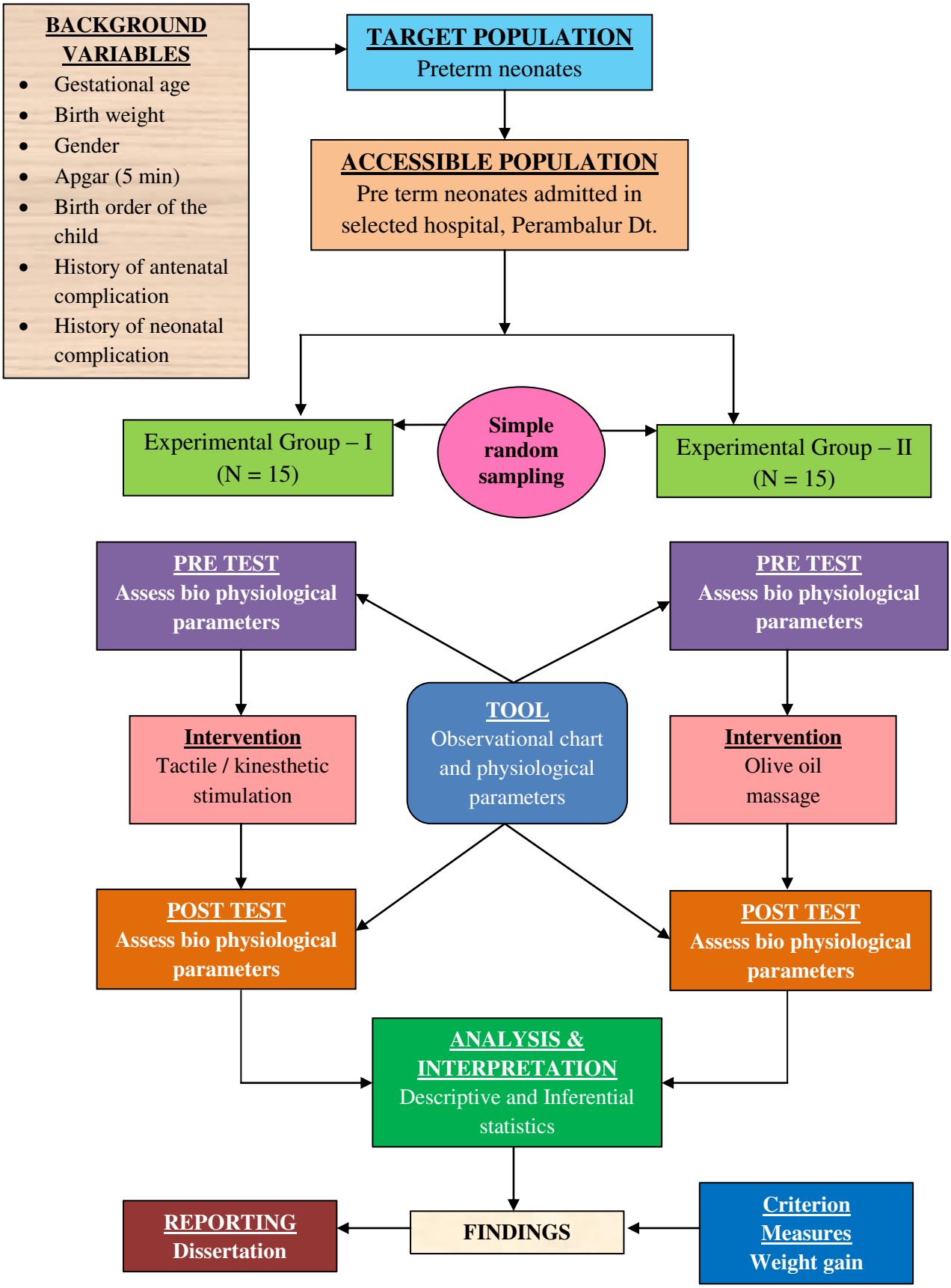


Fig. 3.1: SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

Analysis is a "process of organizing and synthesizing data in such a way that research questions can be answered and hypothesis tested**". (Polit and Hungler, 2017).**

Analysis enables the researcher to reduce, summarize, organize, evaluate, interpret and communicate numerical information, **(Polit and Hungler, 2017).**

This chapter deals with the analysis and interpretation of data collected from 30 babies (15 experimental group I and 15 experimental group II) low birth weight babies admitted in selected hospital, Perambalur District.

The data were coded and analyzed as per objectives of the study under the following headings;

Section A: Description of samples according to their demographic variables.

- Frequency and percentage distribution of samples according to their demographic variables.

Section B: Assess the effectiveness of tactile/kinesthetic stimulation Vs Olive oil massage

- Comparison of mean, SD, and mean percentage of experimental group I and experimental group II pre and post test scores.

- Paired ‘t’ test value of experimental group I and Paired ‘t’ test value of experimental group II

Section C: Determine the difference in effectiveness of tactile/kinesthetic stimulation Vs Olive oil massage in experimental group I and experimental group II.

- Unpaired ‘t’ test value of experimental group I and experimental group II.

Section D: Find out the association between post test scores of bio physiological parameters among experimental group I and experimental group II with their demographic variables.

- Chi-square value of association between the post test scores of experimental group I and their demographic variables.

- Chi-square value of association between the post test scores of experimental group II and their demographic variables.

SECTION A: DESCRIPTION OF SAMPLES ACCORDING TO THEIR DEMOGRAPHIC VARIABLES.

Table 4.1: Description of samples according to their demographic variables

(N=30)

S. No.	Demographic characteristics	Categories	Low Birth Weight Babies	
			Experimental group I	Experimental group I
			%	%
1.	Gestational age	28 weeks	0	12.50%
		29 weeks	12.50%	12.50%
		30 weeks	37.50%	25%
		31 weeks	25%	25%
		32 weeks	25%	25%
2.	Birth weight	< 1500	12.50%	0%
		1500-1750	50%	37.50%
		>1750	37.50%	62.50%
3.	Gender	Male	50%	62.50%
		Female	50%	37.50%
4.	APGAR (5 minutes)	<5	25%	12.50%
		5-Aug	12.50%	50%
		>8	62.50%	37.50%
5.	Birth order of the child	First	37.50%	62.50%
		Second	50.00%	37.50%
		Third	12.50%	0%
6.	History of antenatal complications	Yes	62.50%	50%
		No	37.50%	50%
7.	History of neonatal complications	Yes	50%	37.50%
		No	50%	62.50%

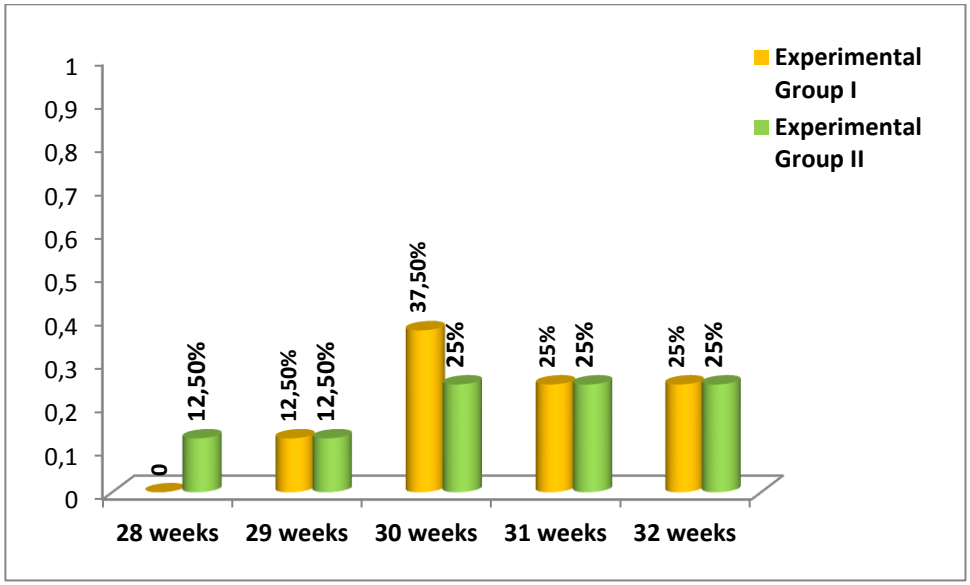


Figure 4.1. The Bar diagram showing the percentage distribution of low birth weight babies according to their gestational age

The demographic variable of experimental group I Gestational age showed that 12.5% were in 28 weeks, 37.5% were in 30 weeks, 25 % were in 31 weeks and 25 % were in 32 weeks. In experimental group II 25 % were in all 30 weeks, 31 weeks and 32 weeks (**Figure 4.1**)

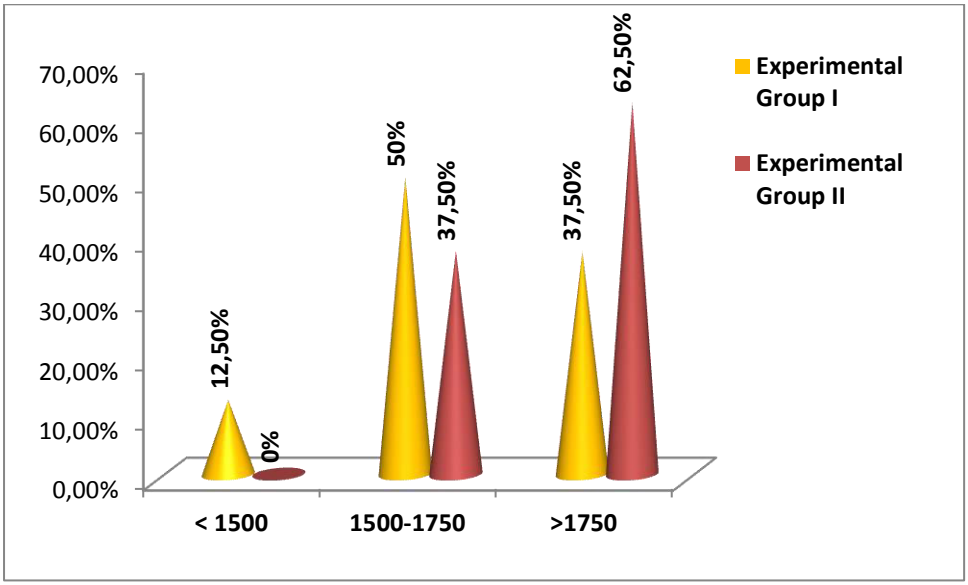


Figure 4.2. The cone diagram showing the percentage distribution of low birth weight babies according to their birth weight.

