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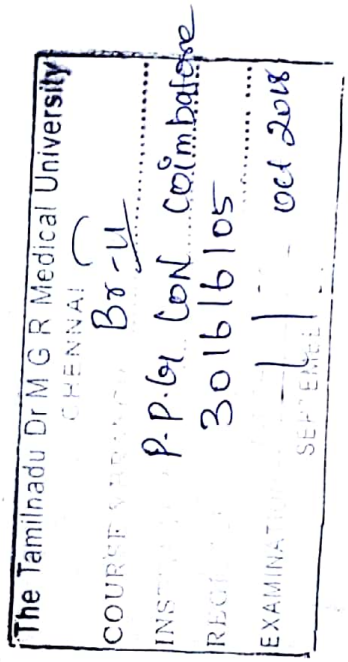

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EXTERNAL :- [signature] 26/10/2018

By

Reg. No:301616105

BRIGIT A.P [SR. DEEPA PETER]

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

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CERTIFIED THAT THIS IS THE BONAFIED WORK OF

Reg. No:301616105
P.P.G COLLEGE OF NURSING,
COIMBATORE

SIGNATURE: _____ **COLLEGE SEAL**

Dr.P.MUTHULAKSHMI.M.SC(N)., M.Phil., Ph.D.,
Principal,
P.P.G College of Nursing,
Coimbatore -35

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APPROVED BY THE DISSERTATION COMMITTEE ON OCTOBER 2017

RESEARCH GUIDE: _____

Dr.P.MUTHULAKSHMI.M.SC (N)., M.Phil., Ph.D.,

Principal,
P.P.G College of Nursing,
Coimbatore -35.

SUBJECT GUIDE : _____

Dr.K.JEYABARATHI., M.SC(N)., Ph.D.,

HOD, Department of Child Health Nursing,
P.P.G College of Nursing,
Coimbatore -35.

MEDICAL GUIDE: _____

Dr.B. DANIEL MANORANJAN., MBBS, DCH.,

Department of Paediatrics,
Vimal Jyothi Hospital
Coimbatore -35.

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

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Department of Paediatrics,

Ashwin Hospital,

Coimbatore.

2.Dr. JUNE MARY MATHEW, M.Sc(N)., Ph.D.,

Department of Paediatric Nursing,

SME College of Nursing,

Kottayam.

3.Prof. BABITHA, M.Sc(N).,

Department of Paediatric Nursing,

Nightingale College of Nursing,

Coimbatore.

4.Prof. B. YOGESH KUMAR, M.Sc(N).,

Department of Paediatrics,

BRS.College of Nursing,

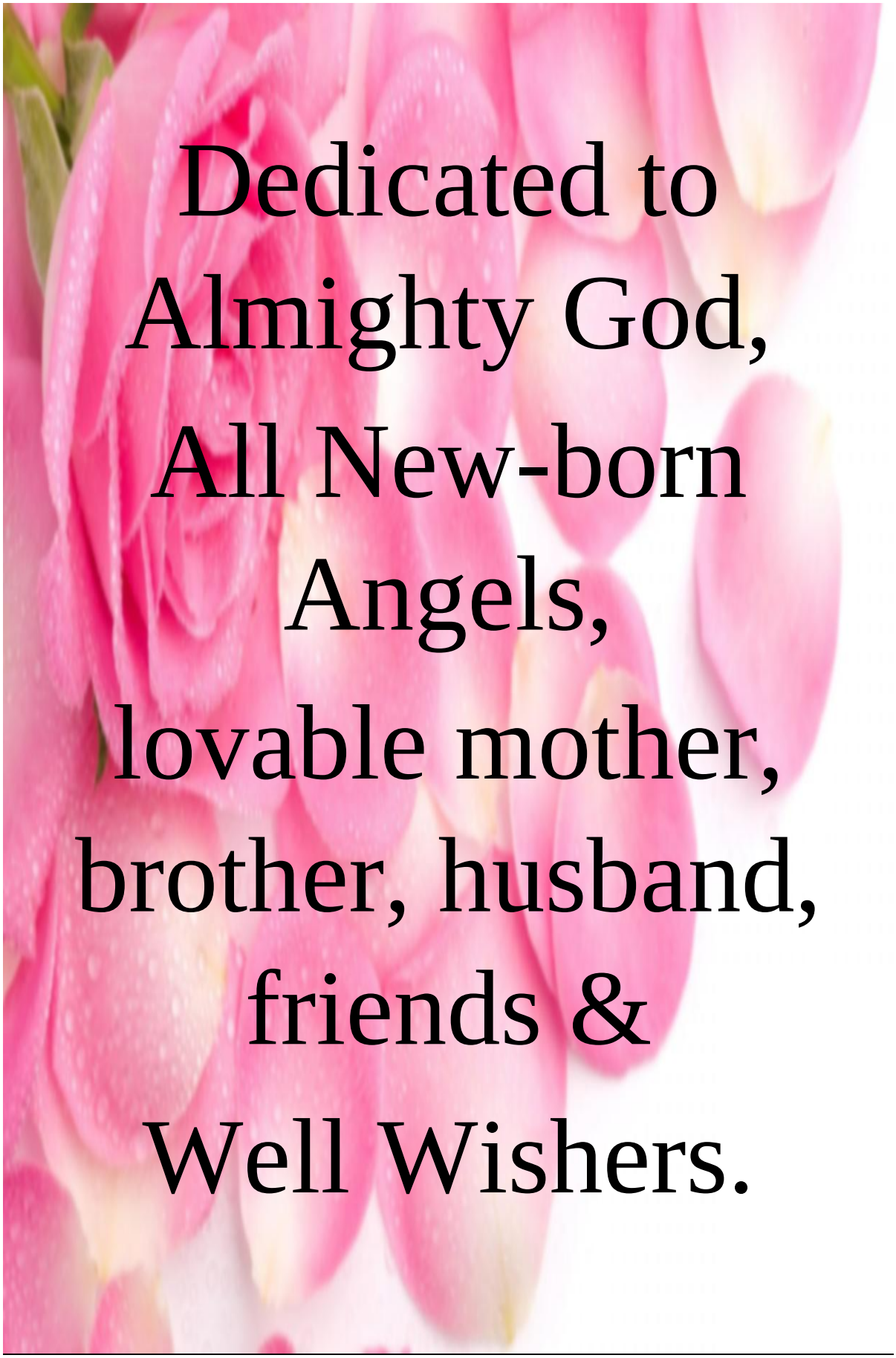
Punjab.

5.Prof. PRIYA, M.Sc(N).,M.Phil.,

Department of Paediatrics,

C.B.H College of Nursing,

Nagarkovil.


Dedicated to
Almighty God,
All New-born
Angels,
lovable mother,
brother, husband,
friends &
Well Wishers.

CHAPTER I

INTRODUCTION

"Never Will A Time Come, When the Most Marvelous Recent Invention

Is as Marvelous as A Newborn Child"

-Carl Sandburg(1972)

A newborn infant or neonate, is a child under 28 days of age. Neonatal period is characterized by transition to extra uterine life and exquisitely rapid growth and development. This is the phase in life with the greatest risk of mortality as well as maximum potential for long term physical and neurocognitive development(UNICEF, 2018).

The current status of neonatal health in India is indeed dismal to state the least 3 neonates are dying every minute in India. Every year 2.6 million babies die before turning one month old. The major causes of neonatal mortality are sepsis, birth asphyxia, prematurity and low birth weight (UNICEF Data, 2018).

High risk newborn is defined as any neonate when is in danger of serious illness or death as a result of prenatal, perinatal or neonatal conditions, regardless of birth weight or gestational age. High risk newborns are most often classified according to birth weight (LBW, VLBW, ELBW) and gestational age (SGA, IUGR, preterm < 37 wks) and predominant pathophysiologic problem (Dr. LorntryPatrich).

LBW and prematurity were found to be the major contributing factors for neuro-development delay. Maximum incidence of developmental delay was noted in

babies with birth weight between 1.5 – 2 kg (42.6%) with a sharp decline in incidence in babies' weight > 2.5 kg (19.4%). (Journal of public health research, 2015).

The motor patterns of preterm infants are dominated by extension and to a lesser degree flexion when compared to infants born at term. Due to immaturity, they often lack adequate muscle tone and are at risk for develops abnormal movement patterns as well as skeleton deformation. (Dorothy R. Marlow)

An article published in neonatal units in trend perinatal network on positioning of preterm and sick neonates. In that its states that positioning aims to provide safe comfortable and appropriate care for preterm infant who need help in coping with the environment outside their mother's womb (Darmneward, 2003).

Postural control is intimately linked to motor control: dynamic motor actions cannot be performed without first stabilizing body posture. This is true for voluntary as well for involuntary movements. Positioning that promotes neuromuscular development (Kernell D, PubMed).

If the newborn lies flat on the baby back on a very firm matters, without the safe & secure feeling baby had in the womb, baby could feel he were falling into space. This posture could also be the start of various physical ailments (cocoonababy nest,1995).

Strategies used to modify the extra uterine environment include control of external stimuli, clustering of care activities, positioning or nesting of the preterm infant to mimic the intrauterine environmental and provide containment and the provision of longer rest periods, one or more of the elements may be utilized, according to need, when

providing developmental care to individual infants.Developmental care, introduced in the mid 1980's in an approach designed to address environmental concerns. (Hunter, 2004).

Nesting, as a component of developmental care, improves neonates' sleep quality through preservation of neonates' curved limb position and reduction of sudden movements as well as immobility of the arms and legs (Khan. Z, 2003).

The nest which has been adopted by European NICUs, aims to stabilize body posture, positioning the head towards the midline, and facilitating a flexed or semi-flexed posture of the head. It also seems to prevent abrupt and distressing movements (Cuttini M, MaraschiniA,et.al., 2006).

The correct positioning will help the baby to develop good posture and improve muscle control. Nesting can be prepared by using sheets, preferably soft one. Roll the sheets length way so that they are tubes. These are then placed round the baby so that baby got sometime secure around them on both sides and under baby feet. This will not only help them to feel safe but it will also encourage good posture and muscle movement and provide comfort positioning (Col MNG Nair, 2003)

Babies usually feel more secure and are more physiologically stable if they have boundaries (nesting) placed around them, as they are used to an enclosed womb. In addition, they gain comfort from being able to grasp their hands together, suck their fingers or hold onto bedding. Often babies need assistance to find a position in which they can do these things (Network lead nurse, supportive positioning guidelines).

When lying in the nest, the infants more often displayed a flexed posture with shoulder adduction and elbow, hip and knee flexion, and the head was frequently in the

midline. The nest was also associated with an increase in elegant wrist movements and movements towards and across the midline and a reduction in abrupt movements and frozen postures of the limbs. The nest did not affect the occurrence of asymmetrical tonic neck posture(F Ferrari, N Bertoncelli, 2007).

Comfort measure include "nesting" swaddling offering a pacifier, positioning strategies and promoting rest. Nesting is recommended that a flexed, midline position is maintained without overextending the baby's head and neck. Nesting, as a component of developmental care, improves neonates curved limb position and reduction of sudden movements as well as immobility of the arms and legs (Wolters Kluwer – Medknow Publications).

NEED FOR THE STUDY

Newborn have so many adjustment problems soon after the delivery. When they were in mother's womb, the temperature is maintained and the flexed position provides much comfort to the baby. After delivery, there is an alteration in the posture. The striking difference between the intrauterine environment and the neonatal intensive care unit is obvious. The sensory impact of the NICU has been postulated to adversely influence the neurodevelopment outcome of preterm infants (Hunter J, 2004).

The studies show that disturbance in the posture cause spontaneous motor behavior. Normal position prevents frozen postures of arms and legs. In supine position movement towards and midline, elegant wrist movement, abrupt and or limb movement, rolling to side and frozen postures of arm and legs were assessed. If the newborn in nest, flexed

posture with shoulders, adduction of elbow and knee flexion and the head was frequently in midline (Ferrari F, 2007).

A survey conducted by the FSLD and BLISS (2008) on positioning and posture of newborns. The study result shows that the consequences of unsupported positioning of newborns, i.e., asymmetrical deformation due to professional head turning to right, dolichocephaly – progressive lateral skull flattering that results in a narrow elongated head, increased active extension of the trunk and neck with subsequent motor asymmetries causing arching of the neck and back, shoulder external rotation and retraction with scapular adduction, lower extremity hip adduction, external rotation of the tibia and ankle eversion resulting in the frog leg position. This may delay motor skills such as crawling and walking in the first year of life and is associated with toe walking up to eighteen months.

Good posture during growth and development keeps bone and joints in correct alignment and prevent abnormal wear and tear as well as keeping spine from becoming fixing in an abnormal position. Good posture is very important to health and wellbeing. While many people are aware of the importance of good posture it is still one of the most neglected method of improving health and fitness. One of the major cause of the bad posture is a misalignment of the skeletal bones. There are three major deviation of normal posture, lordosis, kyphosis and scoliosis. In addition to stressing the baby's spine it can also negatively influence the development of baby's hip joints (Selvin M, 2000).

Positioning the preterm babies is a very important aspect of care. Good positioning practices promote neuromotor development and can have a positive effect on

both short and long-term outcomes for babies. The use of nesting or boundaries to help maintain babies in position. The preterm or sick babies requires support to facilitate and maintain postures that enhances motor control and physiological functioning and reduce stress (supportive care in newborn).

Developmental care for premature babies was introduced by Dr. Heidi AL's, and has become an accepted standard of care. Developmental care is a broad category of interventions that is designed to minimize the stress of the NICU environment. 'Nesting' is a comfort measure that stimulates in utero feeling (Bingham R, 2012).

Nesting is convenient, cost-effective, requires less time and skills, hence it is easy for the nurse to practice and beneficial for preterm babies, starts with simple intervention by making nest for preterm babies.

When the baby is in nest, head is tilted slightly forward and he can make easy eye contact with his mother and father as soon as they bend towards him, facilitating the relationship between child and parent. With his arms in front of him and no longer in the batrachians or position his hands rapidly find his face. This in turn leads to a better ability to touch, feel and grasp. Less stressed by his new environment, calmed by the fact he can touch his face and aware of the limits of his own body, baby feels comforted and falls asleep more easily (Oyen N, 2011).

. The extended position for long periods can lead to abnormal tone with consequent delay in the motor development. Sometimes, it is difficult to place the premature baby in a curled up, flexed position because of attachments of lines and

sensors. Nesting is one of the key factor in maintaining beneficial position of a neonate and should be practiced routinely. Position hands together near face and feet's together (FSID and BLISS, 2008).

An article on the topic 'developmental care of the newborn and infants' in a journal 'A guide for health care professionals". External support compensates for the infants immature postural and motor control; a comfortable soft nest with secure and deep boundaries stimulates the positioning benefits of the womb support head and trunk in neutral alignment with extremities flexed and tucked towards midline. In supine, encourage head in midline boundaries that are shallow, don't touch the infant or allow flat posture are ineffective (Symington A, 2003).

Another article on 'Developmental care of newborns and infants' is published in a guide for health professional. It suggests the positioning techniques. Therapeutic positioning will only be effective with ongoing care giver attention. In all positions aim for; head in midline, shoulders rounded, hands to midline or face, neutral flexed position, boundaries to circle the whole infant. This must be balanced with the need to promote rest and handle minimally. Elevated head of bed to 30 degrees to promote cardiovascular, pulmonary and gastro intestinal function, provide boundaries using rolled up sheets and blankets or use commercially available positioning products such as nests, bean bags and bendy bumpers. Boundaries should touch the baby and provide support but should not be restrictive or limit movements. Use of positioning aids such as nests, necessitates careful monitoring of the baby's temperature to avoid overheating containment. Positioning maneuvers during procedures such as blood taking or even routine cares and position

changes has been shown to reduce the physiological behavioral responses to stressful procedures (BLISS, 2006).

As a nurse,it's our responsibility is to maintain the posture and movement as much as possible to provide maximum comfort to the baby to reduce further complication.So, the researcher felt the need that to contribute newer practices in neonates and to improve their posture and motor performance as well as prevent further hidden consequences, this study must be done to find out the effectiveness of nesting on the posture and motor performance of high risk newborns.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of nesting on posture and motor performance among high risk newborn in VimalJyothi hospital at Coimbatore.

OBJECTIVES

- To assess the posture and motor performance of high risk newborn in experimental and control group.
- To provide nesting among high risk newborn in experimental group.
- To reassess the effectiveness of nesting on posture and motorperformance of high risk newborn in both experimental and control group.
- To compare the effectiveness of nesting on posture and motor performance of high risk newborn in both experimental and control group.
- To associate the effectiveness of nesting on posture and motor performance of high risk newborn with their selected demographic variables.

