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Influences of Nursing Procedures and Factors Associated on the Vital Signs of Neonate

A Thesis Submitted

To the Council of College of Nursing, University of Babylon in Partial Fulfillment of the Requirements for the Degree of Master, Sciences in Nursing

By

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بِسْمِ اللَّهِ الرَّحْمَٰنِ الرَّحِيمِ

"وَاللَّـهُ أَخرَجَكُم مِن بُطونِ أُمَّهاتِكُم لا تَعلَمونَ شَيئًا وَجَعَلَ لَكُمُ السَّمعَ وَالأَبصارَ وَالأَفئِدَةَ لَعَلَّكُم تَشكُرون"

صدَّقَ ٱللّٰه ٱلعَليُّ ٱلعَظِيم

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Supervisor Certification

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Dedication

I dedicate this achievement to my father and my mother, their love and effort have accompanied me in this process, without hesitating at any moment of seeing my dreams come true, which are also their dreams.

To my siblings & friends, who have been my support in the difficulties.

To the candle of hope that lit the path of researchers, Dr. Hussein Al-Ibrahimi (Mercy and forgiveness for his soul), we have missed your presence so much, but you are alive in our minds. We ask God to make you a companion to his righteous saints in the gardens of bliss.

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Abstract

Many nursing procedures are applied in neonatal intensive care unit (NICU) for diagnosis and treatment. Several procedures cause physiological changes that might be dangerous if not properly managed. Physiological changes related to nursing procedures are generally considered as part of the treatment, which may be affected by certain factors such as; age, gender, time of day, physical activity, stress, medications, diseases, fear, and anxiety.

Aims to assess neonatal vital signs through specific procedure applicated, assess the Factors Associated with vital signs, find out the influences of nursing procedures and Factors Associated on neonatal vital signs, as well as to find out the relationship between vital signs with certain mother and neonates demographic characteristic.

Descriptive "cross-sectional" design has been used during the period from 9th November 2022 to 25th May 2023, in Hilla city on (160) neonate admitted to neonatal intensive care unit (NICU) at Babil Teaching Hospital for Maternity and Children, and Al-Imam Al-Sadiq Teaching Hospital. Data were collected by using questionnaire, the researcher filled out the questionnaire and measured the newborn's vital signs (temperature, pulse, respiration) before and after all the nursing procedures specified in the questionnaire, which are measured by using electronic thermometer to measure the temperature, using a pulse ox meter to measure the pulse and pocket watch for counting the number of breaths in 60 seconds to measure the respiration.

The study showed an effect on the vital signs of newborns, specifically the pulse and breathing rate, before and after most of the

nursing procedures that are applied in the neonatal intensive care unit, regarding to associated factors, which specified a strong correlation between the temperature of the incubator and the temperature of the child.

The study concludes that there is a significant difference in vital signs before and after nursing procedure without exceptions.

It is recommended to equip an educational program for nurses working in this critical unit, which include how to measure those vital signs, as well as document them correctly, and aware of a major role effecting the outcome of the child’s condition.

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List of Abbreviations

Item	Meaning
ABP	**Arterial blood pressure**
ARI	**Acute respiratory infection**
bPM	**Breath per minute**
℃	**Celsius**
CI	**Confidence interval**
CVD	**Cardiovascular Disease**
D.F	**Degree Freedom`**
ENC	**Essential newborn care**
et al.,	**And others**
ETCO2	**End-tidal carbon dioxide concentration**
ETO2	**End- tidal oxygen concentration**
F	**Frequency**
GD	**Gestational Diabetes**
HFNC	**High flow nasal cannula**
HIE	**Hypoxic–ischemic encephalopathy**
ICU	**Intensive care unit**
IVH	**Intraventricular hemorrhage**
LED	**Light-emitting diode**
LP	**lumbar puncture**
Max	**Maximum`**
MDG 4	**Millennium development goals 4**
Med	**Median**
Min	**Minimum; Max**
N	**Number**
NEC	**Necrotizing enterocolitis**
NFHS-4	**National family health survey-4**
NICU	**Neonatal intensive care unit**
NMR	**Neonatal mortality rate**
NNPs	**Neonatal nurse practitioners**
P	**p-value**
Pas	**physician assistants**
PAT	**Peripheral arterial tonometry**
PDA	**patent ductus arteriosus**

PKU	**Phenylketonuria**
PPG	**Photoplethysmogram**
PPHN	**persistent pulmonary hypertension**
PVL	**periventricular leukomalacia**
RDS	**Respiratory distress syndrome**
ROP	**Retinopathy of prematurity**
RR	**Respiratory rate**
SD	**Standard deviation**
SFR	**Single family room**
Sig	**Significant**
SPSS	**Statistical Package for the Social Sciences**
T	**T-value**
TBA	**Traditional birth attendant**
Tc	**Core temperature**
TTNB	**Transient tachypnea of the newborn**
WHO	**World health organization**
X	**Mean**
%	**Percentage**
<	**Less than**
>	**More than**
≤	**≤ Equal or less than**

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Chapter One

Introduction

Chapter one

Introduction

1.1 Introduction

The transition to extra uterine life is a critical adaptation process that the infant goes through after delivery. It may take up to 2-4 weeks to complete and is one of the greatest challenges a baby must undertake. The process includes starting and regulating respirations, controlling body temperature, and switching from foetal (shunt dependent) circulation to newborn circulation. This process may be slowed down by factors like the gestational age at birth, the style of delivery, a severe intrapartum event, a congenital abnormality, or an infection. While most infants successfully adjust to life outside of the uterus, others have difficulties (Paliwoda *et al*., 2018).

The most important parts of caring for a newborn are establishing a bond between the parent and the child, keeping the baby's temperature stable, getting the baby to breathe and keeping them breathing, getting - extrauterine circulation going, keeping up with personal hygiene, getting enough food, getting rid of waste, preventing infections, and getting extrauterine circulation going (Singh, 2020).

The neonatal intensive care unit (NICU) is considered a high-risk unit, but it may also have an influence on lowering mortality rates since it is provided with human resources and high-complexity technology, but it also needs a succession of painful procedures, and the stress generated by pain can lead to clinical instability (Barbosa and Leitão Cardoso, 2014).

There are many procedures applied to newborn in (NICU) for diagnosis and treatment, which cause pain and stress. One of procedures applied according to procedures is the Guthrie Screening, evaluation of newborns for phenylketonuria (PKU) (Kinaci and Arslan, 2021).

A newborn is a one-of-a-kind unique individual who starts life in the first few days, as a moment of sudden shift from life to a completely autonomous existence. The avoidance of complication and ensuring intact survival, the process of birth and adjustment to a new environment depend on newborn adjustment, particularly during the critical period; otherwise, it leads to undesirable, high mortality and morbidity among newborns, so each and every newborn should be given essential newborn care (Singh, 2020).

Babies in the neonatal intensive care unit (NICU) are exposed to prolonged light and noise, as well as interruptions in sleep caused to medical operations, which may alter physiological responses and, consequently, neurodevelopment (Gebuza *et al.*, 2020).

Those babies are subjected to a variety of stresses, including increased noise and light levels, frequent medical or nursing interventions, and separation issues from the mother. Even in healthy newborns, useful and essential treatments might cause physiological and behavioral consequences (Taşdemir and Efe, 2019).

Neonatal body temperature is quickly lost through evaporation, radiation, conduction, and convection processes due to the unusually high surface area and thin layer of subcutaneous fat that infants encounter during the early neonatal period. The clinical outcome, including the survival rate, may be improved by paying great attention to the provision of the infant's neutral environment (Singh, 2020).

In the neonatal intensive care unit, nursing procedures prevent immobilization-related problems and have low adverse effects. Several of these procedures cause physiological changes that might be dangerous if not properly managed. Physiological changes related with nursing procedures are generally considered part of the treatment and have often

been disregarded in research studying various therapies in critically sick patients, even though they might alter the outcomes(Engström *et al*., 2017).

Certain factors effects on physiological parameters such as ; age (children's temperatures are more likely to change than those of adults); time of day (body temperature changes by 20C throughout the day, with the highest temperature between 17:00 and 18:00 hrs and the lowest between 4:00 and 6:00 hrs); physical activity; the outside world, such as the temperature and humidity; activity of the hypothalamus, and factors that affect breathing such as ; age (as newborn gets older, breathing rate slows down); doing something active; stress, altitude, medications, diseases, and other factors can make the heart beat faster or slower such as; age (the heart rate slows down with age), gender, activity, increased body size, bleeding, stress, fear, and anxiety, medications, and changes in body position (Jirkovský, 2014).

While the fetus was in satisfactory environment during the intrauterine period, with the ideal temperature and appropriate light and sound stimuli, without the need for additional effort to maintain its physiological functioning, the abrupt exposure to the extrauterine environment of the neonatal unit requires a sudden and immediate modification, which favors the disorganization of the still-developing systems and puts the newborn's physiological functioning at risk. Given the difficulties of caring for infants in neonatal units, there is an urgent need for therapeutic treatments and measures based on humanized help that may decrease the negative impact on the vital signs of newborn (Da Silva *et al*., 2017).

There are a limited number of clinical studies that have been conducted on the physiological effects of typical nursing procedures such as changing a babies posture, performing endotracheal suctioning, doing

clinical examinations, caring for wounds, and inserting vascular catheters. (Engström *et al*., 2017).

The neonatal intensive care unit (NICU) is a hospital ward for premature or critically ill newborns. Specialized healthcare for the youngest infants is provided by the NICU's combination of cutting-edge technology and highly qualified medical staff. Around 10% of all newborns need specialist nursing care, and these infants may be treated in NICUs' intermediate or continuing care units (Suresh *et al*, 2014).

Temperature, pulse rate, respiration rate, and blood pressure are examples of vital signs that are essential components in determining the physical state of vital functions. Examine each recording of the physiology beside the usual range of results for age group. In addition, compare the values obtained at previous health visits with the recordings made at the current time; this might reveal changes with enhanced efficacy if the child is subjected to the execution of such a method regarding the daily requirements in the unit (Prakash and Kaur, 2015).

Measure, record, and understand a child's vital signs by using tools and methods that are right for their age. The age and size of the child, as well as any known health problems, will affect how the vital signs are analyzed, as well as the body's temperature, heart rate, breathing rate, and blood pressure. These measurements change often in children, so it is best to check vital signs when the child is calm. It may be necessary to comfort an infant or distract a young child while taking their vital signs. If the child is crying or doing something else during the evaluation, make a note of it. In many acute care settings, vital signs must be measured continuously with special monitoring equipment. When checking the child's vital signs, also check how much pain the child is in (Terri and Susan ,2012)

Babies born prematurely, underweight (less than 2,500 kg), or with a medical condition that needs special care are the focus of a neonatal unit's attention. The neonatal intensive care unit (NICU) also provides treatment for infants who have medical disorders such as heart abnormalities, infections, and birth defects. Specialized treatment for the youngest patients is provided by the NICU's combination of cutting-edge technology and highly qualified medical staff. Infections in newborns may start in the uterus, during labor, or even after birth. Common genetic causes in newborn morbidity have included infections caused by bacteria, viruses, and fungi, which may be transmitted during birth, in healthcare settings, or at home (Parmar *et al*., 2018)

1.2. Importance of Study

Compared to any other period of childhood, the risk of mortality is highest during the first 28 days of life, known as the neonatal phase. As compared to the post-neonatal period, which is the period from 1 month to 59 months of age, the daily mortality risk during the first four weeks of life is more than 30 times higher. Yet, neonatal health has just gotten the attention it deserves in the past 10 years. In most nations, including India, this has hindered progress toward Millennium development goals (MDG4) (cutting the infant mortality rate) (Sankar *et al.*, 2016).

Neonatal mortality is still a serious health issue in low-income areas. There are affordable essential newborn care (ENC) therapies that have been shown to be effective and cost-efficient, but they have not yet attained high coverage (90%). The methods used to put this into practice are not well understood. A third of the 2.5 million infant deaths in the first month of life that occurred in 2018, which occurred mostly in the least developed nations, occurred on the day the baby was born. Many of these deaths may be avoided with better prenatal care, which includes essential newborn care (ENC) as emphasized by the World Health Organization

(WHO, 2017), or how they relate to better coverage of interventions (Peven *et al.*, 2020).

Poor newborn health coverage, low levels of perinatal care, harmful cultural practices like untrained home births, poor cord care, which includes using cow dung, lizard poop, herbs, and mud to "help" the cord heal, and early weaning are major causes of morbidity and mortality. Also, because of limited capacity (equipment, staff, and supplies), practices that make the problem worse, and new-born health, the continuum of care from prenatal care through delivery and postnatal care is very fragmented in most rural areas (Gitaka *et al.*, 2018).

There are 2.4 million infant mortality that occur throughout the globe every year among infants less than 28 days. Almost seventy percent of these mortality take place in settings with little resources as a direct result of a failure to adopt treatments that are supported by solid evidence. It is possible that digital health technology might provide a solution for implementation (Wilson *et al.*, 2022).

Every day, about 15,000 babies die before their fifth birthday around the world. About half of these babies are younger than one month. In absolute numbers, this means that 7,000 people die every day and 260,000 people die every year. Every year, 6.4 babies under one month old die in India alone, which is 24% of the world total (Rahman and Begum, 2020).

Every year, 19 million newborns throughout the world are diagnosed with life-threatening diseases that need specialist medical attention. These illnesses include intrapartum-related brain damage, pathological jaundice, serious bacterial infections, and premature delivery. There are 2.9 million infants that pass away as a result of issues associated

to preterm birth (34 %), diseases related to labor and delivery (25 %), and infections (22 %) (Sunny *et al.*, 2020).

At 1,360 deaths per 100,000 live births, maternal mortality in Sierra Leone is thought to be the highest in the world. This is because about 40% of births happen without a trained health worker present. At 33.2 deaths per 1000 live births, the death rate for babies under one year old is also one of the highest in the world. Over 90% of births that don't involve a doctor or nurse are helped by a traditional birth attendant (TBA). Still, both mother and baby deaths can be reduced if skilled help is available during labor and delivery (Christophe *et al.*, 2020).

Under-five mortality is 48.5, newborn mortality is 40.7, and neonatal mortality is 29.5, according to the National Family Health Survey-4 (NFHS-4), with significant regional variation (Rahman and Begum, 2020).

Almost all of these mortalities occur in low- and middle-income countries (LMICs), and the majority of them take place in homes that are economically disadvantaged and have limited access to medical care. These kinds of financial hurdles are a significant barrier that inhibits families from getting treatment at health facilities. This is particularly problematic for infants who need specialized medical attention. It is vital to have access to health services that are of a high quality, equitable, and cheap in order to reach the aim of the Sustainable Development Goal, which is to lower the rate of newborn death to fewer than 12 per thousand live births by the year 2030 (Sunny *et al.*, 2020).

The newborn's loss of heat after birth may cause metabolic and hemodynamic instability, which can interfere with the process of post-natal adaption. The associated perinatal variables and their link with morbidity and mortality during the newborn period have not been thoroughly

explored in our institution. This is despite the fact that such research is urgently needed (Rodríguez and Siles, 2014).

According to estimates provided by the World Health Organization (WHO), neonatal death is responsible for 37% of worldwide child mortality among children less than 5 years of age, with perinatal asphyxia being a contributing factor in 23% of these deaths. Neonatal care administered during the first few minutes of a newborn's existence has a significant part in lowering the rates of morbidity and death experienced by newborns. To ensure that the medical personnel working in the delivery rooms of all rural, suburban, and urban hospitals are equipped with the required knowledge and abilities, and that they make appropriate use of these skills and abilities, so that they can give care to babies soon after they are delivered (Duran *et al*., 2008).

Asphyxia during pregnancy may cause a condition called hypoxic-ischemic encephalopathy (HIE) in neonates, both preterm and term (PA). HIE results in neurodevelopmental damage at an early age as well as considerable mortality. The only recognized therapy for near-term and term newborns with moderate to severe HIE is treating hypothermia (TH). Nevertheless, in recent randomized controlled studies, 30 % of the babies who were lowered either passed away or suffered from long-term neurological damage.(Giannakis *et al*., 2021).

In addition to therapeutic hypothermia, the best critical care support is necessary to enhance neurodevelopmental outcomes and prevent the further development of injuries. These infants provide a difficulty for respiratory care. Most of them need artificial breathing due to apnea, seizures, co-morbidities in the respiratory or cardiovascular systems, or the sedative effects of antiepileptic drugs. Because of the reduced CO2

generation given on by the slower metabolic rate and the hyperventilation put on by metabolic acidosis, there is a serious risk of hypocapnia (Lantos *et al.*, 2021).

In critically sick babies, metabolic acidosis is a common complication that arises as a result of combined acid–base abnormalities. Acute or chronic metabolic acidosis, depending on the severity, may have a serious adverse effect on cellular function and may lead to an elevated risk of morbidity and death (Kraut and Madias, 2010).

In children with severe illnesses, acid-base disturbances are a leading cause of death and disability. There are significant anatomical and physiological differences between children and adults, including narrow distal air passages, which leads to atelectasis and the rapid onset of metabolic acidosis and hypoxia; and a compliant chest wall and less efficient respiration; an immature respiratory center, which means that hypoxia and hypercarbia reduce respiratory rate. Moreover, blood pressure is maintained by reactive arterial pressure until late, making hypotension a less accurate indicator of shock than it is in adults (Lekhwani *et al*., 2010).

Global childhood mortality persists, that over 7 million children under 5 died each year, including 3 million infants in their first month. Despite decreases in under-5mortality, newborn deaths have risen from 36% to 43% since 1990. This delayed newborn mortality decrease hinders Millennium Development Goal 4, which aims to reduce childhood death by two-thirds from 1990 to 2015. Newborn mortality 50% occur within 24 hours after delivery, and 75% within one week. Infection, preterm, and intrapartum asphyxia are the leading causes of newborn mortality, although rates vary by country.(Hedstrom *et al.*, 2014).