According to birth weight in experimental group I 12.5 % were with < 1500 grams, 50 % were between 1500 to 1750 grams and 37.5% with > 1750 grams. In experimental group II 62.5 % were with >1750 grams. **(Figure 4.2).**

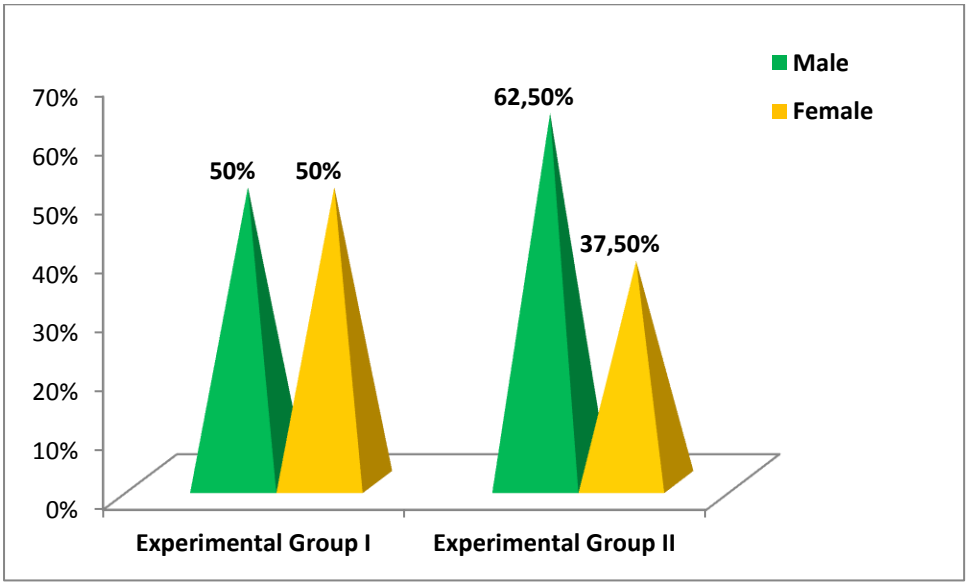


Figure 4.3. The pyramid diagram showing the percentage distribution of low birth weight babies according to their gender

According to gender in experimental group I 50 % were males, 50 % were females, in experimental group II 62.5 % were males, 37.5 % were females **(Figure 4.3)**

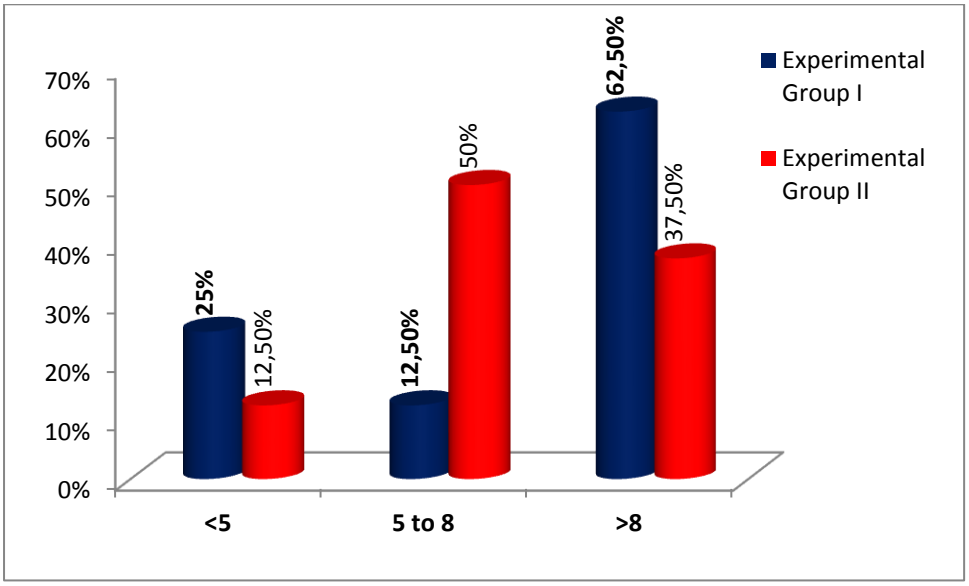


Figure 4.4. The pyramid diagram showing the percentage distribution of low birth weight babies according to their APGAR score at 5 minutes

According APGAR score in experimental group I 62.5 % were with score > 8, in experimental group II 37.5% % were with score > 8 **(Figure 4.4)**

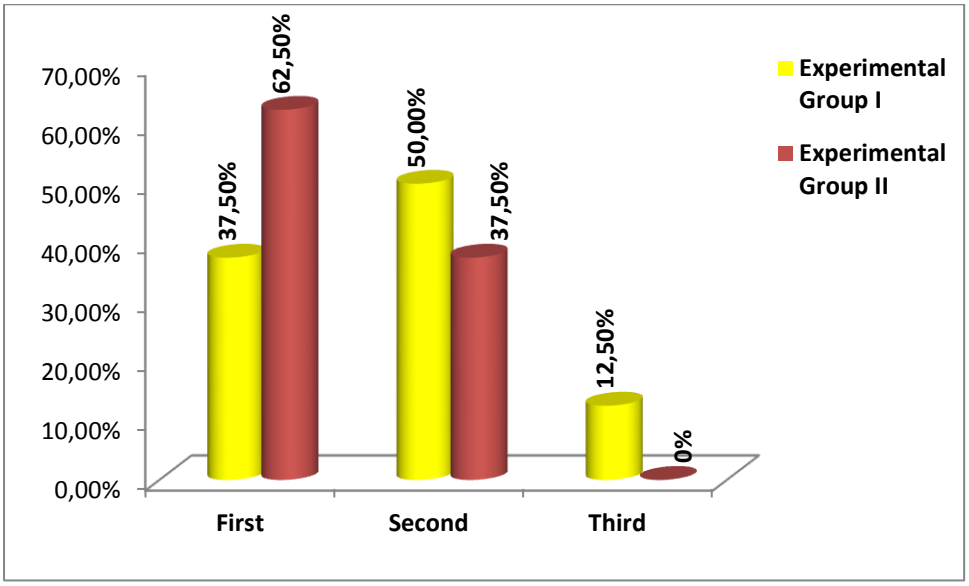


Figure 4.5. The bar diagram showing the percentage distribution of low birth weight babies according to their birth order

According to birth order of the child in experimental group I 50% of preterm was second child, experimental group II 62.5 % of preterm were first child **(Figure 4.5).**

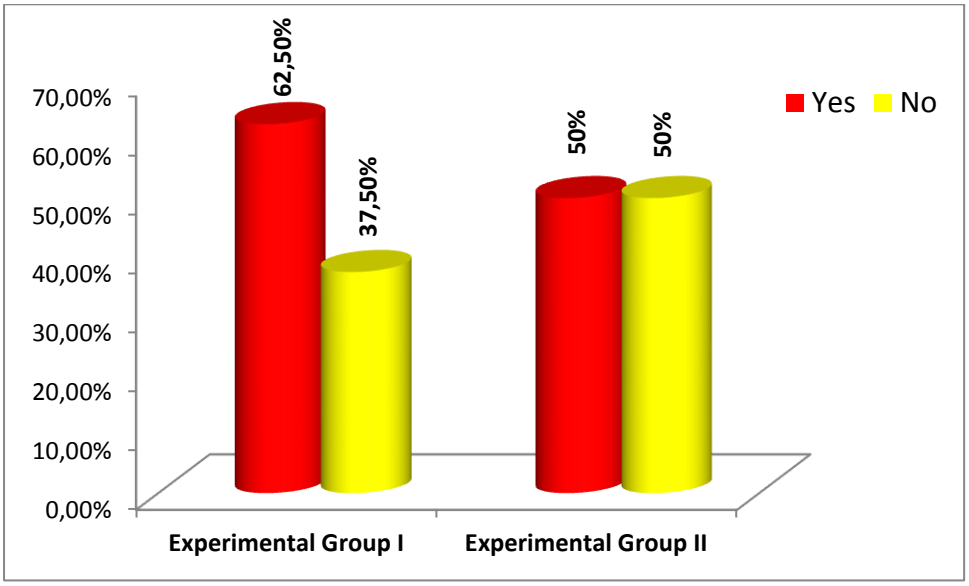


Figure 4.6. The bar diagram showing the percentage distribution of low birth weight babies according to their mother's history of antenatal complications

In experimental group I 62.5% preterm were with history of antenatal complications, in experimental group II 50 % preterm were with history of antenatal **(Figure 4.6).**

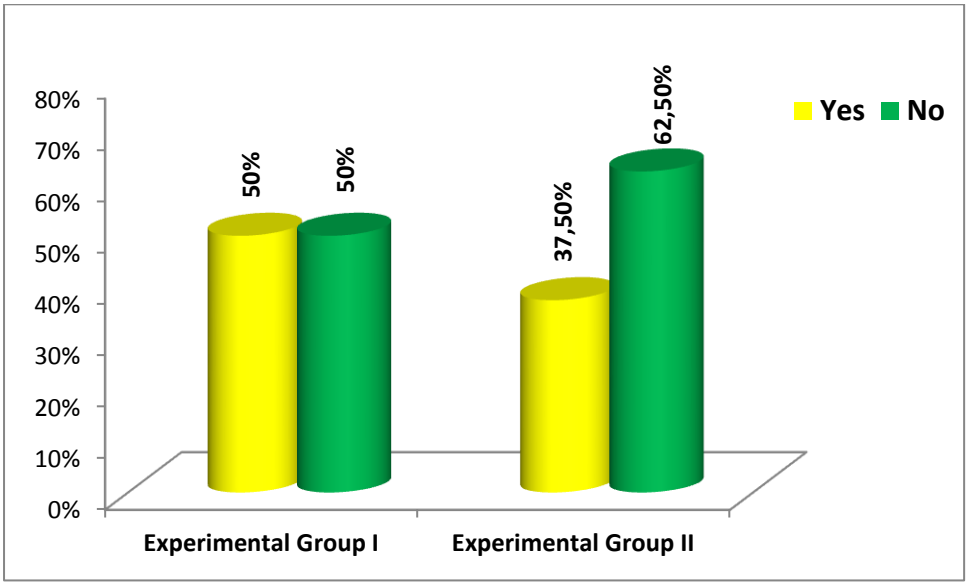


Figure 4.7. The bar diagram showing the percentage distribution of low birth weight babies according to their history of neonatal complications

In experimental group I 50 % preterm were with history of neonatal complications, in experimental group II 37.5 % preterm were with history of neonatal complications **(Figure 4.7)**

SECTION – B: ASSESS THE EFFECTIVENESS OF TACTILE / KINESTHETIC STIMULATION VS OLIVE OIL MASSAGE

Table 4.2 Comparison of mean, SD of experimental group I and experimental group II pre and post test scores.

