Deanship of Graduate Studies

Al- Quds University

Knowledge and Attitudes of Mothers Toward the Essential Care of Their Preterm Neonates Post Discharge from Neonatal Intensive Care Unit (NICU) in Governmental Hospitals in Gaza Strip

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Thesis Approval

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Dedication

I dedicate this effort to the great father who devoted this life for us.

To my dear mother who gave me the road of my success.

To my patient wife, who was beside me in every moment.

To my brothers, and all my relatives who encouraged me to complete this work.

To the Palestinian people especially for martyrs who sacrificed their lives for Palestine and Al- Aqsa.

To my friends for their support and encouragement

Ali Abdelrahman Aldirawi

Declaration

I certify that this research submitted for the degree of Master in the result of my own research, and that this thesis (or any of its parts) has been submitted from any other previous works to any other university or institution.

Signed:……

Ali Abdelrahman Mahmoud Aldirawi

/ /

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Abstract

Background: Preterm birth is one of most common health problems, associated with neonates admitted to Neonatal Intensive Care Unit (NICU). In 2016, preterm neonates constitute 40% of all admissions in NICU. Poor knowledge among mothers about the needs of preterm neonate is an important cause for immediate readmissions to NICU. The aim of study is to assess the knowledge and attitude of mothers toward providing care to their preterm neonates who discharged from the NICU of Governmental hospitals in Gaza Strip.

Methods: This study is quantitative, descriptive cross sectional investigation. The sample consisted of 120 mothers chosen conveniently and distributed equally to first 60 mothers of preterm neonates was discharge from NICU in Al-Shifa medical complex and Nasser Hospital. A questionnaire was constructed and data was collected by the researcher through a face to face interview with mothers of preterm.

Results: Results showed that 52% of mothers have knowledge on preterm care (P-value<0.05) and 84.6% have positive attitudes towards preterm care (P-value<0.05). There was significant differences in the level of mothers' attitude regarding preterm care between those who were admitted to Al-Shifa medical complex and those who were admitted to Nasser hospital, those who were admitted to Al-Shifa medical complex have significantly higher attitude than who were admitted to Nasser hospital (p<0.05). There was not association between parity and the level of knowledge among mothers of preterm neonate (P-value>0.05), there was no statistical differences in knowledge and attitudes with other factors: income, educational level, mothers age, area of residence, types of health educators, family members, and working status (P-value>0.05).

Conclusion and recommendations: This study revealed the presence of knowledge gap. The existing knowledge gap in key area of preterm neonate care can greatly affect the success of preterm care services. The researcher suggested that more emphasis is needed in maternal education during hospitalization in NICU prior to discharge, certain components of essential preterm care package need more emphasis during education program.

Key words: Knowledge, Attitude, Preterm. and Essential Care.

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List of Abbreviations

APH	Antepartum Hemorrhage
ART	Assisted Reproductive Technologies
CBR	Crud Birth Rate
CDC	Center for Disease Control and Prevention
CDR	Crud Death Rate
C.S	Cesarean Section
EBF	Exclusive Breastfeeding
ELBW	Extremely Low Birth Weight
GDP	Gross Domestic Product
GS	Gaza Strip
HCWs	Health Care Workers
HIV	Human Immuno-Deficiency Virus
IHME	Institute for Health Metrics and Evaluation
IMR	Infant mortality rate
IVF	In Vitro Fertilization
KA	Knowledge and Attitude
MOH	Ministry of Health.
NGO	Non-governmental organization
NICU	Neonatal Intensive Care Unit.
NNJ	Neonatal Jaundice
PCBS	Palestinian Central Bureau of Statistics
PROM	Premature Rupture of Membrane
PTB	Preterm Birth
RDS	Respiratory Distress Syndrome

ROP	Retinopathy of Prematurity
SD	Standard Deviation
SGA	Small for Gestational Age
SIDs	Sudden Infant Death Syndrome
SPSS	Statistical Package for Social Sciences
UK	United Kingdom
UNICEF	United Nations Children's Emergency Fund
UNRWA	United Nations Relief and Works Agency
UTI	Urinary Tract Infection
VLBW	Very Low Birth Weight
WB	West Bank
WHO	World Health Organization