Asphyxia during pregnancy has been linked to the malfunctioning of several organs, and research has shown that neonates who have been

asphyxiated have reduced cardiac output. The use of therapeutic hypothermia has become widespread in recent years because of its potential neuroprotective benefits. The use of therapeutic hypothermia has the potential to further reduce cardiac output (Eriksen et al., 2019).

There is a correlation between fetal hypoxia and newborn morbidity and mortality. As indicators of prenatal hypoxia and predictors of newborn morbidity and death, decreased pH and increased lactate concentrations in umbilical cord blood are of particular interest (Santotoribio et al., 2019).

Sepsis-related illness and death is becoming more of a problem in all neonatal intensive care units (NICUs), and the reported cases are shockingly high, even though the quality of care for newborns is getting better. Neonatal sepsis includes infections in the blood, urine, cerebrospinal fluid, peritoneum, and lungs, as well as infections that start in burns, wounds, or other places that are usually clean (Manzoni et al., 2013).

There is a correlation between sustained oxygen deprivation and acidity, as well as acidosis in the arterial blood of the umbilical cord, which has been linked to an increased risk of mortality and morbidity in term newborns. As a result, taking a sample of the baby's cord blood to establish its pH should be standard practice at all births in which foetal impairment is suspected (Zaigham et al., 2020).

The most dangerous time is the first month of life, when the baby is still in the uterus. Even though infant mortality dropped by 49% from 37 deaths per 1000 live births in 1990 to 19 deaths per 1000 live births in 2016, WHO reported that 40% more children under the age of five died in 2016 than in 1990. Ethiopia is one of ten countries where two-thirds of all deaths of newborns and six countries where half of all deaths of children under five happen. Even though the goal of less than 10 deaths per 1000 live births by 2035 has been given a lot of attention, sub-Saharan Africa

will have 33% of births and 60% of deaths in 2030, compared to 25% and 50% in 2013 (Orsido et al., 2019).

As medicine and technology have improved in the field of neonatology, care for newborns has become more specialized. Increased survival rates for babies born very early or who are sick have led to regionalization and specialization to make neonatal care more efficient and cost-effective. In the 1970s, regionalization of perinatal services helped start and expand developmental services for newborns. It also made it possible for developmentally supportive care practices and the services of rehabilitation professionals to be part of the multidisciplinary team(Barbosa, 2013).

1.3. Statement of the Problem

Influences of Nursing Procedures and Factors Associated on the Vital Signs of Neonate.

This study is conducted on newborn babies in (NICU) to measure the extent to which their vital signs are affected by application of nursing procedures and factors associated to them. This is because these vital signs have an impact on the child's health condition and stability

1.4. Objectives of the Study

1.To assess neonatal vital signs through specific procedure applicated.

2.To assess the Factors Associated with vital signs.

3.To find out the influences of nursing procedures and Factors Associated on neonatal vital signs.

4.To find out the relationship between vital signs with certain mother and neonates demographic characteristic.

1.5. Definition of the Terms

1.5.1. Nursing procedures

a. Theoretical Definition

Are established processes that nurses employ to provide patients with high-quality care. Nursing procedures keep nurses on task and enable them to make sure that patients are receiving the care they need by establishing standard responses to medical events (Mary McMahon, 2022).

b. Operational Definition

It is a set of procedures that the nurse performs for newborns admitted to the neonatal intensive care unit in order to achieve a stable health condition for the child, such as bathing, changing the diaper, giving treatment, breastfeeding, and others.

1.5.2. Vital signs

a. Theoretical Definition

Considered as physiological indicators of an individual's physiological condition, such as pulse rate, respiratory rate, and temperature. These signals may be viewed, evaluated, and monitored to determine an individual's degree of physical functioning (Hong et al., 2019).

b. Operational Definition

It is a group of different physiological signs and indicators that are measured in the health field, and whose indicators indicate the basic vital functional state of the child. Measurement of temperature, pulse and respiration.

Chapter Tow

Review of Literatures

Chapter Two

Review of Literatures

This chapter presents a logical and systematical organized summary of literatures and studies relevant to the phenomenon investigated which are categorized in the following manner.

2.1. Neonatal Intensive Care Unit (NICU)

NICUs should be designed to minimize infant stress, especially premature birth. Clinical experience has demonstrated that limiting noise, light, odors, handling, discomfort, and posture may reduce brain damage in newborns, Spanish pediatric association recommended space, location, newborn care, wiring and lighting systems, noise, ventilation and air conditioning, equipment, safety, nursing personnel, communication systems, maintenance, and remodeling. Family-centered care (fcc) includes these guidelines and trends (Hernández-molina *et al.*, 2020).

The NICU specialized care unit in a hospital that provides a high level of intensive care for babies and those with medical problems , who are seriously sick and need care and supervision. Over the past 20 years, new technologies in neonatology have made the hospitalized critically ill babies to live longer in NICUs, and also affect the health of the babies, parents, and staff (Shahheidari and Homer, 2012).

A single-family room (SFR) or private room design is increasingly replacing the typical multi-bed, open-bay nursery in (NICU) architecture. In addition, there is some evidence to suggest that SFR designs may offer advantages for newborns and their families, including improved satisfaction with care and an awareness for the increased comfort and security they provide. Also, there is

indication that the SFR setting may help NICU caregivers by reducing the negative consequences of their stressful working environment. Moreover , there is growing evidence that safety results, like as decreased sepsis rates, are enhanced in the SFR context (Pickler *et al*., 2013).

2.1.1. Cases Admitted to NICU

Premature and/or low birth weight neonates are the majority of those in the NICU, which puts them at even greater danger. Babies in the NICU might also include infants that are post-term, had difficulties during labor and delivery, have genetic problems, or suffer from other illnesses or disorders (Hours *et al.*, 2018).

Typically, newborn infants who are in immediate need of serious medical assistance are admitted to (NICU). Infants that are classified as such often are born prematurely, have a birth weight that is low, and/or suffer from major medical issues. There is a wide range in newborn survival rates, however significant advancements in prenatal and neonatal care have significantly reduced mortality rates (Chow *et al.*, 2015).

The main reasons for NICU admission are low-birth weight, preterm birth and respiratory conditions; length of stay depends on the severity of the newborn's condition (Chen *et al.*, 2013).

Many systems may be affected by the usual disorders observed in the NICU. Intraventricular hemorrhage, chronic pulmonary hypertension, apnea and bradycardia, respiratory distress syndrome, transitory tachypnea of the infant, septic shock, necrotizing enterocolitis, and fluid and electrolyte imbalances (Hours *et al*., 2018).

2.1.2. Procedures Applied in NICU

Several invasive procedures applied in NICU, including as taking blood samples from babies' heels, suctioning their airways, inserting peripheral venous routes, feeding tubes, and urinary catheters, are the insertion of a catheter or gastric tube which considered as a painful process. Certain medical procedures, like drawing blood from heel, may be quite painless, while others, like having a tube placed into stomach, may be very unpleasant (severe pain) (Nursing *et al*., 2020).

The neonatal intensive care unit (NICU) exposes newborns to a significant variety of pharmaceuticals, the majority of which are not labeled for use in infants. This is due to the inadequacy of clinical studies conducted to evaluate the safety, dosage, and effectiveness of treatments (Allegaert *et al*., 2019).

Several diagnostic and therapeutic procedures, like as heel sticks for blood sample, injections for vaccines, venipunctures for therapy, and eye exams for diagnosing retinopathy of prematurity, are routinely performed on neonates in the (NICU). Painful surgical techniques performed often in the NICU include insertion of a peripherally inserted central catheter (PICC) and endotracheal intubation (Liu *et al*., 2017).

Orogastric and nasogastric tubes have double purposes in the NICU, allowing for both decompression and feeding. In this specialized units, inserting and maintaining these tubes is a common nurse’s task, as a crucial to the health of babies who are critically ill (Wallace and Steward, 2014).

Babies in the NICU have a hard time relaxing and falling asleep due to the constant stress of NICU organizational processes including suctioning, IV-line insertion, and imaging. In the case of premature infants, simple daily care tasks

such as changing diapers, feeding, documenting vital parameters, etc (Nair *et al*., 2003).

2.2. Characteristics of Neonate

Infants in the NICU, particularly those with a low birth weight, have an impaired capacity to regulate their body temperature and at risk for developing hypothermia. Rapid heat loss may occur in babies because of internal characteristics such as a high body-surface-area-to-weight ratio, low glycogen and fat storage, high body water content, immature skin that enhances evaporative and heat loss, and a poor metabolic system for reacting to thermal stress (eg, no shivering) (Hanna *et al*., 2020).

Although, the baby has an immature organ, the skin of a newborn baby (NB) already has functions, such as providing protection against potentially hazardous substances, oil that is secreted by the sebaceous glands and forms a lipid on the skin (Nascimento *et al*., 2020).

The most dangerous time for the baby is those who younger than 28 days old because it is most likely to die. People think of newborns as one of the most vulnerable patient groups. The nurses who work in the neonatal intensive care unit need to have knowledge, skills, caring, and compassion (Hours *et al*., 2018).

Tactile, vestibular, chemical, auditory, and visual development begin throughout fetal development. Intrauterine sensory stimuli are crucial for brain development. While, preterm newborns are exposed to unexpected stimuli from limited intrauterine sensory experiences (Alemdar and Karda, 2017).

Immunological deficiency makes newborns more susceptible to infections and sepsis, which increases mortality. neonates 4 million die in their first four

weeks. Severe infections kill 28% of neonates in low- and middle-income societies, where most die. Despite effective antibacterial drugs and supportive care, susceptible neonates still get systemic infections and die from improper hygiene during labor and delivery, postnatal care, and feeding (Jiang *et al.*, 2015).

In gynecologic oncology, Premature birth (PTB)— which means giving birth before 37 weeks, remains a challenge. PTB prevention may decrease baby and childhood mortality, making it a public health priority. Respiratory distress syndrome (RDS), necrotising enterocolitis (NEC), intraventricular haemorrhage (IVH), periventricular leukomalacia (PVL), and retinopathy of prematurity (ROP). are neonatal complications (ROP). PTB affects neurodevelopment and increases the likelihood of chronic illness in adulthood. Birth gestational age inversely affects newborn morbidity and death (Dehaene *et al.*, 2020).

2.3. Effect of these Procedures on Neonate Vital signs

Pain from unpleasant and painful stimuli may affect brain development in full-term and preterm infants. Thus, painful treatments like neonatal drawing blood produce psychological trauma, stress, and brain structural development. Norepinephrine secretion, heartbeat, cardiac output, and intracranial pressure are all increased by pain and stress. It causes acidosis and erratic breathing by lowering blood oxygen saturation, heart rate, blood sugar, and respiration while increasing inflammatory hormones (Nursing *et al.*, 2020).

After 24 hours at delivery, the WHO suggests encouraging a first bath for the Newborn to maintain the skin's caseous vertex barrier. As a result, the newborn is better able to adjust to the dry extrauterine environment, and benefits in many other ways as well, including antibacterial function, skin hydration, less peeling,

reduced neonatal toxic erythema and thermoregulation, and more time spent skin-to-skin with mother (Nascimento *et al.*, 2020).

The bathing techniques that are used in neonatal intensive care units have beneficial consequences for the skin care of newborns. The bathing is more efficient in regulating the temperature of the body of infants and serves as a precautionary measure against the danger of hypothermia (Taşdemir and Efe, 2019).

Pain levels vary according to the technique. Because venipuncture has been shown to be substantially less painful than heelstick treatments. Moreover, lancing pain treatments were mostly correlated with lancet penetration depth, with the lower lancet penetration depth resulting in less tissue damage and discomfort. While it is believed that the lancet diameter has no bearing on lancing discomfort, when the penetration depth reached 1.2 mm and the lancets were thicker, the pain was increased (Leng *et al.*, 2016).

2.4. Factors Associated

Table (2-1) Eight Indicators of Health (Elliott and Coventry, 2012)**.**

Physiological parameter's	**Physiology**	**Influencing factors**	**Assessment issues**
Temperature	Regulated by the hypothalamus	Age, infection, and medications are all factors to consider.	Different parts of the body have different core temperatures
Pulse	shows the amount of blood flowing and the contractility's strength	Contractility, intravascular volume, oxygen requirement	at least thirty seconds were spent counting. In addition, consistency, power, and equality have to be considered.
Blood pressure	Regulated Vasomotor via the Brainstem	Pulse rate, Blood pressure, and Muscle Tightness	Sphygmomanometers are more accurate than automated monitors.
Respiratory rate	Regulated by the respiratory centers, which are located in the medulla and pons.	Hypercapnia, Hypoxemia, Acidosis	Measurement applications include establishing a critical disease baseline, detecting changes in oxygenation, and evaluating therapy effectiveness.

Spo2	Represents the peripheral oxygen saturation of hemoglobin	Cardiovascular output Hemoglobin concentration inspired O2 fraction	does not represent general respiratory health
Pain	Seen by the brain's thalamus and interpretive centers	child's perspective	Often under-evaluated and managed in hospitals
Level of consciousness	Regulated by the brain stem's reticular activating system	Blood flow in the brain	affected by both extra- and intra-cranial components
Urine output	Generated by the kidneys	Perfusion of the kidneys Cardiovascular Output	not accurately reflects kidney function

2.5. Effect of Factors Associated on Neonate Vital signs

Babies in the intensive care unit for neonates (NICU) may be faced with several stressful situations and invasive procedures while receiving treatment. Discomfort and suffering during therapy, unpleasant stimulants, and environmental variables like continual loud noise and bright lighting are all potential sources of stress (Alemdar and Özdemir, 2017).

Peripheral and central thermo sensors detect baby body temperature drops in cold environments. The human thermoregulatory system includes temperature sensors, afferent routes, an integration system in the central nervous system, efferent pathways, and target organs that govern heat production and transport. The skin-temperature sensors are peripheral, as skin-wide free nerve endings. They can feel skin temperature and convey signals to the hypothalamus regulation center through afferent nerve fibers. Receptors fire faster than steady-state when skin temperature changes. These signals pass through thalamic pathways to the cerebral cortex, producing conscious heat awareness and behavioral modifications (Knobel and Holditch-davis, 2012).

2.6. Vital signs

Upon and during hospitalization, it is usual practice to routinely test and monitor a child's vital signs. These indicators are helpful for evaluating a child’s health and treatment progress. Early warning scoring systems now combine several of these physiological indicators in an effort to better identify children who may be deteriorating and need early care. Nevertheless, any of these physiological measures may differentiate disease severity and predict clinical progression remains unknown (Daw *et al., 2020).*

Temperature, respiration rate, heart rate (pulse), and blood pressure are reflecting the vital signs. is used by healthcare practitioners for

diagnosis, monitoring, and documentation of a patient's physiological state or change in condition. Vital signs are frequently observed and documented based on policy, tradition, or expert judgment, with the specifics varying from one situation to another (Kuiken and Huth, 2013).

Monitoring vital signs is an important part of nurse's role who learned that a patient's blood pressure (BP), temperature, heart rate (HR), oxygen saturation (SpO2), and respiratory rate (RR) are important indicators of their current health and must be measured and properly documented regularly. The most reliable information in a patient's chart should be about these issues (Wang and Liaw, 2015).

The coordination of oxygen exchange and carbon dioxide between an organism and its environment is carried out by the cardiorespiratory system, which is an integral part of organs and tubes. The respiratory system's contact with the outside world is the nose and mouth, via which air (a gas mixture including oxygen) enters the lungs. The lungs are able to alternately contract and expand due to the mediation of respiratory muscles in the flow of air into and out of the body (Bernacchia *et al*., 2014).

In many therapeutic settings, heart rate and breathing rate are critical signs for children. Acutely sick youngsters and those in high-dependency or intensive-care settings get initial measures. These parameters dictate life-saving actions during cardiopulmonary resuscitation. Pediatric early warning scores and triage screening employ heart rate and breathing rate in acute sickness evaluation. Early warning ratings are frequently utilized in clinical care and may predict clinical worsening in hospitalized children and emergency circumstances (Fleming *et al.*, 2016).

Vital signs are objective measures of vital function that are used to monitor acute and chronic disease and thus serve as a basic communication tool about child status (Chester and Rudolph, 2011).

Almost all healthcare systems and departments regularly monitor patients' physiological indicators, particularly those that work with very sick patients. Physiological measurements are an essential part of managing and accessing patients because they provide an objective indication of their current health. Decisions made by healthcare professionals may also be influenced by physiological factors (Hong *et al*., 2019).

The 4 traditional vital signs —pulse, temperature, blood pressure, and respiratory rate—are objective measurements of vital function and thus constitute a fundamental component of the physical examination and nursing assessment vital signs are noninvasively measured using simple equipment (ie, thermometer, sphygmomanometer, watch). Provided that the equipment is well calibrated and that the assessor is well trained (Chester and Rudolph, 2011).

2.6.1 Temperature

Every human being has basic needs, according to Maslow, who mentioned that the first basic human needs are physiological needs, which are seen as the most basic human needs in sustaining life. One of these physiological needs is the need for body temperature regulation or thermoregulation. Thermoregulation is one of how maintain body temperature in a self-regulated and tightly controlled manner regardless of external temperature. If it is not fulfilled, it will cause an imbalance in body temperature, it can even cause death. Disorders of body temperature balance are divided into two, namely hyperthermia and hypothermia (Hartati, 2022).

The body's temperature, also known as thermoregulation, reflects the balance between heat production and heat loss. In a clinical environment, underlying pathology (e.g., sepsis), skin exposure (e.g., after surgery), or aging may influence body temperature. While other factors, including

drinking hot or cold liquids before to the oral temperature test, may not affect the body's core temperature, they might provide inaccurate findings (Elliott and Coventry, 2012).