RESEARCH HYPOTHESIS

1. H1: There will be significant difference in the mean post test score of posture and motor performance of high risk newborn among experimental and control group.
2. H2: There will be significant association between the posture and movement of high risk newborn and their selected Demographicvariables like age, sex, mode of delivery, weight of baby.

OPERATIONAL DEFINITIONS

- **Assess**

  It refers to the estimation of posture and motor performance among high risk newborn in nesting.

- **Effectiveness**

  It refers to quality of being able to bring about an outcome. In this study, it refers to how much nesting, can improve to maintain the normal posture and motor performances of the high-risk newborn as measured by the Infant position assessment tool and Modified Ferrari motor assessment tool.

- **Nesting**

  In this study, it refers to a comfortable position provided to the newborn, which is shell – shaped made by putting two rolled sheets in a form of an oval in which the baby lies.

- **Posture**

  In this study, it refers to a position or alignment of various parts of the body in relation to one another for minimum of 10 seconds, it includes position of shoulder in terms of shoulder adduction and abduction, flexion and extension of elbows, hips, knees, head and neck of newborns when they are lying in nest.

- **Motor performance**

  In this study, it refers to a manner or style of moving body parts by newborns such as head rotation from side to midline and back, head rotation from side to side, hand–mouth contact, hand– head contact, gently striking head with open hands, hand-hand contact, hands touching contralateral shoulder and trunk, hand-leg contact, foot-foot contact, elegant wrist movements, abrupt hand and limb movement and rolling to side when they are lying in nest.

- **High risk newborn**

  In this study, it refers to a baby born less than 37 weeks of gestation and low birth weight babies (birth weight less than 2.5kg).

ASSUMPTION

- The high-risk newbornrequire support to facilitate and maintain postures that enhance motor control.
- Nesting improves the posture and motor performance among high risk newborn.

CHAPTER II

REVIEW OF LITERATURE

A literature review is a written summary of the state of existing knowledge on a research problem. The task of reviewing research involves the identification, selection, critical analysis and written description of existing information on a topic (Polit and Hungler,2009).

The Review of Literature in this Study is Organized Under the Following Headings

- Literature related to effectiveness of nesting among high risk newborn.
- Literature related to maintaining positioning of neonate.
- Literature related to maintaining motor performance of neonate.

Literature Related to Effectiveness of Nesting among High Risk Newborn

A.Kahraman (2017) conducted an experimental study on 'the effect of nesting positions on pain, stress and comfort during heel lance in premature infants'. The sample comprised 33 premature neonates with gestational age of 31 – 35 weeks who had been hospitalized in NICU. The nesting positions were given using sheets or towels on the infants. The study was applied to the heel lance procedure that is performed routinely in to determine bilirubin and hematocrit levels. The observer assessed the pain, distress and the comfort levels of the infants according to the Neonatal Infant Pain Scale (NIPS) and COMFORT neo scale. NRS-distress scores for premature neonates who were in the prone position during the procedure were significantly lower than the scores in the supine position ($p < 0.000$). This emphasis that the nesting prone position had pain reducing,

comforting and stress relieving effects in premature babies at NICU during heel lance procedure.

TayebehReyhani, SomayehRamezani, et.al., (2016) conducted an experimental study on 'evaluation of effect of nest posture on sleep – wake state of premature babies'. The cross-over clinical trial was conducted on 60 premature infants admitted in NICU of Ghaem Hospital in Mashhad, Iran. Infants were divided into two groups of experimental and control group. Data were collected using the Assessment of Premature Infants' Behavior (APIB). Neonates in the control group were placed in an incubator, and neonates in the experimental group were positioned in a nest. As per the result of the study, nest posture increased the deep sleep hours of premature babies, which could accelerate brain maturity. Therefore, it is recommended that nest posture be used to improve the deep sleep state of premature babies.

Ms. k. Prasanna and Mrs. Radhika (june2015) conducted a quasi experimental study on 'Effectiveness of nesting on posture and motor performance among newborn babies in selected hospital at Nellore, Andrapradesh'. The sample size was 60 newborn babies and the purposive sampling was used for selection of subjects. Among them 30 newborns were assigned to experimental group and 30 newborns to control group. Questionnaire to obtain socio demographic data of baby and mother and modified observational checklist "Albert's Test of Infant Posture and Motor Assessment scale" to assess the posture and movement of newborn babies. Following pretest, intervention(nesting) was given to the newborn babies in experimental group. The result shows that in pretest experimental group 14 (46.7%) had satisfactory posture and motor

performance, 10 (33.3%) had average posture and motor performance and 6 (20%) had good posture and motor performance whereas in control group 12 (40%) had satisfactory posture and motor performance, 10 (33.3%) had average posture and motor performance and 8 (26.7%) had good posture and motor performance. In posttest, experimental group 4 (13.3%) had satisfactory posture and motor performance,12 (40%) had average posture and motor performance and 8 (26.7%) had good posture and motor performance. So, the study concluded that nesting is an effectiveness intervention in maintaining good posture and motor performance among newborns.

Borlep.s,samrudhibhakare, shrilekha (July 2015) conducted an experimental study on 'effectiveness of nesting on posture and movement of upper extremities in healthy preterm infants'. 60 preterm infants were included in this study. 30 preterm – experimental and 30 control group. It is a non-randomized control study design the assessment and observation and measurements are taken of the best possible posture and best possible movements in these preterm infants, and the same assessment in non-nested preterm infants. In this study both group having same gestational age, sex, and birth weight. Best possible shoulder movement on day 2, day 3 morning, and day 1, day 2, day 3, evening is significantly more in nested group. The study concluded that Nesting is convenient, cost effective, requires less time and skills, hence it is easy for the nurse to practice and in turn be beneficial for preterm babies.

Ms. Ramya paulose, Dr. molly babu, Mrs. Sharda Rastogi (2014)conducted an experimental study on effect of nesting on posture discomfort and physiological parameters of low birth weight infants in Delhi government hospital. The sample

consisted of 60 low birth weight babies, 30 in experimental group and 30 in control group. Pretest, posttest control group design was used in which nesting was provided in experimental group 9 hours per day for 5 days. Posture, comfort and psychological parameters where assessed before and during administration of nesting. A significant improvement in posture (t = 12.64) was observed in experimental group during application of nesting. A significant reduction in the discomfort was observed in experimental group as compared to control group (t = 10.65). Low birth weight babies exhibit comparatively stable physiological parameters during the period of nesting.

Zaharaabdeyazdan, Maryam mohammadia, et.al., (2014) conducted an experimental study on 'effects of nesting and swaddling on sleep duration of premature infants hospitalized in NICU'. 42 preterm infants were randomly assigned to two groups of nest-swaddle and swaddle-nest. Sleep status was evaluated by observation and use of prechtl's criteria. Then durations of total sleep time (TST) and quiet sleep time (QST) were recorded. Data were analyzed using repeated measure analysis of variance (ANOVA). The mean values during nesting and swaddling periods were significantly higher than in control period in both groups ($p < 0.001$). The study concluded that both swaddling and nesting could significantly increase the duration of TST and QST, compared to the control. Therefore, using any of these methods is suggested to improve infant's quality of sleep in NICU, with respect to the ward policies.

Ms. Neethu C joseph (2013)conducted an experimental study 'to assess the effectiveness of nesting on posture and movements among newborns in selected hospital at Mysore'. In this study, convenience sampling technique was used. Total 60

newborns (30 experimental and 30 control group). The result of study revealed that the significance of difference between the mean pretest and posttest posture score which was statistically tested using paired' t' test and was found to be highly significant at 0.05 level of significance ($t = 5.42$ in posttest 1 and 46.14 in posttest 2 and 56.82 in posttest 3, $p < 0.05$). Therefore, the study concluded that the nesting was an effective method to maintain normal posture and movements of term babies.

Kihara, H. et.ai., (2013) conducted an experimental study on 'the effect of nested and swaddled positioning support in the prone position on heart rate, sleep distribution, and behavior state of very low birth weight infants (VLBW)'. Infants were studied both in the prone position using nested and swaddled positioning support and in the prone position without support. HR and EEG were monitored during 3-hour interfeeding. A total of 20 VLBW who were born at a gestational age of 26.5 $\pm$ 4 weeks with a birth weight of 709 $\pm$ 207g were studied at an average gestational age of 37.4 $\pm$ 0.6 weeks with a weight of 1590 $\pm$ 337g. the coefficient of variation of HR in prone infants with positioning support (0.057 ± 0.02/bpm) was also lower than without positioning support (0.078 ± 0.023/bpm). The study concluded that a prone position with nested and swaddled positioning support might facilitate sleep and heart rate stability compared to prone positioning alone in VLBW.

Ms. Surya (2010)conducted an experimental study 'to assess the effectiveness of nesting in maintenance of physiological and behavioral parameters among preterm babies in selected hospital at Coimbatore. Total 60 preterm babies (30 experimental and 30 control group). HR, RR, SPO_2 and behavioral parameters of babies by using ABIP $_{was}$

monitored before and after intervention (nesting). The mean ± SD of HR (140.07 ± 12.63) and RR (52.66 ± 8.28). the data shows that preterm babies experience stable physiological parameters during the period of nesting in experimental group. The study concluded that the nesting was an effective method to maintain physiological and behavioral parameters in preterm babies.

Ferrari F et., al (2007) conducted an experimental study 'to evaluate lying in a nest affects the posture and spontaneous movement of healthy infants in NICU at University hospital of Modena'. For this study the researcher took 10 healthy preterm of 3 age group i.e., 30 – 33 week, 34 – 36 week and 37 – 40 weeks. Infants underwent serial video recordings in supine position in and out of nest. The posture was assessed both before and after general movements by scoring the predominant postural pattern. The effect of the condition that is, in the nest or outside the nest was evaluated .The study results shows that a nest promotes a flexed posture of the limbs with adduction of shoulders, facilitates elegant wrist movements towards and across the midline and reduces abrupt movements and frozen posture of arms and legs.

Cochrane Database (2006) conducted an experimental study on "retinopathy of prematurity screening", "stress related responses and the role of nesting". 38 preterm infants were included in the study. 19 infants were placed in a nest with boundaries (experimental group) and 19 infants were placed on a cot blanket (control group). Observations were made 2 minutes and before, throughout and 2 minutes after ROP examination. The factors observed were crying responses, neurobehavioral activity and physiological changes. Recordings were made, using a video camera for crying and

neurobehavioral activity and an Oxypleth monitor for heart rate and Oxygen saturation. During ROP screening the total group of 38 infants (nested and non-nested combined) displayed increased neurobehavioral activity ($P<0.01$) and crying ($P<0.01$). The increased activity and crying was due to invasive part of procedure. The distress caused by ROP screening was significantly less for the nested group compared with the non-nested group.

Literature Related to Maintaining Positioning of Neonate

Fawzia El sayedabusaad, et.al., (2017) conducted a quasi-experimental study on 'the effectiveness of developmentally supportive positioning on preterm pain response at NICU at Mansoura University children's hospital. 56 preterm infants who admitted through nine months and were equally divided randomly into the study and control group after fulfilling the inclusion criteria using demographic characteristics of preterm infants. Infant Position Assessment Tool (IPAT) and Preterm infant Pain Profile (PIPP) tool was used. While after one week of intervention about two third (64.3%) of the infants were placed in an acceptable position in the study group and only less than one quarter (21%) of the preterm infants in the control group were placed in an acceptable position. The study concluded that preterm infants who were placed in developmentally supportive positioning had acceptable position

Leila Valizadeh, GolnarGhaharemani, et.al., (2016) conducted a randomized clinical trial study on 'the effects of flexed (fetal tucking) and extended (free body) posture on the daily sleep quantity of hospitalized premature infants Iran'. 32 premature infants with the age range of 33 – 36 weeks were selected for the study. Every infant was

studied for 4 days and in a 12-hour period every day (8am – 8pm). The result showed that about the main effect of posture on sleep variable, there was a statistically significant difference (p=0.003). The study concluded that the daily sleep duration in infants experiencing flexed posture and lateral position at rest is longer. Moreover, it decreases wakefulness time of the premature infants.

Arlene spilker (2015)conducted a quasi-experimental study on 'the effectiveness of a standardized positioning tool and bedside education on the developmental positioning proficiency of NICU nurses at Good Samaritan hospital in San Jose. Approximately 100 staff nurses in NICU was selected through a convenience sampling technique. The team members collected IPAT scores pre and post interventions. Scores were collected on infants who were <34 weeks gestation, in incubators and using developmental care supplies (snuggle-up, bendy bumper, nesting). During the month-long intervention phase, the nurses were encouraged to take the survey, to review the materials (IPAT), and to use the developmental positioning team members as resources. The independent t-test indicated a statistically significant (p=0.027) increase in the mean IPAT scores of the two groups. The mean IPAT score for the pre-intervention group was 8.39 (SD = 2.498) and the mean IPAT score of post intervention group was 9.42 (SD = 2.283). The IPAT is a valid and reliable tool for improving developmental positioning practices of NICU nurses.

Laura madlingerlewis, lauren Reynolds, et.al., (2014) conducted a randomized clinical trial study on 'the effects of alternative positioning on preterm infants in the neonatal intensive care unit in urban area of Midwestern united states'. 100

preterm infants (<33 weeks gestation) from a level III NICU were enrolled at birth. Participants were randomized to be positioned in the alternative positioning device or to traditional positioning methods for their length of stay in the NICU. Infants were assessed using the NICU Network Neurobehavioral Scale at term equivalent age. Infants in the alternative positioning arm of the study demonstrated less asymmetry of reflex and motor responses on the NNN scale ($p = 0.04$; adjusted mean difference = 0.90, 95% CI 0.05 – 1.75) than those positioned using traditional positioning methods. The key finding of this study is that neonatal positioning of the preterm infants in the NICU can have important developmental effects.

Jeanson (2013) used bedside nurse education and a standardized Infant Positioning Assessment Tool (IPAT) to improve positioning consistency. The IPAT was developed between 2007 and 2010 by Coughlin, Lohman, and Gibbins (2010) and Children's Medical Ventures (part of the Philips Corporation). Children's Medical Ventures manufactures developmental positioning products such as gel pillows for postural support, and boundaries for containment, and they have copyrighted the IPAT. This study also adds evidence to support the use of the IPAT as an assessment and evaluation resource for developmental position. This study supports the use of a standardized positioning tool and bedside education as a strategy to improve developmental positioning proficiency. Finally, the IPAT is a valid and reliable tool for improving developmental positioning practices of NICU nurses.

Mary coughlin (2010) conducted a quasi-experimental study on 'Reliability and effectiveness of an Infant Positioning Assessment Tool to standardize

developmentally supportive positioning practices in NICU in Carney Hospital at Dorchester. Reliability of the tool was established by having four independent reviewers compute IPAT scores for 5 minutes. There were statistically higher IPAT scores at T2 ($p < 0.0001$) within each site.

Comaru, T and E Miura (2009) conducted an experimental study 'to determine the effects of postural support protocol on the physiological and behavioral stability of preterm infants while undergoing a diaper change. All babies displayed increased distress and pain scores during diaper changes. This was significantly less for babies nested compared with non-nested babies ($P< 0.0001$). The study was concluded that diaper change is a distressing procedure for preterm infants, providing postural support during diaper changes reduces the signs of distress and pain.

Literature Related to Maintaining Motor Performance of Neonate.

Rubia do N. Fuentefria (2017) conducted an experimental study on 'motor development of preterm infants assessed by the Alberta infant motor scale'. Premature newborns are considered at risk for motor development deficits, leading to the need for monitoring in early life. The aim of this study was to systematically review gross motor development of preterm infants. The ages of the children assessed in the studies varied, including the first 6 months up to 15 or 18 months of corrected age. The percentage variation in motor delay was identified in the motor outcome descriptions of ten studies, ranging from 4% to 53%, depending on the age when the infant was assessed. The studies show significant differences in the motor development of preterm and full

term infants, with a description of lower gross scores in the AIMS results of preterm infants.

Anitha J. Hughes, sarah A. (2016), conducted a study on motor development interventions for preterm infants: a systematic review and meta-analysis. A total of 3484 preterm infants were enrolled in the 36 studies, with n=2750 participants in the 25 RCTs and an additional 734 participants included in 11 non-randomized studies. Most studies initiate recruitment while the infant is in the NICU. The Newborn Individualized Developmental Care and Assessment Program (NIDCAP) intervention involves trained health professionals observing the infant's behavior and adapting the care provided, such as positioning the infant and or alerting the environment of neonatal unit, such as lighting levels. Interventions with 3-month follow-up data, motor specific interventions showed a large and significant effect size at 3 months adjusted age (2.00; 0.28 – 3.72), but generic interventions showed no significant benefit for motor skills (0.33; -0.03 to 0.69). This finding may reflect restricted opportunities to develop motor skills in the neonatal unit and the importance of timing and length of interventions that continue beyond discharge from the neonatal unit are more likely to show benefits'

Rafeela S. Moreira (2014) conducted an experimental study on effect of preterm birth on motor development, behavior, and school performance of school age children. Observational and experimental studies that assessed motor development / behavior / academic performance and whose target population consisted of preterm children aged 8 to 10 years were included. The study concluded that the premature

infants are more susceptible to motor development, behavior and academic performance impairment when compared to term infants.