Chapter (1)

Introduction

1.1 Background

Preterm birth is the birth occurring before 37 completed weeks of gestation (WHO, 2015). It is one of the most common health problems seen in neonates and associated with inadequate compatibility with the extrauterine environment. It is considered a challenging problem with greater risk than full-term births in term of mortality and morbidity (Goswami & Sahai, 2014 and Leifer, 2008). Preterm birth is a complex cluster of problems with a set of corresponding factors of influence; some features such as assisted reproductive technology, old age pregnancy, advanced ante/postnatal diagnosis techniques and treatments cause a rise in preterm birth rate (Arockasany et al., 2008).

The main causes of preterm birth include multiple pregnancies, and chronic conditions such as high blood pressure; however, often no cause is identified. WHO estimates preterm birth as the leading primary cause of death in children under five years, with over one million neonates dying each year worldwide due to complications of preterm birth (WHO, 2015). Complications of preterm include acute respiratory, gastrointestinal, immunologic, central nervous system, hearing, and vision problems, as well as longer-term motor, cognitive, behavioral, social-emotional, health, and growth problems (Goswami, & Sahai, 2014).

About 9% of neonates, particularly the preterm, need intensive care services (Myanaie et al., 2011). Hospitalization of preterm neonates in neonatal intensive care units (NICUs) and mothers' lack of knowledge on how to care for their neonate and discharge without consideration of their needs may cause great level of anxiety, depression and changes their parental roles and these changes may last for long periods of time after hospital discharge (Hemati et al., 2017 & Aliabadi et al., 2011).

The mother of preterm neonate has an important role in providing access to health care services and modeling attitudes and behaviors that influences the neonate care. Poor knowledge among mothers about the needs of preterm neonate are an important cause for immediate readmissions to NICU after discharge and the mother's attitudes about special

aspects of care of preterm neonates is very important to prevent complications in the neonates (Subhashini et al., 2014).

Mother's attitudes about neonate care influences the nature and quality of care that is given to the preterm, several studies have revealed that the mother's level of education has a positive impact on her knowledge and how she deals with neonate health care issues. Experience in pediatric practice has revealed significant gaps pertaining to child issues in mother's knowledge. Health care institutions play a limited role in health education. There should be proper affective practical means of disseminating information on child matters among mothers in our community (Al-Ayed, 2010).

In Palestine, two thirds of neonates deaths occurred within the neonatal period, mostly during the first few days of life (WHO, 2012). Availability of information regarding mothers knowledge and attitudes toward preterm care in Palestine is insufficient. So, the purpose of this study is to assess the attitude and knowledge of mothers toward providing care to their preterm neonates who discharged from the neonatal intensive care unit.

1.2 Problem Statement

Preterm birth is one of the most common health problems, associated with neonates admitted to NICU. In 2016, preterm neonates constitute 40.1% of all admission in NICU (Al Shifa Hospital Report, 2017). In Gaza Strip, the risk of neonatal death increased greatly (35%) in preterm neonates than in neonates born at term and the risk of neonatal mortality was higher in neonates with a low birth weight than in those with a normal birth weight (El Awour et al, 2012). The infant mortality rate among Palestine refugees reached 18.2 per 1000 live births; 17.1 in the West Bank and 19.6 in Gaza Strip (MOH, 2016). The rate of neonatal mortality, which is the number of babies that die before they reach four weeks, has also gone up significantly in Gaza, from 13.6 per 1,000 live births in 2008 to 9.3 per 1,000 live births in 2017 (WHO, 2017).

In many cases, neonatal problems present after hospital discharge and mother is the first person who can identify these problems. Therefore, it is essential of mothers to have sufficient knowledge in order to identify the common neonatal problems (Egube et al., 2013). In other words, the majority of neonate morbidities and mortalities occur due to unawareness of parents especially the mothers insufficient knowledge or misunderstanding of maternal and neonatal care during this period (Weiner et al., 2011).