(N=30)

S. No	Variables	Low Birth Weight Babies	Experimental Group I		Experimental Group II	
			Mean	SD	Mean	SD
1.	Heart rate (per min)	Pre test	154.5	±1.2	153.8	±0.96
		Post test	152.3	±1	152.3	±1
2.	Respiratory rate (per min)	Pre test	59.8	±1.3	59	±1.4
		Post test	58.3	±1.13	58.3	±1.2
3.	Temperature (ºC)	Pre test	36.30	±0.118	36.2	±0.06
		Post test	36.34	±0.116	36.3	±0.05
4.	Oxygen saturation (%)	Pre test	92.88	±0.23	92.75	±0.16
		Post test	93.38	±0.18	93.5	±0.19
5.	Weight gain	Pre test	5.88	±0.35	5.88	±0.3
		Post test	7.38	±0.38	7.38	±0.26
6.	Haematocrit	Pre test	45.63	±0.86	46.5	±0.42
		Post test	46.00	±0.7	48.25	±1.23
7.	Hemoglobin	Pre test	14.73	± 0.15	14.59	±0.12
		Post test	14.74	±0.202	14.91	±0.16

According to heart rate the comparison of mean and standard deviation of pretest in experimental I was 154.5± 1.2 and post test showed 153.8±0. In experimental group II the mean and stranded deviation of pretest was 152.3± 1 and post test was 152.3± 1.

According to respiratory rate the comparison of mean and standard deviation of pretest in experimental I was 59.8± 1.3 and post test showed 59 ± 1. In experimental group II the mean and stranded deviation of pretest was 58.3± 1.13 and post test was 58.3± 1.2

According to temperature the comparison of mean and standard deviation of pretest in experimental I was 36.30±0.118 and post test showed 36.2±0.06. In experimental group II the mean and stranded deviation of pretest was 36.34±0.116 and post test was 36.3±0.05.

According to oxygen saturation the **c**omparison of mean and standard deviation of pretest in experimental I was 92.88 ± 0.23 and post test showed 92.75 ± 0.16. In experimental group II the mean and stranded deviation of pretest was 93.38 ± 0.18 and post test was 93.5 ± 0.19

According to weigh gain the comparison of mean and standard deviation of pretest in experimental I was 5.88 ± 0.35 and post test showed 5.88± 0.3. In experimental group II the mean and stranded deviation of pretest was 7.38 ± 0.38 and post test I was 7.38 ± 0.26

According to hematocrit the comparison of mean and standard deviation of pretest in experimental I was 45.63 ± 0.86 and post test showed 46.5 ± 0.42. In

experimental group II the mean and stranded deviation of pretest was 46.00 ± 0.7 and post test was 48.25 ± 1.23.

According to Hemoglobin the comparison of mean and standard deviation of pretest in experimental I was 14.73 ± 0.15 and post test showed 14.59 ± 0.12. In experimental group II the mean and stranded deviation of pretest was 14.74 ± 0.202 and post test was 14.91± 0.16.

Table 4.3. Paired 't' test value of Experimental group I and Experimental Group II

(N=30)

S. No	Variables	Group	Paired t value	Level of significance
1.	Heart rate (per min)	Experimental I	3.21	P<0.05 Significant
		Experimental II	3	P<0.05 Significant
2.	Respiratory rate (per min)	Experimental I	2.64	P<0.05 Significant
		Experimental II	2.05	P<0.05 Not significant
3.	Temperature (ºC)	Experimental I	2.05	P<0.05 Not significant
		Experimental II	1.49	P<0.05 Not significant
4.	Oxygen saturation (%)	Experimental I	2.64	P<0.05 Significant
		Experimental II	4.57	P<0.05 Significant
5.	Average weight gain	Experimental I	7.894	P<0.05 Significant
		Experimental II	5.61	P<0.05 Significant
6.	Haematocrit	Experimental I	1.23	P<0.05 Not significant
		Experimental II	1.64	P<0.05 Not significant
7.	Hemoglobin	Experimental I	0.56	P<0.05 Not significant
		Experimental II	1.478	P<0.05 Not significant

Df-14, table value 2.15 (p<0.05 significance)

The paired ‘t’ value of heart rate in experimental I was 3.21 and in experimental group II was 3, when compared to table value (2.15) it was high. It can be concluded that, there were significant difference between the pretest and post test scores in experimental I and experimental II.

The paired ‘t’ value of respiratory rate in experimental I was 2.64, when compared to table value (2.15) was high. It can be concluded that, there were significant difference between the pretest and post test scores in experimental I. In experimental group II the paired t value was 2.05, when compared to table value (2.15) it was less. It can be concluded that, there were no significant difference between the pretest and post test scores in experimental II.

The paired ‘t’ value of temperature in experimental I was 2.05 and in experimental group II was 1.49, when compared to table value (2.15) it was less. It can be concluded that, there were no significant difference between the pretest and post test scores in experimental I and experimental II.

The paired ‘t’ value of oxygen saturation in experimental I was 2.64 and in experimental group II was 4.57, when compared to table value (2.15) it was high. It can be concluded that, there were significant difference between the pretest and post test scores in experimental I and experimental II.

The paired ‘t’ value of average weight gain in experimental I was 7.894 and in experimental group II was 5.61, when compared to table value (2.15) it was high. It can be concluded that, there were significant difference between the pretest and post test scores in experimental I and experimental II.

The paired ‘t’ value of hematocrit in experimental I was 1.23 and in experimental group II was 1.64, when compared to table value (2.15) it was less. It can be concluded that, there were no significant difference between the pretest and post test scores in experimental I and experimental II.

The paired ‘t’ value of hemoglobin in experimental I was 0.56 and in experimental group II was 1.478, when compared to table value (2.15) it was less. It can be concluded that, there were no significant difference between the pretest and post test scores in experimental I and experimental II.

SECTION – C: DETERMINE THE DIFFERENCE IN EFFECTIVENESS OF TACTILE/KINESTHETIC STIMULATION VS OLIVE OIL MASSAGES IN EXPERIMENTAL GROUP I AND EXPERIMENTAL GROUP II.

Table 4.4. Unpaired 't' test value of Experimental group I and Experimental Group II

(N=30)

S. No	Variables	Paired t value	Level of significance
1.	Heart rate (per min)	1.23	P<0.05 Not Significant
2.	Respiratory rate (per min)	1.34	P<0.05 Not Significant
3.	Temperature(ºC)	1.21	P<0.05 Not significant
4.	Oxygen saturation (%)	0.94	P<0.05 Not Significant
5.	Weight gain	4.59	P<0.05 Significant
6.	Haematocrit	1.32	P<0.05 Not significant
7.	Hemoglobin	1.9	P<0.05 Not significant

Df-28, table value 2.05 (p<0.05 significance)

The unpaired 't' value of heart rate in between experimental group I and experimental group II was 1.23, when it compared to table value (2.05) it was less. It can be concluded that, there were significant no difference between the experimental group I and experimental group II.

The unpaired 't' value of respiratory rate in between experimental group I and experimental group II was 1.34, when it compared to table value (2.05) it

was less. It can be concluded that, there were significant no difference between the experimental group I and experimental group II.

The unpaired 't' value of temperature in between experimental group I and experimental group II was 1.21, when it compared to table value (2.05) it was less. It can be concluded that, there were significant no difference between the experimental group I and experimental group II.

The unpaired 't' value of oxygen saturation in between experimental group I and experimental group II was 0.94, when it compared to table value (2.05) it was less. It can be concluded that, there were significant no difference between the experimental group I and experimental group II.

The unpaired 't' value of average weight gain in between experimental group I and experimental group II was 4.59, when it compared to table value (2.05) it was high. It can be concluded that, there were significant difference between the experimental group I and experimental group II.

The unpaired 't' value of hematocrit in between experimental group I and experimental group II was 1.32, when it compared to table value (2.05) it was less. It can be concluded that, there were significant no difference between the experimental group I and experimental group II.

The unpaired 't' value of hemoglobin in between experimental group I and experimental group II was 1.9, when it compared to table value (2.05) it was less. It can be concluded that, there were significant no difference between the experimental group I and experimental group II.

SECTION – D: FIND OUT THE ASSOCIATION BETWEEN POST TEST SCORES OF BIO PHYSIOLOGICAL PARAMETERS AMONG EXPERIMENTAL GROUP I AND EXPERIMENTAL GROUP II WITH THEIR DEMOGRAPHIC VARIABLES.

Table - 4.5: Chi-square value of association between the post test scores of experimental group I and their demographic variables

S. No	Demographic variables	Df	Calculated Value	Table Value	Level of significance
1.	Gestational age	2	4.86	5.99	P<0.05 Not significant
2.	Birth weight	2	5.13	5.99	P<0.05 Not significant
3.	Gender	1	1.35	3.84	P<0.05 Not significant
4.	APGAR (5 minutes)	2	1.64	5.99	P<0.05 Not significant
5.	Birth order of the child	1	0.33	3.84	P<0.05 Not significant
6.	History of antenatal complications	1	0.94	3.84	P<0.05 Not significant
7.	History of neonatal complications	1	1.31	3.84	P<0.05 Not significant

Level of significance P > 0.05

Chi-square was calculated to find out the association between the experimental group I post test scores of physiological parameters and their demographic variables. In experimental group I when compare to gestational age, birth weight, gender, APGAR score, birth order of child, history of antenatal complications and history of neonatal complications for all physiological parameters the calculated value were less than table values ($P<0.05$). Hence, it can be interpreted that there were no significant association between demographic variables and experimental group I post test scores of physiological parameters.