Jacqueline Williams, Katherine J Lee, Peter Anderson (2010) conducted a meta-analysis study on 'prevalence of motor-skill impairment in preterm children who do not develop cerebral palsy: a systematic review'. Included all studies that used a standardized motor assessment battery to assess the motor skills of school-aged children who had been born preterm. Results of the pairwise correlation did not indicate a significant relation between age at follow-up and prevalence of motor impairment ($r = -0.20$) for the mild – moderate cutoff and $r = 0.32$ for the moderate cutoff. The study concluded that this review highlights the increased likelihood of childhood motor skill impairment in preterm samples.

Ferrari, F (2007) conducted an experimental study 'to evaluate the posture and movement in healthy preterm infants in supine position in and outside the nest'. 10 healthy preterm infants underwent serial video recording each lasting an hour, in the supine position, when lying in a nest and outside it. The effect in the nest or outside the nest was evaluated using non-parametric Wilcoxon's signed rank test and p value < 0.05 was statistically significant. The findings show that the nest promotes a flexed posture of the limbs with adduction of shoulders, facilitates elegant wrist movements and movements towards and across the midline and reduces abrupt movements and frozen postures of the arms and legs.

CONCEPTUAL FRAMEWORK

The conceptual model provides a certain frame of reference for clinical practice, research and education. (Fawcett, 1984).

Conceptual frame work used for this study is based on Wiedenbach'shelping Arts theory (1964), nursing is nurturing and caring for someone in a motherly fashion. The theory directs an action towards an explicit goal.

In this study, the goal is to assess the effect of nesting to maintain posture and motor performance among high risk newborns. Wiedenbach's theory was chosen as conceptual framework for this study. It consists of 3 components such as identification, ministration and validation.

IDENTIFICATION

High risk newborns (preterm babies <37 weeks of gestation and low birth weight babies < 2.5 kg) were selected based on the demographic variables including age of mother, education and occupational status, religion, number of children, birth order, sex of the baby, birth weight and age of newborn, date of birth, immunization status and mode of delivery.

MINISTRATION

The researcher randomizes the sample into experimental group and control group. The experimental group receives intervention and the control group receives only routine care. Posture and motor performance was assessed for both experimental and control group before providing nesting by using IPAT and Modified Ferrari tool.

Nesting refers to a comfortable position provided to the newborns, which is shell-shaped made by using two rolled sheets in the form of an oval, in which the baby lies. The upper part of the baby's body is slightly raised, resembling a position as the baby is 'cradled in the arm'.This will not only help them to feel safe but it will also encourage good posture and muscle movement and provide comfort positioning.

Nesting was provided for one day for experimental group and without nesting in control group. After one day posture and motor performance was assessed for both experimental and control group by using IPAT and Modified Ferrari tool.

VALIDATION

In posttest, the researcher reassesses the effect of nesting among the experimental group by using Infant Position Assessment Tool and Modified Ferrari Tool.

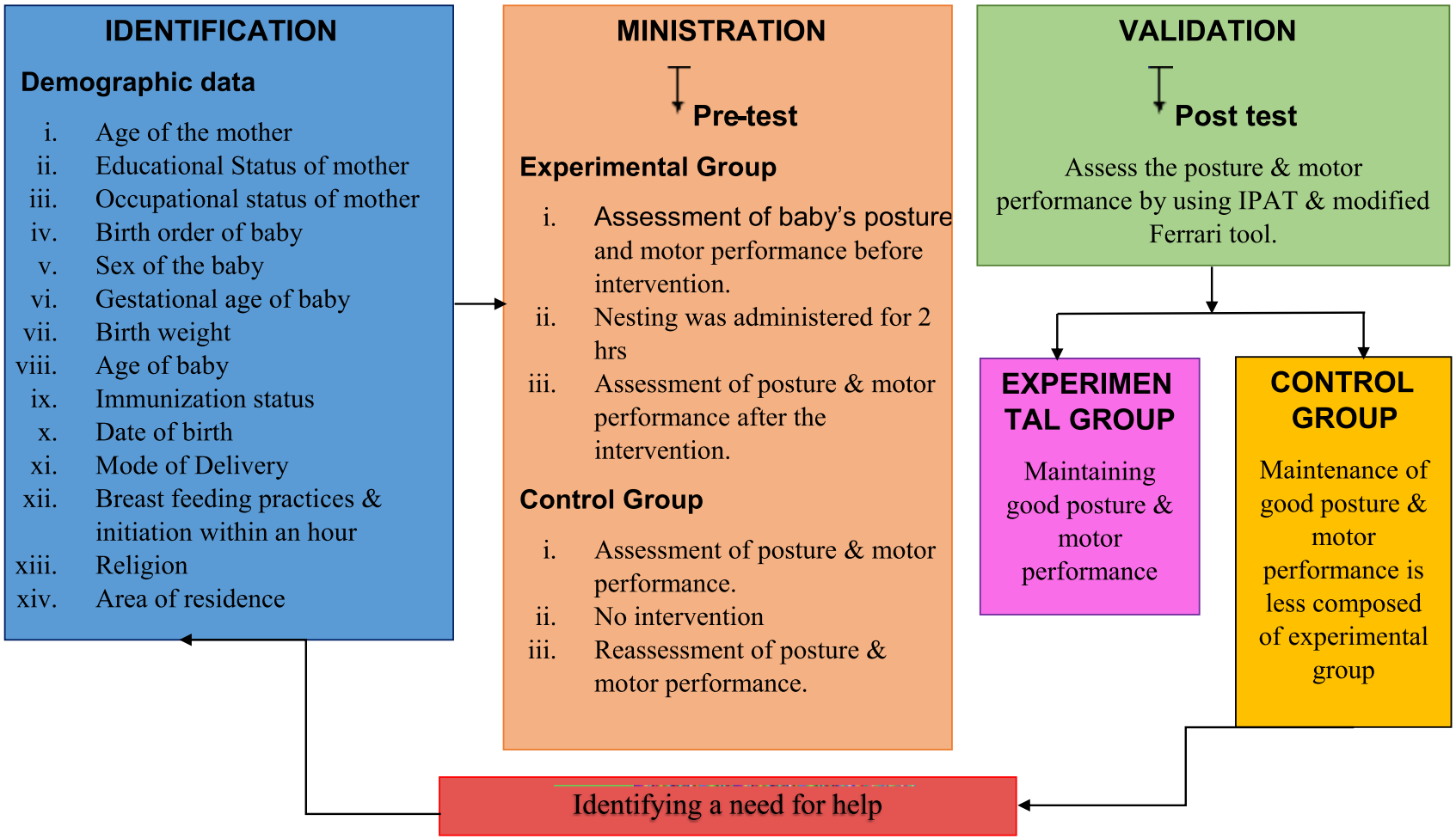


Fig.1. Conceptual framework based on wiedenbach's helping art of clinical nursing theory (1964)

CHAPTER III

RESEARCH METHODOLOGY

INTRODUCTION

Research methodology is a way to solve the problems systematically. It indicates the general pattern of organizing the procedures for gathering the valid and reliable data for investigation (POLIT, 2008).

This chapter deals with the method adopted for the study and includes the description of research approach, research design, setting of the study, variables, population, sampling technique, criteria for sample selection, description of tool, content validity, reliability, pilot study, method of data collection and plan for data analysis.

RESEARCH APPROACH

Experimental approach, a sub type of quantitative approach was used for the present study.

RESEARCH DESIGN

The research design selected for the present study is quasi experimental pre-test -posttest with control group design.

E = O_1 X O_2

C = O_3 X O_4

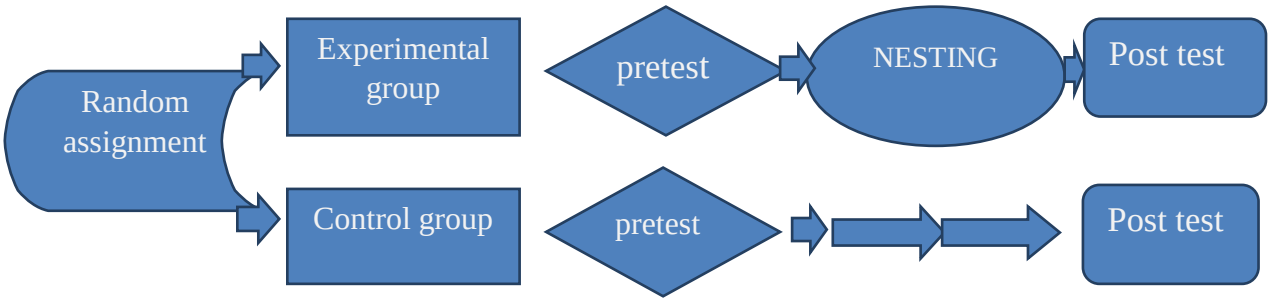


Figure 2: The Schematic Representation of Research Design

SETTING OF THE STUDY

The study will be conducted among high risk newborn in Neonatal Intensive Care Unit and postnatal ward in Vimal Jyothi Hospital at Coimbatore

VARIABLE

The variables included in the study: Independent variable is providing nesting among newborns. The dependent variable is posture & motor performance of newborns. The influencing variables are demographic variables.

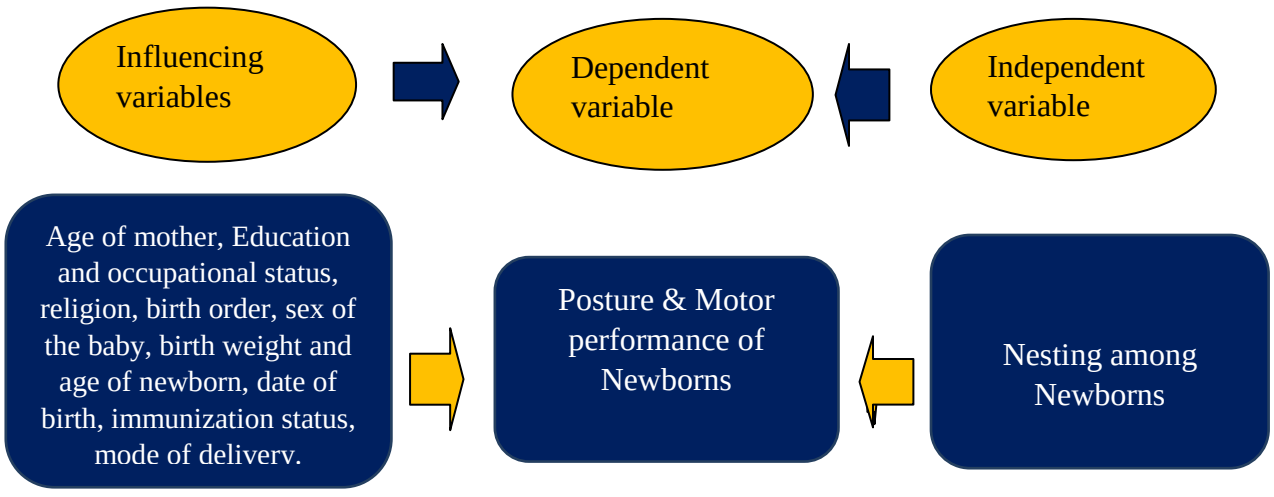


Figure 3: The Schematic Representation of Variables

POPULATION

The population of present is of high risk newborn in Vimal Jyothi Hospital at Coimbatore.

SAMPLE SIZE

Total 60 newborns (30 newborns each will be included in both experimental and control group).

SAMPLING TECHNIQUE

Sampling is a process of selecting a portion of population to obtain data regarding a problem.

Convenience sampling technique was used to select the samples for the present study.

CRITERIA FOR THE SELECTION OF SAMPLE

Inclusive Criteria

- Preterm babies less than 37 weeks of gestation.
- Low birth weight babies less than 2.5 kg.
- Neonates whose age is less than 7 days in NICU and postnatal wards.
- Neonates who are not diagnosed with any medical or surgical illness.
- Newborn whose Parents / guardians are willing to include their baby in the study.

Exclusive Criteria

- Term newborn in Vimal Jyothi Hospital at Coimbatore.
- Newborn with any disease or anomalies.

- Newborn having malformations or neurological defect
- Newborn is on ventilator and critically ill

DESCRIPTION OF TOOL

The researcher has developed an interview schedule after reviewing the literature and considering the opinion of pediatric nursing experts, to assess the posture and motor performance. The instrument contains the following sections.

Section – A: Distribution of Demographic Variable

Demographic variables which include age of mother, education and occupational status of mother, religion, mode of delivery, age and sex of newborn, gestational age of baby, birth weight, birth order, date of birth of newborn, immunization status and feeding practices and area of residence.

Section – B: Assessment Tool to Assess the Position of the Newborn

Infant Position Assessment Tool (IPAT) is used for assessment of position among high risk newborns. It consists of six items with cumulative scores ranging from 0 – 12 such as shoulders, hands, hips, knees-ankles-feet, head, neck.

scoring:

Ideal cumulative score: 10 – 12

10 – 12 scores	GOOD
7 - 9 scores	AVERAGE
< 7	POOR

Section C: Assessment Tool to Assess the Motor Performance of Newborn

Modified Ferrari tool is used to assess the motor performance of high risk newborn. In this tool, there is 12 descriptions such as head rotation from side to midline and back, head rotation from side to side, hand-mouth contact, hand-head contact, gently striking head with open hands, hand-hand contact, hands touching contralateral shoulder and trunk, hand-leg contact, foot-foot contact, elegant wrist movements, abrupt hand and limb movement, rolling to side.

Scoring

Ideal score = 10

1 – 5 scores	POOR
6 – 9 scores	AVERAGE
10 – 12 scores	GOOD

TESTING OF THE TOOL

Content validity

The tool was given to five experts in the field of pediatric nursing for content validity. All the comments and suggestions given by the experts were duly considered and correction was made after discussion with the research guide.

Reliability

The reliability of the tools was determined by Brown's split half technique. The value of 'r' = + 0.90 for IPAT and 'r' = +0.90 for Modified Ferrari Tool. So, the tool was considered as highly reliable

PILOT STUDY

The pilot study was conducted to make sure that the tool was capable of eliciting responses from the respondents. To test the relevance and practicability of the study, a pilot study was conducted among 10 newborns in Vimal Jyothi Hospital at Coimbatore. Pre-test was conducted by using Infant Position Assessment Tool (IPAT) to assess position of newborn and Modified Ferrari Tool to assess the motor performance of newborn. Assessment of posture and motor performance was done before intervention. After pretest, nesting was provided to the newborns for one day. The post test assessment of position and motor performance of newborn were assessed on next day by using the same scales. The result of the pilot study showed that the newborns are not maintaining the position and motor performance in pretest and after keeping babies in nesting, they maintained normal position and motor performance.

DATA COLLECTION PROCEDURE

After getting permission from the hospital authorities, the researcher met the newborns in the hospital. The purpose and duration of study was explained to the parents. After obtaining the informed oral consent, the baseline variables were collected.

The study was conducted for a period of one month from 01-02-2018 to 28-02-2018. The samples were selected by convenience sampling technique. The total

size of sample was 60, in that 30 samples were allotted for experimental group and 30 were control group. Newborns who satisfied the inclusion criteria were selected for the study. One sample for experimental group and the other sample for control group, likewise the sample were assigned to both groups till the sample size reached. Before Nesting the posture and motor performance was assessed by using Infant Position Assessment Tool (IPAT) and Modified Ferrari Tool, it took 10 minutes. Then the Nesting was provided for one day for each newborn in experimental group and no intervention, only routine care was given for control group. The next day, posture and motor performance of newborn was assessed for both experimental and control group, to assess the effectiveness of nesting by using same IPAT and Modified Ferrari Tool.

PLAN FOR DATA ANALYSIS

The researcher adopted descriptive and inferential statistics to analyze the data. Descriptive statistics was applied for demographic variable analysis. Inferential statistics was used to assess the significance of test and correlation of variables. Paired 't' test was used to find out the significance of nesting in experimental and control group. Unpaired 't' test was used to find out the comparison of post test scores among experimental group and control group and association between demographic variables was analyzed by x^2 test.