Neonatal hypothermia is related with higher mortality as well as morbidity. In newborns, cold stress increases sympathetic activity and norepinephrine release. While the infant attempts to keep warm, this reaction raises cellular metabolism. Because of the higher metabolism, the infant is more likely to have hypoxia, cardiorespiratory problems, and metabolic acidosis. Since of the increased glucose intake required for heat generation, these babies are also at risk for hypoglycemia (Hanna *et al*., 2020).

One of the most prevalent symptoms of newborns is hyperthermia. While it gives a clear sign of a child's condition, it generates parental concern and anxiety. Caregivers concern hyperthermia more than any other sickness and use antipyretics excessively to normalize body temperatures. The accurate measurement of a child’s temperature is essential to child care since it determines the diagnosis and treatment of the child. Optimal temperature readings should reflect the core body temperature (Oguz *et al*., 2018).

Human performance requires thermal equilibrium, as heat production exceeded heat loss while working or exercising in hot weather, disrupting thermal equilibrium. Heat causes hyperthermia, which effect on physiological and mental performance, may diminish. Exertional heat stroke is more likely with higher core body temperatures and dehydration. Early identification of core body temperature growth allows for cooling methods to prevent exertional heat stroke (Niedermann *et al.*, 2013).

2.6.1. A. Normal Value of Temperature According Age

Maintaining a body core temperature (T°c) between 36.5 to 38.5°C ensures healthy physiological function. The more Tc differs from these levels, the more physiological systems breakdown. T°c over 41.5°C or below 33.5°C rapidly degrades biological function, causing damage and death. Two processes raise body T°c. Fever is caused by a dysfunctional internal system and probable infection or pollution. The second, of a different kind, is a disruption of the delicate balance between heat received from the environment, metabolic heat generation, and body heat, mostly via perspiration. Despite their variations in processes and treatments, both illnesses might be lethal (Moran and Mendal, 2014)

Table (2-2) Average Temperature that are Considered Normal (Fahdil, 2022)

Measurement method	**Normal temperature range**
Rectal	36.6°C to 38°C (97.9°F to 100.4°F)
Ear	35.8°C to 38°C (96.4°F to 100.4°F)
Oral	35.5°C to 37.5°C (95.9°F to 99.5°F)
Axillary	34.7°C to 37.3°C (94.5°F to 99.1°F)

2.6.1.B. Temperature Measurement Methods

There are a number of considerations that should be made while taking a child's temperature. The nurse has to know if there is a variation in core temperature across different anatomical locations and that the measuring equipment is properly calibrated. A research comparing the accuracy and consistency of the tympanic, oral disposable, oral electric, and temporal artery thermometers revealed significant discrepancies between them. This emphasizes the sig nificance of consistent use of the same site, proper documenting of the measurement's site and temperature

reading, and routine calibration as methods for correctly recognizing trends in the patient's core temperature (Elliott and Coventry, 2012).

The child's temperature is taken in the same way as it is in adults, that the thermometers made of glass, electrical components, and digital displays on the market today. Always the use of the same type of instrument so that accurate comparisons can be made and so that temperatures can be monitored throughout the course of an illness (Terri and Susan, 2012).

There are three methods to measure a patient's body temperature in medical settings: their core body temperature, how they describe how they are feeling, and their surface body temperature, which is based on how they react to touch. It's vital to remember that they don't always match up and may even be different depending on the underlying sickness process (Elliott and Coventry, 2012).

Table (2-3) Taking Temperature by Age (Sapra, Malik, Bhandari,2022).

Child Age	**Ways to Take**
Newborn to 3 months old	(Rectal) or bottom
3 months to 3 years old	(Rectal) or bottom,(axillary) or under child's arm
4_5 years old	(Rectal) or bottom, in child's mouth (oral) , (axillary) or under child's arm
5 years and older	in child's mouth (oral), (axillary) or under child's arm

2.6.2. Pulse

Taking a baby's pulse has multiple purposes such as gathering information about the baby's general health and wellbeing, obtaining a basic cardiovascular assessment of the baby, monitoring the baby's health condition during and/or after investigations and/or surgeries, establishing a standard against which to evaluate the degree to which the baby's condition has improved or deteriorated, and comparing and identifying any changes

to baseline observations following therapeutic procedures, prescribing, etc. (Alexis, 2010).

Precordial auscultation reveals that the pulse rate of a newborn should be greater than 100 beats per minute (bpm) in order to preserve the vitality of the fetus, and that this rate can range from 120 to 140 bpm. Infants who are resting and have a heart rate of 160 beats per minute or higher should be evaluated more thoroughly (Nascimento *et al.,* 2020).

On behalf of the goal of cardiovascular autonomic regulation, pulse rate variability (PRV), which can be evaluated from pulse waveforms, has displaced heart rate variability as the preferred metric (HRV). The firing rate of the sinus node, the heart's primary pacemaker, is regulated by the sympathetic and parasympathetic branches of the autonomic nervous system (ANS), which are measured by measuring heart rate variation (HRV) or heart rate (HR) (Rights, 2020).

Newborns' HR and HRV are affected by factors such as genetics, maternal age, and gestational and postnatal age. Reductions in HRV have been linked to a variety of newborn pathological states, and subsequent changes in HRV have been shown to accompany improvements in neonatal health, suggesting that HRV may serve as a useful prognostic marker. Heart rate variability analysis in neonatology may provide light on postnatal adaptability, pathological situations that may cause dysregulation of cardiac function, and the development of cardiac chronotropic control, particularly in preterm babies (Javorka *et al.*, 2017).

The variation in the interval that exists between two consecutive heartbeats is referred to as heart rate variability (HRV), and it is commonly used to evaluate the function of the autonomic nervous system as well as the equilibrium that exists between the sympathetic and parasympathetic activities that control heart rate (Paper, 2013).

As the left ventricle contracts, pressure waves in the arteries expand the artery walls, creating the pulse. Whenever an artery presses on a bone, the blood from the left ventricle may be felt. Pulse pressure is the systolic-diastolic differential. As distance from the heart rises, it shrinks in the arteries. Elastic rebound in the arterial system lowers pulse pressure. Health care workers must comprehend cardiac output—the heart's blood flow into the arteries—to measure the pulse (Alexis, 2010).

2.6.2.A. Normal Value of Pulse According Age

Table (2-4) Normal Heart Rate (beats/minute as per the Pediatric Advanced Life Support (PALS) Guidelines (Sapra , Malik , Bhandari,2022)

Age	Awake Rate	Sleeping Rate
Neonate	100-205	90-160
Infant	100-180	90-160
Toddler	98-140	80-120
Preschool	80-120	65-100
School age child	75-118	58-90
Adolescent	60-100	50-90

2.6.2.B. Pulse Measurement Methods

This may be found by gently pressing on one of the artery locations and counting how many heartbeats there are in a minute. Yet, it is generally acknowledged that a healthy person's normal resting pulse rate falls between 60 and 80 beats per minute. While it is evident that the normal pulse rate range shifts with age, this range is widely acknowledged to exist (Alexis, 2010).

2.6.3 Respiration

Along with heart rate, blood pressure, and body temperature, respiration is a fundamental vital sign that can be used to intuitively assess a person's health. Changes in respiration are crucial to understanding changes in a person's vital state because controlling respiration helps keep

blood levels of oxygen and carbon dioxide appropriate for life activities. In addition to physical health, psychological problems such as anxiety, sadness, anger, and stress can have an impact on breathing. Drugs and sleep also have a significant impact on awareness levels (Hwang *et al.,* 2022) .

Time taken for two consecutive thoracic expansions is a common indicator of respiratory activity (respiration rate RR). The breath rate per minute (brpm) is the standard unit of measurement; although individual readings may vary widely. The spirometer (SP), a respiratory belt, and temperature sensors are some of the biomedical instruments used in clinics to monitor the RR. All of them need physical contact (sometimes in an intrusive way) with the individual, making them unsuitable for continuous monitoring (Bernacchia *et al*., 2014).

2.6.3.A. Normal Value of Respiration According Age

The appropriate range for the infant's respiratory rate in one minute is between 40 and 60 breaths. Tachypnea is characterized by values more than 60 and warrants investigation, along with the intercostal and infrasternal circulation. These are red flags, and an infant logist has to be consulted so that an evaluation may be performed (Nascimento *et al*., 2020).

Table (2-5) Normal Respiratory Rate (Beats/Minute as per the Pediatric Advanced Life Support (PALS) Guidelines (Sapra , Malik , Bhandari ,2022)

Age	**Rate**
Infant	30-53
Toddler	22-37
Preschool	20-28
School aged child	18-25
Adolescent	12-20

2.6.3.B. Respiration Measurement Methods

Four different contact-based techniques may be used to assess respiration: manual measures, impedance changes measured with electrodes, pressure changes measured with belt-type sensors, and airflow from the nose and mouth. First, there is no need for specialist equipment to measure respiration; instead, the standard approach of manually measuring the rate of breathing by eye is frequently utilized (Hwang *et al.*, 2022).

2.7. Others Vital signs

It is possible to consider a vital signs to be any factor that is significant in determining the well-being of a child; for instance, the pain score has lately been generally acknowledged as the fifth vital signs In addition to these, the Glasgow Coma Scale (GCS) and oxygen saturation (SaO2) have been suggested as potential physiological markers (Hong *et al.*, 2014).

In addition to the classic physiological markers, pulse oximetry is perhaps the one that is suggested for use the most often. It has been hypothesized that the color of the newborn's skin alone is not a sufficient signal of oxygenation, and that practitioners will benefit from the information that may be obtained by pulse oximetry (Evans *et al.*, 2001).

2.8. Roles of Nurses

A nurse's job is a part of the independent medical profession, and a very important part of the therapeutic team, which does a lot of important work and makes it easier for more people to get health care. Nursing is always changing and taking on new roles and skills so that it can meet the growing needs of patients. This job can be done by someone who has the right qualifications, which they have gained through education, and the right to do the job (Wasik, 2020).

There is a critical need for practice nurses (PNs) to enhance hospital and regional health care delivery. who should reach the level of expertise, specialized knowledge, and clinical competence required for wider practice. Many different names are used to describe these professionals, including clinical nurse specialists, nurse practitioners, nurse anesthetists, and nurse midwives. Overall administrative responsibility for ensuring the highest quality nursing care is the responsibility of nursing administrators and, in particular, unit heads. In order to enhance the standard of care, directors of nursing establish objectives, track key indicators, and assess the efficacy of interventions (Fukuda *et al*., 2020).

The nurses' main job during invasive procedures is to keep the babies as comfortable as possible. Opioids like codeine and morphine can slow down breathing, make you sick, give you seizures, and make you dependent on the drug if you use them often. So, it is clear that pain needs to be treated in ways that don't involve drugs. Mild to moderate pain in newborns can be effectively treated without drugs or with alternative and complementary medicines. These include nonnutritive sucking with or without sucrose, breast milk or breastfeeding, swaddling, facilitated tucking, kangaroo care, music therapy, and multisensory stimulation (SS) (Nursing *et al*., 2020).

Nursing helps people reach their mental, physical, and social potential in their everyday surroundings. It assesses patient requirements, plans nursing actions, and determines which duties need additional experts. It follows professional, ethical, and cultural norms. Nurses implement health initiatives. They treat patients, teach healthy habits, and do nursing operations. They prepare patients for self-care during sickness or incapacity. They are crucial to health policy and research teams (Wasik, 2020).

Care for infants in the NICU, as the primary focus of a nurse caring for a newborn is to minimize the infant's physiological discomfort and improve their level of comfort. Thus, the surroundings of the newborn have to be enhanced. The critical function of the neonatal nurse is supported by the assessment of comfort using suitable measures and the application of a variety of techniques aimed at boosting the patient's level of comfort (Taşdemir and Efe, 2019).

The neonatal intensive care unit (NICU) is staffed mostly by nurses, professionals with extensive training and experience are invaluable to the care of critically sick patients as well as their families. Nurses at the neonatal intensive care unit (NICU) help ensure the health and well-being of their patients in a variety of ways. Evidence-based nursing treatments and ethical behavior are two examples of how competent NICU nurses may improve the health and well-being of their NICU patients (Lakanmaa *et al.*, 2015).

Pediatric critical care focuses on oxygen supply. In order to identify and treat problems that may impede oxygen delivery and result in life-threatening shock, respiratory failure, or cardiac arrest, a complete clinical examination, hemodynamic measures, and calculations are required. The nurse beside regularly assesses and measures patients to identify minor changes and trends. The child's status is determined across numerous moments that represent the patient's progression. The pediatric nurse does head-to-toe and more frequent targeted examinations. Cardiac critical care management requires good evaluation abilities to provide appropriate oxygen supply. The bedside nurse continually monitors oxygen supply using physical examination, hemodynamic data interpretation, and laboratory data (Jones and Tucker, 2016).

One of the traditional responsibilities of nurses is to keep an eye on their patients, which may entail monitoring them for any changes in their

health, identifying any early signs of clinical deterioration, and providing protection from any potential risks or mistakes (Elliott and Coventry, 2012).

The child's body temperature returned to normal after receiving a series of actions from nurses such as monitoring the child's body temperature, doing warm compresses, recommending bed rest, and collaborating with intravenous fluids and electrolytes ,identification of the causes of hyperthermia (such as dehydration, exposure to the hot environment, and the use of incubators), urine output monitor, monitor complications due to hyperthermia, change linen daily or more if you have hyperhidrosis (excessive sweating), indigenous administration of antipyretics or aspirin, give oxygen, if needed (Hartati, 2022).

Warm compresses may help cure hyperthermia. Warm compresses reduce body temperature in patients with inflammatory disorders or infections, from simple ones like fever and typhoid to more serious ones like encephalitis (inflammation the brain parenchyma). Warm water compresses major blood vessel locations like the axilla. Warm compresses on the armpit or forehead are more helpful since numerous major blood veins are there (Lismayanti *et al*., 2021).

Reducing arrhythmia by keeping the balance of fluids by giving IV fluids or diuretics, Electrolytes, BUN, and creatinine should be checked every day, check weight every day, get a chest X-ray every day, keep an eye out for a fever and leukocytosis, Watch and write down the rhythm and rate of the heartbeat. Look at how fluid therapy works, give the patient and his or her family emotional support, check coagulation profiles every six hours or as needed, keep an eye out for signs of hemolysis, like blood in the urine or a rise in the daily serum hemoglobin level. Watch what goes in and out (Takáo *et al*., 2015).

Seven categories were developed for the non-pharmacological treatments used in the management of fever and hyperthermia in children: baths; warm compresses; sponging; increasing fluid intake, ice packs and refrigerated blankets; removal of garments; and environment ventilation (Souza *et al*., 2021).

Actions used by nurses to slow a rapid heart rate; keep an eye out for indicators of reduced output, listen to the patient's chest for any crackles or other unexpected noises, assess the periphery's blood flow in detail (e.g., check peripheral pulses, edemas ,capillary refill, color, and extreme temperature), pay attention to your mental and sensory abilities, check the pressures in the pulmonary artery, the blood pressure throughout the body, the heart rate, and the vascular resistance throughout the body. Keep a close eye on the gadget to make sure it's working properly. Keep an eye out for kinks or disconnections in cannulas, Time the onset of clotting activation every hour if necessary (Takáo *et al*., 2015).

2.11. previous Studies

1st Study " Restabilization of physiological parameters after bathing 1 among newborns " (Singh, 2020) .

Objectives: Study aimed to find out the time required for restabilization of physiological parameters after bathing among newborns. **Methods:** A quantitative pre-experimental research approach with one group pre- test post- test research design was adopted. 30 stable newborns in the age group of 6 to 48 hours were selected through purposive sampling technique from MCH Unit of selected Hospital. The physiological parameters were assessed using physiological parameters assessment scale at baseline, 15 minutes, 30 minutes, 45 minutes and 60 minutes. The collected data were tabulated and analyzed by using descriptive and inferential statistics. **Results:** After bathing, at 15 minutes majority i.e. 20(66.6%), at 30

minutes most i.e.25 (83.3%), at 45 minutes most i.e.26 (86.6%) and at 60 minutes half i.e.15 (50%) of the newborns had were having moderate alteration in their physiological parameters. The difference between pre test and post test mean score of physiological parameters was found to be statistically non-significant ($p>0.05$) at 15 minutes for pulse, at 30 minutes for respiration and at 60 minutes for oxygen saturation but for temperature it was found to be statistically significant ($p\leq 0.001$) at 15 minutes, 30 minutes, 45 minute and 60 minutes. **Conclusion:** Bathing had significant impact on the physiological parameters of newborns and the time required for restabilization of temperature is more than 1 hour, respiration is 30 minutes, oxygen saturation is 60 minutes and pulse is less than 15 minutes. During this period general care measures could help to minimize the impact of bathing.

2nd Study " Changes in the physiological parameters of newborns in the first one hour of life" (Y. et al., 2019).

Objective: This study assessed three physiological parameters viz. temperature (core and peripheral), oxygen saturation and heart rate so as to avoid the delay in normal transitional adaptation. **Methods:** This cross-sectional observational study was done at Narayana Medical College Hospital, Nellore, Andhra Pradesh, India. A total of 150 neonates born from June 2017 to February 2018 were monitored for heart rate, oxygen saturation, core and peripheral temperature from birth to 60 minutes. **Results:** Most of the mother's (45.33%) were aged between 22 to 25 years and the mean age was 23.75'3.64 years. History of consanguineous marriage was noted in 33.33%. The mode of delivery was vaginal in 70.67% of the babies. The mean gestational age was 38.74'1.36 weeks. The birth weight among 62% of the babies was between 2.5 to 3.49 Kgs and mean birth weight was 2.81'0.49 kgs. The meconium stained liquor and requirement of resuscitation was noted in 9.33% and 10.67% respectively.