Table 4.6. Chi-square value of association between the post test scores of experimental group II and their demographic variables

S. No	Demographic variables	Df	Calculated Value	Table Value	Level of significance
1.	Gestational age	2	2.73	5.99	P<0.05 Not significant
2.	Birth weight	2	4.58	5.99	P<0.05 Not significant
3.	Gender	1	1.05	3.84	P<0.05 Not significant
4.	APGAR (5 minutes)	2	1.45	5.99	P<0.05 Not significant
5.	Birth order of the child	1	1.38	3.84	P<0.05 Not significant
6.	History of antenatal complications	1	1.81	3.84	P<0.05 Not significant
7.	History of neonatal complications	1	0.58	3.84	P<0.05 Not significant

Level of significance P > 0.05

Chi-square was calculated to find out the association between the experimental group II post test scores of physiological parameters and their demographic variables. In experimental group II when compare to gestational age, birth weight, gender, APGAR score, birth order of child, history of antenatal complications and history of neonatal complications for all physiological parameters the calculated value were less than table values (P<0.05). Hence, it can be interpreted that there were no significant association between demographic variables and experimental group II post test scores of physiological parameters.

CHAPTER – V

DISCUSSION

This chapter deals with the discussion which was based on the findings obtained from the statistical analysis and its relation to the objectives of the study, the conceptual frame work and the related literature.

This study was used to assess the effectiveness of tactile/kinesthetic stimulation and olive oil massage on bio physiological parameters among experimental group I and experimental group II in selected hospital, Perambalur District.

The following were the objectives of the study,

1. Assess the level of biophysiological parameters before and after tactile/kinesthetic stimulation Vs olive oil massage among low birth weight babies in experimental group I and II.
2. Assess the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.
3. Compare the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.
4. Find out the association between the selected demographic variable and post test scores of tactile/kinesthetic stimulation and olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

Objective 1: Assess the level of biophysiological parameters before and after tactile/kinesthetic stimulation Vs olive oil massage among low birth weight babies in experimental group I and II.

This was analyzed by using mean and standard deviation and the result shows that,

Heart rate

- In experimental I pretest was 154.5± 1.2 and post test showed 153.8±0.
- In experimental group II the pretest was 152.3± 1 and post test was 152.3± 1.

Respiratory rate

- In experimental I the mean and standard deviation of pretest was 59.8± 1.3 and post test showed 59 ± 1.
- In experimental group II the mean and standard deviation of pretest was 58.3± 1.13 and post test was 58.3± 1.2

Temperature

- In experimental I the mean and standard deviation of pretest was 36.30±0.118 and post test was 36.2±0.06.
- In experimental group II the mean and standard deviation pretest was 36.34±0.116 and post test was 36.3±0.05.

Oxygen saturation

- Mean and standard deviation of pretest in experimental I was 92.88 ± 0.23 and post test showed 92.75 ± 0.16.

- In experimental group II the mean and stranded deviation of pretest was 93.38 ± 0.18 and post test was 93.5 ± 0.19

Weight gain

- Mean and standard deviation of pretest in experimental I was 5.88 ± 0.35 and post test showed 5.88± 0.3.

- In experimental group II the mean and stranded deviation of pretest was 7.38 ± 0.38 and post test I was 7.38 ± 0.26

Hematocrit

- Mean and standard deviation of pretest in experimental I was 45.63 ± 0.86 and post test showed 46.5 ± 0.42.

- In experimental group II the mean and stranded deviation of pretest was 46.00 ± 0.7 and post test was 48.25 ± 1.23.

Hemoglobin

- Mean and standard deviation of pretest in experimental I was 14.73 ± 0.15 and post test showed 14.59 ± 0.12.

- In experimental group II the mean and stranded deviation of pretest was 14.74 ± 0.202 and post test was 14.91± 0.16.

Hypothesis 1: There is significant level of biophysiological parameters before and after tactile/kinesthetic stimulation Vs olive oil massage among low birth weight babies in experimental group I and II was accepted

Objective 2: Assess the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

This was analyzed by using paired 't' test and the result shows that,

Experimental group I

- The paired 't' value of heart rate in experimental I was 3.21, when compared to table value (2.15) it was high
- The paired 't' value of respiratory rate in experimental I was 2.64, when compared to table value (2.15) it was high
- The paired 't' value of temperature in experimental I was 2, when compared to table value (2.15) it was low
- The paired 't' value of oxygen saturation in experimental I was 2.64, when compared to table value (2.15) it was high
- The paired 't' value of average weight gain in experimental I was 7.894, when compared to table value (2.15) it was high
- The paired 't' value of hematocrit in experimental I was 1.23, when compared to table value (2.15) it was low

- The paired ‘t’ value of hemoglobin in experimental I was 0.56, when compared to table value (2.15) it was low

Experimental group II

- The paired ‘t’ value of heart rate in experimental group II was 3, when compared to table value (2.15) it was high.

- The paired ‘t’ value of respiratory rate in experimental group II the paired t value was 2.05, when compared to table value (2.15) it was less.

- The paired ‘t’ value of temperature in experimental group II was 1.49, when compared to table value (2.15) it was less.

- The paired ‘t’ value of oxygen saturation in experimental group II was 4.57, when compared to table value (2.15) it was high.

- The paired ‘t’ value of average weight gain in experimental group II was 5.61, when compared to table value (2.15) it was high

- The paired ‘t’ value of hematocrit in experimental group II was 1.64, when compared to table value (2.15) it was less.

- The paired ‘t’ value of hemoglobin in experimental group II was 1.478, when compared to table value (2.15) it was less.

The paired ‘t’ test reveals that there were effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected bio physiological parameters among low birth weight babies in experimental group I and II.

Hypothesis 2: There is significant effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II was accepted.

Objective - 3: Compare the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

For this the unpaired 't; test was used. The results showed that,

- The unpaired 't' value of heart rate in between experimental group I and experimental group II was 1.23, when it compared to table value (2.05) it was less.

- The unpaired 't' value of respiratory rate in between experimental group I and experimental group II was 1.34, when it compared to table value (2.05) it was less.

- The unpaired 't' value of temperature in between experimental group I and experimental group II was 1.21, when it compared to table value (2.05) it was less

- The unpaired 't' value of oxygen saturation in between experimental group I and experimental group II was 0.94, when it compared to table value (2.05) it was less.

- The unpaired 't' value of average weight gain in between experimental group I and experimental group II was 4.59, when it compared to table value (2.05) it was high.

- The unpaired 't' value of hematocrit in between experimental group I and experimental group II was 1.32, when it compared to table value (2.05) it was less.

- The unpaired 't' value of hemoglobin in between experimental group I and experimental group II was 1.9, when it compared to table value (2.05) it was less.

It reveals that there was no significant difference in effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected bio physiologfical parameters among low birth weight babies in experimental group I and II.

Hypothesis 3: There is significant difference in the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II was rejected.

Objective 4: Find out the association between the selected demographic variable and post test scores of tactile/kinesthetic stimulation and olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

This was analyzed by using chi square test. The result depicted that

In experimental group I

- The chi square value of gestational age was 4.86 ($p<0.05$)

- The chi square value of birth weight was 5.13 ($p<0.05$)
- The chi square value of gender was 1.35 ($p<0.05$)
- The chi square value of APGAR score was 1.64 ($p<0.05$)
- The chi square value of birth order was 0.33 ($p<0.05$)
- The chi square value of history of antenatal complications of 0.94 ($p<0.05$)
- The chi square value of history of neonatal complications 1.31 ($p<0.05$)

It reveals that there were no significant association found between the post test scores of Experimental group I and demographic variables

In experimental group II

- The chi square value of gestational age was 2.73 ($p<0.05$)
- The chi square value of birth weight was 4.58 ($p<0.05$)
- The chi square value of gender was 1.05 ($p<0.05$)
- The chi square value of APGAR score was 1.45 ($p<0.05$)
- The chi square value of birth order was 1.38 ($p<0.05$)
- The chi square value of history of antenatal complications of 1.81 ($p<0.05$)
- The chi square value of history of neonatal complications 0.58 ($p<0.05$)

It reveals that there were no significant association found between the post test scores of Experimental group II and demographic variables

Hypothesis 4: There is significant association between the selected demographic variable and post test scores of tactile/kinesthetic stimulation and olive oil massage on selected bio physiological parameters among low birth weight babies in experimental group I and II was rejected.

CHAPTER –VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This chapter deals with the summary of the study, its findings, conclusion and implications for nursing administration, nursing practice, nursing education and nursing research. This study has been started with a few limitations and ends with suggestions and recommendations for research in future.

In this study the researcher aimed to assess the assess the effectiveness of tactile/kinesthetic stimulation and olive oil massage on bio physiological parameters among experimental group I and experimental group II in selected hospital, Perambalur District.

The following were the objectives of the study,

- Assess the level of biophysiological parameters before and after tactile/kinesthetic stimulation Vs olive oil massage among low birth weight babies in experimental group I and II.
- Assess the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.
- Compare the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

- Find out the association between the selected demographic variable and post test scores of tactile/kinesthetic stimulation and olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

HYPOTHESIS

Researchers formulated and tested the following research hypothesis,

H_1 : There is significant level of biophysiological parameters before and after tactile/kinesthetic stimulation Vs olive oil massage among low birth weight babies in experimental group I and II.

H_2 : There is significant effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

H_3 : There is significant difference in the effectiveness of tactile / kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

H_4 : There is significant association between the selected demographic variable and post test scores of tactile/kinesthetic stimulation and olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

The review of literature on related studies helped the investigator to design the methodology, conceptual frame work and find out the tool. The literature reviews for the present study were presented under the following headings. (1) Studies related to low birth weight babies, (2) Studies related to tactile / kinesthetic stimulation on bio physiological parameters, (3) Studies related to oil massage on bio physiological parameters

The conceptual framework set up for the present study was the conceptual model based on the ANA model (2012). The research design adopted for the study was Random replication design. The research design adopted for the study was factorial research design. Setting chosen to conduct the study was Ramasamy hospital, Perambalur District.