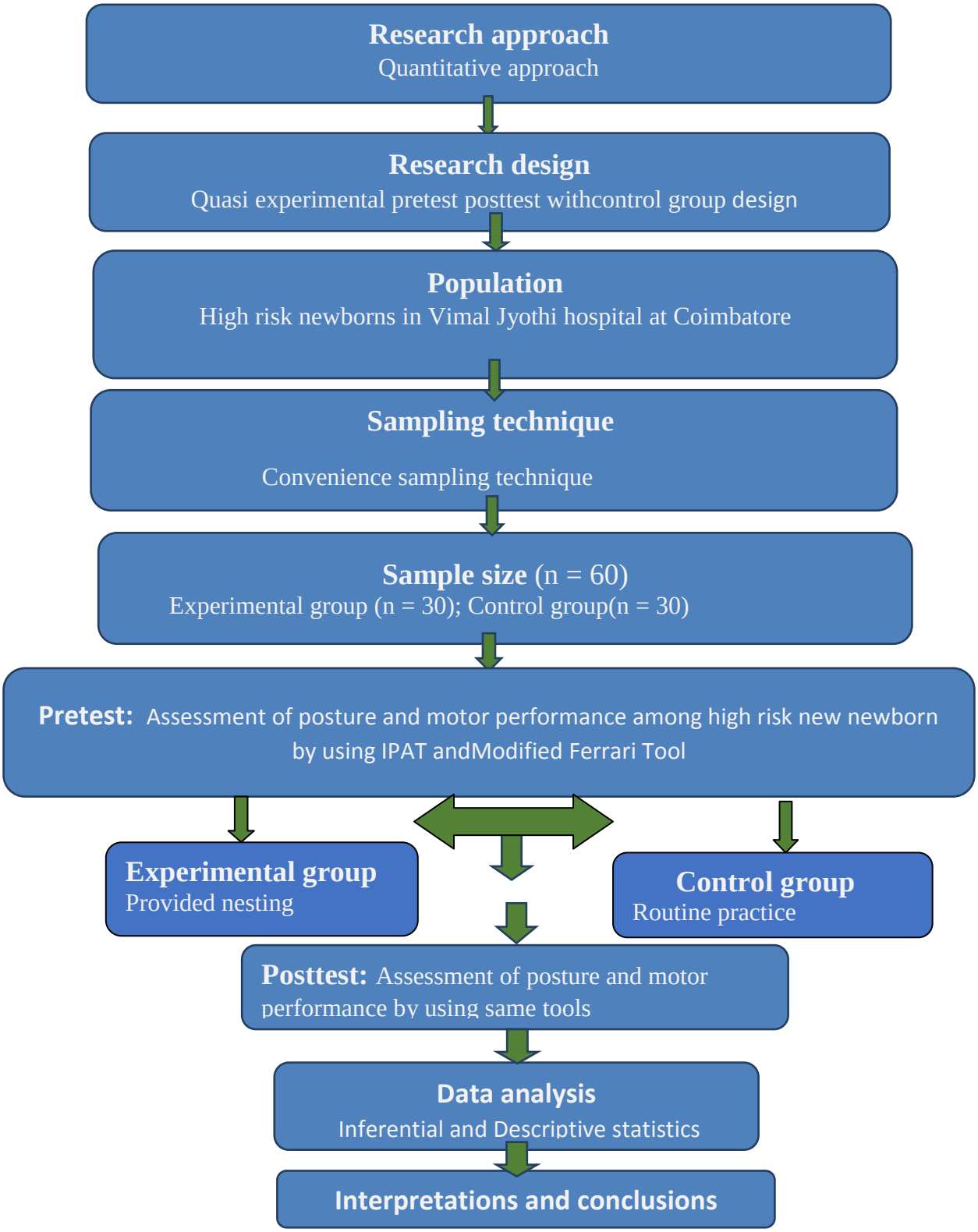


Figure 4: The overall review of research methodology

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with analysis and interpretation of the data collected from the high risk new born regarding posture and motor performance in Vimal Jyothi Hospital at Coimbatore.

The findings based on the descriptive and inferential statistical analysis were presented under the following headings.

Section I: Distribution of demographic variables of high risk new born

Section II: Description of posture and motor performance values among experimental and control group.

1. Comparison of posture value in experimental and control group before nesting by using IPAT tool
2. Comparison of posture value among experimental and control group after nesting by using IPAT tool
3. Comparison of motor performance value in experimental and control group before nesting by using Modified Ferrari tool
4. Comparison of motor performance value among experimental and control group after nesting by using Modified Ferrari Tool

Section III:

Association of effectiveness of nesting on posture and motor performance of high risk new born with their selected demographic variables.

SECTION I

Table 1: Distribution of Demographic Variables of High Risk Newborn

(N = 60)

S.NO	Demographic Data	Experimental Group (n=30)		Control Group (n=30)	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1	**Age of Mother**				
	a) < 25 yrs.	8	27%	7	23 %
	b) 25 – 35 yrs.	11	37%	16	53 %
	c) 35 – 40 yrs.	7	23%	6	20 %
	d) > 40 yrs.	4	13%	1	3 %
2	**Educational Status of Mother**				
	a) Illiterate	2	7%	1	3 %
	b) Primary level	4	13%	2	7 %
	c) Secondary level	7	23 %	5	17 %
	d) Higher secondary	7	23 %	11	37 %
	e) Graduate & above	10	33%	11	37%

TABLE 1 CONTINUES

TABLE 1 CONTINUED

S.NO	Demographic data	Experimental Group (n=30)		Control Group (n=30)	
		Frequency	**Percentage**	**Frequency**	**Percentage**
3	**Occupational Status of Mother**				
	a) Government employee	1	3 %	1	3 %
	b) Private employee	7	23%	8	27 %
	c) Daily wages	2	7 %	1	3 %
	d) House wife	20	77 %	20	77 %
4	**Birth Order of Baby**				
	a) One	15	50 %	19	63 %
	b) Two	11	37 %	10	33%
	c) Three and above	4	13%	1	3 %
5	**Sex of Baby**				
	a) Male	18	60 %	14	47 %
	b) Female	12	40 %	16	53 %
6	**Gestational Age of Baby**				
	a) 30 – 33 wks.	3	10 %	1	3 %
	b) 33 - 35 wks.	10	33 %	11	37%
	c) 35 – 37 wks.	17	57 %	18	60 %

TABLE 1 CONTINUES

S.NO	Demographic data	Experimental Group (n=30)		Control Group (n=30)	
		Frequency	Percentage	Frequency	Percentage
7	**Birth Weight of Baby** a) <1kg	0	0 %	0	0 %
	b) 1kg – 1.5 kg	11	37 %	4	13 %
	c) 1.5 – 2.5 kg	19	63 %	26	87%
8	**Age of Baby** a) Day 1	8	27 %	14	47 %
	b) Day 2	10	33 %	8	27 %
	c) Day 3	6	20 %	5	17%
	d) Day 4	3	10 %	1	3 %
	e) Day 5	2	7 %	1	3 %
	f) Day 6	1	3 %	0	0 %
	g) Day 7	0	0 %	1	3 %
9	**Immunization Status** a) BCG, OPV, Hep-B given	22	73 %	23	77 %
	b) Not given	8	27 %	7	23 %
10	**Mode of Delivery** a) Normal delivery	15	50 %	18	60 %
	b) Forceps	3	10 %	0	0 %
	c) Caesarean	12	40 %	12	40 %

TABLE 1 CONTINUES

S.NO	Demographic Data	Experimental Group (n=30)		Control Group (n=30)	
		Frequency	Percentage	Frequency	Percentage
11	**Breast Feeding Practices**				
	a) Yes	29	97 %	28	93 %
	b) No	1	3 %	2	7 %
12	**BreastFeeding Initiation or EBM Within an Hour**				
	a) Yes	20	67 %	25	83 %
	b) No	10	33 %	5	17 %
13	**Religion**				
	a) Hindu	16	53 %	15	50 %
	b) Muslim	5	17 %	6	20 %
	c) Christian	9	30 %	9	30 %
14	**Area of Residence**				
	a) Urban	25	83 %	27	90 %
	b) Rural	5	17 %	3	10 %

Table 1 reveals the distribution of demographic variables of high risk new born.

- Considering the distribution of age of mother, among experimental group shows 8(27 %) are in the age group of < 25 yrs, 11(37 %) are 25 – 35 yrs, 7 (23 %) are 35 – 40 yrs, 4 (13 %) are > 40 yrs. In control group 7(23 %) are < 25 yrs, 16(53 %) are 25 – 35 yrs, 6 (20 %) are 35 – 40 yrs, 1(3 %) > 40 yrs.
- Regarding educational status of mother, among experimental group shows 2(7 %) are illiterate, 4(13 %) are primary level, 7(23 %) are secondary level, 7(23 %) are

higher secondary, 10(33 %) are graduate and above. In control group, 1(3 %)illiterate, 2(7 %) are primary level, 5(17 %) are secondary level, 11(37%) are higher secondary, 11(37%) are graduate and above.

- Regarding occupational status of mother, among experimental group 1(3%) are government employee, 7(23 %) are private employee, 2(7%) are daily wages, 20(67%) are house wife. In control group, 1(3%) are government employee, 8(27%) are private employee, 1(3%) are daily wages, 20(67%) are house wife.
- Based on birth order of baby, 15(50%) were first baby, 11(37%) were second baby, 4(13%) were three & above. In control group, 19(63%) are first order of birth, 10(33%) are second, 1(3%) are three & above.
- Regarding sex of the baby, in experimental group 18(60%) are male and 12(40%) are female. In control group 14(47%) are male and 16(53%) are female.
- Considering the gestational age of baby, among experimental group 3(10%) are 30 – 33wks, 10(33%) are 33 – 35wks, 17(57%) are 35 – 37 wks. In control group, 1(3%) 30 – 33wks, 11(37%) are 33- 35wks, 18(60%) are 35 – 37wks.
- Regarding birth weight of the baby, in experimental group 11(37%) 1 – 1.5kg, 19(63%) are 1.5 – 2.5kg. In control group 4(13%) are 1 – 1.5kg, 26(87%) are 1.5 – 2.5kg.
- Regarding age of the baby, in experimental group 27% are day 1, 33% are day 2, 20% are day 3, 10% are day 4, 7% are day 5, 3% are day 6. In control group 47% day 1, 27% are day2, 17% are day 3, 3% are day 4, 3% are day 5, 3% are day 7.

- Based on immunization status of the baby, among experimental group 22(73%) are immunized & 8(27%) are not immunized. In control group 23(77%) & 7(23%) are not immunized.
- Considering the mode of delivery, in experimental group 15(50%) are normal delivery, 3(10%) are forceps, 12(40%) are caesarean. In control group 18(60%) are normal delivery, 12(40%) are caesarean.
- Based on breast feeding practices, among experimental group 29(97%) were practices breast feeding, 1(3%) were not practices breast feeding. In control group 28(93%) were practices breast feeding & 2(7%) were not practices breast feeding.
- Regarding breast feeding initiation within an hour, in experimental group 20(67%) were initiated & 10(33%) were not initiated. In control group 25(83%) were initiated & 5(17%) were not initiated breast feeding within half an hour.
- Based on the religion, in experimental group 53% were Hindu, 17% were Muslim, 30% were Christian. In control group 50% were Hindu, 20% were Muslim, 30% were Christian.
- Based on the area of residence, in experimental group 25(83%) were urban, 5(1%) were rural. In control group 27(90%) were urban & 3(10%) were rural.

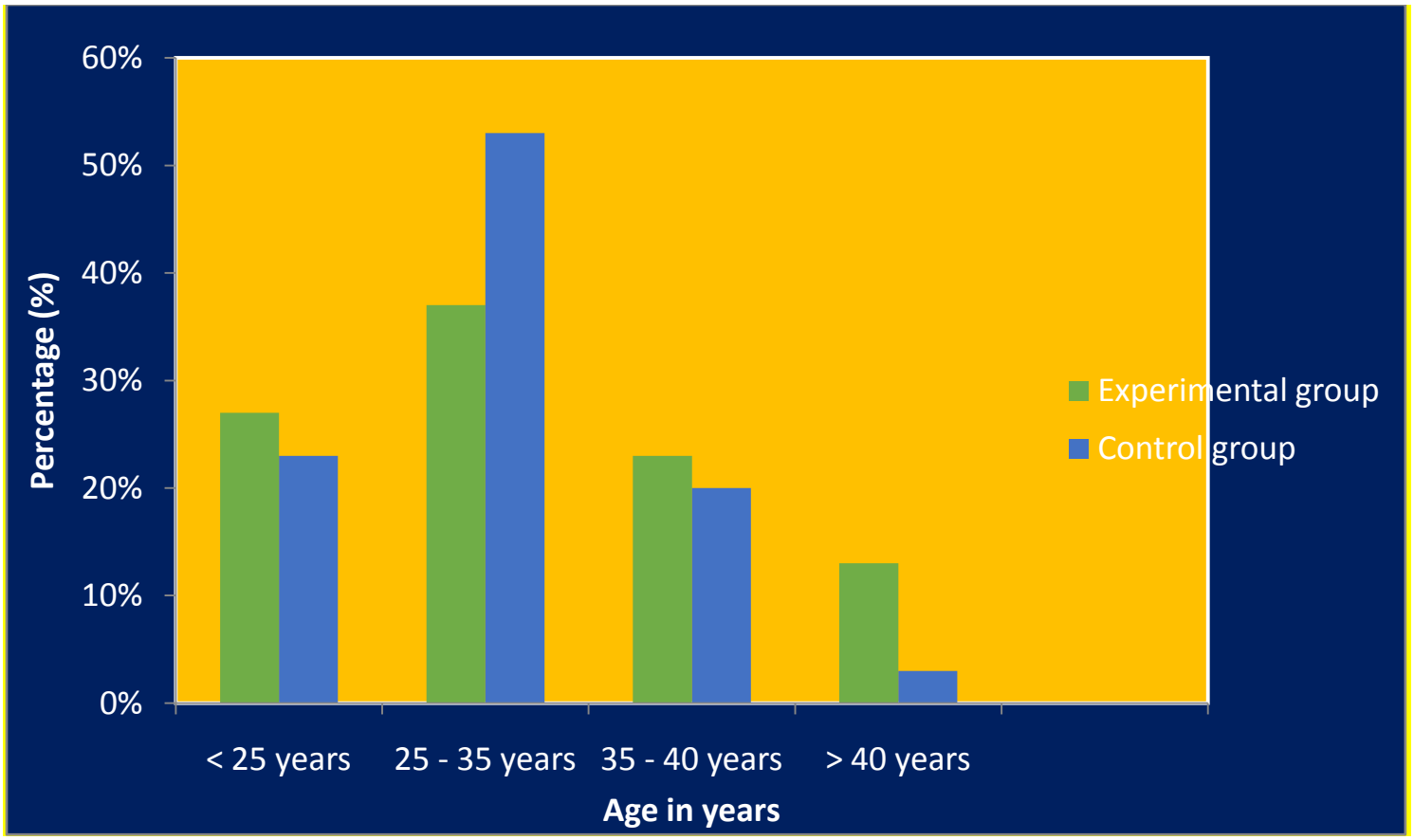
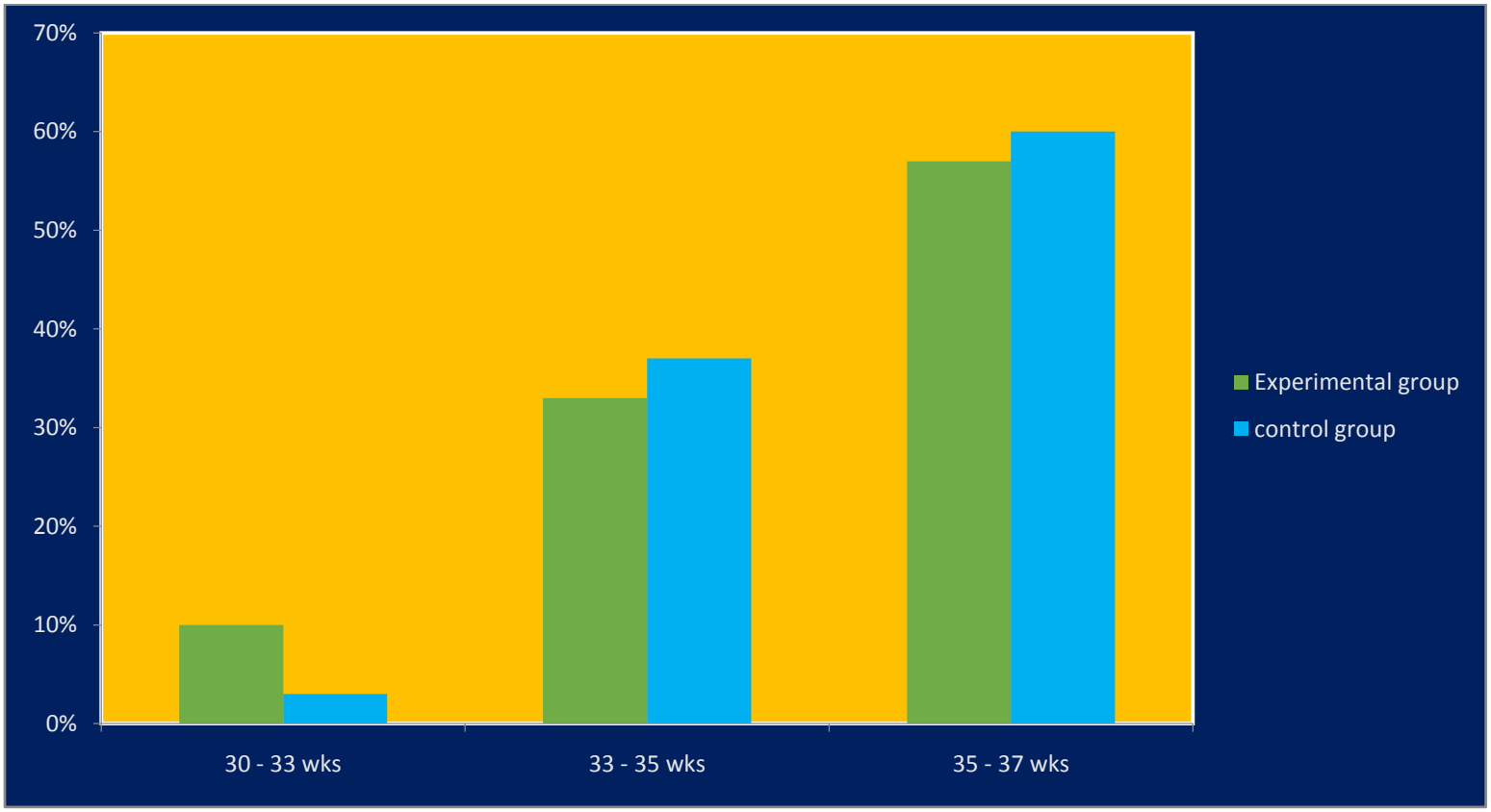