Conclusions: Significant difference was noted with regard to heart rate in babies with active resuscitation, low birth weight (<2.5 kg), meconium stained liquor and warmer care compared to normal babies. There was variation in oxygen saturation in babies who required resuscitation and warmer care, and those who had low birth weight. The mean peripheral and core temperature were different in babies with abdominal care compared to warmer care**.**

3rd Study "Physiological vital sign ranges in newborns from 34 weeks gestation "(Paliwoda *et al*., 2018).

Objective: To identify physiological vital sign reference ranges for newborns ≥ 34 weeks gestation from two hours of age. **Methods:** Primary studies published in English that reported physiological vital sign reference ranges pertaining to well newborns born from 34 weeks gestation were selected. Two authors independently assessed eligibility of studies for inclusion. Titles and abstracts were matched with the inclusion criteria: studies investigating heart or respiratory rate, temperature, blood pressure and oxygen saturations in well newborns greater than 34 weeks gestational age. **Results:** A total of 1497 primary studies were retrieved. Following screening and removal of duplicates and screening, 10 primary studies investigating heart rate (n=1), respiratory rate (n=1), temperature (n=1), blood pressure (n=4) and oxygen saturations (n=3) were eligible for inclusion in this review. The populations studied included term (n=6) or both preterm and term newborns (n=4). No reference ranges for any vital sign measurements could be identified from the included literature. In addition, inconsistencies between vital sign parameters of newborns were identified between the studies. **Conclusion:** There is paucity of normal vital sign data in the late preterm >34 weeks and post term gestational age cohorts despite literature suggesting differences in physiological maturity between these cohorts.

4th Study "Physiological changes associated with routine nursing procedures in critically ill are common" (Engström et al., 2017).

Background: Nursing procedures that are routinely performed in the intensive care unit (ICU) are assumed to have minimal side effects. However, these procedures may sometimes cause physiological changes that negatively affect the patient. We hypothesized that physiological changes associated with routine nursing procedures in the ICU are common. **Methods:** A clinical observational study of 16 critically ill patients in a nine-bed mixed university hospital ICU. All nursing procedures were observed, and physiological data were collected and subsequently analyzed. Minor physiological changes were defined as minimal changes in respiratory or circulatory variables, and major physiological changes were marked as hyper/hypotension, bradycardia/tachycardia, bradypnea/tachypnea, ventilatory distress, and peripheral blood oxygen desaturation. **Results:** In the 16 patients, 668 procedures generated 158 major and 692 minor physiological changes during 187 observational hours. The most common procedure was patient position change, which also generated the majority of the physiological changes. The most common major physiological changes were blood oxygen desaturation, ventilatory distress, and hypotension, and the most common minor changes were arterial pressure alteration, coughing, and increase in respiratory rate. **Conclusion:** In this pilot study, we examined physiological changes in connection with all regular routine nursing procedures in the ICU. We found that physiological changes were common and sometimes severe.

Chapter Three

Methodology

Chapter Three

Methodology

This chapter designates the methods which considered a means to fulfill the objectives established for the study's aim.

3.1. The Study's Design

Descriptive "cross-sectional" design is used to evaluate the Influences of Nursing Procedures and Factors Associated on Vital signs Neonate in the Hilla city form 9th November 2022 to 25th May 2023.

3.2. Administration and Ethical Attainments

Formal administrative permits were required, to obtain the study accomplishment.

1.The first permission was obtained from the University of Babylon College of Nursing /Higher Studies Committee as a proposal presented involving the major statement and its objectives.

2. The research approval was established from ethical committee / College of Nursing that involve five advanced academic titles in the College, it was sent to the settings of sample collection which specified in the study plan shown in Appendix (A).

3. An official permission approval has been achieved from "Ministry of Health" /Babylon health directorate for data gathering shown in Appendix (B).

To maintain ethical consideration for present study accomplishment, through presents a brief explanation about the study by face to face meeting with the directors of selected hospitals, to obtain the agreement and cooperation of the health personnel who work there.

3.3. Setting of Study

The study was carried out in Hilla city , through selection of two teaching hospitals which have children's sterile care unit. which are Babil Teaching Hospital for Maternity and Children, andAl- Imam Al-Sadiq Teaching Hospital.

3.4 The Sample of the Study

A non-probability sample, often known as a convenience sample, was used to choose the participants to carry out the study which consists of (160) neonate of both genders admitted to NICU in Hilla city , collected from total of (250-300) neonate registered in NICU.

3.5. The Instrument of the Study

A questionnaire is modified for data collection to accomplish the objectives of the current study after the comprehensive review of the relevant literature. It consists of five part was designed to cover all aspects of the study as shown in Appendix (C).

Part 1: Demographic Characteristics of the Mothers:

The first part related to demographic characteristics of the mothers that consists of numerous items classified as mother information include: mother age (Year), residence (categorized into 2 levels; urban, rural), and mother's education (categorized into 4 level also; primary and below, inter mediat, secondary, college and above).

Part 2: Obstetric History:

The second part contains 7 items about obstetric history related for mothers include: birth plurality (categorized into 2 levels; multiple birth (twin or triple, single), mode of delivery(categorized into 2 levels; normal vaginal delivery (n.v.d.) and caesarean delivery (c.s.), antenatal care (yes or

no), previous premature births (yes or no), malnutrition during pregnancy(yes or no) , high blood pressure during pregnancy (yes or no) and gestational diabetes (yes or no).

Part 3: Neonatal Characteristics:

The third one contains 5 items about neonatal information's include: birth weight(g), gender (male or female), child order, gestational age at birth(week) and cause of admission.

Part 4: Vital signs Related to Nursing Procedures:

Multiple items concerning vital signs that include: temperature, pulse, respiration (before and after) during many nursing procedures that include: feeding, diapering, I.V medication, I.V puncturing (blood withdrawing), daily routine examination, nasogastric tube, and bathing.

Part 5: Factors Associated :

It contains 5 items about Factors Associated such as; room temperature (categories into 3 levels: less than, normal, more than), incubator temperature (categories into 3 levels: less than, normal, more than), physical activity (categories into 3 levels: hyper activity, normal, hypo activity), crying, and infection.

The room temperature normal: 22–26 °C

The incubator temperature normal: 34 - 38°C

3.6. Validity of the Study Instrument

It is achieved by a panel of 15 experts to examine the, relevance, adequacy and clarity of the questionnaire. A preparatory copy of the questionnaire is drawn up and submitted to fifteen experts with more than ten years' experience. One each from the Colleges of Nursing at the universities of Kirkuk, al-Mustaqbal, and Karbala, five professors from the

College of Nursing at the University of Babylon, five professors from the College of Nursing at the University of Baghdad, and one professor from the College of Nursing at the University of Thi-Qar. Suggestions and comments by the expertise were taken into account, as presented in appendix (D).

3.7. Pilot Study

The tool's first aplicated to (16) neonates chosen from the NICU at settings of current research, an observational technique application, during the period from 2nd to 10th February 2023, which excluded from the original sample.

It's done for a variety of reasons, including:

1. Evaluate the instrument's reliability.
2. Determine the nature of the difficulties that the researcher may face during the study.
3. Ensure that the instrument and its content are appropriate for the situation and identify the required modifications.
4. Estimated time needed for each patient for tool application.

The findings demonstrated that:

• The questionnaire items were understood and clear as well.

• Minor changes are made on a few items.

• The time required to complete the instrument for each participant between (30-45 min).

3.8. Reliability of the Study Instrument

The data are gathered from 16 neonates to assess the internal instrument reliability. Internal consistency, reliability was computed via the calculation the cronbach's alpha technique which was =0.76 as an accepted result in separated and total items. Reliability involves a research instrument's consistency in measuring a variable of interest. The questionnaire's determination of reliability is set up on the technique of "internal consistency / Alpha Cronbach", as calculated electronically using

(SPSS) version 26 of reliability analysis and displayed in the following Table (3-2).

Table (3-2): Cronbach's Alpha for questionnaire (N=16).

Questionnaires' variables	**N of Items**	**Reliability (Cronbach's Alpha)**	**Assessment**
Physiological Parameter	7	0.601	Acceptable
Associated Factors	5	0.641	Acceptable
Total	13	0.76	Acceptable

3.9. Collection of the data

Data collection from February 15 to April 15, 2023; By using the questionnaire method and evaluating vital signs(temperature, pulse and respiration), before and after each specific nursing procedure within the questionnaire by the researcher on all newborns included in the research sample in a similar way, the same questionnaire was used in the same place to achieve the research objectives, and the other part was collected using a scale. Electronic thermometer to measure temperature, use a temperature measuring device. A pulse oximeter to measure the pulse and a pocket watch to count the number of breaths within 60 seconds to measure respiration, which takes (30 to 45 minutes) to estimate for each neonate.

3.10. Methods of Analysis

The statistical software for the social sciences, version (26), was used to analyze the data in order to compute and assess the test findings.

3.10.1. Descriptive Statistic

1- (F) Frequencies, Percentages (%)
2- Mean (x)
3- Stander deviation (SD)

3.10.2. Inferential Analysis

1- The Cronbach Alpha Technique is form questionnaire reliability.
2- t-Test Analysis
3- Chi-Square Analysis

3.11. Obstacles of the Study

1- No data provided for any of the parameters before or after suctioning. This is due to the researcher's inability to measure the vital signs before and after the Suctioning in Neonates, as it is an instantaneous procedure.

2- Also no data provided for any of the parameters before or after Dressing. This is due to the absence of sick cases that require dressing at the time of collecting the sample for the current study.

Chapter Four

Results of the Study

Chapter Four

Results

This chapter intends to report the outcomes of the study and provide description for various variables that were collected through data collection as presented separately below.

4.1. Description of Demographic Characteristics of The Mothers and Neonates

Table 4-1 : Part I-Socio- Demographic Characteristics of the Mothers (N=160).

Variables	Categories	*F*	*%*	*X*	*Std. D*
Mother Age (Year)	16-22	38	23.8	27.64	6.54
	23-28	**58**	**36.3**		
	29-34	37	23.1		
	35-40	18	11.3		
	41-46	8	5.0		
	47-52	1	0.6		
Residence	Urban	**90**	**56.3**		
	Rural	70	43.8		
Mother's Education	Primary and below	22	13.8		
	inter mediate	37	23.1		
	Secondary	**73**	**45.6**		
	College and above	28	17.5		
Total		**160**	**100.0**		

*"**f**,* frequency*"; "%, percentage "; " **X**, mean"; "**Std.D**, standard deviation*

The first variable showed in the Table (4-1: Part I) is the mother's age, who ranges from 23 to 28 years (36.3%) with mean (27.64), living in urban side as (56.3%). They were graduated from secondary as represented (45.6%)

Table 4-1: Part II Obstetric History (N=160).

Variables	Categories	*f*	%
Birth Plurality	Multiple births (twin or triple)	21	13.1
	Single	**139**	**86.9**
Mode of Delivery	Normal vaginal delivery (N.V. D)	76	47.5
	Cesarean section (C.S)	**84**	**52.5**
Antenatal Care	Yes	**143**	**89.4**
	No	17	10.6
Previous Premature Births	Yes	54	33.8
	No	**106**	**66.3**
Malnutrition During Pregnancy	Yes	32	20
	No	**128**	**80**
High Blood Pressure During Pregnancy	Yes	6	3.8
	No	**154**	**96.3**
Gestational Diabetes	Yes	14	8.8
	No	**146**	**91.3**
Total		**160**	**100.0**

*"**f**,* frequency*"; "%, percentage "; " **X**, mean"; "**Std.D**, standard deviation*

Table (4-1Part II) presents the majority (86.9%) had a single birth. with (52.5%) of the mothers had a cesarean section delivery. (89.4%) of the participants received antenatal care. (66.3%) did not had a previous premature birth. Regarding malnutrition during pregnancy, (80%) did not had, while (3.8%) reported having had high blood pressure during pregnancy, while (8.8%) reported having had gestational diabete

Table 4-1: Part III Neonatal Characteristics (N=160).

Variables	Categories	*F*	%	*x*	*Std. D*
Birth Weight (gram)	1,200 - 2,133 (g)	31	19.4	2.06	0.67
	2,134 - 3,067 (g)	**88**	**55**		
	3,068 - 4,000 (g)	41	25.6		
Gender	Male	**87**	**54.4**		
	Female	73	45.6		
Child Order	1	41	25.6		
	2	**47**	**29.4**		
	3	**47**	**29.4**		
	4	8	5		
	5	9	5.6		
	6	6	3.8		
	7	2	1.3		
Gestational Age at	30	7	4.4	36.07	1.91
	33	6	3.8		

Birth (Week):	34	16	10		
	35	12	7.5		
	36	42	26.3		
	37	**44**	**27.5**		
	38	28	17.5		
	39	5	3.1		
Cause of Admission	Breach Presentation	3	1.9		
	Cyanosis, Apnea	8	5		
	Delay Crying	19	11.9		
	Distress	5	3.1		
	DM mother	5	3.1		
	Face Presentation	1	0.6		
	Grunting	18	11.3		
	Hepatitis, C	2	1.3		
	Hydrocephaly	3	1.9		
	IUGR	1	0.6		
	Meconium, Distress	18	11.3		
	Preterm	**36**	**22.5**		
	RDS	22	13.8		
	RH-incompatibility	7	4.4		
	Tachypnea	11	6.9		
	Tachypnea, Grunting	1	0.6		
Total		**160**	**100.0**		

*"**f**,* frequency*"; "%, percentage "; " **X**, mean"; "**Std.D**, standard deviation*

Table (4 -1Part III) shows that most of the infants had a birth weight between 2,134 and 3,067 grams (55%) with mean (2.06). The gender distribution was almost equal, with (54.4%) male and (45.6%) female infants. In terms of child order, the majority of infants were either the second and third (29.4%) child. Gestational age at birth was mostly between 36 and 37 weeks, which accounted for (53.8%) of the total number of infants. The table also shows common cause was preterm, accounting for (22.5%) of admissions.

Table 4-2: Comparison of Vital signs Before and After Nursing Procedures in Neonates (N=160).

Type of procedures		N	Temperature					Pulse					Respiration				
			Min	Max	Med	*X*	Std. D	Min	Max	Med	*X*	Std. D	Min	Max	Med	*X*	Std. D
Feeding	**Before**	160	34.2*	37.8	36.4	36.353	0.745	105.00	175**	130	131.180	13.138	35**┼	75	50	51.260	9.127
	After	160	34.0	38.1	36.2	36.250	0.651	65.00	180	130	131.650	15.507	30	78	55	54.820	9.531
Diapering	**Before**	160	34.1	37.8	36.4	36.362	0.740	105.00	170**	130	131.290	12.659	30**┼	75	51	51.520	8.863
	After	159	34.2	37.6	36.2	36.172	0.632	65.00	180	131	132.380	14.487	37	88	55	55.620	8.242
I.V Medication	**Before**	160	34.0*	37.8	36.3	36.254	0.656	77.00	180**	130	130.680	14.066	37**┼	88	54	54.350	9.590
	After	160	34.3	38.1	36.1	35.906	2.656	100.00	165	140	143.830	105.025	30	88	56	56.650	8.386
I.V puncturing (blood withdrawing)	**Before**	160	34.5*	37.8	36.3	36.344	0.697	105.00	170**	130	131.050	12.296	37**┼	75	50	51.560	8.556
	After	160	35.0	46.4	36.4	38.404	1.007	100.00	180	133	133.230	14.411	30	88	55	55.400	7.960
Daily routine examination	**Before**	160	34.1*	37.8	36.3	0.703	25.756	105.00	170**	130	131.210	12.568	30**┼	79	50	51.960	8.918
	After	160	34.0	38.8	36.2	0.666	0.666	100.00	170	130	132.930	12.739	30	80	55	55.730	8.325
Nasogastric tube	**Before**	6	34.6*	36.7	36.3	35.867	0.885	113.00	139**	120	124.830	11.268	30**┼	60	50	46.670	13.663
	After	6	34.9	37.1	35.7	35.867	1.001	110.00	151	140	135.330	16.801	37	79	61	58.670	18.096
Bathing	**Before**	160	34.6*	37.8	36.4	36.366	0.692	105.00	170**	130	131.550	12.618	37**┼	72	50	51.690	8.545
	After	160	34.0	37.6	36.0	36.069	0.625	110.00	180	130	132.380	13.811	37	77	55	55.240	8.759
All Procedures	**Before**	**160**	**34.00***	**38**	**36**	**31.178**	**9.457**	**12.00**	**180****	**130**	**130.160**	**1.418**	**30**┼**	**88**	**50**	**51.287**	**1.823**
	After	**160**	**34.00**	**46**	**36**	**31.334**	**0.735**	**20.00**	**180**	**131**	**134.444**	**34.006**	**30**	**88**	**55**	**56.019**	**3.649**

°C, degrees Celsius***; ** BPM,*** beats per minute***; **┼ RR.*** Respiration rate***; Min***, Minimum; ***Max,*** Maximum; ***Med***, Median; ***X***, Mean; ***Std. D***, Standard Deviation.

Table 4-2 clarified data on vital signsbefore and after various procedures in neonates. Before the nasogastric tube procedure, the median temperature was 36.3°C, median pulse was 120 bpm, and median respiration rate was 50 breaths per minute. After the procedure, the median temperature was 35.7°C, median pulse was 140 bpm, and median respiration rate was 61 breaths per minute. The study also compared the vital signsbefore and after bathing in neonates, which showed a decrease in mean temperature and increase in mean pulse and respiration rates after bathing.

Overall, the data revealed that different procedures can have varying impacts on the vital signs of neonates, chiefly on pulse and respiration rates. The largest increase in temperature was seen after I.V puncturing, with a mean increase of (38.404). The largest increase in pulse rate was seen after IV medication, with a mean increase of (13.15 bpm). The largest increase in respiratory rate was seen after nasogastric tube insertion, with a mean increase of (58.7 bpm).