In this study the samples were low birth weight newborn. The sample size was 30 babies (experimental group 15 and control group 15). In this simple random sampling technique was used. Observational tool was used to assess the bio physiological parameters.

The content validity of demographic variables and observational check list on dyscalculia was validating in consultation with guides and experts. The experts are paediatric pediatrician and statisticians. The tool was modified according to the suggestions and recommendations of the experts. The reliability of the tool was tested by test retest method to assess the stability by using Karl Pearson correlation coefficient method and the value was found to be reliable (r=0.98).

FINDINGS

Major findings of the study were,

1. **Findings related to level of biophysiological parameters before and after tactile/kinesthetic stimulation Vs olive oil massage among low birth weight babies in experimental group I and II.**

Heart rate

- In experimental I pretest was 154.5± 1.2 and post test showed 153.8±0.

- In experimental group II the pretest was 152.3± 1 and post test was 152.3± 1.

Respiratory rate

- In experimental I the mean and standard deviation of pretest was 59.8± 1.3 and post test showed 59 ± 1.

- In experimental group II the mean and standard deviation of pretest was 58.3± 1.13 and post test was 58.3± 1.2

Temperature

- In experimental I the mean and standard deviation of pretest was 36.30±0.118 and post test was 36.2±0.06.

- In experimental group II the mean and standard deviation pretest was 36.34±0.116 and post test was 36.3±0.05.

Oxygen saturation

- Mean and standard deviation of pretest in experimental I was 92.88 ± 0.23 and post test showed 92.75 ± 0.16.

- In experimental group II the mean and stranded deviation of pretest was 93.38 ± 0.18 and post test was 93.5 ± 0.19

Weight gain

- Mean and standard deviation of pretest in experimental I was 5.88 ± 0.35 and post test showed 5.88± 0.3.

- In experimental group II the mean and stranded deviation of pretest was 7.38 ± 0.38 and post test I was 7.38 ± 0.26

Hematocrit

- Mean and standard deviation of pretest in experimental I was 45.63 ± 0.86 and post test showed 46.5 ± 0.42.

- In experimental group II the mean and stranded deviation of pretest was 46.00 ± 0.7 and post test was 48.25 ± 1.23.

Hemoglobin

- Mean and standard deviation of pretest in experimental I was 14.73 ± 0.15 and post test showed 14.59 ± 0.12.

- In experimental group II the mean and stranded deviation of pretest was 14.74 ± 0.202 and post test was 14.91± 0.16.

2. **Findings related to the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.**

Experimental group I

- The paired 't' value of heart rate in experimental I was 3.21, when compared to table value (2.15) it was high

- The paired 't' value of respiratory rate in experimental I was 2.64, when compared to table value (2.15) it was high

- The paired 't' value of temperature in experimental I was 2, when compared to table value (2.15) it was low

- The paired 't' value of oxygen saturation in experimental I was 2.64, when compared to table value (2.15) it was high

- The paired 't' value of average weight gain in experimental I was 7.894, when compared to table value (2.15) it was high

- The paired 't' value of hematocrit in experimental I was 1.23, when compared to table value (2.15) it was low

- The paired 't' value of hemoglobin in experimental I was 0.56, when compared to table value (2.15) it was low

Experimental group II

- The paired 't' value of heart rate in experimental group II was 3, when compared to table value (2.15) it was high.

- The paired 't' value of respiratory rate in experimental group II the paired t value was 2.05, when compared to table value (2.15) it was less.

- The paired 't' value of temperature in experimental group II was 1.49, when compared to table value (2.15) it was less.

- The paired 't' value of oxygen saturation in experimental group II was 4.57, when compared to table value (2.15) it was high.

- The paired 't' value of average weight gain in experimental group II was 5.61, when compared to table value (2.15) it was high

- The paired 't' value of hematocrit in experimental group II was 1.64, when compared to table value (2.15) it was less.

- The paired 't' value of hemoglobin in experimental group II was 1.478, when compared to table value (2.15) it was less.

3. Findings related to the difference in the effectiveness of tactile/kinesthetic stimulation Vs olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.

For this the unpaired 't; test was used. The results showed that,

- The unpaired ‘t’ value of heart rate in between experimental group I and experimental group II was 1.23, when it compared to table value (2.05) it was less.

- The unpaired ‘t’ value of respiratory rate in between experimental group I and experimental group II was 1.34, when it compared to table value (2.05) it was less.

- The unpaired ‘t’ value of temperature in between experimental group I and experimental group II was 1.21, when it compared to table value (2.05) it was less

- The unpaired ‘t’ value of oxygen saturation in between experimental group I and experimental group II was 0.94, when it compared to table value (2.05) it was less.

- The unpaired ‘t’ value of average weight gain in between experimental group I and experimental group II was 4.59, when it compared to table value (2.05) it was high

- The unpaired ‘t’ value of hematocrit in between experimental group I and experimental group II was 1.32, when it compared to table value (2.05) it was less.

- The unpaired ‘t’ value of hemoglobin in between experimental group I and experimental group II was 1.9, when it compared to table value (2.05) it was less.

4. **Findings related to the association between the selected demographic variable and post test scores of tactile/kinesthetic stimulation and olive oil massage on selected biophysiological parameters among low birth weight babies in experimental group I and II.**

In experimental group I

- The chi square value of gestational age was 4.86 ($p<0.05$)
- The chi square value of birth weight was 5.13 ($p<0.05$)
- The chi square value of gender was 1.35 ($p<0.05$)
- The chi square value of APGAR score was 1.64 ($p<0.05$)
- The chi square value of birth order was 0.33 ($p<0.05$)
- The chi square value of history of antenatal complications of 0.94 ($p<0.05$)
- The chi square value of history of neonatal complications 1.31 ($p<0.05$)

It reveals that there were no significant association found between the post test scores of Experimental group I and demographic variables

In experimental group II

- The chi square value of gestational age was 2.73 ($p<0.05$)
- The chi square value of birth weight was 4.58 ($p<0.05$)
- The chi square value of gender was 1.05 ($p<0.05$)

- The chi square value of APGAR score was 1.45 ($p<0.05$)
- The chi square value of birth order was 1.38 ($p<0.05$)
- The chi square value of history of antenatal complications of 1.81 ($p<0.05$)
- The chi square value of history of neonatal complications 0.58 ($p<0.05$)

IMPLICATIONS

The findings of the study have implication in various areas such as nursing practice, nursing education, nursing administration and nursing research.

Nursing service

The findings of the study clearly point out that,

- ❖ Tactile/kinesthetic stimulation can be used by the Nursing professionals who are working in all hospital and clinical settings as a effective tool.
- ❖ The study results create awareness, that the nurses are in need to have updated knowledge o management of low birth weight babies.
- ❖ The study helps the nurses to have self awareness and knowing the importance of updating knowledge.
- ❖ The study gives the strong evidence for the effectiveness of Tactile/kinesthetic stimulation and olive oil massage which may enhances the regular use in in-service education.

Nursing Education

- ❖ Nursing educator should educate nursing professionals to apply the Tactile/kinesthetic stimulation and find out the effectiveness.

- ❖ The researcher educates the health professionals to utilize the Tactile/kinesthetic stimulation and olive oil massage to improve the level of skill in NICU care.

- ❖ Nurse educator should educate the students regarding these therapies and its uses.

- ❖ Nurse educator should encourage the Nursing personnel to practice the Tactile/kinesthetic stimulation in their clinical settings.

- ❖ Nursing personal should be given in-service education to update their knowledge and improve their state in nursing education.

Nursing Administration

- ❖ Dissertation of research based knowledge will help nurses to function as nurse advocates. This role can be established by the effective nursing administrators, who take active part in policy making protocol and procedures regarding education to nurses with Tactile/kinesthetic stimulation and olive oil massage.

- ❖ Helps the nurse administrator for recommending management for in-service education for better quality care and quality of life among cardiac patients.

Nursing Research

- The findings represent a critical tool for continuous development of a relevant body of knowledge for the body of nursing profession.

- The information from this research helps to boost up for performance of nurse in the clinical settings.

- This study can potentially play a pivotal role at each phase of nursing process by helping the nurses to make more critical thinking and take skilful decision.

- It also helps the nursing personal to develop inquiry by providing a base for further research.

RECOMMENDATIONS

- The study can be replicated in different setting large sample size and there by findings can be generalized for large population.

- A longer period of intervention can be studied for more reliability and effectiveness.

- A comparative study can be done to determine the effectiveness of Tactile/kinesthetic stimulation and massage therapy with other innovative procedures.

- This study can be done with nursing students and other health team members to assess the effectiveness of intervention.

CONCLUSION

From the findings of the study it can be concluded that,

- There were significant effectiveness of tactile/kinesthetic stimulation and olive oil massage on bio physiological parameters among low birth weight newborn.

- There were no significant difference in the effectiveness of tactile/kinesthetic stimulation and olive oil massage on bio physiological parameters among low birth weight newborn.

- There were no significant association between post test scores of bio physiological parameters and their selected demographic variables.

REFERENCES

BOOK REFERENCE

1. Achar's, (2005), "**Text book of pediatrics**", 3rd Edition. Orient Longman Publication, New Delhi.
2. Denise, F.Polit., Cheryl Tatano, Beck.(2002). "**Nursing Research principles and methods**". 7th edition. Lippincott William and Wilkins publication, Newyork.
3. Dorothy R. Marlow, (2002). "**Text book of pediatric nursing**". 6th Edition. Elsevier Publications. Noida.
4. Haber,S., (1997) "**Comprehensive psychiatric nursing**", (5th ed). St.Louis Missouri: Mosby Publishers.
5. K.P. Neeraja, (2008), **"Text book of mental health and psychiatric nursing"**, (1st ed), JP brothers publications.
6. Marilyn J. Hockenberry, "**Wong's essential of pediatrics**". 8th Edition. Elsevier Publications. Noida.
7. Nelson, (2010). "**Text book of pediatrics**", 6th Edition, Elsevier Publications, New Delhi.
8. Niraj Ahuja, K.P, (2002) "**A short text book of psychiatry**", (5th ed). New Delhi: Jaypee Brothers Publication.
9. Noreen Careen, F., (2007) "**Psychiatric nursing**", (1st ed). Haryana: Sonat Publishers
10. OP Ghai, (2003). "**Text book of pediatrics**", 5th Edition. Mehta Publishers, New Delhi.