Figure –s 5: Distribution of demographic variables according to the age of the mother



Gestational age of the baby

Figure 6 : Distribution of demographic variables of gestational age of the baby

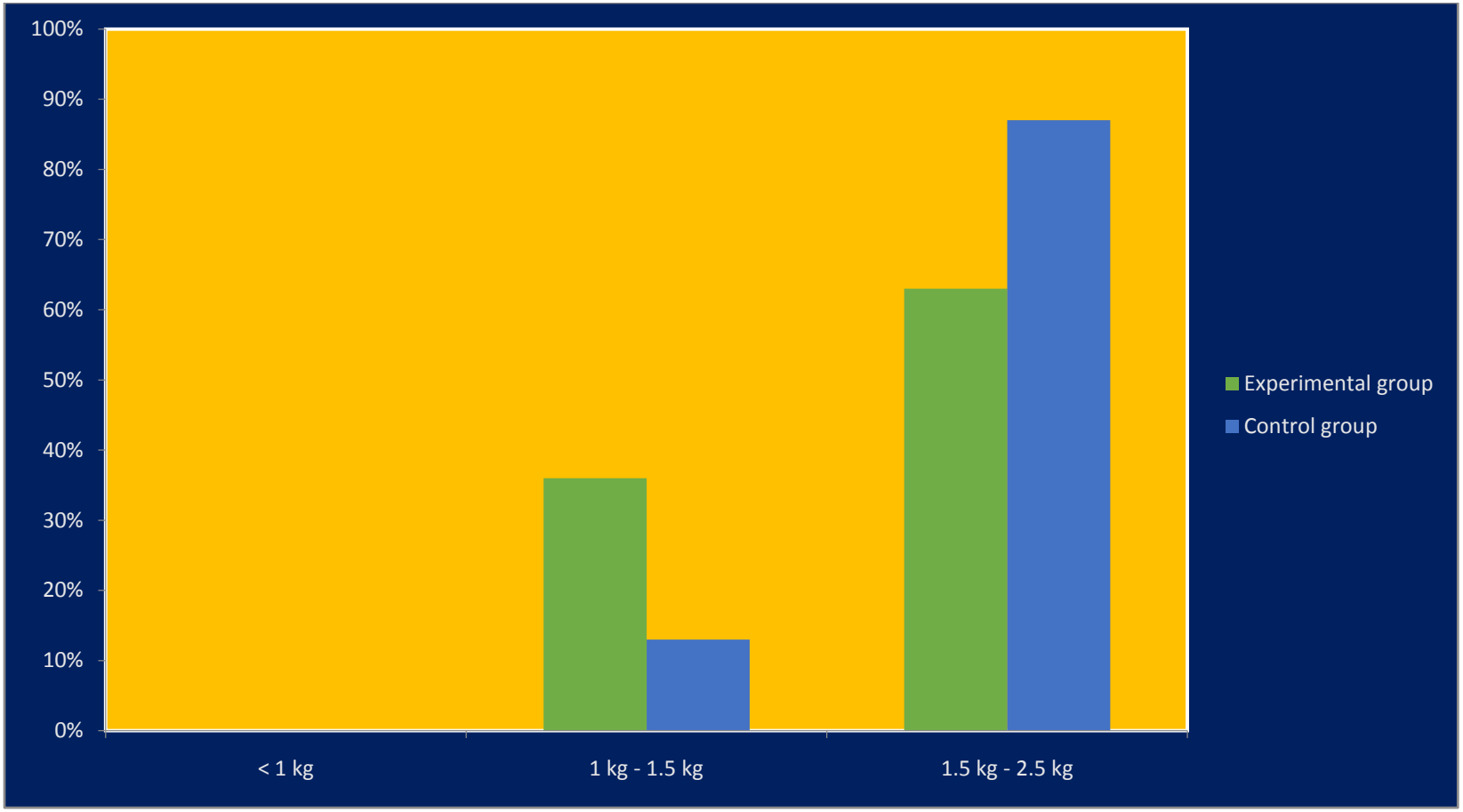


Figure 7: Distribution of demographic variables of birth weight of the baby

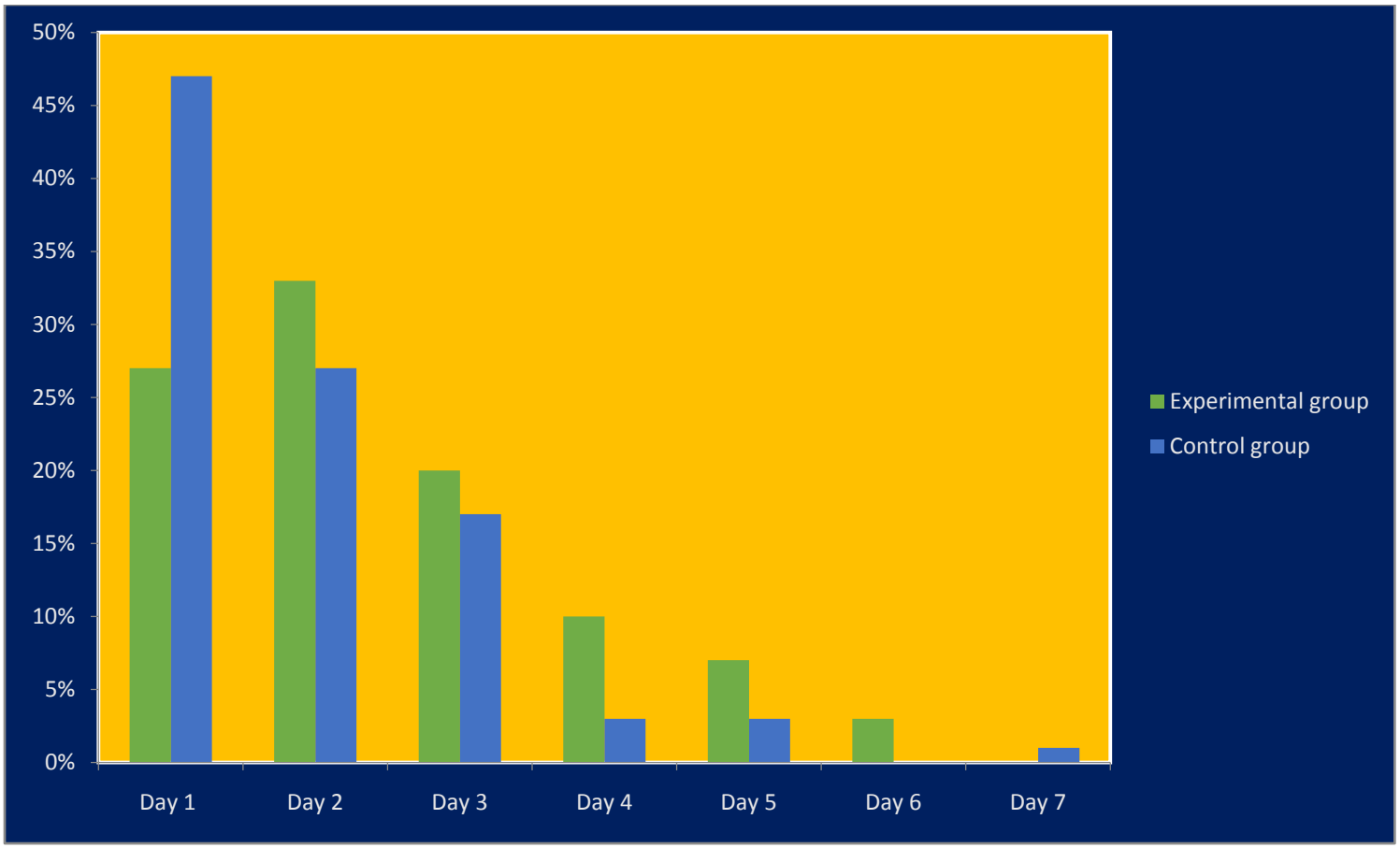


Figure 8: Distribution of demographic variables of the age of the baby

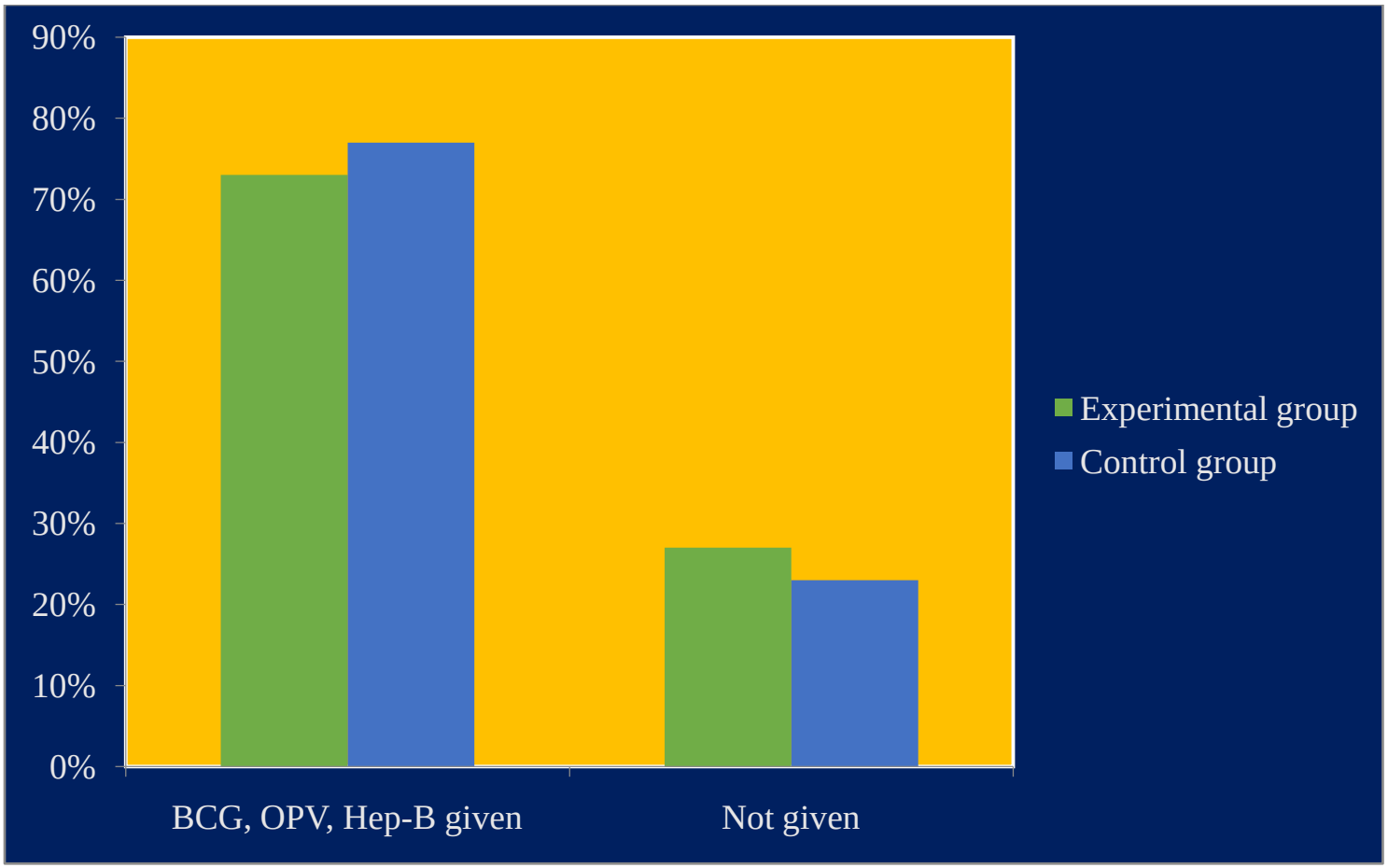


Figure 9: Distribution of demographic variables of the immunization status of the baby