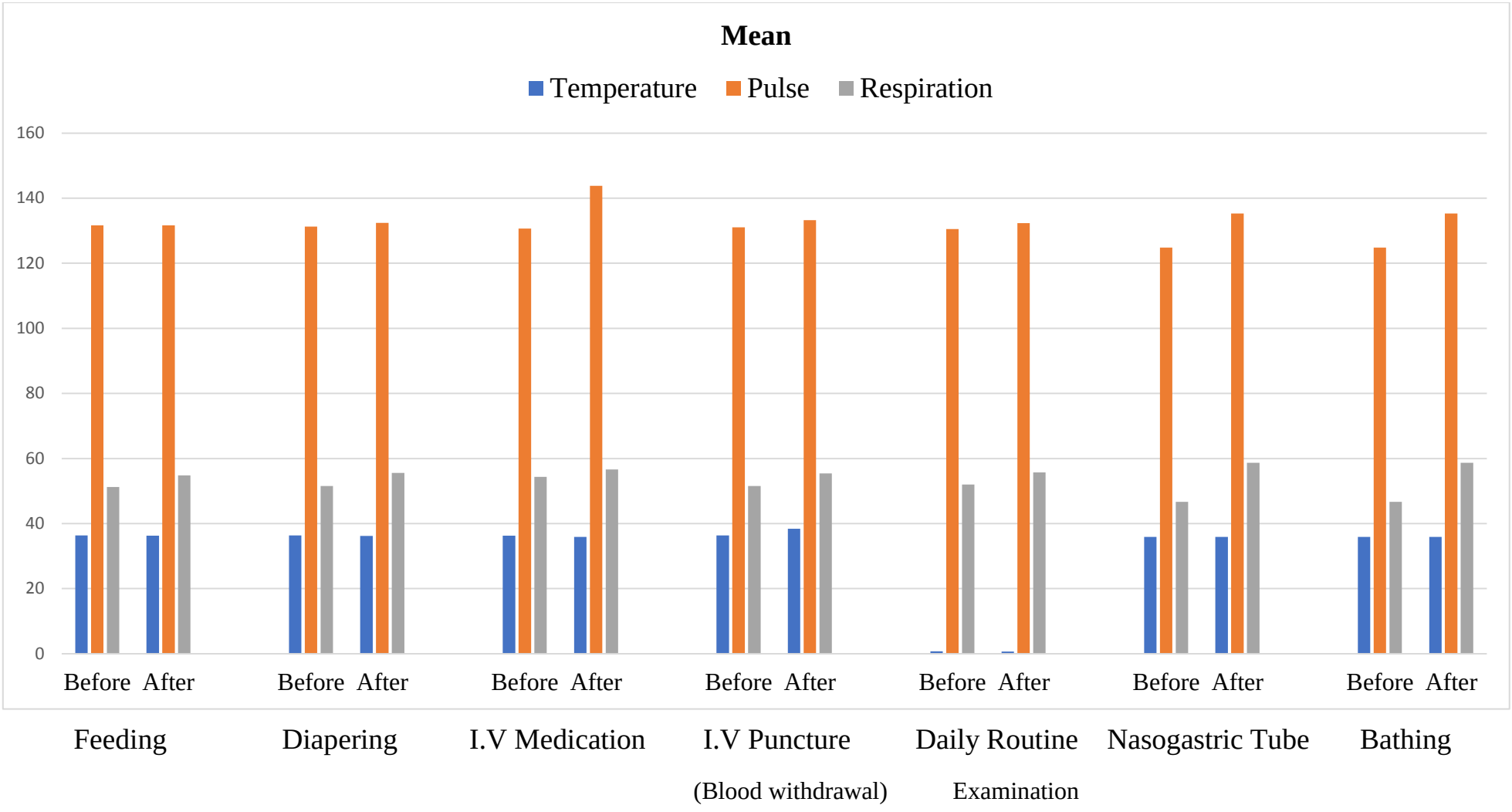

Figure 4-1: Vital signs Before and After nursing procedures in Neonates (N=160).

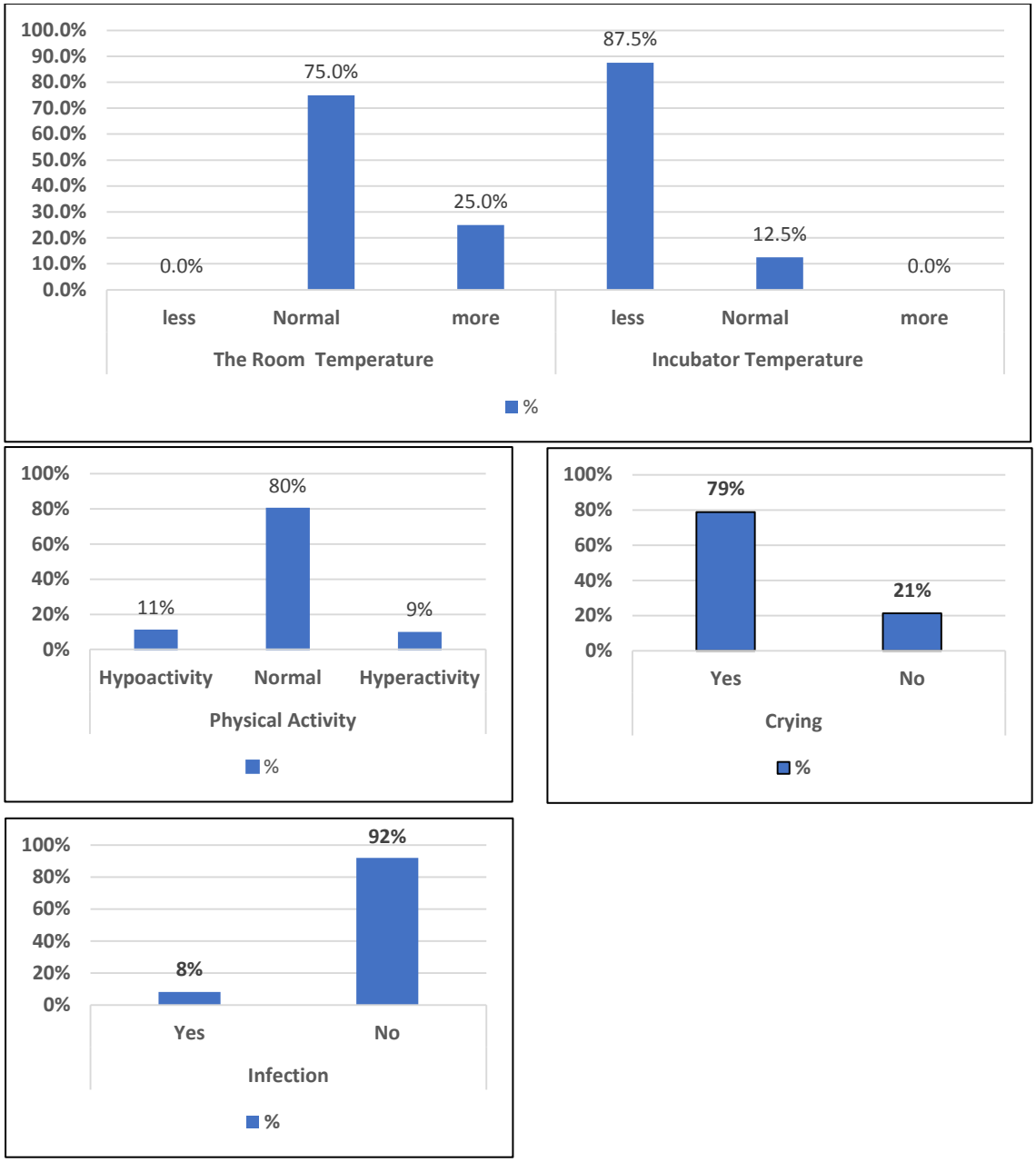

Figure 4-2 Descriptive Statistics of Associated Factors: Room, Incubator Temperature, Physical Activity, Crying and Infection (N=160).

Figure 4-2 shows the percentage distribution of Factors Associated related to room, incubator temperature, physical activity, crying and infection. For room temperature, (75%) were in the normal range. For incubator temperature, (87.5%) of neonates were less the normal range. For physical activity, the majority of infants (80%) were classified as having normal activity levels, respectively. Regarding crying, (79%) of infants

experienced crying. Only (8%) of infants were diagnosed with an infection, while (92%) were not.

Table 4-3 Paired Sample t-Test Results for Vital signs of Neonates Before and After Nursing Procedures.

	Vital signs	*N*	M	*Std.D*	*T*	*df*	*P*
Temperature	Before	160	36.1902	0.53359	-3.659	159	0.000
	After	160	36.3352	0.65438			
Pulse	Before	160	133.084	12.2269	2.611	159	0.010
	After	160	131.027	11.8061			
Respiration	Before	160	55.6662	7.19284	7.083	159	0.000
	After	160	52.0305	7.90952			

*"**M**, mean"; "**Std.D**, standard deviation"; "**t**, t-value"; "**p**, p-value" (Sig. (2-tailed)<0.05); **df**, degree of freedom.*

Table 4-3 shows the results of a paired sample t-test to compare the vital signsof neonates before and after nursing procedures, which indicated a significant difference without exceptions.

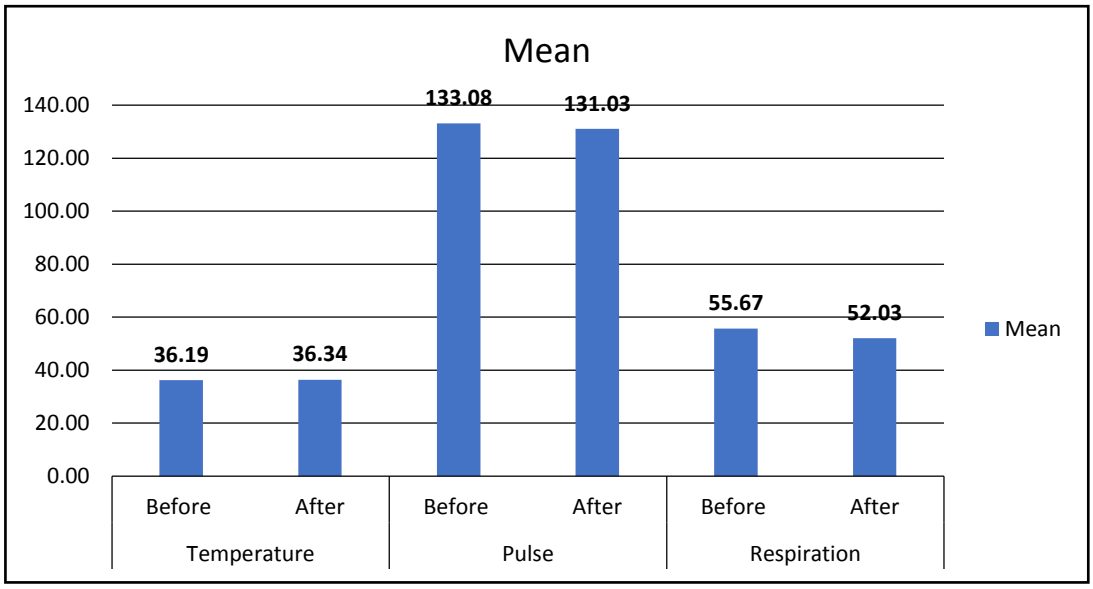

Figure 4-3 Vital signs of Neonates Before and After Nursing Procedures.

Table 4-4 Comparison of Temperature, Pulse, & Respiration (Normal range) Before and After All Nursing Procedures in (160 Neonates)

			Before						After					
	Measurement range	N	*Temperature		*Pulse		*Respiration		Temperature		Pulse		Respiration	
			F	%	F	%	F	%	F	%	F	%	F	%
All Nursing procedures	Less Than	160	3.43	2.14	3.00	1.90			2.20	1.40	1.50	0.95		
	Normal		126.57	79.11	137.57	85.99	79.57	49.74	132.71	82.96	137.57	86.00	46.43	29.03
	More Than		9.33	5.85			58.43	36.53	4.17	2.62			91.57	57.23

Normal Range Dependent for The Results: Temperature, "axillary"34.7-37.3°C; Pulse, 100-180 bpm; Respiration, 30-53 bpm

Table 4-4 shows before the nursing procedures, the percentage of neonates in the under than normal range group for temperature and pulse were 2.14%, 1.90%, respectively. After the nursing procedures, the percentage of neonates in this group for temperature and pulse, and decreased slightly to 1.40%,0.95%, respectively. In the normal range group, the percentages of neonates before and after the nursing procedures were much higher than in the under than normal range group. In the over than normal range group, the percentage of neonates before the nursing procedures for temperature and respiration were 5.85%, and 36.53%, respectively. After the nursing procedures, the percentage of neonates in this group for temperature and respiration dramatically to 2.62%, and 57.23%, respectively.

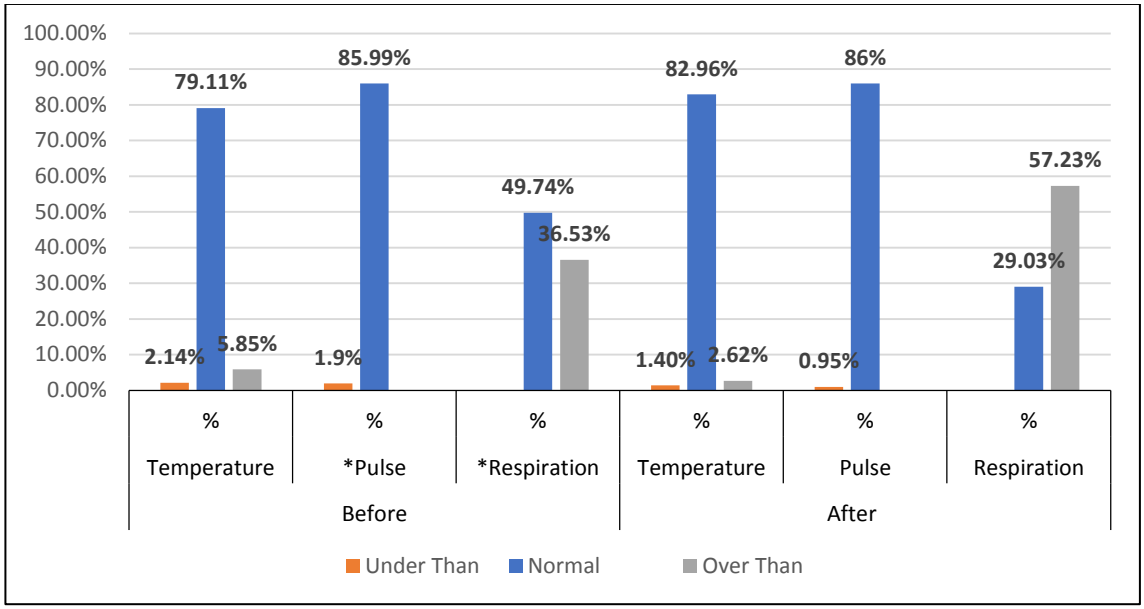

Figure 4-4 Vital signsaccording to the normal range of Neonates Before and After Nursing Procedures.

Table 4-5 Correlation of vital signs and Factors Associated before and after procedures.

	Before			After		
Procedures	**Temperature**	**Pulse**	**Respiration**	**Temperature**	**Pulse**	**Respiration**
The Room Temperature	0.107	0.027	0.049	0.160*	-0.035	-0.036
Incubator Temperature	0.267**	0.031	0.049	.172*	0.032	.162*
Physical Activity	-0.030	-.168*	-0.026	-0.143	-0.080	0.082
Crying	-.167*	0.149	-0.013	-.171*	0.140	-0.051
Infection	-0.010	-0.134	-0.073	-0.028	-0.098	-0.110

***Sig*. ($p < 0.01$) (2-tailed).*

**Sig*. ($p < 0.05$) (2-tailed).*

Table 4-5 shows the correlation coefficients between various factors and the temperature and pulse before and after nursing procedures.

Room Temperature: there is a significant (p 0.05) positive correlation between the room temperature and the temperature after procedures, with a correlation value of 0.160*. The correlation between the room temperature and the temperature just before procedures is weakly positive, with a value of 0.107 (non-significant).

Incubator Temperature: with a correlation value of 0.172* (significant at the 0.05 level), the temperature in the incubator and the temperature after procedures are more strongly positively correlated. With a correlation value of 0.267** (significant at the 0.01 level), the temperature in the incubator and the temperature before procedures are likewise strongly positively correlated.

Physical Activity: physical activity and temperature after procedures are negatively correlated, with a correlation coefficient of -0.143 (significant at the 0.1 level). The correlation coefficient between physical activity and temperature before procedures is -0.03, which is not statistically significant.

Crying: with a correlation coefficient of -0.171* (significant at the 0.05 level), there is a slight negative correlation between Crying and temperature after procedures. The correlation between Crying and temperature before to the procedure is -0.167* (p 0.05), which is negative.

Infection: the correlation coefficients between infection and temperature or pulse before or after procedures range from -0.028 to -0.134, which is insignificant.

In summary, the incubator temperature has the strongest positive correlation with the temperature before and after procedures, while physical activity and crying have negative correlations with the temperature after procedures. The room temperature and infection do not show strong correlations with the temperature or pulse before/after the procedure.