11. Potter, A. Patricia and Perry G Anne, (1991), "**Basic nursing theory & practice**", 2nd edition. Mosby publications. (p) Ltd, New Delhi.

12. Sundare Rao, (1998), "**An introduction to biostatistics**", 4th edition. Vegas publications (P) Ltd, New Delhi.

13. Suraj Gupte, (2001), "**Text book of pediatrics**", 9th Edition. Jaypee brothers Medical Publishers, New Delhi.

14. Teeri kyle and Susman carman, (2013). "**Text book of pediatric nursing**". 2nd Edition. Lippincott Williams Publications New Delhi.

JOURNAL REFERENCES:-

1. Agarwal KN, Gupta A, Pushkarna R, Bhargava SK, Faridi MM, Prabhu MK. Effects of massage & use of oil on growth, blood flow & Sleep. Indian J Med Res. 2000 Dec;112:212-7.

2. Ahmad MO, Kalsoom U, Sughra U, Hadi U, Imran M. Effect of maternal anaemia on birth weight. Journal of Ayub Medical College Abbottabad. 2011 Mar 1;23(1):77-9.

3. Aucott S, Donohue PK, Atkins E, Allen MC. Neurodevelopmental care in the NICU. Mental retardation and developmental disabilities research reviews. 2002;8(4):298-308.

4. Bache M, Pizon E, Jacobs J, Vaillant M, Lecomte A. Effects of pre-feeding oral stimulation on oral feeding in preterm infants: a randomized clinical trial. Early human development. 2014 Mar 1;90(3):125-9.

5. Bala P, Kaur R, Mukhopadhyay K, Kaur S. Oromotor stimulation for transition from gavage to full oral feeding in preterm neonates: A Randomized controlled trial. Indian pediatrics. 2016 Jan 1;53(1):36-8.
6. Barlow SM, Burch M, Venkatesan L, Harold M, Zimmerman E. Frequency modulation and spatiotemporal stability of the sCPG in preterm infants with RDS. International journal of pediatrics. 2012 Jul 19;2012.
7. Barnard KE, Bee HL. The impact of temporally patterned stimulation on the development of preterm infants. Child Development. 1983 Oct 1:1156-67.
8. Bergman NJ, Linley LL, Fawcus SR. Randomized controlled trial of skin-to-skin contact from birth versus conventional incubator for physiological stabilization in 1200-to 2199-gram newborns. Acta paediatrica. 2004 Jun;93(6):779-85.
9. Boiron M, Nobrega LD, Roux S, Henrot A, Saliba E. Effects of oral stimulation and oral support on non-nutritive sucking and feeding performance in preterm infants. Developmental Medicine & Child Neurology. 2007 Jun;49(6):439-44.
10. Boiron M, Nobrega LD, Roux S, Henrot A, Saliba E. Effects of oral stimulation and oral support on non-nutritive sucking and feeding performance in preterm infants. Developmental Medicine & Child Neurology. 2007 Jun;49(6):439-44.
11. Briere CE, McGrath J, Cong X, Cusson R. State of the science: a contemporary review of feeding readiness in the preterm infant. The Journal of perinatal & neonatal nursing. 2014 Jan 1;28(1):51-8.
12. Caine J. The effects of music on the selected stress behaviors, weight, caloric and formula intake, and length of hospital stay of premature and low birth

weight neonates in a newborn intensive care unit. Journal of Music Therapy. 1991 Dec 1;28(4):180-92.

13. Choi HW, Park HW, Kim HY, Lim G, Koo SE, Lee BS, Kim AR, Kim KS, Pi SY. Feeding desaturation and effects of orocutaneous stimulation in extremely low birth weight infants. Journal of the Korean Society of Neonatology. 2010 Nov 1;17(2):193-200.
14. choll TO, Hediger ML, Fischer RL, Shearer JW. Anemia vs iron deficiency: increased risk of preterm delivery in a prospective study. The American journal of clinical nutrition. 1992 May 1;55(5):985-8.
15. Crnic KA, Ragozin AS, Greenberg MT, Robinson NM, Basham RB. Social interaction and developmental competence of preterm and full-term infants during the first year of life. Child development. 1983 Oct 1:1199-210.
16. Daley HK, Kennedy CM. Meta analysis: Effects of interventions on premature infants feeding. The Journal of perinatal & neonatal nursing. 2000 Dec 1;14(3):62-77.
17. Daley HK, Kennedy CM. Meta analysis: Effects of interventions on premature infants feeding. The Journal of perinatal & neonatal nursing. 2000 Dec 1;14(3):62-77.
18. de Pee S, Bloem MW, Sari M, Kiess L, Yip R, Kosen S. The high prevalence of low hemoglobin concentration among Indonesian infants aged 3–5 months is related to maternal anemia. The Journal of nutrition. 2002 Aug 1;132(8):2215-21.
19. de Pee S, Bloem MW, Sari M, Kiess L, Yip R, Kosen S. The high prevalence of low hemoglobin concentration among Indonesian infants aged 3–5 months

is related to maternal anemia. The Journal of nutrition. 2002 Aug 1;132(8):2215-21.

20. Diego MA, Field T, Hernandez-Reif M, Deeds O, Ascencio A, Begert G. Preterm infant massage elicits consistent increases in vagal activity and gastric motility that are associated with greater weight gain. Acta Paediatrica. 2007 Nov;96(11):1588-91.
21. Diego MA, Field T, Hernandez-Reif M. Vagal activity, gastric motility, and weight gain in massaged preterm neonates. The Journal of pediatrics. 2005 Jul 1;147(1):50-5.
22. Diego MA, Field T, Hernandez-Reif M. Vagal activity, gastric motility, and weight gain in massaged preterm neonates. The Journal of pediatrics. 2005 Jul 1;147(1):50-5.
23. Dieter JN, Emory EK. Supplemental Stimulation of Premature Infats: A Treatment Model. Journal of Pediatric Psychology. 1997 Jun 1;22(3):281-95.
24. Dieter JN, Field T, Hernandez-Reif M, Emory EK, Redzepi M. Stable preterm infants gain more weight and sleep less after five days of massage therapy. Journal of pediatric psychology. 2003 Sep 1;28(6):403-11.
25. Dieter JN, Field T, Hernandez-Reif M, Emory EK, Redzepi M. Stable preterm infants gain more weight and sleep less after five days of massage therapy. Journal of pediatric psychology. 2003 Sep 1;28(6):403-11.
26. Dodrill P. Feeding difficulties in preterm infants. ICAN: Infant, Child, & Adolescent Nutrition. 2011 Dec;3(6):324-31.

27. Erlandsson K, Dsilna A, Fagerberg I, Christensson K. Skin-to-skin care with the father after cesarean birth and its effect on newborn crying and prefeeding behavior. Birth. 2007 Jun;34(2):105-14.

28. Fucile S. Pre-feeding sensorimotor stimulation as an early intervention strategy to enhance oral feeding skills in preterm infants. 2008.

29. Gaebler CP, Hanzlik JR. The effects of a prefeeding stimulation program on preterm infants. American Journal of Occupational Therapy. 1996 Mar 1;50(3):184-92.

30. Gardner JM, Turkewitz G. The effect of arousal level on visual preferences in preterm infants. Infant Behavior and Development. 1982 Jan 1;5(2-4):369-85.

31. Gonzalez AP, Vasquez-Mendoza G, García-Vela A, Guzmán-Ramirez A, Salazar-Torres M, Romero-Gutierrez G. Weight gain in preterm infants following parent-administered Vimala massage: a randomized controlled trial. American journal of perinatology. 2009 Apr;26(04):247-52.

32. Graham KC, Cvach M. Monitor alarm fatigue: standardizing use of physiological monitors and decreasing nuisance alarms. American Journal of Critical Care. 2010 Jan 1;19(1):28-34.

33. Greene Z, O'Donnell CP, Walshe M. Oral stimulation for promoting oral feeding in preterm infants. The Cochrane Library. 2016 Jan 1.

34. Greene Z, O'Donnell CP, Walshe M. Oral stimulation techniques in preterm infants–International research challenges. Journal of Neonatal Nursing. 2013 Aug 1;19(4):168-74.

35. Greene Z, O'Donnell CP, Walshe M. Oral stimulation techniques in preterm infants–International research challenges. Journal of Neonatal Nursing. 2013 Aug 1;19(4):168-74.

36. Haniff J, Das A, Onn LT, Sun CW, Nordin NM, Rampal S, Bahrin S, Ganeslingam M, Kularatnam KI, Zaher ZM. Anemia in pregnancy in Malaysia: a cross-sectional survey. Asia Pacific Journal of Clinical Nutrition. 2007 Sep 1;16(3):527-36.

37. Harding C, Frank L, Van Someren V, Hilari K, Botting N. How does non-nutritive sucking support infant feeding?. Infant Behavior and Development. 2014 Nov 1;37(4):457-64.

38. Harding C, Frank L, Van Someren V, Hilari K, Botting N. How does non-nutritive sucking support infant feeding?. Infant Behavior and Development. 2014 Nov 1;37(4):457-64.

39. Harrison LL, Williams AK, Berbaum ML, Stem JT, Leeper J. Physiologic and behavioral effects of gentle human touch on preterm infants. Research in Nursing & Health. 2000 Dec;23(6):435-46.

40. Henderson AE, Hallett RH, Soroka JJ. Prefeeding behavior of the crucifer flea beetle, Phyllotreta cruciferae, on host and nonhost crucifers. Journal of insect behavior. 2004 Jan 1;17(1):17-39.

41. Hernandez-Reif M, Diego M, Field T. Preterm infants show reduced stress behaviors and activity after 5 days of massage therapy. Infant Behavior and Development. 2007 Dec 1;30(4):557-61.

42. Hernandez-Reif M, Diego M, Field T. Preterm infants show reduced stress behaviors and activity after 5 days of massage therapy. Infant Behavior and Development. 2007 Dec 1;30(4):557-61.

43. Howe TH, Wang TN. Systematic review of interventions used in or relevant to occupational therapy for children with feeding difficulties ages birth–5 years. American Journal of Occupational Therapy. 2013 Jul 1;67(4):405-12.