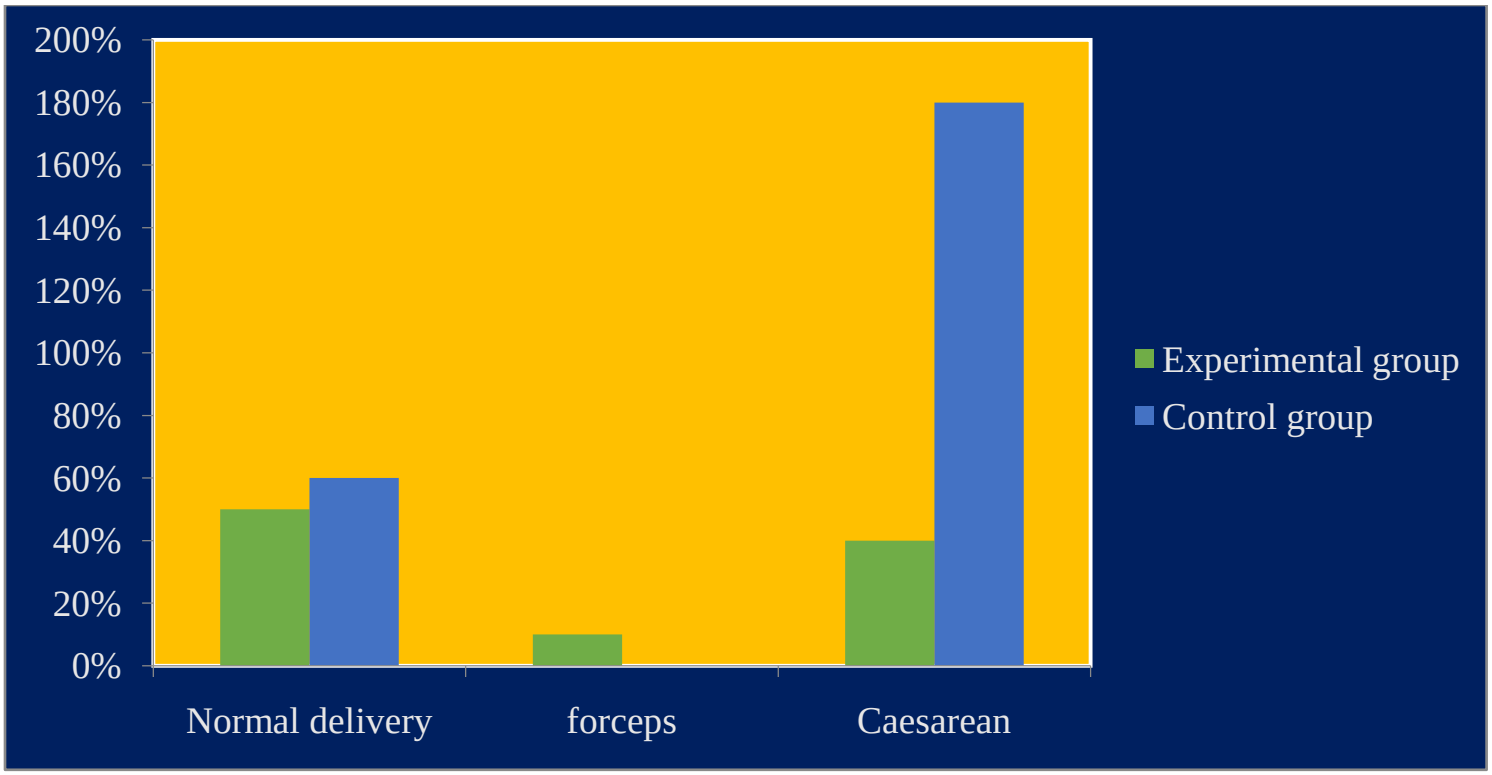
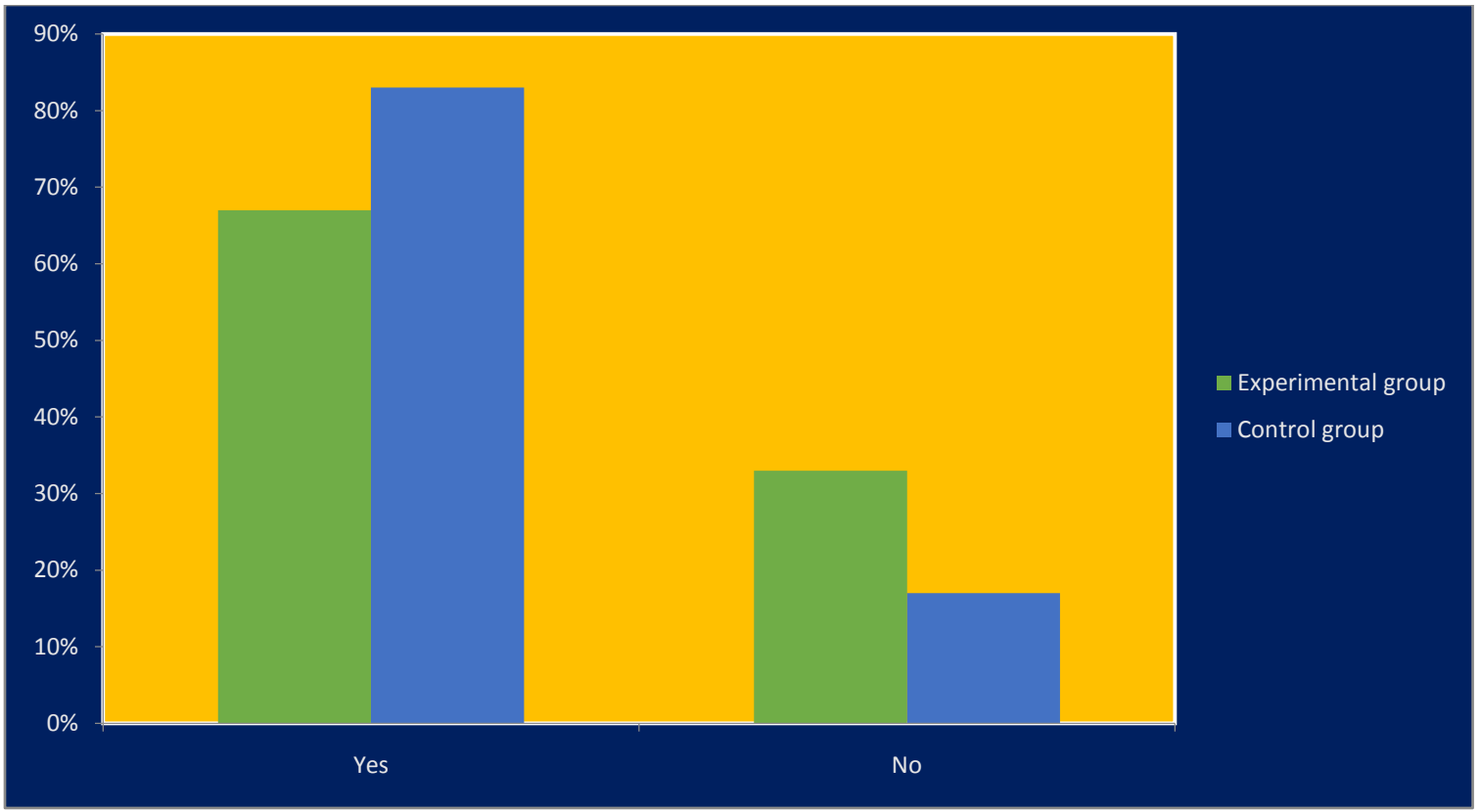


Figure 10 : Distribution of demographic variables of mode of delivery



Breast feeding initiation within an hour

Figure 11: Distribution of demographic variables of the breast feeding initiation within an hour

SECTION II

Table 2: Comparison of Posture Value in Experimental and Control Group Before Nesting by Using IPAT Tool

Nesting	mean	Mean difference	SD	't' value
Experimental group	6.8	0.1	1.18	0.32
Control group	6.7		1.16	

Significant at 0.05 level

Table 2 shows that the table value of t = 2.045 at 0.05, calculated value of t = 0.32 at P = 0.05, which is lesser than the expected table value. This shows that there is no significant effect on maintaining posture among high risk new born.

Table 3: Comparison of Posture Value Among Experimental and Control Group After Nesting by Using IPAT tool

Nesting	mean	Mean difference	SD	't' value
Experimental group	11.3	4	0.94	15.1
Control group	7.3		1.06	

Significant at 0.05 level

Table 3 shows that the table value of t = 2.045 at 0.05, calculated value of t = 15.1 at P = 0.05, which is greater than the expected table value. This shows that the nesting has significant effect on maintaining posture among high risk new-borns.

Table 4: Comparison of Motor Performance Value in Experimental and Control Group Before Nesting by Using Modified Ferrari tool

Nesting	**mean**	**Mean difference**	**SD**	**'t' value**
Experimental group	7.3	0.2	1.4	0.61
Control group	7.1		1.02	

Significant at 0.05 level

Table 4 shows that the table value of t = 2.045 at 0.05, calculated value of t = 0.61 at P = 0.05, which is lesser than the expected table value. This shows that there is no significant effect on maintaining motor performance among high risk new born.

Table 5: Comparison of Motor Performance Value Among Experimental and Control Group After Nesting by Using Modified Ferrari Tool

Nesting	**Mean**	**Mean Difference**	**SD**	**'t' value**
Experimental group	11.2	3.8	1.09	13.2
Control group	7.4		1.10	

Significant at 0.05 level

Table 5 shows that the table value of t = 2.045 at 0.05, calculated value of t = 13.2 at P = 0.05, which is greater than the expected table value. This shows that the nesting has significant effect on maintaining motor performance among high risk new born.

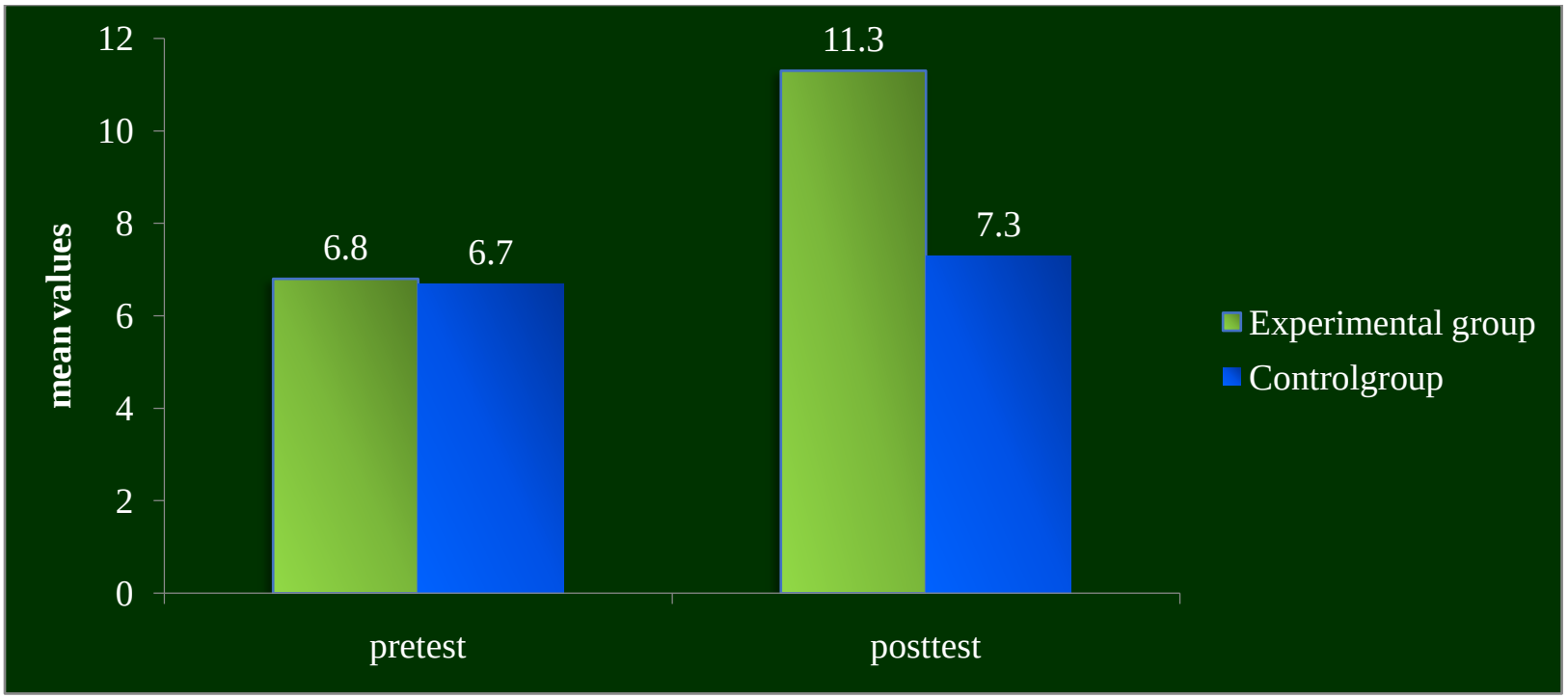


Figure 12: **Comparison of pretest and posttest values for experimental and control group by using IPAT**

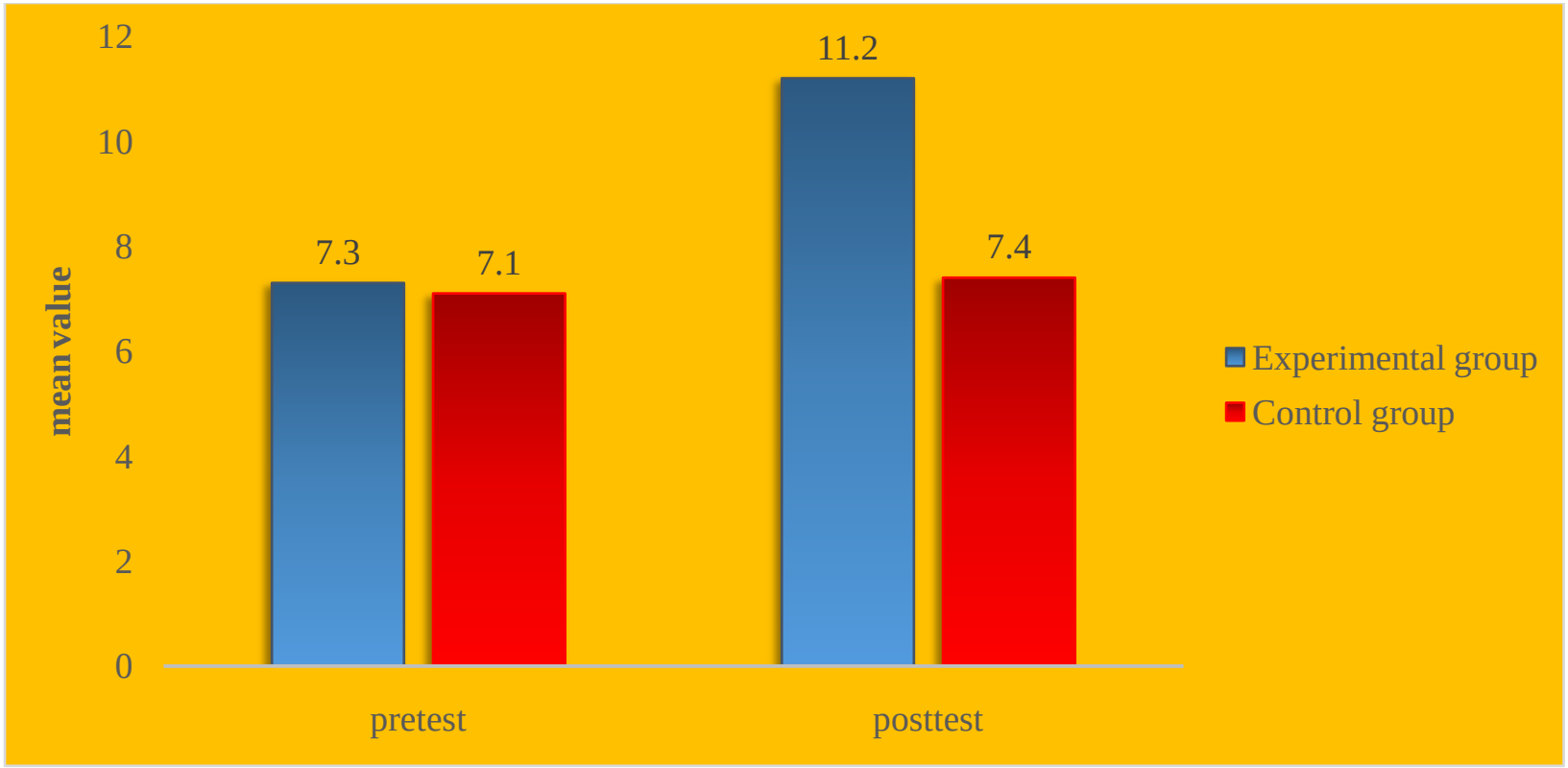


Figure 13: Comparison of pretest and post test values for experimental and control group by using Ferrari tool

SECTION III

Table 6: Association of Selected Demographic Variables with the Post-test Score of Modified Ferrari Tool Regarding Motor Performance Among High Risk Newborns of Experimental Group. (N=30)

S.NO	Demographic variables	GOOD	AVERAGE	POOR	X^2
1	**Age of Mother**				
	a) <25 yrs	8	-	-	
	b) 25 – 35 yrs	11	-	-	21.64*
	c) 35 – 40 yrs	7	-	-	
	d) >40 yrs	1	3	-	
2	**Educationalstatusof mother**				
	a) Illiterate	1	1	-	
	b) Primary level	4	-	-	
	c) Secondary level	6	1	-	2.93
	d) Higher secondary	6	1	-	
	e) Graduate and above	10	-	-	
3	**Occupationalstatusof mother**				
	a) Government employee	1	-	-	
	b) Private employee	7	-	-	4.43
	c) Daily wages	1	1	-	
	d) Housewife	18	2	-	
4	**Birth order of baby**				
	a) One	15	-	-	
	b) Two	9	2	-	3.47
	c) Three & above	3	1	-	
5	**Sex of baby**				
	a) Male	16	2	-	0.05
	b) Female	11	1	-	
6	**Gestational age of baby**				
	a) 30 -33 wks	1	2	-	
	b) 33-35 wks	9	1	-	12.58*
	c) 35-37 wks	17	0	-	

Table 6 continues...

Table continued..

7	**Birth weight of baby**				
	a) <1 kg	-	-	-	
	b) 1 – 1.5 kg	8	3	-	5.75
	c) 1.5 – 2.5 kg	19	8	-	
8	**Age of baby**				
	a) Day 1	8	-	-	
	b) Day 2	10	-	-	
	c) Day 3	4	2	-	
	d) Day 4	2	1	-	7.75
	e) Day 5	2	-	-	
	f) Day 6	1	-	-	
	g) Day 7	-	-	-	
9	**Immunization status**				
	a) BCG, OPV, Hep-B given	22	-	-	9.16*****
	b) Not given	5	3	-	
10	**Mode of delivery**				
	a) Normal delivery	15	-	-	
	b) Forceps	3	-	-	4.99
	c) caesarean	9	3	-	
11	**Breast feeding practice**				
	a) yes	26	3	-	0.11
	b) no	1	-	-	
12	**Breast initiation within an hour**				
	a) yes	20	-	-	6.66*****
	b) no	7	3	-	
13	**Religion**				
	a) Hindu	14	2	-	
	b) Muslim	5	-	-	0.67
	c) Christian	8	1	-	
14	**Area of residence**				
	a) Urban	22	3	-	
	b) Rural	5	-	-	0.66

*** Significant**

Table 6 shows that there is association with age of mother, gestational age of baby, immunization status and breast-feeding initiation within an hour in post test score of motor performance among high risk new born in experimental group. The other demographic variables is not associated with post test score of motor performance among high risk new born in experimental group.