Table 4-6 Association Between Temperature, Pulse, and Respiration According to Mode of Delivery Before and After Procedures: Chi-Square Analysis Results

The Association between Temperature, Pulse, &Respiration according to the Mode of delivery		Before Procedures				After Procedures			
		Mode of delivery		Total	X^2	Mode of delivery		Total	X^2
		Normal vaginal delivery (N.V. D)	Cesarean section (C.S)			Normal vaginal delivery (N.V. D)	Cesarean section (C.S)		
Temperature	Under Than	<5	<5	<5	0.000	<5	<5	<5	0.000
		n<5	n<5	n<5		n<5	n<5	n<5	
	Normal	127	<5	127		138	0	138	
		91%	n<5	91%		0.99	0%	99%	
	Over Than	9	<5	9		\	\	\	
		7%	n<5	7%		\	\	\	
Pulse	Under Than	<5	<5	0	0.000	\	\	\	\
		n<5	n<5	0%		\	\	\	
	Normal	133	<5	133		80	\	80	
		96%	n<5	96%		58%	\	58%	
	Over Than	<5	<5	<5		58		58	
		n<5	n<5	n<5		42%	\	42%	
Respiration	Under Than	<5	<5	<5	0.000	\	\	\	\
		n<5	n<5	n<5		\	\	\	
	Normal	138	<5	138		46		46	
		98%	0%	98%		33%	\	33%	
	Over Than	\	\	\		92	\	92	
		\	\	\		67%		67%	

**Normal Range Dependent for The Results: Temperature, "axillary"34.7-37.3°C; Pulse, 100-180 bpm; Respiration, 30-53 bpm; x^2, Chi-Square (Sig. (2-tailed)<0.05).*

The results revealed that the mode of delivery may have an impact on the pulse and respiration of the infant before and after the procedure, with Caesarean section associated with higher proportions of abnormal pulse and respiration rates. However, there was no significant association between the mode of delivery and temperature.

Table 4-7 Association Between Temperature, Pulse, and Respiration According to Gestational Age at Birth (week) Before and After Procedures: Chi-Square Analysis Results

The Association between Temperature, Pulse, &Respiration according to Gestational age at birth(week)		Before Procedures				After Procedures			
		Gestational age at birth (week)		Total	X^2	Gestational age at birth (week)		Total	X^2
		35 Weeks	36 Weeks			35 Weeks	36 Weeks		
Temperature	Under Than	<5	<5	<5	0.000	<5	<5	<5	0.000
		n<5	n<5	<5		n<5	n<5	n<5	
	Normal	127	<5	127		138	<5	138	
		91%	n<5	91%		0.99	n<5	99%	
	Over Than	9	<5	9		<5	<5	<5	
		7%	n<5	7%		n<5	n<5	n<5	
Pulse	Under Than	<5	<5	<5	0.000	<5	<5	<5	\
		n<5	n<5	<5		n<5	n<5	n<5	
	Normal	133	<5	133		80	0	80	
		96%	n<5	96%		58%	0%	58%	
	Over Than	<5	<5	<5		<5	<5	<5	
		n<5	n<5	n<5		n<5	n<5	n<5	
Respiration	Under Than	<5	<5	<5	0.000	<5	<5	<5	\
		n<5	n<5	n<5		n<5	n<5	n<5	
	Normal	138	<5	138		46	0	46	
		98%	n<5	98%		33%	0%	33%	
	Over Than	<5	<5	<5		92	0	92	
		n<5	n<5	n<5		67%	0%	67%	

**Normal Range Dependent for The Results: Temperature, "axillary"34.7-37.3°C; Pulse, 100-180 bpm; Respiration, 30-53 bpm; x^2, Chi-Square (Sig. (2-tailed)<0.05).*

The results revealed that nursing procedures may have a positive effect on neonatal vital signs, particularly in terms of temperature and respiration rates. However, there was some variation based on gestational age at birth, as there were differences in the number of neonates with normal vital signs before and after nursing procedures for neonates born at 35 and 36 weeks.

Table 4-8 Association Between Temperature, Pulse, and Respiration According to Cause of Admission Before and After Procedures: Chi-Square Analysis Results

The Association between Temperature, Pulse, &Respiration according to the Cause of admission		Before Procedures				After Procedures			
		Cause of admission		Total	X^2	Cause of admission		Total	X^2
		Preterm	Tachypnea, Grunting			Preterm	Tachypnea, Grunting		
Temperature	Under T Han	<5	<5	<5	0.000	<5	<5	<5	0.000
		n<5	n<5	<5		n<5	n<5	n<5	
	Normal	127	<5	127		138	<5	138	
		91%	n<5	91%		0.99	n<5	99%	
	Over Than	9	<5	9		<5	<5	<5	
		7%	n<5	7%		n<5	n<5	n<5	
Pulse	Under Than	<5	<5	<5	0.000	<5	<5	<5	\
		n<5	n<5	<5		n<5	n<5	n<5	
	Normal	133	<5	133		80	0	80	
		96%	n<5	96%		58%	0%	58%	
	Over Than	<5	<5	<5		<5	<5	<5	
		n<5	n<5	n<5		n<5	n<5	n<5	
Respiration	Under Than	<5	<5	<5	0.000	<5	<5	<5	\
		n<5	n<5	n<5		n<5	n<5	n<5	
	Normal	138	<5	138		46	0	46	
		98%	n<5	98%		33%	0%	33%	
	Over Than	<5	<5	<5		92	0	92	
		n<5	n<5	n<5		67%	0%	67%	

**Normal Range Dependent for The Results: Temperature, "axillary"34.7-37.3°C; Pulse, 100-180 bpm; Respiration, 30-53 bpm; x^2, Chi-Square (Sig. (2-tailed)<0.05).*

This analysis revealed that neonates who were admitted to the hospital due to preterm birth or tachypnea/grunting are more likely to experience variations in their vital signs after nursing procedures.

Chapter Five

Discussion of the Study

Chapter Five

Discussion

This chapter provides an analysis and interpretation of the study's results. Which organized according to the objectives of the study. Literature-based evidence supporting the study's conclusions is provided.

5.1: Mothers and Neonates Demographic Characteristics

Table 4-1 : Part I indicates that most of the mothers age group in the current study are within 23-28 years; was the highest recorded one third. This result go in line with the finding of (Y. et al., 2019), was a cross sectional observational study design, conducted in India on 150 newborn, that study most of the mothers were aged between 22 to 25 years was recorded two fifth. While a another study was conducted in the province of Babylon by the researchers (Ali and Abed, 2019), shows that the majority of the study sample less than half aged (18 – 27) years old.

Most of the mothers were in their twenties, because this age group of marriage and reproduction , as the best age for a safe pregnancy for a woman is between the ages of 20 to 35 years. The most fertile period for a woman is between the ages of 20 and 24, although the vast majority of women at this age are not emotionally prepared to handle the responsibility of pregnancy. Where the body is able to handle the pregnancy well, and the emotional maturity of the woman becomes complete to deal with the responsibility of the child.

Regarding about residence of mother, most mothers residence lived in urban areas was recorded more than half . In a study similar to the results of the current study conducted by (BaniHani et al., 2021), in Jordan on 600 children and their mothers participated similar to it, it recorded most mothers lived in urban. While there is descriptive analytical study design to the contrary conducted in Karbala Province by (Fahdil, 2022), one was

selected to carry out the study which consists of (200) mothers who are attended Karbala Teaching Hospital for Pediatric in wards, that shows in terms of residents, more than half of participants were rural residents, as compared with those who are urban.

The reason of the vast majority of urban residents is from the researcher point of view, due to the proximity of hospitals to the city center and its distance from villages and rural areas, in addition to that, most pregnant women who live in villages and rural areas give birth through authorized midwives or settings close to their residence.

Regarding the mother's level of education in the existing study, most of them were secondary education recorded less than half. This findings agree with result of the study conducted by (BaniHani et al., 2021), on 600 children admitted to NICU and their mothers participated in the study that conducted in Jordan, where the result among mothers, three quarters had secondary education.

Women who have graduated from their education have an increased likelihood of being aware of the availability of prenatal care and follow-up services, as well as all the benefits that come with making use of these services. This is because women who have completed their education are more likely to have completed their education. It has been shown that educated women are more aware of health issues, are more knowledgeable about the accessibility of health care options, and are better able to put their knowledge to use than non-educated women. This meeting is the outcome of increased awareness among communities.

Table 4-1: Part II present the majority of mothers had a singleton pregnancy. These findings agree with result of the study conducted by (Mutar, 2022), who carried out a cross sectional descriptive study design on 150 neonate show more than half in a singleton pregnancy while one third

multiple pregnancy. In similar study conducted by (Eyeberu et al., 2021),in Harar (City of Ethiopia), where it appeared majority of mothers had a singleton pregnancy.

Certain study supporting the results of the current study that is appear majority of the infants were delivered by cesarean section, conducted on 132 infants were eligible for participation and were approached in Turkey by (Taşdemir and Efe, 2019). Further different study observational, cross-sectional, study was carried out, conducted by (Rodríguez-abarca et al., 2020), on 102 mothers from the northeast of Mexico that show vaginal delivery was the most common type more than half , while one quarter had a cesarean section.

The point of view, the reason that has recently push many women to resort to cesarean section instead of natural childbirth is due to difficult conditions of pregnancy such as (DM mother , face, breech presentation) and also its ease and fear from pain, risk conditions, as well as increasing their weight and their relationship with their husbands.

About the mother's prenatal care that the great majority of the mothers in the present study got prenatal care. Knowledge about health is a crucial component. It makes it possible for women to be informed of their rights and health condition and to seek the proper medical care. While compared to individuals who had inadequate understanding of pregnancy hazard indicators, those with superior knowledge had probabilities of using ANC that were more than three times higher.

Furthermore, nearly two third of the mothers reported did not having a previous premature birth. These results are consistent with a study was conducted on 106 pregnant women who have births complicated by premature birth by (Isroilovna, 2022), in Uzbekistan, that appear women

with premature birth one quarter had low socio-economic status; bad habits (drug and nicotine addiction), occupational hazards and burdened heredity.

This is might be due to level of awareness among mothers, their monitoring of pregnancy care throughout the pregnancy period, their taking the necessary vaccinations, and their commitment to the recommendations of the doctor supervising their care during that period.

A very small proportion of the mothers reported having had high blood pressure during pregnancy and having gestational diabetes. RAHMA is the first large multicenter cohort study which investigates pregnancy outcomes in Saudi Arabia, it was studied by (Wahabi et al., 2017), that appear one quarter had gestational diabetes, pre- gestational , while more than two third were non diabetic. Another prospective study conducted by (Li et al., 2018), consist of 276 mothers from a Singapore , there appear more than half had histories of gestational diabetes while one quarter had histories of high blood pressure.

This is justification as women are constantly monitoring their pregnancy through health care centers and comitted their commitment and recommendations regarding food and other related habits.

Table 4-1: Part III The data show that most of the infants had a birth weight between (2.134 and 3.067 g) more than half. While such cross-sectional study was conducted in the mid and far western region of Nepal by (Sunny et al., 2020), on 806 child , was the average birth weight of babies in this sample was (2501–3000g) more than half of these babies. While there is further study showed Birth weight of neonates (= > 2500 g) less than two thirds conducted by (Orsido et al., 2019), in South Ethiopia on 964 child.

Where the researcher considers that the rate of weight in the current study is close to the normal rates for the weights of most newborns,

with the exception of those deliveries that involve causes of decrease or increase in the weight of the infant based on the health status of the mother.

Concerning gender distribution was almost equal percentage between male and female. Whereas, a study showed the same results shows that, more than half of the neonates were males, while less than half were females giving a male to female ratio of 1.46:1condcuted by (Seid et al., 2022) . A randomized study design was adopted, similar to the results was conducted by the researcher (Taşdemir and Efe, 2019), in Turkey and showed that the number of males is equal to that of females.

In terms of child order, the majority of infants were either the second or third child was recorded one quarter. This is rationalized that the ages of the participating mothers in the current study ranged between the twenties, and it was also due to the difficult socio-economic conditions facing the society. Supportive study was carried out in Hilla city by the researcher (Ali and Abed, 2019), was selected to carry out the study which consists of (148) mothers who have children.in which he appeared more than three quarter of the child order in the family between first to three.

About gestational age at birth was mostly between 36 and 37 weeks, which recorded more than half. Sustained by (Eyeberu et al., 2021), who carried out a cross sectional study on 834 neonate in eastern Ethiopia as more than half of neonates were near term while one third of neonates were preterm.

The table also shows the various causes of admission to the NICU. The most common cause in the current study was preterm that is recorded one quarter. In a study analogous to the present one, conducted by (Valizadeh et al.,2017) on 76 newborns admitted to the NICU in Iran, prematurity with respiratory distress syndrome was found to be the leading cause of hospitalization. A cross-sectional study showed similar results

more than half of deceased neonates had low birth weight, premature and less than half had Respiratory Distress Syndrome (RDS) conducted by (Seid et al., 2022),in Jimma, Ethiopia.

According to the study's authors, a baby's admission to the neonatal intensive care unit is justified by the fact that he or she was born before 37 weeks of gestation, at which point premature infants often have medical complications and require specialized care.

5.2. Vital Signs Before and After All Nursing Procedures in Neonates (N=160).

Table 4-2. shows that almost equal temperature and pulse before and after feeding, while the respiration rate in increased after feeding. Forty premature newborns were studied using a case-control experimental methodology in a subset of Indian NICUs, conducted by (Thomas and Mathew, 2019), showed that there is significant difference in the vital signs (temperature, pulse and respiration) in experimental group after feeding, while that in control group there is no significant difference in the vital signs (temperature, pulse and respiration) after feeding . There is a randomized clinical trial study supporting the results of the current study done by (Beiranvand et al., 2014), on 90 infant in Iran, that is appear of the newborns' temperatures after did not show statistically significant differences .

From the point of view of the researcher, the reason that leads to a high rate of breathing in a newborn is excessive stress on the lung. Often, its speed returns to normal once they calm down, which indicates that these children are fine and do not suffer from any health problems.

In the current study the data shows after diapering, temperature slightly decreased, pulse and respiration increased. In a study similar to the results of the current study on 10 neonates was recruited for this study in

India conducted by (Singh et al., 2021), that appear respiratory rate and pulse rate increased after diaper changes for neonate . There is a study supporting the results of the current study conducted on infants were admitted NICU at a Southeastern U.S. academic medical center by (Brandon et al., 2022), there was a significant rise in heart rate following diapering, as seen among the subjects who had their diapers changed.

Table 4-2. shows that after giving medication the temperature slightly increased, pulse and respiration in increased from before. While there is a study to the contrary done (Kobus et al., 2022), this study examined a portion of a prospective randomized controlled clinical trial that included 80 newborns in Switzerland, and it seemed that the infants' heart and respiratory rates were lower after medication than they were at baseline.

The current study shows pulse rate significantly increased after I.V puncturing, while the standard deviation for temperature and respiration remained relatively stable. This findings agree with result of observational study done in France by (Roué et al., 2022), on 113 neonate s who underwent venipuncture for systematic neonatal screening, that show mild to moderate increases in the heart rate values were observed after venipuncture, and a non-significant trend to a slight decrease in the temperature and respiratory rate was noted .While there is a study to the contrary was a randomized controlled experimental research conducted by (Alemdar and Özdemir, 2017) in Turkey on 85 infants receiving treatment and care at a NICU no significant difference was found pulse rates of the infants after I.V puncturing.

It also shows that there was a slight decrease in the temperature of neonates after the examination, there was also a small increase in the pulse rate after the examination, with, similarly, there was a slight increase

in the respiration rate. There is a quantitative, quasi-experimental, crossover study supporting the results of the current study conducted by (Enfermagem, 2022), on 40 infant admitted NICU in Rio de Janeiro (City in Brazil) that was showed when evaluating the vital parameters after examination, it was noticed that there was a slight increase in the heart rate and respiratory rate , decreased in the temperature infant after examination. due to the inability to maintain stable body temperature, as they have reduced brown fat, low body mass index and difficulty in maintaining flexion of the extremities.

In the existing study specified the vital signs were compared in six neonates. After the procedure, standard deviation of the measurements was generally low. These findings suggest that the nasogastric tube procedure may have a significant impact on the vital signs of neonates, particularly in terms of pulse and respiration rate.

The parameters measured were temperature, pulse, and respiration on 160 neonates, after bathing there was a slight decrease in the body temperature of the newborn from what it was previously, while there was an increase in the rate of pulse and breathing. In a similar quasi-experimental study to the results of the current study done by (Enfermagem, 2022), in brazil, that is appear increase in respiratory and pulse rate after bathing . There is a study supporting the results of the current study done by (Taşdemir and Efe, 2019), in Turkey that is appear repeated measures showed that there was were significant effects for the outcomes of respiratory rate and pulse rate after bathing. A drop in axillary temperature to less than 36.5 °C was detected in 87.4% of recordings, and a drop to less than 36 °C was observed in 45.5%; axillary temperature stayed below 36.5 °C for a mean of almost 1 hour.

It is also advised that bathing activities be performed on newborns as late as feasible and that environmental measures be taken to ensure that their body temperature is maintained both during and after the bathing process. This is due to the fact that all bathing practices produce a reduction in the infant's body temperature.

also clarified as after procedures, the temperature and respiratory rate did not change significantly, but the pulse rate Increased more than it was before. There is a randomized comparative observational study was supporting the results of the current study conducted by (Shrestha and Adhikari, 2012), on 200 term newborns that showed after the procedures, showed significant changes in pulse rate, while temperature and respiration didn’t difference significance.

5-3: Factors Associated: Room, Incubator Temperature, Physical Activity, Crying and Infection

Figure 4-2 in the current study shows that the percentage of Factors Associated distributions related to Room, incubator temperature, physical activity, crying and infection, that pis appear of the neonates were normal recorded a three quarters of room temperature. While the incubator temperature recorded majority of neonates were under the normal range. Regarding physical activity, the majority of infants were classified as having normal activity levels, respectively. Crying, where recorded more than three quarters of infants experienced crying. Vast majority of infants were non-infection. In a similar study to the results of the current study done by (Harer et al., 2017), in U.S.A, that is appear the room temperature was where it falls within normal range.

5-4: Paired Sample t-Test Results for Vital signs of Neonates Before and After Nursing Procedures.

Table 4-3 indicates that the nursing procedures that are carried out have a major impact on the vital signs of newborns, such as their temperature, pulse, and respiration rate. In a study similar to the results of the current study conducted by (Surg et al., 2023), on 62 neonate in Iran, demonstrated that the variations in heart rate and respiration rate over time were statistically significant. There is a study supporting the results of the current study included 74 newborns in Szczecin (City in Poland) conducted by (Chudecka, 2019), that is appear statistically significant differences in temperature values occurred.