44. Hwang YS, Vergara E, Lin CH, Coster WJ, Bigsby R, Tsai WH. Effects of prefeeding oral stimulation on feeding performance of preterm infants. The Indian Journal of Pediatrics. 2010 Aug 1;77(8):869-73.

45. Hwang YS, Vergara E, Lin CH, Coster WJ, Bigsby R, Tsai WH. Effects of prefeeding oral stimulation on feeding performance of preterm infants. The Indian Journal of Pediatrics. 2010 Aug 1;77(8):869-73.

46. Jansson UM, Mustafa T, Khan MA, Lindblad BS, Widström AM. The effects of medically-orientated labour ward routines on prefeeding behaviour and body temperature in newborn infants. Journal of tropical pediatrics. 1995 Dec 1;41(6):360-3.

47. Jansson UM, Mustafa T, Khan MA, Lindblad BS, Widström AM. The effects of medically-orientated labour ward routines on prefeeding behaviour and body temperature in newborn infants. Journal of tropical pediatrics. 1995 Dec 1;41(6):360-3.

48. Johnston CC, Stevens BJ, Yang F, Horton L. Differential response to pain by very premature neonates. Pain. 1995 Jun 1;61(3):471-9.

49. Jopling J, Henry E, Wiedmeier SE, Christensen RD. Reference ranges for hematocrit and blood hemoglobin concentration during the neonatal period: data from a multihospital health care system. Pediatrics. 2009 Feb 1;123(2):e333-7.

50. Kamhawy H, Holditch-Davis D, Alsharkawy S, Alrafay S, Corazzini K. Non-nutritive Sucking for Preterm Infants in Egypt. Journal of Obstetric, Gynecologic, & Neonatal Nursing. 2014 May;43(3):330-40.

51. Xavier N, Nazi S, Shariat M, Saboteh M, Farahani Z. The Effects of Pre-feeding Oral Stimulations and Non-nutritive Sucking on Physical Growth and Independent Oral Feeding of Preterm Infants. Iranian Journal of Neonatology IJN. 2015 Dec 1;6(4):25-9.

52. Zijio HL, Mogren I, Lindmark G, Massawe S, Nystrom L. Risks for preterm delivery and low birth weight are independently increased by severity of maternal anaemia. SAMJ: South African Medical Journal. 2009 Feb;99(2):98-102.

NET REFERENCE

- www.teachernet.com
- www.interaction.om
- www.pedresearch.com
- www.google.com
- www.yahoo.com
- www.pubmed.com
- www.answer.com
- www.medscape.co.in
- www.wikipedia.org
- www.naturalnews.com

ANNEXURE –I

LETTER SEEKING PERMISSION TO CONDUCT STUDY

From

301617554
II year M.Sc Nursing (Child Health Nursing),
Sresakthimayeil Institute of Nursing & Research,
(JKK Nattraja Educational Institutions)
Kumarapalayam P.O,Namakkal Dt.

Forwarded through

The Principal
Sresakthimayeil Institute of Nursing & Research,
(JKK Nattraja Educational Institutions)
Kumarapalayam P.O), Namakkal Dt.

Respected Sir,

Sub : Permission to conduct study - Regarding

I am M.Sc. (Child Health Nursing) II year student of Sresakthimayeil Institute of Nursing and Research. As a partial fulfillment of Master of Science in Nursing, I am going to conduct a research and submit the dissertation work to the Tamil Nadu Dr. M.G.R. Medical University, Chennai by October 2018.

The statement of the problem chosen for my study is **"A STUDY TO ASSESS THE EFFECTIVENESS OF TACTILE/KINESTHETIC STIMULATION VS OLIVE OIL MASSAGE ON SELECTED BIOPHYSIOLOGICAL PARAMETERS AMONG LOW BIRTH WEIGHT BABIES IN SELECTED HOSPITAL, PERAMBALUR DISTRICT".**

I request you to permit me to conduct the proposed study under your jurisdiction and provide the necessary facilities for the study. Kindly do the needful.

Thanking you in anticipation,

Yours Faithfully,

(301617554)

PRINCIPAL
SRESAKTHIMAYEIL INSTITUTE OF
NURSING AND RESEARCH
KOMARAPALAYAM - 638 183

SRESAKTHIMAYEIL INSTITUTE OF NURSING AND RESEARCH * KOMARAPALAYAM-638183 *

ANNEXURE – II

LETTER GRANTING PERMISSION TO CONDUCT STUDY

From,

301617554
II year M.Sc Nursing (Child Health Nursing),
Sresakthimayeil Institute of Nursing & Research,
(JKK Nattraja Educational Institutions)
Kumarapalayam P.O,Namakkal Dt.

Forwarded through,
The Principal
To,

The Medical Director,
Ramasamy Hospital,
Perambalur Dt.

PRINCIPAL
SRESAKTHIMAYEIL INSTITUTE OF
NURSING AND RESEARCH
KOMARAPALAYAM - 638 183.

Respected Sir,

Sub: M.Sc., (Nursing) student – research – data collection – regarding.

301617554 is a II year M.Sc. Nursing student of Sresakthimyeil Institute of Nursing and Research. As a partial fulfillment of Master of Science in Nursing, I am going to conduct a research and submit the dissertation work to the Tamil Nadu Dr.M.G.R. Medical University, Chennai by October 2018.

The statement of the problem chosen for my study is **"A STUDY TO ASSESS THE EFFECTIVENESS OF TACTILE/KINESTHETIC STIMULATION VS OLIVE OIL MASSAGE ON SELECTED BIOPHYSIOLOGICAL PARAMETERS AMONG LOW BIRTH WEIGHT BABIES IN SELECTED HOSPITAL, PERAMBALUR DISTRICT"**.

I request you to permit me to collect the data from your hospital. I assure you that I will not in any way affect the routine work of your hospital nor would it harm the study subjects.

Kindly do the needful.
Thanking you,

Dr. Mahendran Ramasamy
M.D.(Physician), M.D.(Ped),
Reg. No. 80688,
RAMASAAMY HOSPITAL,
PERAMBALUR.

Yours sincerely,
301617554
Sresakthimayeil Institute of
Nursing and Research.
Kumarapalayam, Namakkal (Dt).

ANNEXURE – III

LETTER REQUESTING FOR OPINION & SUGGESTIONS OF EXPERTS FOR CONTENT AND TOOL VALIDATION

From

301617554
II year M.Sc Nursing (Child Health Nursing),
Sresakthimayeil Institute of Nursing & Research,
(JKK Nattraja Educational Institutions)
Kumarapalayam P.O,Namakkal Dt.

Forwarded through

The Principal
Sresakthimayeil Institute of Nursing & Research,
(JKK Nattraja Educational Institutions)
Kumarapalayam P.O), Namakkal Dt.

Respected Sir/Madam,

Subject: Request for Expert Opinion and Suggestion to establish validation of Content and Research Tool

I am a final year M.Sc Nursing student of Sresakthimayeil Institute of Nursing & Research, (JKK Nattraja Educational Institutions), Kumarapalayam,have selected the topic on **"A STUDY TO ASSESS THE EFFECTIVENESS OF TACTILE/KINESTHETIC STIMULATION VS OLIVE OIL MASSAGE ON SELECTED BIOPHYSIOLOGICAL PARAMETERS AMONG LOW BIRTH WEIGHT BABIES IN SELECTED HOSPITAL, PERAMBALUR DISTRICT"** as a partial fulfillment of M.Sc (N) programme, which has to be submitted to the Tamil Nadu Dr.M.G.R Medical University.

The prepared study tool is enclosed so I humbly request you to go through and give your valuable suggestions, modification and opinions. Kindly do the needful.

Thanking you in anticipation.

PRINCIPAL
SRESAKTHIMAYEIL INSTITUTE OF
NURSING AND RESEARCH
KOMARAPALAYAM - 638 183

SRESAKTHIMAYEIL INSTITUTE OF NURSING AND RESEARCH • KOMARAPALAYAM-638183 •

Yours faithfully

301617554

ANNEXURE – IV

LIST OF EXPERTS

1. **Dr. Mrs. R. JAMUNA RANI, M.Sc. (Nursing), Ph.D,**
   Principal,
   Sresakthimayeil Institute of Nursing and Research,
   (J.K.K.N. Educational Institutions)
   Kumarapalayam.

2. **Prof. Mrs. P. BEULAH, M.Sc., (N)., PGDSH,**
   HOD, Child Health Nursing,
   Sresakthimayeil Institute of Nursing and Research,
   Kumarapalayam.

3. **Dr.G.MAHESWARI, M.Sc., (N), Ph.D.,**
   Professor cum HOD – Child Health Nursing,
   Dhanvantri College of Nursing,
   Pallakkapalayam.

4. **Mrs. T.JAYADEEPA, M.Sc., (N),**
   Vice Principal,
   Dhanvantri College of Nursing,
   Pallakkapalayam.

5. **Mrs. R.REKHA, M.Sc., (N),**
   Professor,
   Dhanvantri College of Nursing,
   Pallakkapalayam.

6. **Prof. DHANAPAL, M.Sc., PGDC,**
   Statistician,
   Sresakthimayeil Institute of Nursing and Research,
   Kumarapalayam.

APPENDIX – V

CONTENT AND TOOL VALIDATION CERTIFICATE

Name	: **Dr.G.MAHESWARI, M.Sc., (N), Ph.D.,**
Designation	: Professor cum HOD – Child Health Nursing,
Name of the college	: Dhanvantri College of Nursing, Pallakkapalayam.

I hereby certify that I have validated the tool of **301617554-** II year M.Sc Nursing student of Child Health Nursing Department who has taken Dissertation on **"A STUDY TO ASSESS THE EFFECTIVENESS OF TACTILE/KINESTHETIC STIMULATION VS OLIVE OIL MASSAGE ON SELECTED BIOPHYSIOLOGICAL PARAMETERS AMONG LOW BIRTH WEIGHT BABIES IN SELECTED HOSPITAL, PERAMBALUR DISTRICT"**

Signature of the expert

CONTENT AND TOOL VALIDATION CERTIFICATE

Name : **Mrs. T.JAYADEEPA, M.Sc., (N),**

Designation : Vice Principal,

Name of the college : Dhanvantri College of Nursing,
Pallakkapalayam.