Table 7: Association of Selected Demographic Variables with the Post-test Score of Modified Ferrari Tool Regarding Motor Performance Among High Risk Newborn of Control Group (N = 30)

S.NO	Demographic variables	GOOD	AVERAGE	POOR	X^2
1	**Age of Mother**				
	a) <25 yrs	-	7	-	
	b) 25 – 35 yrs	-	15	1	4.74
	c) 35 – 40 yrs	-	4	2	
	d) >40 yrs	-	1	-	
2	**Educational status of mother**				
	a) Illiterate	-	1	-	
	b) Primary level	-	2	-	
	c) Secondary level	-	4	1	0.8
	d) Higher secondary	-	10	1	
	e) Graduate and above	-	10	1	
3	**Occupational status of mother**				
	a) Government employee	-	-	1	
	b) Private employee	-	7	1	2.51
	c) Daily wages	-	1	0	
	d) Housewife	-	19	1	

Table7 contineus…

Table7 contineued…

4	**Birth order of baby**				
	a) One	-	18	1	
	b) Two	-	8	2	2.57
	c) Three & above	-	1	0	
5	**Sex of baby**				
	a) Male	-	11	3	3.79
	b) Female	-	16	-	
6	**Gestational age of baby**				
	a) 30 -33 wks	-	1	-	
	b) 33-35 wks	-	10	1	0.93
	c) 35-37 wks	-	16	2	
7	**Birth weight of baby**				
	a) <1 kg	-	-	-	
	b) 1 – 1.5 kg	-	4	-	0.5
	c) 1.5 – 2.5 kg	-	23	-	
8	**Age of baby**				
	a) Day 1	-	13	1	
	b) Day 2	-	7	1	
	c) Day 3	-	4	1	1.05
	d) Day 4	-	1	-	
	e) Day 5	-	1	-	
	f) Day 6	-	-	-	
	g) Day 7	-	1	-	
9	**Immunization status**				
	a) BCG, OPV, Hep-B given	-	20	3	1
	b) Not given	-	7	-	
10	**Mode of delivery**				
	a) Normal delivery	-	16	2	0.05
	b) Forceps	-	-	-	
	c) caesarean	-	11	1	
11	**Breast feeding practice**				
	a) yes	-	25	3	0.23
	b) no	-	2	-	

Table7 continues…

Table7 continued…

12	**Breast initiation within an hour** a) yes b) no	 - -	 22 5	 3 -	0.66
13	**Religion** a) Hindu b) Muslim c) Christian	 - - -	 14 5 8	 1 1 1	0.46
14	**Area of residence** a) Urban b) Rural	 - -	 24 3	 3 0	0.36

Table 7 shows that there is no association of demographic variables and motor performance with post test score of high risk new born in control group

Table 8: Association of Selected Demographic Variables with the Post-test Score of Infant Position Assessment Tool Regarding Posture Among High Risk Newborn of Experimental Group. (N=30)

S.NO	Demographic variables	GOOD	AVERAGE	POOR	X^2
1	**Age of Mother** a) <25 yrs b) 25 – 35 yrs c) 35 – 40 yrs d) >40 yrs	 7 11 7 3	 1 - - 1	 - - - -	3.90

Table8 contineued…

2	**Educational status of mother**				
	a) Illiterate	2	-	-	
	b) Primary level	4	-	-	
	c) Secondary level	6	1	-	2.46
	d) Higher secondary	6	1	-	
	e) Graduate and above	10	-	-	
3	**Occupational status of mother**				
	a) Government employee	1	-	-	
	b) Private employee	7	-	-	
	c) Daily wages	2	-	-	1.05
	d) Housewife	18	2	-	
4	**Birth order of baby**				
	a) One	14	1	-	0.34
	b) Two	10	1	-	
	c) Three & above	4	-	-	
5	**Sex of baby**				
	a) Male	17	1	-	0.08
	b) Female	11	1	-	
6	**Gestational age of baby**				
	a) 30 -33 wks	2	1	-	4.71
	b) 33-35 wks	9	1	-	
	c) 35-37 wks	19	-	-	
7	**Birth weight of baby**				
	a) <1 kg	-	-	-	3.68
	b) 1 – 1.5 kg	9	2	-	
	c) 1.5 – 2.5 kg	19	-	-	
8	**Age of baby**				
	a) Day 1	8	-	-	
	b) Day 2	10	-	-	
	c) Day 3	4	2	-	8.43
	d) Day 4	3	-	-	
	e) Day 5	2	-	-	
	f) Day 6	1	-	-	
	g) Day 7	-	-	-	

10	**Mode of delivery**				
	a) Normal delivery	14	1	-	0.26
	b) Forceps	3	-	-	
	d) caesarean	11	1	-	
11	**Breast feeding practice**				
	a) yes	27	2	-	0.06
	b) no	1	-	-	
12	**Breast initiation within an hour**	20	-	-	4.31
	a) yes	8	2	-	
	b) no				
13	**Religion**				
	a) Hindu	15	1	-	
	b) Muslim	5	-	-	0.59
	c) Christian	8	1	-	
14	**Area of residence**				
	a) Urban	24	1	-	0.66
	b) Rural	4	1	-	

*** Significant**

Table 8: shows that there is association with immunization status in post-test score of posture among high risk new born in experimental group. The other demographic variables is not associated with post test score of motor performance among high risk new born in experimental group.

Table 9: Association of Selected Demographic Variables with the Post-test Score of Infant Position Assessment Tool Regarding Posture Among High Risk Newborn of Control Group. (N = 30)

S.NO	Demographic variables	GOOD	AVERAGE	POOR	X^2
1	**Age of Mother**				
	a) <25 yrs	-	5	2	
	b) 25 – 35 yrs	-	16	-	4.83
	c) 35 – 40 yrs	-	5	1	
	d) >40 yrs	-	1	-	
2	**Educational status of mother**				
	a) Illiterate	-	-	1	
	b) Primary level	-	2	-	
	c) Secondary level	-	5	-	11.8
	d) Higher secondary	-	9	2	
	e) Graduate and above	-	11	-	
3	**Occupational status of mother**				
	a) Government employee	-	-	1	
	b) Private employee	-	7	1	
	c) Daily wages	-	1	-	0.21
	d) Housewife	-	17	1	
4	**Birth order of baby**				
	a) One	-	17	2	0.11
	b) Two	-	9	1	
	c) Three & above	-	1	-	
5	**Sex of baby**				
	a) Male	-	13	1	0.23
	b) Female	-	14	2	
6	**Gestational age of baby**				
	a) 30 -33 wks	-	1	1	9.23
	b) 33-35 wks	-	10	1	
	c) 35-37 wks	-	17	1	

7	**Birth weight of baby**				
	a) <1 kg	-	-	-	
	b) 1 – 1.5 kg	-	2	2	8.19
	c) 1.5 – 2.5 kg	-	25	1	
8	**Age of baby**				
	a) Day 1	-	14	-	
	b) Day 2	-	7	1	11.37
	c) Day 3	-	4	1	
	d) Day 4	-	-	1	
	e) Day 5	-	1	-	
	f) Day 6	-	-	-	
	g) Day 7	-	1	-	
9	**Immunization status**				
	a) BCG, OPV, Hep-B given	-	22	1	3.48
	b) Not given	-	5	2	
10	**Mode of delivery**				
	a) Normal delivery	-	16	2	0.05
	b) Forceps	-	-	-	
	c) caesarean	-	11	1	
11	**Breast feeding practice**				
	a) yes	-	25	3	0.23
	b) no	-	2	-	
12	**Breast initiation within an hour**				
	a) yes	-	22	3	0.66
	b) no	-	5	-	
13	**Religion**				
	a) Hindu	-	13	2	
	b) Muslim	-	5	1	1.46
	c) Christian	-	9	-	
14	**Area of residence**				
	a) Urban	-	25	2	2.01
	b) Rural	-	2	1	

Table 9: shows that there is no association of demographic variables and posture with post test score of high risk new born in control group.

CHAPTER V

RESULTS AND DISCUSSION

The purpose of the study was to find out the effectiveness of nesting on posture and motor performance among high risk newborn. The result and the discussion of the study were based on the findings obtained from the statistical analysis.

The First Objective of the Study was to Assess the Posture and Motor Performance of High Risk Newborn in Experimental and control Group.

Infant Position and Assessment Tool (IPAT) was used to assess the position of the high risk newborn and Modified Ferrari Tool was used to assess the motor performance of high risk newborn. The mean pretest posture value among experimental group and control group was 6.8 and 6.7. The mean pretest motor performance value among experimental and control group was 7.3 and 7.1. This indicates, that there is no significant effect on maintaining posture among high risk new born in the experimental and control group before providing nesting.

A similar study was conducted Ms. k. Prasanna and Mrs. Radhika (june2015), a quasi-experimental study on ‘Effectiveness of nesting on posture and motor performance among newborn babies in selected hospital at Nellore. The result shows that in pretest experimental group 6 (20%) had good posture and motor performance whereas in control group 8 (26.7%) had good posture and motor performance.

The Second Objective of the Study was to Provide Nesting among High Risk Newborn in Experimental Group.

Nesting is recommended that a flexed, midline position is maintained without overextending the baby's head and neck. Nesting, as a component of developmental care, improves neonates curved limb position and reduction of sudden movements as well as immobility of the arms and legs.

Nesting was made with 4 baby sheets. Roll the sheets way so that they are tubes. These are than placed round the baby. Nesting was provided for one day. And the next day reassessed the posture and motor performance by using IPAT and Modified Ferrari Tool.

A similar study was conducted by Ms. Ramya paulose, Dr. molly babu, Mrs. Sharda Rastogi (2014)**,** an experimental study on effect of nesting on posture discomfort and physiological parameters of low birth weight infantsl. The result showed that a significant improvement in posture (t = 12.64) was observed in experimental group during application of nesting.

The Third Objective of the Study to Reassess the Effectiveness of Nesting on Posture and Motor Performance of High Risk Newborn in both Experimental and Control Group.

The IPAT and Modified Ferrari Tool was used to reassess the posture and motor performance of high risk newborns.The mean posttest posture value among experimental and control group was 11.3 and 7.3. The mean posttest motor performance value among

control group was 11.2 and 7.4. This reveals that there was a significant difference exist between post test values of experimental and control group.

A similar study conducted by Ms. Surya (2010), an experimental study 'to assess the effectiveness of nesting in maintenance of physiological and behavioral parameters among preterm babies in selected hospital at Coimbatore. HR, RR, SPO_2 and behavioral parameters of babies by using ABIP monitored before and after intervention (nesting). The data shows that preterm babies experience stable physiological parameters during the period of nesting in experimental group.

The Fourth Objective of the Study was to Compare the Effectiveness of Nesting on Posture and Motor Performance of High Risk Newborn in both Experimental and Control Group.

The findings after analysis reveals that the pretest and posttest 't' value of posture among experimental and control group is 0.32 and 15.1. The pretest and posttest 't' value of motor performance among experimental and control group is 0.61 and 13.2. This reveals that there was a significant difference exists between the pretest and posttest value of posture and motor performance among experimental and control group. It showed that the Nesting is effective in maintaining posture and motor performance in experimental group.

A similar study was conducted by Ms. Neethu C joseph (2013)**,** an experimental study 'to assess the effectiveness of nesting on posture and movements among newborns in selected hospital at Mysore'. The result of study revealed that the significance of difference between the mean pretest and posttest posture score which was

statistically tested using paired' t' test and was found to be highly significant at 0.05 level of significance (t = 5.42 in posttest 1 and 46.14 in posttest 2 and 56.82 in posttest 3, $p < 0.05$).

The Fifth Objective of the Study is to Associate the Effectiveness of Nesting on Posture and Motor Performance of High Risk Newborns with their Selected Demographic Variables.

The demographic variables like age of the mother, gestational age of baby, immunization status and breast feeding initiation within an hour in experimental group showed significant association with the motor performance score. The other demographic variablesis not associated with post test score of motor performance among high risk new born in experimental group.In control group there is no significant association with any of the demographic variables.

The demographic variables such as immunization status in experimental group showed significant association with posture values. The other demographic variables is not associated with post test score of motor performance among high risk new born in experimental group. In control group there is no significant association with any of the demographic variables.

A similar study was conducted by Ms. Priya Thomas (2012), an experimental study to assess the "Effectiveness of Developmental care on the physical and physiological parameters of the Preterm and Low birth weight babies in selected hospitals at Bangalore ". The result found that the demographic variables such as age of the baby showed significant association with pretest scores of parameters

CHAPTER VI

Summary, Conclusion, Implication, Limitations and Recommendations

Summary

The study was concluded to evaluate the effectiveness of Nesting on posture and motor performance among high risk newborn in Vimal Jyothi Hospital at Coimbatore.

The Following Objectives were Set for the Study

- To assess the posture and motor performance of high risk newborn in experimental and control group.
- To provide nesting among high risk newborn in experimental group.
- To reassess the effectiveness of nesting on posture and motor performance of high risk newborn in both experimental and control group.
- To compare the effectiveness of nesting on posture and motor performance of high risk newborn in both experimental and control group.
- To associate the effectiveness of nesting on posture and motor performance of high risk newborn with their selected demographic variables.

Hypothesis Set for the Study

1. **H1**: There will be significant difference in the mean post test score of posture and motor performance of high risk newborn among experimental and control group.
2. **H2:** There will be significant association between the posture and movement of high risk newborn and their selected personal variables like age, sex, mode of delivery, weight of baby.

Major Findings of the Study were as Follows

- The mean pretest posture value among experimental group and control group was 6.8 and 6.7. The mean pretest motor performance value among experimental and control group was 7.3 and 7.1

- The mean posttest posture value among experimental and control group was 11.3 and 7.3. The mean posttest motor performance value among control group was 11.2 and 7.4.

- The pretest and posttest 't' value of posture among experimental and control group was 0.32 and 15.1.The pretest and posttest 't' value of motor performance among experimental and control group 0.61 and 13.2. This reveals that there was a significant difference exists between the pretest and posttest value of posture and motor performance among experimental and control group.

- The demographic variables like age of the mother, gestational age of baby, immunization status and breast-feeding initiation within an hour in experimental group showed significant association with the motor performance score.In control group there is no significant association with any of the demographic variables.

- The demographic variables such as immunization status in experimental group showed significant association with posture values. In control group there is no significant association with any of the demographic variable.

Conclusion

The main focus of the study was to assess the effectiveness of nesting on posture and motor performance among high risk newborn in Vimal Jyothi Hospital at Coimbatore. The mean posttest score is higher than the mean pretest score. The findings show that the Nesting is effective in maintaining posture and motor performance among high risk newborn. So, the alternative hypothesis was accepted.

The x^2 was used to find out the association between selected demographic variables between posture and motor performance among high risk newborns. The result revealed that there was an association between selected demographic variables such as age of the mother, gestational age of baby, immunization status and breast-feeding initiation within an hour in experimental group. There was no association between selected demographic variables in control group.

Nursing Implications

The findings of the study have implications on nursing practice, nursing education, nursing administration and nursing research.

Nursing Education

- Effects should be made to improve and expand nursing curriculum to provide more content concerning early identify and early intervention for high risk newborn to maintain posture and motor performance
- The curriculum of nursing education should enable student nurses to equip themselves within the knowledge of Nesting. The nursing education should give more importance to the application of theory in to practice.

- Periodic seminars and group discussion can be arranged regarding care of high risk newborn in maintaining posture and motor performance.

- In-service education to nurses and paramedical can be organized with advanced modalities.

- Nursing personal working in various health setting should be given in service education and training to update their knowledge and skills for maintaining posture and motor performance among high risk newborn by providing Nesting.

Nursing Practice

- The Nesting can be provided by staff nurses to the high-risk newborn to maintain normal position and motor performance.

- Teaching programme can be conducted to the staff nurses, especially who are working in NICU and post natal wards.

Nursing Administration

- The health care system is responsible to provide educational services to staff nurses as an integral part of high qualities and cost effectiveness.

- Leader in nursing are challenged to undertake health needs of newborn. The administrator should take part in health policy making, developing portal procedures for parent's education.

- Administrators should organize in-service education programmes, refresher courses and workshops for nurses and encourage them to participate in these activities.

- Nursing administrators should provide the necessary sterilized sheets to provide nesting among High-risk newborns especially in NICU with sterilization facilities.

Nursing Research

- One of the main aim of nursing research is to contribute knowledge to the nurses to expand and broaden the scope of nursing. This is possible only if nurses are taking initiative to conduct further research

- The essence of research is to build up body knowledge in nursing as it is an evolving profession. The effectiveness of the research can be made by further implication of study.

- Can be used for evidence-based nursing practice as a rising trend.