At birth and throughout the first day of life, newborns experience a fast loss of body heat (about 2 degrees Celsius only a few seconds after delivery). The temperature of the delivery room, which is lower than the temperature of the mother, and the evaporation of amniotic fluid from the skin of the baby are the two factors that contribute to the abrupt cooling of the infant body.

5-5: Temperature, Pulse, & Respiration (Normal Range) Before and After all Nursing Procedures

Table 4-4 shows after the nursing procedures, the percentage of neonates in this group for temperature, pulse, and respiration increased slightly. In a similar study to the results of the current study conducted in Iran by (Alinejad-naeini et al., 2022), that appear a statistically significant difference was observed after the Procedure in heart rate, respectively, respiratory rate. While another study was conducted in the titled ”Risk factors for neonatal hypothermia at Arba Minch General Hospital, Ethiopia “ by (Tessema et al., 2022), on 391 neonate admitted in NICU, that is appear the likelihood of progressing from mild to severe variation in

temperature and pulse, after most of the procedure that are applicated on them.

5-6: Correlation Matrix for Vital signs and Factors Associated Before and After Procedures

Table 4-5 shows the incubator temperature has the strongest positive correlation with the temperature before and after procedures, while physical activity and crying have negative correlations with the temperature after procedures. The room temperature and infection do not show strong correlations with the temperature or pulse before/after the procedure.

The rational that the incubator is the outer womb, or the alternative and close place in its atmosphere to the environment available in the mother's womb, where heating, appropriate nutrition, and the necessary oxygen are available, so it has a close relationship in the variation in the vital signs of the newborn.

5-7: Association Between Temperature, Pulse, and Respiration According to Mode of Delivery Before and After Procedures

The results in the current study appear that the mode of delivery may have an impact on the pulse and respiration of the infant before and after the procedure, with caesarean section associated with higher proportions of abnormal pulse and respiration rates. However, there was no significant association between the mode of delivery and temperature. In a similar study to the results of the current study conducted in Turkey by (Yiğit et al., 2018), on 125 healthy term infants were monitored with pulse ox meter studies demonstrate lower pulse and respiration rates in NVD-born infants and higher values in the C/S group. While there is a study to the contrary conducted in Turkey under the titled " Effect of delivery mode

on postpartum neonatal body temperatures" by the researcher (Ko et al., 2015) a prospective study on 106 term newborns revealed that the temperatures of infants delivered by normal vaginal delivery were considerably higher than the others.

From the researcher point of view, children born through the cesarean section for unnecessary reasons compensate for many risks in breathing, as the reason is due to hormonal and physical changes associated with childbirth that lead to secretion of catecholamine hormone, which contributes to the completion of lung development in the child.

5-8: Association Between Temperature, Pulse, and Respiration According to Gestational Age at Birth(Week) Before and After Procedures

The results show that nursing procedures may have a positive effect on neonatal vital signs, particularly in terms of temperature and respiration rates. However, there was some variation based on gestational age at birth, as there were differences in the number of neonates with normal vital signs before and after nursing procedures for neonates born at 35 and 36 weeks. These results are consistent with the result of a study conducted in Brazil, by (Prade et al., 2016) , study participants were 37 clinically stable preterm infants that showed difference respiratory rate and heart rate of gestational ages between of 34 to 36 weeks.

From the researcher point of view, this rate of gestational age is considered within the premature birth during which the newborn is exposed to many complications that lead to the instability of their vital signs because they were born prematurely.

5-9: Association between Temperature, Pulse, and Respiration according to Cause of admission Before and After Procedures

This analysis in the contemporary study appear that neonates who were admitted to the hospital due to preterm birth or tachypnea/grunting are more likely to experience variations in their vital signs after nursing procedures. In a similar study to the results of the current study conducted by (Karnati et al., 2020), overall, It appears that a large percentage of premature infants are admitted to neonatal intensive care units (NICUs). This is because premature babies are more likely to need neonatal resuscitation at birth, get pneumonia, or have pulmonary hypertension, even though they are less likely to choke on meconium than full-term babies. Temperature instability is one of the main reasons why premature babies stay in the hospital longer and are readmitted more often.

From the point of view of a researcher, it is clear that the bodily factors of preterm neonates vary more than those of other babies. This is because most of the body's systems and functions are not fully developed in premature babies .

Chapter Six

Conclusions and Recommendations

Chapter Six

Conclusions and Recommendations

This chapter presents conclusions as being derived from the early interpreted and discussed findings and recommendations which are stated based on such conclusion, as follows:

6. 1. Conclusions:

On the basis of the analysis and discussion of the study's results, the following conclusions have been formulated:

1- Most ages of the mothers participating in the study ranged between 23-28 years, with mean 27.64, urban areas are the majority where the mothers live, who graduated from secondary level of education.

2- Most of participants were born singleton birth, through caesarean section, and they adhered to prenatal care, and did not suffer from premature birth and malnutrition during pregnancy.

3- Furthermost of babies weights ranged between (2.134-3.067 grams), with a mean of 2.06, as equal in their genders.

4- There is an effect on the vital signs of new-borns, especially the pulse and breathing rate, before and after most of the nursing procedures that are applied in the neonatal intensive care unit.

5- In regard to associated factors, which specified a strong correlation between the temperature of the incubator and the temperature of the child, as for other Factors Associated that include physical activities, crying, as well as infection, as there is no correlation between them and the temperature of the child.

6- The last significant analysis is a strong correlation between changes in vital signs, mode of delivery, and gestational age, as well as the cause for admission to the neonatal intensive care unit. As well as the children who

born at a gestational age ranging between (35-36 weeks) by caesarean section and those admitted to the neonatal intensive care unit because of that premature birth are the most vulnerable groups to the variations of these vital signs.

6.2. Recommendations:

Based on the previous conclusions, the researcher puts the following recommendations:

1- nurses and other neonatal intensive care personnel should be careful in monitoring vital signs after nursing procedures because of their impact on child's health status.

2-All workers in the neonatal intensive care unit must give the utmost importance of monitoring the temperature of the incubator which must operate well, as it has a major role in stabilizing the body temperature of the new-born.

3-Providing educational programs for nurses working in this critical unit, which include how to measure those vital signs, as well as document them correctly, and aware of a major role effecting the outcome of the child’s condition.

4- Encouragement and the need to commit in preparing an educational program for pregnant women and urging them to adhere to the periodic review of care centre’s as well as obligation to take vaccinations, as well as not to resort to caesarean section unless there is a necessity for it.

5- Emphasis on care and awareness of the pregnant mother to avoid diseases that lead to premature birth.

6- Recommend paying greater attention to the type of care provided to newborns in the neonatal intensive care unit, such as adjusting the

temperature of the incubator and room, as it has a clear effect on the stability of these vital signs of the children.

7- Further study is needed to explore other factors related to variations in vital signs.

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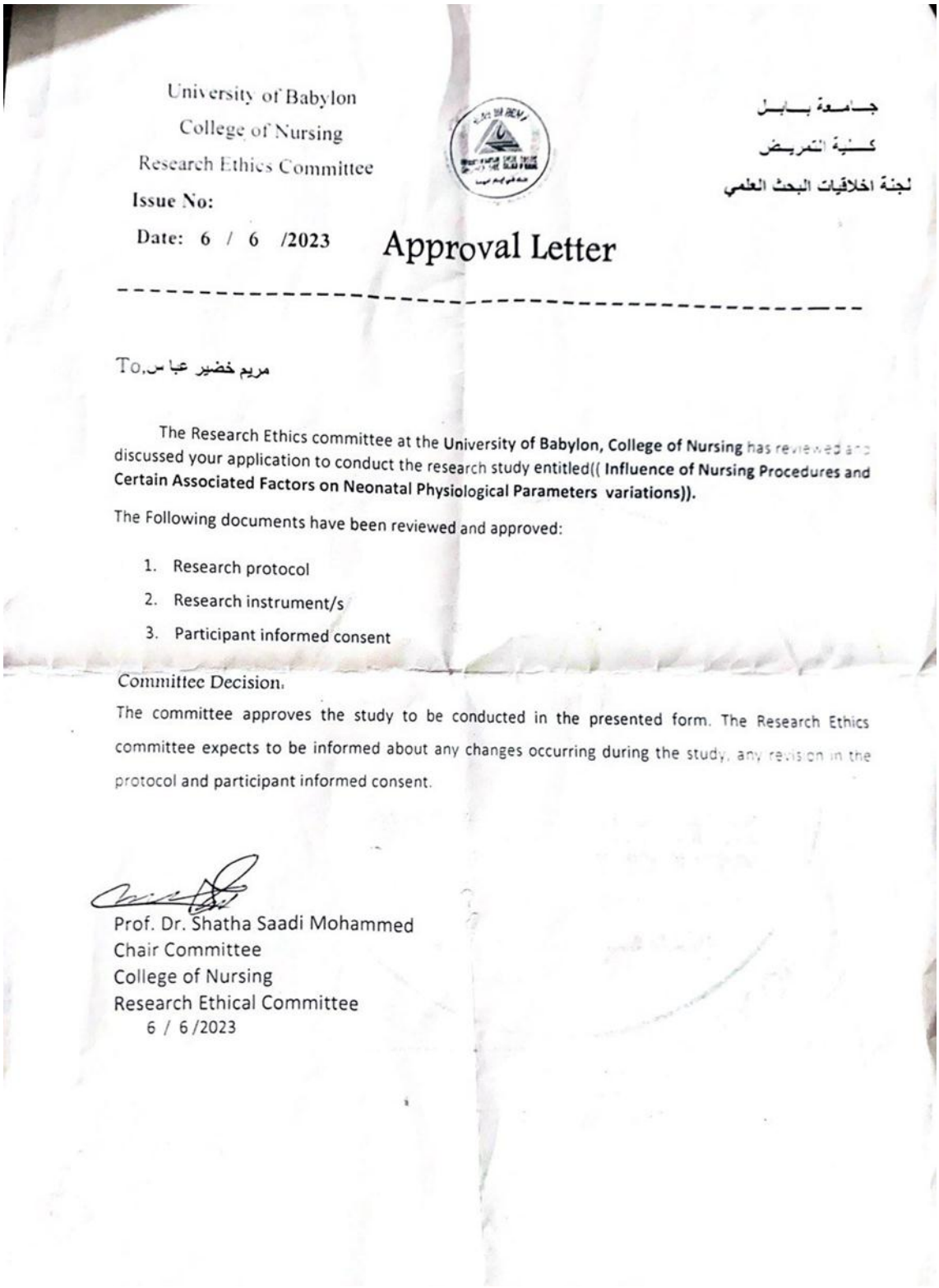
Appendices

Appendix (A)

Approval letter



University of Babylon
College of Nursing
Research Ethics Committee
Issue No:
Date: 6 / 6 /2023

جامعة بابل
كلية التمريض
لجنة اخلاقيات البحث العلمي

Approval Letter

To, مريم خضير عباس

The Research Ethics committee at the **University of Babylon, College of Nursing** has reviewed and discussed your application to conduct the research study entitled((**Influence of Nursing Procedures and Certain Associated Factors on Neonatal Physiological Parameters variations)).**

The Following documents have been reviewed and approved:

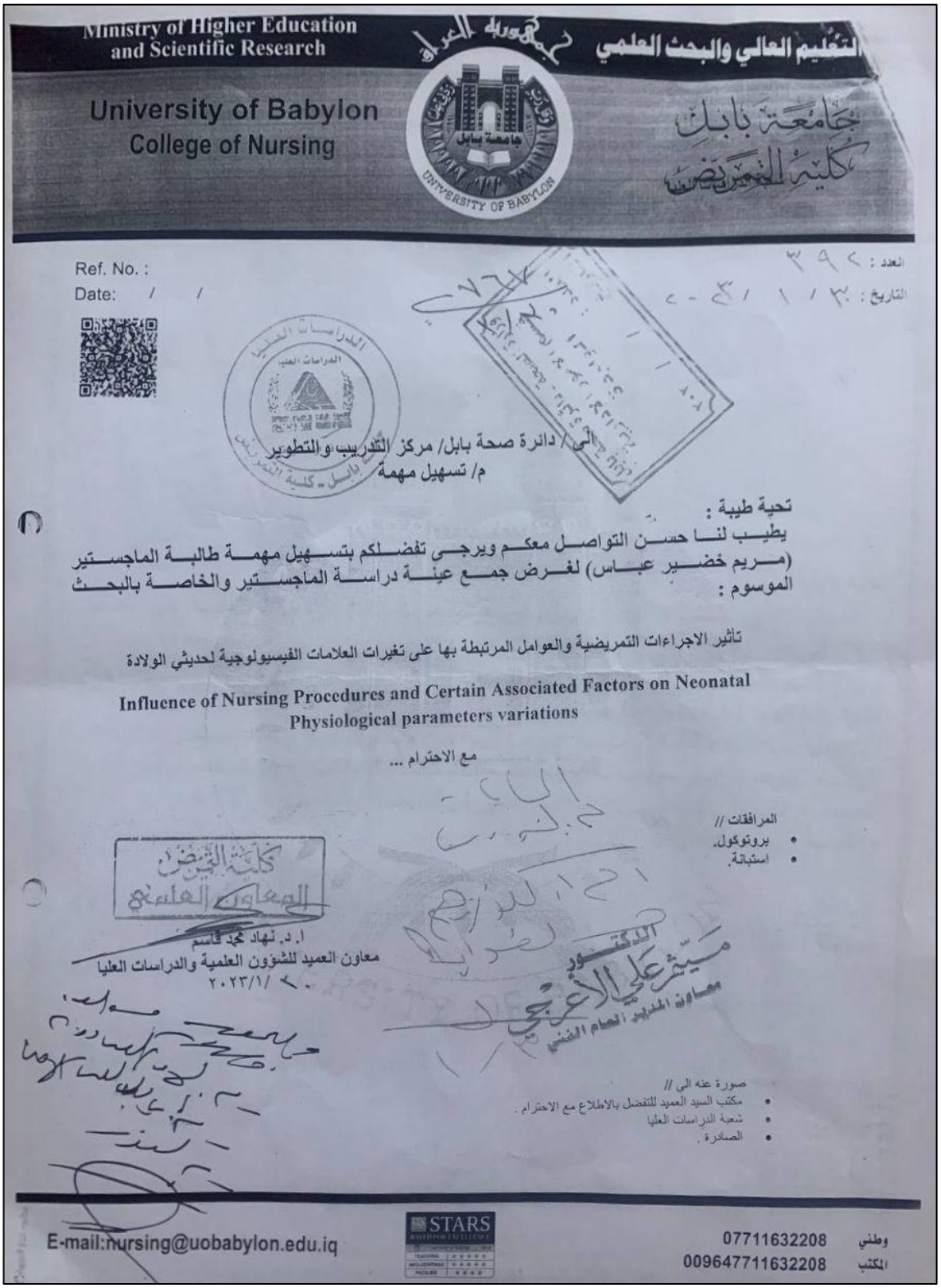
1. Research protocol
2. Research instrument/s
3. Participant informed consent

Committee Decision:

The committee approves the study to be conducted in the presented form. The Research Ethics committee expects to be informed about any changes occurring during the study, any revision in the protocol and participant informed consent.

Prof. Dr. Shatha Saadi Mohammed
Chair Committee
College of Nursing
Research Ethical Committee
6 / 6 /2023

Appendix (B)



Ministry of Higher Education and Scientific Research

جمهورية العراق
التعليم العالي والبحث العلمي

University of Babylon
College of Nursing

جامعة بابل
كلية التمريض

Ref. No. :
Date: / /

العدد : ٣٩٧
التاريخ : ٣٠ / ١ / ٢٠٢٣

الى / دائرة صحة بابل/ مركز التدريب والتطوير
م/ تسهيل مهمة

تحية طيبة :
يطيب لنا حسن التواصل معكم ويرجى تفضلكم بتسهيل مهمة طالبة الماجستير (مريم خضير عباس) لغرض جمع عينة دراسة الماجستير والخاصة بالبحث الموسوم :

تأثير الاجراءات التمريضية والعوامل المرتبطة بها على تغيرات العلامات الفيسيولوجية لحديثي الولادة

Influence of Nursing Procedures and Certain Associated Factors on Neonatal Physiological parameters variations

مع الاحترام ...

المرافقات //
- بروتوكول.
- استبانة.

كلية التمريض
المعاون العلمي

ا. د. نهاد محمد قاسم
معاون العميد للشؤون العلمية والدراسات العليا
٢٠٢٣/١/ ٣٠

الدكتور
مسير علي الاعرجي
معاون المدير العام الفني

صورة عنه الى //
- مكتب السيد العميد للتفضل بالاطلاع مع الاحترام .
- شعبة الدراسات العليا
- الصادرة .

E-mail:nursing@uobabylon.edu.iq

STARS

وطني 07711632208
المكتب 009647711632208

Appendix (B1)

جمهورية العراق

Ministry Of Health Babylon Health Directorate Email:- Babel_Healthmoh@yahoo.com لأجل عراق اخضر مستدام ..سنعمل معا لترشيد استهلاك الطاقة الكهربائية والمحافظة على البيئة من التلوث		وزارة الصحة دائرة صحة محافظة بابـــل المديـــر العـــام مركـــز التدريب والتنمية البشرية وحدة أدارة البحوث العدد : ١٢٢ التاريخ: ٢ / ١ /٢٠٢٣

إلى/ مستشفى الأمام الصادق (ع)
مستشفى بابل التعليمي للنسانية والأطفال
مستشفى النور للأطفال

م// تسهيل مهمة

تحية طيبة ...
أشـارة إلـى كتـاب جامعـة بابـل/ كليـه التمـريض / الدراسـات العليـا ذي العـدد ٣٩٢ في ٢٠٢٣/١/٣٠
نرفـق لكـم ربطـا اسـتمارات الموافقة المبدئيـة لمشـروع البحـث العائـد للباحثـة طالبـة الدراسات العليا / ماجستير (مريم خضير عباس)
للتفضـل بـالاطلاع وتسـهيل مهمـة المومـا أليـه مـن خـلال توقيـع وختـم اسـتمارات أجـراء البحـث المرفقـة فـي مؤسسـاتكم وحسـب الضـوابط والإمكانـات لاستحصـال الموافقـة المبدئيـة ليتسـنى لنـا أجـراء الـلازم علـى أن لا تتحمـل مؤسسـاتكم أيـة تبعـات ماديـة وقانونية .... مع الاحترام

المرفقات :
استمارة عدد /٢

الـدكتور
محمـد عبد الله عجرش
مدير مركز التدريب والتنمية البشرية
/ / ٢٠٢٣

نسخة منه إلى :
- مركز التدريب والتنمية البشرية / وحدة أدارة البحوث مع الأوليات ...