I hereby certify that I have validated the tool of **301617554-** II year M.Sc Nursing student of Child Health Nursing Department who has taken Dissertation on **"A STUDY TO ASSESS THE EFFECTIVENESS OF TACTILE/KINESTHETIC STIMULATION VS OLIVE OIL MASSAGE ON SELECTED BIOPHYSIOLOGICAL PARAMETERS AMONG LOW BIRTH WEIGHT BABIES IN SELECTED HOSPITAL, PERAMBALUR DISTRICT"**

Signature of the expert

CONTENT AND TOOL VALIDATION CERTIFICATE

Name : **Mrs. R.REKHA, M.Sc., (N),**

Designation : Professor,

Name of the college : Dhanvantri College of Nursing, Pallakkapalayam.

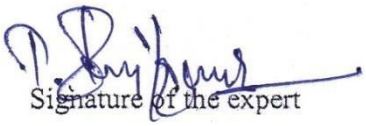
I hereby certify that I have validated the tool of **301617554-** II year M.Sc Nursing student of Child Health Nursing Department who has taken Dissertation on **"A STUDY TO ASSESS THE EFFECTIVENESS OF TACTILE / KINESTHETIC STIMULATION VS OLIVE OIL MASSAGE ON SELECTED BIOPHYSIOLOGICAL PARAMETERS AMONG LOW BIRTH WEIGHT BABIES IN SELECTED HOSPITAL, PERAMBALUR DISTRICT"**

Signature of the expert

APPENDIX –VI

CERTIFICATE BY THE ENGLISH EDITOR

This is to certify that the dissertation entitled **"A STUDY TO ASSESS THE EFFECTIVENESS OF TACTILE / KINESTHETIC STIMULATION VS OLIVE OIL MASSAGE ON SELECTED BIOPHYSIOLOGICAL PARAMETERS AMONG LOW BIRTH WEIGHT BABIES IN SELECTED HOSPITAL, PERAMBALUR DISTRICT"** is a bonafied research work done by **301617554,** II year M.Sc Nursing, student of Sresakthimayeil Institute of Nursing & Research, (JKK Nattraja Educational Institutions), Kumarapalayam P.O, Namakkal District.



Signature of the expert

APPENDIX –VII

CERTIFICATE BY THE STATISTICIAN

This is to certify that the dissertation entitled **"A STUDY TO ASSESS THE EFFECTIVENESS OF TACTILE / KINESTHETIC STIMULATION VS OLIVE OIL MASSAGE ON SELECTED BIOPHYSIOLOGICAL PARAMETERS AMONG LOW BIRTH WEIGHT BABIES IN SELECTED HOSPITAL, PERAMBALUR DISTRICT"** has been statistically analyzed under the consultation and guidance of the statistician.

Signature of the Statistician

(K. DHANAPAL)

APPENDIX –VIII

TOOL FOR DATA COLLECTION

The data collection tool consists of following section

Section A: Informed Consent

Section B: Observational tool on physiological parameters

SECTION A : DEMOGRAPHIC VARIABLES

1. Gestational age

a) 28 weeks ☐
b) 29 weeks ☐
c) 30 weeks ☐
d) 31 weeks ☐
e) 32 weeks ☐

2. Birth weight

a) Less than 1500 grams ☐
b) 1500 - 1750 grams ☐
c) 1750 – 2000 grams ☐
d) 2000 – 2250 grams ☐

3. Sex

a) Male ☐
b) Female ☐

4. Apgar (5 min)

    a) Less than 5 ☐

    b) 5 – 7 ☐

    c) Above 7 ☐

5. Birth order of child

    a) First child ☐

    b) Second child ☐

    c) Third child ☐

    d) Fourth child ☐

6. Family history of preterm birth

    a) Yes ☐

    b) No ☐

7. History of antenatal complications

    a) Yes ☐

    b) No ☐

8. History of neonatal complications

    a) Yes ☐

    b) No ☐

SECTION B – OBSERVATIONAL TOOL ON PHYSIOLOGICAL PARAMETERS

S.No.	Observed parameters	Pre test	Post test II
1.	Heart rate (per min)		
2.	Respiratory rate (per min)		
3.	Temperature(ºC)		
4.	Oxygen saturation (%)		
5.	Weight gain/day		
6.	Hematocrit level		
7.	Haemoglobin		

APPENDIX –IX

BLUE PRINT FOR TACTILE/KINESTHETIC STIMULATION

Experimental group I – Tactile and kinaesthetic stimulation

Characteristics	Stimulation Steps	Duration
Tactile	**The preterm was in prone position.** **Strokes were given with hands**	
Head-Neck	From the top of the head to the neck.	1 min
Neck-Shoulders	From the neck across the shoulders.	1 min
Back	From the upper back to the waist.	1 min
Kinaesthetic	**Infant was in supine position.** **The firm grasp was started in neutral**	
Right Arm	Passive flexion & extension were given.	1 min
Left Arm	Passive flexion & extension were given.	1 min
Right Leg	Passive flexion & extension were given.	1 min
Left Leg	Passive flexion & extension were given.	1 min
Tactile	**The preterm was in prone position.** **Strokes were given with hands**	
Head-Neck	From the top of the head to the neck.	1 min
Neck-Shoulders	From the neck across the shoulders.	1 min
Back	From the upper back to the waist.	1 min
Total duration		**10 min**

APPENDIX – X

PHOTOGRAPHS

Certificate

Declaration

Acknowledgement

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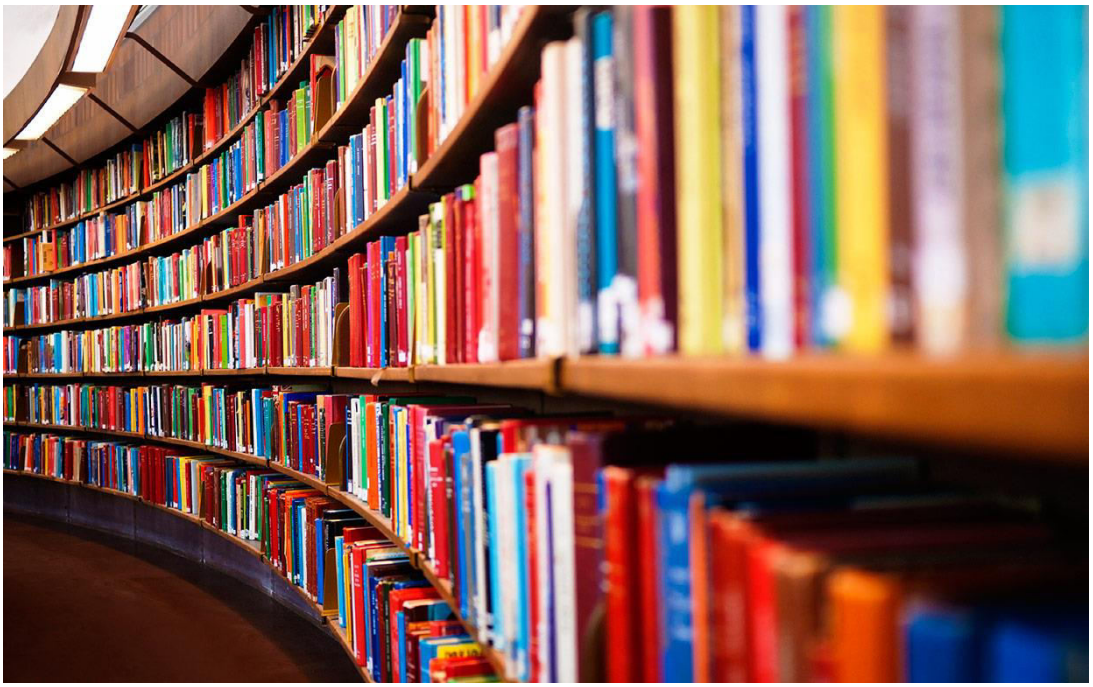
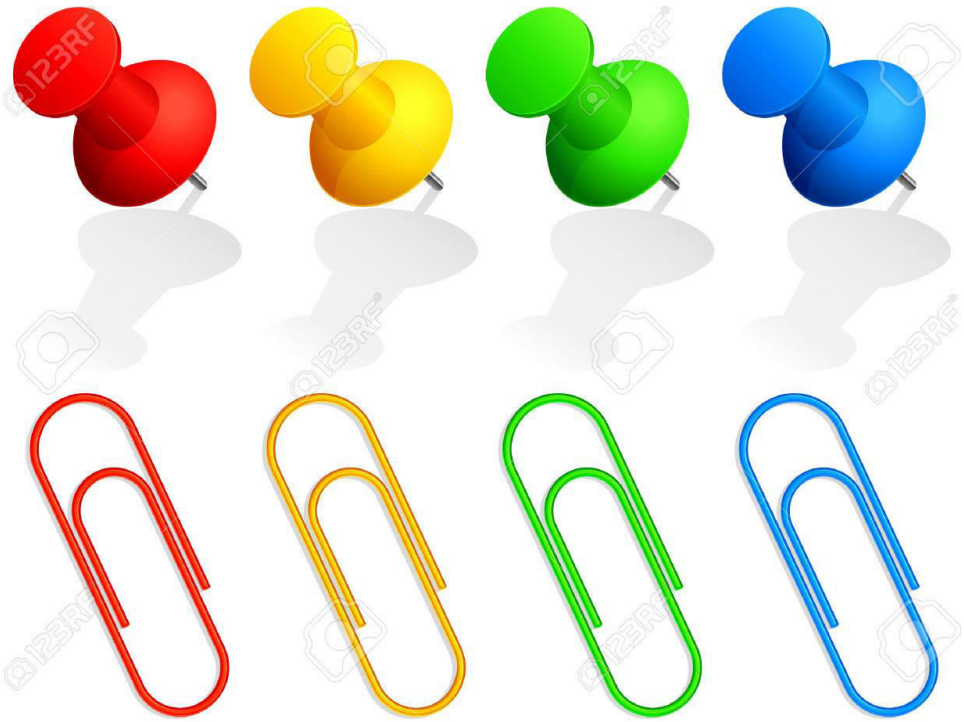
Discussion

Chapter – VI

Summary, Conclusion, Implications and Recommendations



References



Appendices

Photographs

Thanking you