Limitations

- The study included only high-risk newborns who are admitted in Vimal Jyothi Hospital at Coimbatore.

- The size of the sample was small to draw generalizations.

- Time duration limited to 1month.

Recommendations

- Similar studies can be conducted to find the posture and motor performance among newborn babies.
- An experimental study can be undertaken with one group pretest and post test for effective comparison.

- A similar study can be conducted with selected nursing interventions for maintaining good posture and motor performance among newborn babies.

- A similar study can be conducted as comparative study in and out of nesting in posture and motor performance among high risk newborn.

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SECTION –A

QUESTIONNAIRE TO OBTAIN SOCIO DEMOGRAPHIC DATA OF BABY AND MOTHER

Instruction

Read the following items carefully and tick (✓) the correct most appropriate answers.

Sample No: _____

1. Age of mother
    a. < 25 years □
    b. 25 - 35 years □
    c. 35 - 40 years □
    d. > 40 years □
2. Educational status of mother
    a) Illiterate □
    b) Primary level □
    c) Secondary level □
    d) Higher secondary level □
    e) Graduate& above. □
3. Occupational status of mother
    a) Government employee □
    b) Private employee □
    c) Daily wages □
    d) Housewife □

4. Birth order of baby
    a) One □
    b) Two □
    c) Three and above □
5. Sex of the baby
    a) Male □
    b) Female □
6. Birth weight of baby
    a) < 1 kg □
    b) 1 – 1.5 kg □
    c) 1.5 – 2.5 kg □
7. Age of baby
    a) Day 1 □
    b) Day 2 □
    c) Day 3 □
    d) Day 4 □
    e) Day 5 □
    f) Day 6 □
    g) Day 7 □
8. Gestational age of baby
    a) 30 – 33 wks □
    b) 33 – 35 wks □
    c) 35 – 37 wks □

9. What is the date of birth of new born?

__ / __ / _____ (dd/mm/ yyyy)

10. Immunization status

    a) BCG, OPV, Hep-B given □

    b) Not given □

11. Mode of delivery

    a) 1. Normal vaginal delivery □

    b) 2. Forceps delivery □

    c) 3. Caesarian section □

12. Current breast feeding practices

    a) Yes □

    b) No □

13. Breast feeding initiation within an hour

    a) Yes □

    b) No □

14. Religion

    a) Hindu □

    b) Muslim □

    c) Christian □

15. Area of Residence

    a) Urban □

    b) Rural □

SECTION - B

INFANT POSITION ASSESSMENT TOOL (IPAT)

S.No	Indicator	0	1	2	Score
1.	Shoulders	Retracted	Flat / in Neutral	Softly rounded	
2.	Hands	Hands away from baby	Touching torso	Touching face	
3.	Hips	Abducted externally rotated	Hips extended	Aligned & softly flexed	
4.	Knees, ankles, feet	Knees extended, ankles & feet externally rotated	Knees, ankles, feet extended	Knees, ankles, feet are aligned & softly flexed.	
5.	Head	Rotated laterally L (or) R greater than 45 degree from midline	Rotated laterally 45 degree from midline L (or) R.	Positional midline	
6.	Neck	Hyper extended, flexed	Neck Neutral	Neutral, head slightly flexed, forward 10 degree	
				Total Score	
Ideal Cumulative Score : 10-12					

SCORING

10 – 12 scores	GOOD
7 – 9 scores	AVERAGE
<7 score	POOR

SECTION - C

MODIFIED FERRARI TOOL FOR MOTOR ASSESSMENT

S.No	Descriptions	Healthy Movement (1)	Unhealthy Movement (0)
1.	Head rotation from side to midline and back		
2.	Head rotation from side to side		
3.	Hand – Mouth contact		
4.	Hand – Head contact		
5.	Gently striking head with open hands		
6.	Hand – Hand contact		
7.	Hands touching contralateral shoulder and trunk		
8.	Hand – Leg contact		
9.	Foot – Foot contact		
10.	Elegant wrist movements		
11.	Abrupt hand limb movement		
12.	Rolling to side		
Total Score			

SCORING

1 - 5 scores	POOR
6 - 9 scores	AVERAGE
10 - 12 scores	GOOD

SECTION –A

QUESTIONNAIRE TO OBTAIN SOCIO DEMOGRAPHIC DATA OF BABY AND MOTHER

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    b) Day 2 □
    c) Day 3 □
    d) Day 4 □
    e) Day 5 □
    f) Day 6 □
    g) Day 7 □
8. Gestational age of baby
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    c) 35 – 37 wks □

9. What is the date of birth of new born?

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2.	Hands	Hands away from baby	Touching torso	Touching face	
3.	Hips	Abducted externally rotated	Hips extended	Aligned & softly flexed	
4.	Knees, ankles, feet	Knees extended, ankles & feet externally rotated	Knees, ankles, feet extended	Knees, ankles, feet are aligned & softly flexed.	
5.	Head	Rotated laterally L (or) R greater than 45 degree from midline	Rotated laterally 45 degree from midline L (or) R.	Positional midline	
6.	Neck	Hyper extended, flexed	Neck Neutral	Neutral, head slightly flexed, forward 10 degree	
				Total Score	
Ideal Cumulative Score : 10-12					

SCORING

10 – 12 scores	GOOD
7 – 9 scores	AVERAGE
<7 score	POOR

SECTION - C

MODIFIED FERRARI TOOL FOR MOTOR ASSESSMENT

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8.	Hand – Leg contact		
9.	Foot – Foot contact		
10.	Elegant wrist movements		
11.	Abrupt hand limb movement		
12.	Rolling to side		
Total Score			

SCORING

1 - 5 scores	POOR
6 - 9 scores	AVERAGE
10 - 12 scores	GOOD

ABSTRACT

Statement Of The Problem: A study to assess the effectiveness of nesting on posture and motor performance among high risk newborns in Vimal Jyothi hospital at Coimbatore. **Objectives:(a)** To assess the posture and motor performance of high risk newborns in experimental and control group. **(b)** To provide nesting among high risk newborns in experimental group. **(c)** To reassess the effectiveness of nesting on posture and motor performance of high risk newborns in both experimental and control group. **(d)** To compare the effectiveness of nesting on posture and motor performance of high risk newborns in both experimental and control group. **(e)** To associate the effectiveness of nesting on posture and motor performance of high risk newborns with their selected demographic variables.

Methodology: The research design selected for the study was quasi experimental research design (pretest posttest control group design), sample size for this study was 60 (30 experimental group and 30 control group). Posture and motor performance among High risk newborns was assessed by using Infant Position and Assessment Tool (IPAT) and Modified Ferrari Tool and demographic variables were used to collect data.

Results: Inferential and Descriptive Statistics were used to analyze the data. The paired 't' test was performed to compare the effectiveness of nesting in experimental and control group. The pretest 't' value of posture among experimental and control group is 't' = 0.32. The posttest 't' value of posture among experimental and control group is 't' = 15.1. The pretest 't' value of motor performance among experimental and control group is 't' = 0.61. The posttest 't' value of motor performance among experimental and control group

is ‘t’ = 13.2. This reveals that there was a significant difference exists between the pretest and posttest value of posture and motor performance among experimental and control group. It showed that the Nesting is effective in maintaining posture and motor performance in experimental group.

Conclusion: The study revealed that the high risk newborns maintaining posture and motor performance after Nesting. So the Nesting was effective in maintaining posture and motor performance.

REQUISITION LETTER FOR CONTENT VALIDITY

From

M.Sc (N) II Year,

PPG College of Nursing,

Coimbatore-35.

To

Through :**Principal , PPG College of Nursing.**

Respected Sir/ Madam,

Sub : Requisition for expert opinion and suggestion for content validity of tool.

I am a student of M.Sc (N) II Year, PPG College of Nursing affiliated to the Tamilnadu Dr. M.G.R Medical University, Chennai. As a partial fulfillment of the M.Sc (N) programme. I am conducting

A STUDY TO ASSESS THE EFFECTIVENESS OF NESTING ON POSTURE AND MOTOR PERFORMANCE AMONG HIGH RISK NEWBORN IN VIMAL JYOTHI HOSPITAL AT COIMBATORE.

Here with I have enclosed the developed tool for content validity and for the expert opinion and possible solution. It would be very kind of you to return the same as early as possible.

Thanking you,

Yours faithfully,

PPG COLLEGE OF NURSING

FORMAT FOR THE CONTENT VALIDITY

Name of the expert :

Address :

Total content for the tool :

Kindly validate each tool and tick wherever applicable

S.NO	No. of Tool/Section	Strongly Agree	Agree	O.K	Not Applicable	Need Modification	Remarks

Remarks Signature of the Expert with

Date

PROTOCOL FOR NESTING

Introduction

Nesting and positioning is a common nursing skill used in the developmental care of premature infants. This skill maintains premature infants in a comfortable position, facilitates the monitoring of stable vital signs and enables spontaneous motor activity for normal neuromuscular and skeletal joint function.

The nest which has been adopted by European NICUs, aims to stabilize body posture, positioning the head towards the midline, and facilitating a flexed or semi-flexed posture of the head. It also seems to prevent abrupt and distressing movements.

Definition

It refers to a comfortable position provided to the newborns, which is shell – shaped made by putting two rolled sheets in a form of an oval in which the baby lies.

Goals of Positioning and Nesting

- To facilitate and maintain postures that enhance motor control and physiological functioning and reduce stress.
- To provide flexion in the limbs and trunk and the facilitation of mid lines skills.
- To assist the infant in self-regulation and maximize infant stability.
- To preserve energy and promotes growth.
- To promote CNS organization.
- To maintain a patent airway, promotes thermal regulation, and maximizes rest.

- To give the baby, physical boundaries so the baby feels supported.
- To stop the baby moving around too much and using to much energy.

Importance of positioning

- Provides the building blocks to promote physical development.
- Curled up position helps baby control his/her behavior to feel safer and more secure (self-Organisation.
- Help protect fragile skin and joints.
- Improve sleep quality
- Encourage relaxation.
- Help conserve body heat and reduce energy expenditure.
- Help baby understand midline and coordination.
- Optimize respiratory function.
- Helps treat respiratory problems.

The benefits of developmental positioning

- Positive long term muscle development and neurodevelopment.
- Benefits of developmental positioning include better rest for the infant, neural development, less need for physical therapy post discharge.
- Developmental positioning promotes rest, comfort, and self soothing. These things allow the infant to grow and develop optimally.
- Improved cardio-respiratory stabilty Decreased FIO2 needs Improved body temperature stability

- Improved neuro-muscular development Improved GI function/toleration of feedings.
- Improved growth.
- Lower oxygen reqirements, fewer episodes of desats/apnea/heart dips, meeting long term developmental milestones, providing confidence in the parents regarding your nursing ability by visualizing the comfort of their child and maintenance of their bedside, etc.
- Faster recovery time, proper growth development, happy baby.
- Aids in the growth and development of premies ... Providing comfort and conserve calories.
- Closer to normal body and brain growth and development, infant comfort, frequently a decrease in apnea,bradycardia, desaturations.
- Patient comfortably positioned and calm. Promotes optimal developmental growth.
- Helps infants grow appropriately.
- Shorter hospital stays overall. Infant with better ability to breathe, eat and has better tone.
- proper brain and musculoskeletal development meeting developmental milestones, good muscle tone, normal head shape
- Calmer babies. Better physical comfort and development.
- Promote growth (gain weight).
- Proper body alignment, development.

- Less long term muscle problems-such as straight arms, shoulders and pectorial muscles tight.
- Better pain control, better sleep. Better O2 needs.
- Better growth, less risk muscle injury (stiffness...), improvement in status

The effectiveness of a standardized positioning

- Shorter NICU stay and better outcomes.
- More restful sleep, better growth.
- Improved musculoskeletal development, calms agitated infant, sense of security for infant,
- improve digestion.
- The infant will develop appropriately with how they would in utero.
- Promotes a more natural transition from utero to outside the womb, decreases stress and promotes healthy hips and head shape.
- Baby's resting, growing.
- Better feeding tolerance, improving respiratory status, baby stay calm, VS stable, less spells, less complication, less stress.
- Less need for PT, reduced joint pain, better brain development, increase learning ability.
- Better brain development, happier babies (happier nurse, parents), less physical therapy when discharged.
- To help the babies feel secure and comfortable and help them as best as possible develop.

Positional support

In the womb

- Tight abdominal muscles
- Bony pelvis and spine
- Diaphragm

Incubator/cot

- Rolled up towels/blankets
- Special beanbags
- Gel pack

Nesting

- Nesting is one key factor in maintaing a benificial position for a neonate.
- Position hands together near face.
- Feet together.
- Use positioning aids to provide a safe snug and supportive nest.

Nesting methods

There are number of methods to make a nest to support the infant. The key features of a nest are:

- A boundary high enough at the bottom that the feet are contained within the nest.
- The boundary should be close enough so the infant and reach the end with is feet so he can brace against it.
- It should facilitate the hands to midline and minimize shoulder retraction.
- The baby should be visible and easily accessed for cares.

The method of nesting used in this study are us fallows:

1. Take 4 baby sheets. (Square shape)
2. Spread one sheet in the warmer / cot.
3. Take second sheet and fold it in a triangular form.
4. Roll the triangular sheet from one corner and fold on the diagonal and continue folding like a tube form.
5. Place the rolled sheet on the spreaded sheet in the form of semi circle.
6. Take third sheet and fold it in a triangular form and roll same as second sheet.
7. Place the third rolled sheet and joined it in half circle, and adapt to the size of the baby.(both rolled sheets should keep in egg-shape / oval shape)

8. Take fourth sheet and cover the oval shape rolled sheets.
9. Tuck the excess edge of the forth sheet into the rolled sheets.
10. Place the shoulder pad on the nest.
11. Place the baby wholly within nest and position the baby to support hands midline and legs flexed.
12. Ensure shoulders are protractor and supported by the nest.

Conclusion

Nesting is a valid Intervention for improving the correctness of the nesting and positioning in the nursing care.

பகுதி அ

நேர்காணல் படிவம்

குறிப்புகள்:

கீழ்கண்டவினாக்களை கவனமாகபடித்த பின் சரியான பதிலுக்கு எதிரில் கொடுக்கப்பட்டகட்டத்தில் (✓)என்றுகுறிப்பிடுக.

1. தாயின் வயது
   - 25 வயதிற்குகீழ் □
   - 25 - 35 வயது □
   - 35 - 40 வயது □
   - 40 வயதிற்குமேல் □
2. படிப்பின் விபரம்
   - படிக்காதவர் □
   - 5 ஆம் வகுப்புவரை □
   - 10 ஆம் வகுப்புவரை □
   - 12 ஆம் வகுப்புவரை □
   - பட்டப் படிப்பு,அதற்கும் மேல் □
3. வேலையின் விவரம்
   - அரசாங்கவேலை □
   - தனியார் நிறுவனத்தில் வேலை □
   - தினக்கூலி □
   - குடும்பத் தலைவி □
4. தற்போதையகுழந்தையின் வரிசை
   - ஒன்று □
   - இரண்டு □
   - அதற்கும் மேல் □
5. குழந்தையின் பாலினம்
   - ஆண் □
   - பெண் □
6. குழந்தையின் பிறந்த எடை.
   - < 1 kg □
   - 1 kg – 1.5 kg □
   - 1.5 kg – 2.4 kg □
7. எத்தனைநாள் குழந்தை
   - ஒன்று □
   - இரண்டு □
   - மூன்று □
   - நான்கு □
   - ஐந்து □
8. எத்தனைமாதத்தில் பிறந்தகுழந்தை
   - 30 - 33 வாரங்கள் □
   - 33 - 35 வாரங்கள் □
   - 35 - 37 வாரங்கள் □

9. குழந்தைபிறந்ததேதி
   __/__/_____
10. தடுப்பூசிகொடுக்கப் பட்டவிவரம்
    - ஆம் □
    - இல்லை □
11. எந்தமுறையில் குழந்தைபிறந்தது
    - சுக பிரசவம் □
    - ஆயுதபிரசவம் □
    - அறுவைசிகிச்சை □
12. தாய்பால் குழந்தைக்குகிடைக்கிறதா
    - ஆம் □
    - இல்லை □
13. தாய்பால் பிறந்தஅரைமணிநேரத்தில் குழந்தைக்குகொடுக்கப்பட்டதா
    - ஆம் □
    - இல்லை □
14. மதம்
    - இந்து □
    - முஸ்லீம் □
    - கிறுத்துவர் □
15. வசிக்கும் இடம்
    - நகரம் □
    - கிரமம் □

A STUDY TO ASSESS THE EFFECTIVENESS OF NESTING ON POSTURE AND MOTOR PERFORMANCE AMONG HIGH RISK NEWBORN IN VIMAL JYOTHI HOSPITAL AT COIMBATORE.