Appendix (B2)

جمهورية العراق

Ministry Of Health Babylon Health Directorate Email:- Babel_Healthmoh@yahoo.com لأجل عراق اخضر مستدام ..سنعمل معا لترشيد استهلاك الطاقة الكهربائية والمحافظة على البيئة من التلوث		وزارة الصحة دائرة صحة محافظة بابـــل المديـــر العـــام مركـــز التدريب والتنمية البشرية وحدة أدارة البحوث العدد : ١٢٢ التاريخ: ٢٠ / ١ /٢٠٢٣

إلى/ مستشفى الأمام الصادق (ع)
مستشفى بابل التعليمي للنسائية والأطفال
مستشفى النور للأطفال

م// تسهيل مهمة

تحية طيبة ...
أشـارة إلـى كتـاب جامعـة بابـل/ كليـه التمـريض / الدراسـات العليـا ذي العـدد ٣٩٢ في ٢٠٢٣/١/٣٠
نرفـق لكـم ربطـا اسـتمارات الموافقة المبدئيـة لمشـروع البحـث العائـد للباحثـة طالبـة الدراسات العليا / ماجستير (مريم خضير عباس)
للتفضـل بـالاطلاع وتسـهيل مهمـة المومـا أليـه مـن خـلال توقيـع وختـم استمارات أجـراء البحـث المرفقـة فـي مؤسسـاتكم وحسـب الضـوابط والإمكانـات لاستحصـال الموافقـة المبدئيـة ليتسـنى لنـا أجـراء الـلازم علـى أن لا تتحمـل مؤسسـاتكم أيـة تبعـات ماديـة وقانونية .... مع الاحترام

وزارة الصحة
دائرة صحة بابل
مركز التدريب والتنمية البشرية

الدكتور
محمد عبد الله عجرش
مدير مركز التدريب والتنمية البشرية
٢٠٢٣/ /

المرفقات :
استمارة عدد /٢ -

نسخة منه الى :
- مركز التدريب والتنمية البشرية / وحدة أدارة البحوث مع الأوليات ...

سونان ١/٢٠

Appendix (B3)

جمهورية العراق

وزارة الصحة
دائرة صحة محافظة بابـــل
المديـــر العـــام
مركـز التدريب والتنمية البشرية
وحدة أدارة البحوث

العدد : ١٢٢
التاريخ: ٢٠ / ١ /٢٠٢٣

Ministry Of Health
Babylon Health Directorate
Email:-
Babel_Healthmoh@yahoo.com

لأجل عراق اخضر مستدام ..سنعمل معا لترشيد استهلاك الطاقة الكهربائية والمحافظة على البيئة من التلوث

دائرة صحة بابل
مستشفى النور للأطفال
الواردة
العدد: ٧٤٧
التاريخ ٢٠٢٣/١/٢٥

إلى/ مستشفى الأمام الصادق (ع)
مستشفى بابل التعليمي للنسائية والأطفال
مستشفى النور للأطفال

م// تسهيل مهمة

تحية طيبة ...

أشـارة إلـى كتـاب جامعـة بابـل/ كليـه التمـريض / الدراسـات العليـا ذي العـدد ٣٩٢ في ٢٠٢٣/١/٣٠

نرفـق لكـم ربطـا اسـتمارات المـوافقة المبدئيـة لمشـروع البحـث العائـد للباحثـة طالبـة الدراسات العليا / ماجستير (مريم خضير عباس)

للتفضـل بـالاطلاع وتسـهيل مهمـة المومـا أليـه مـن خـلال توقيـع وختـم اسـتمارات أجـراء البحـث المرفقـة فـي مؤسسـاتكم وحسـب الضـوابط والإمكانـات لاستحصـال الموافقـة المبدئيـة ليتسـنى لنـا أجـراء الـلازم علـى أن لا تتحمـل مؤسسـاتكم أيـة تبعـات ماديـة وقانونية .... مع الاحترام

وزارة الصحة
دائرة صحة بابل
مركز التدريب والتنمية البشرية

الـدكتور
محمـد عبد الله عجـرش
مدير مركز التدريب والتنمية البشرية
/ / ٢٠٢٣

المرفقات :
استمارة عدد /٢

الدكتور علي جابر الفتلاوي
مدير م. النور للاطفال

نسخة منه إلى :
- مركز التدريب والتنمية البشرية / وحدة أدارة البحوث مع الأوليات ...

سودان ١/٢٠

Appendix (B4)

جمهورية العـــراق

Ministry Of Health Babylon Health Directorate Email:- Babel_Healthmoh@yahoo.com Tel:282628 or 282621		وزارة الصحة والبيئة دائرة صحة محافظة بابـــل المديـــر العـــام مركـــز التدريب والتنمية البشرية لجنة البحوث

استمارة رقم :- ٢٠٢٢/٠٣

رقم القرار :- ٢٢
تاريخ القرار :- ١٥/ ٢ /٢٠٢٣

قرار لجنة البحوث

تحية طيبة ...

درست لجنة البحوث في دائرة صحة بابل مشروع البحث ذي الـرقم (٢٠٢٣/٠١٣/ بابل) المعنون (تأثير الإجراءات التمريضية والعوامل المرتبطة بها على تغيرات العلامات الفيسيولجيه لحديثي الولادة)
والمقدم من الباحثة (مريم خضير عباس) إلى وحدة أدارة البحوث والمعرفي مركز التدريب والتنمية البشرية في دائرة صحة بابل بتاريخ ٢٠٢٣/٢/٦ وقررت :

قبول مشروع البحث أعلاه كونه مستوفيا للمعايير المعتمدة في وزارة الصحة والخاصة بتنفيذ البحوث ولا مانع من تنفيذه في مؤسسات الدائرة .

مـــــع الاحتـــرام

الـدكتور
محمد عبد الله عجرش
رئيس لجنة البحوث
/ / ٢٠٢٣

وزارة الصحة
دائرة صحة بابل
مركز التدريب والتنمية البشرية
لجنة البحوث

نسخة منه إلى :
- مكتب المدير العام / مركز التدريب والتنمية البشرية / وحدة إدارة البحوث ... مع الأوليات.

سونران

Appendix(C)

English Questionnaire

Part 1: demographic characteristics of the mothers:

1. Mother age(Year): ☐

2. Residence:

- Urban ☐
- Rural ☐

3. Mother's education

- Primary and below ☐
- inter mediat ☐
- secondary ☐
- College and above ☐

Part 2: obstetric history

1. Birth Plurality:

- Multiple birth (twin or triple) ☐
- Single ☐

2. Mode of delivery:

- Normal vaginal delivery (N .V. D) ☐
- Caesarean section (C.S) ☐

3. Antenatal care

Yes ☐

No ☐

4. Previous premature births

Yes ☐

No ☐

5. Malnutrition during pregnancy

Yes ☐

No ☐

6. High blood pressure during pregnancy

Yes ☐

No ☐

7. Gestational diabetes

Yes ☐

No ☐

Part 3: Neonatal characteristics:

1. Birth weight(g): ☐

2. Gender:

- Male ☐
- Female ☐

3. child order ☐

4. Gestational age at birth(week): ☐

5.Cause of admission: ☐

Part 4: Vital signs related to nursing procedures:

S.N	Type of procedures	Temperature		Pulse		Respiration	
1	Feeding	Before		Before		Before	
		After		After		After	
2	Diapering	Before		Before		Before	
		After		After		After	
3	I.V Medication	Before		Before		Before	
		After		After		After	
4	I.V puncturing (blood withdrawing)	Before		Before		Before	
		After		After		After	
5	Daily routine examination	Before		Before		Before	
		After		After		After	
6	Nasogastric tube	Before		Before		Before	
		After		After		After	
7	Bathing	Before		Before		Before	
		After		After		After	
		After					

Part 5: Associated Factors:

1. The room temperature less than ☐ normal ☐ more than ☐

2. Incubator temperature less than ☐ normal ☐ more than ☐

3. Physical Activity

-Hyperactivity ☐

- Normal ☐

- Hypoactivity ☐

4. Crying ☐

5. Infection ☐

Arabic Questionnaire

الجزء الأول: الخصائص الديموغرافية للأم:

1. عمر الأم (السنة):

2. الإقامة:

- حضري
- ريفي

3. تعليم الأم

- ابتدائي وأدناه
- متوسطة
- اعدادية
- الكلية وما فوقها

4 **الجزء 2: تاريخ أمراض النساء والتوليد**

1. تعدد المواليد:

- ولادات متعددة (توأم أو ثلاثي)
- ولادة مفردة

2. طريقة الولادة:

- الولادة الطبيعية المهبلية (N .V. D)
- ولادة قيصرية (CS)

3. رعاية ما قبل الولادة

نعم

لا

4. الولادات السابقة لأوانها

نعم

لا

5. سوء التغذية أثناء الحمل

نعم

لا

6. ارتفاع ضغط الدم أثناء الحمل

نعم

لا

7. سكري الحمل

نعم

لا

الجزء 3: خصائص حديثي الولادة:

1. الوزن عند الولادة (ز):

2. الجنس:

- ذكر

- أنثى

3. ترتيب الطفل

4. سن الحمل عند الولادة (أسبوع):

5- سبب الدخول:

الجزء الرابع: العلامات الحيويه المتعلقة بإجراءات التمريض:

التسلسل	نوع الاجراء	الحرارة	النبض	التنفس
1	الرضاعة	قبل بعد	قبل بعد	قبل بعد
2	تبديل الحفاضات	قبل بعد	قبل بعد	قبل بعد
3	اعطاء الدواء وريديا	قبل بعد	قبل بعد	قبل بعد
4	سحب الدم	قبل بعد	قبل بعد	قبل بعد
5	الفحص الروتيني اليومي	قبل بعد	قبل بعد	قبل بعد
6	انبوب انفي معدي	قبل بعد	قبل بعد	قبل بعد
7	الاستحمام	قبل بعد	قبل بعد	قبل بعد

الجزء الخامس: العوامل المرتبطة:

1. درجة حرارة الغرفة

أقل من المعتاد **طبيعي** **اكثر من المعتاد**

2. حاضنة درجة حرارة

أقل من المعتاد فوق **طبيعي** **اكثر من المعتاد**

3. النشاط البدني

-فرط النشاط

- طبيعي

- قلة النشاط

4. البكاء

5. العدوى

Appendix(D)

استبانة الخبراء والمحكمين

حضرة الدكتور\ة..... المحترم\ة

نظرا للمكانة العلمية المرموقة لديكم يرجى التفضل بالمساهمة في تقييم الاستبانة المستخدمة في الرسالة الموسومة:

تأثيرات الاجراءات التمريضية والعوامل المرتبطة بها على العلامات الحيوية لحديثي الولادة

Influences of Nursing Procedures and Factors Associated on the Vital signs of Neonate.

Objectives of the Study

1.To assess neonatal vital signs through specific procedure applicated.

2.To assess the Factors Associated with vital signs.

3.To find out the influences of nursing procedures and Factors Associated on neonatal vital signs.

4.To find out the relationship between vital signs with certain mother and neonates demographic characteristic.

ولكم فائق الشكر والاحترام.

اسم الخبير: .....

اللقب العلمي: .....

عدد سنوات الخبرة: .....

مكان العمل: .....

التاريخ: .....

التوقيع: .....

الباحث

طالب الماجستير
مريم خضير عباس
كلية التمريض – جامعة بابل
فرع تمريض صحة الطفل

Panel of Experts

قائمة خبراء التحكيم:

ت	اسم الخبير	الاختصاص	اللقب العلمي	مكان العمل	سنوات الخدمة
1	د. عفيفة رضا عزيز	تمريض صحة الطفل والمراهق	استاذ	جامعة بغداد / كلية التمريض	41
2	د. سعدية هادي حميدي	تمريض صحة الام والوليد	استاذ	كلية المستقبل الجامعة	41
3	د. امين عجيل ياسر	تمريض صحة الاسرة والمجتمع	استاذ	جامعة بابل / كلية التمريض	38
4	د. عبد المهدي عبد الرضا	تمريض الصحة النفسية والعقلية	استاذ	جامعة بابل / كلية التمريض	38
5	د. سلمى كاظم جهاد	تمريض صحة الاسرة والمجتمع	استاذ	جامعة بابل / كلية التمريض	37
6	د. سحر أدهم علي	تمريض البالغين	استاذ	جامعة بابل / كلية التمريض	34
7	د. وفاء احمد امين	تمريض صحة الام والوليد	استاذ مساعد	جامعة بابل / كلية التمريض	32
8	د. جنان أكبر شكور	تمريض صحة المجتمع	استاذ مساعد	جامعة كركوك / كلية التمريض	32
9	د. هالة سعدي عبد الواحد	تمريض صحة المجتمع	استاذ مساعد	جامعة بغداد / كلية التمريض	29
10	د. ختام مطشر حطاب	تمريض الاطفال	استاذ	جامعة بغداد / كلية التمريض	26
11	د. خميس بندر عبيد	تمريض الاطفال	استاذ	جامعة كربلاء / كلية التمريض	24
12	د. عذراء حسين شوق	تمريض الاطفال	استاذ	جامعة بغداد / كلية التمريض	17
13	د. زيد عجيل عاجل	تمريض الاطفال	استاذ مساعد	جامعة بغداد / كلية التمريض	14
14	د. احمد عبد الله عبد	تمريض الاطفال	استاذ مساعد	جامعة ذي قار / كلية التمريض	13
15	د. زكي صباح مصيحب	تمريض الاطفال	مدرس	جامعة كربلاء / كلية التمريض	13

الخلاصة

يطبق العديد من الاجراءات التمريضية في وحدة العناية المركزة لحديثي الولادة من أجل التشخيص والعلاج. تتسبب العديد من الإجراءات في تغيرات فسيولوجية قد تكون خطيرة إذا لم تتم إدارتها بشكل صحيح. وقد تعتبر التغييرات الفسيولوجية المرتبطة بإجراءات التمريض بشكل عام جزءًا من العلاج. والتي قد تتأثر بعوامل معينة مثل ؛ العمر والجنس والوقت من اليوم والنشاط البدني والإجهاد والأدوية والأمراض والخوف والقلق.

تهدف الدراسة إلى تقييم العلامات الحيوية لحديثي الولادة من خلال إجراءات محددة يتم تطبيقها، وتقييم العوامل المرتبطة بالعلامات الحيوية، ومعرفة تأثيرات الإجراءات التمريضية والعوامل المرتبطة بها على العلامات الحيوية لحديثي الولادة، وكذلك معرفة العلاقة بين العلامات الحيوية والصفات الديموغرافية للأمهات والأطفال حديثي الولادة.

تصميم وصفي تم استخدامه خلال الفترة من 9 تشرين الثاني (نوفمبر) 2022 إلى 25 أيار (مايو) 2023 ،اجري في مدينة الحلة على (160) طفل رضيع تم ادخالهم الى وحدة العناية المركزة لحديثي الولادة في مستشفى بابل التعليمي للولادة والأطفال ومستشفى الإمام الصادق التعليمي, تم جمع البيانات باستخدام الاستبيان , حيث قام الباحث بملء الاستبيان وقياس العلامات الحيوية قبل وبعد جميع الاجراءات التمريضية المحددة في الاستبيان باستخدام مقياس حرارة إلكتروني لقياس درجة الحرارة ، واستخدام مقياس نبض لقياس النبض وساعة الجيب لحساب عدد الأنفاس في 60 ثانية لقياس التنفس .

أظهرت الدراسة تأثيراً على العلامات الحيوية لحديثي الولادة وتحديداً معدل النبض والتنفس قبل وبعد معظم إجراءات التمريض التي يتم تطبيقها في وحدة العناية المركزة لحديثي الولادة. فيما يتعلق بالعوامل المرتبطة بها ، والتي حددت ارتباطًا قويًا بين درجة حرارة الحاضنة ودرجة حرارة الطفل.

لخصت الدراسة إلى وجود فروق ذات دلالة إحصائية في العلامات الحيوية قبل وبعد إجراء التمريض دون استثناء ، ويوصى بتجهيز برامج تعليمية للممرضات العاملات في هذه الوحدة الحرجة والتي تشمل كيفية قياس تلك العلامات الحيوية وتوثيقها. بشكل صحيح ، ويكونون مدركين لدورهم الرئيسي في التأثير على نتيجة حالة الطفل.

جمهورية العراق

وزارة التعليم العالي والبحث العلمي

جامعة بابل/ كلية التمريض

تأثيـرات الاجـراءات التمريضيـة والعـوامل المرتبطـة بها على العلامات الحيوية لحديثي الولادة

رسالة مقدمة

الى جامعة بابل / كلية التمريض / تمريض صحة الطفل

وهي جزء من متطلبات نيل درجة الماجستير في علوم التمريض

من قبل

مريـم خضـير عـباس

بأشـراف

أ.د نـهاد محمـد قاسـم

تشرين الاول 2023 م **ربيع الاول 1445 هـ**