The birth of a preterm neonate can also bring considerable emotional and economic costs to families and have implications for public-sector services, such as health insurance, educational, and other social support systems (Goswami & Sahai, 2014). According the WHO, major causes for more than 85% of newborn death are complications of prematurity, intra-partum related neonatal deaths and neonatal infections (WHO, 2014). Preterm neonates need special care from health professional in NICU immediately after birth. Post discharge, neonates need care by the primary caregiver especially mother.

Educating mothers regarding special home care aspects for their preterm neonates will play a major role in reducing neonatal morbidity as well as mortality. Education involves providing information and raising knowledge in order to change the behavior and attitude of a target audience. Preliminary investigation of families has demonstrated that primary education should be provided near the time of delivery since at this point, parents are highly motivated to participate in the life of the neonate. Nevertheless, this issue is of particular importance in the parents who are expecting their first neonate (Bagheri et al., 2016).

Low mother knowledge will lead to severe negative sequences and complications, concerns highlighted in recent publications suggest that there has been an increase in neonatal hospital readmission rates associated with shortened length of post birth stay (Farhat et al., 2011). Mwaniki et al, (2010) conducted a study and noted an increase in the burden of neonatal admissions in a rural hospital in Kenya with close to 60% of all inpatient deaths in under-fives being neonates (Mwaniki et al. 2010). Mothers have a great and active role in care giving process like feeding, bathing, and physical care in which this relation and interaction have a positive effect on mother and infant emotionally and physically (Aagaard & Hall, 2008). Therefore, it is crucial to assess the mothers attitudes and knowledge level of essential care to preterm neonates and the affecting factors.

1.3 Justification of the Study

Globally, every year, an estimated 15 millions neonates are born preterm, this number is rising globally as well as in 2015, preterm birth and low birth weight accounted for about 17% of infant deaths and more than one million died due to complications in the first month of life, more from indirect effects, and millions have a lifetime of impairment. The neonatal mortality rate is now widely followed as an important population health measure because a large proportion (45 %) of the deaths in children under age five years occurs in the first month of life (Blencowe et al., 2013). Preterm birth is truly a global problem with a high burden being found in high-income countries as well (e.g. United States where almost 1 in 8 babies is preterm and half of neonates born at 24 weeks may survive, which in low-income settings half of neonates born at 32 weeks still die due to a lack of basic care (Lawn et al., 2013).

In developed countries, epidemiological studies are more commonly performed to profile the occurrence, compared with full term, preterm are at increased risk for NICU admission, hospital readmission, longer hospital stay and many studies have a attitudes of mothers for full-term neonates, and few of studies for preterm neonates (Leone et al, 2012). Assessments of mothers knowledge and attitudes during discharge from NICU surely improve outcome of prematurity. These studies are necessary to evaluate the effectiveness of the current maternal training programs, and would help the authorities to overcome the weaknesses of these programs and to plan effective actions for enhancing neonatal health. However, much is less known about parents' experiences of caring for preterm neonate at home after NICU discharge (Adama et al., 2016). The ability to identify knowledge gaps early in the neonatal period will help health care workers identify and implement timely and appropriate interventions that will lead to better neonatal outcomes.

Based on his experience, the researcher noticed that there are many preterm neonate readmission to NICU for several causes such as: jaundice, respiratory morbidities, temperature instability, hypoglycemia, sepsis and even neonatal mortality. Their findings were consistent with the research of Brown et al, (2014) who showed that the main cause of preterm neonates readmission to NICU was severe jaundice. Although the problem of preterm births has been a tackled by different researchers who cover the different aspects of the problem such as the epidemiological status, determining the main risk factors and

the impact of the advancing therapeutic technique, the researcher found few studies which try to investigate the mothers knowledge and attitudes of their preterm neonates of providing care post discharge from NICUs and no any study in Palestine.

The findings and recommendations of this study could add value to nursing profession globally and in Palestine partially in following areas: in practice, this study will provide suggestions to hospital policy makers to improve practices and management of preterm neonates regarding helping mothers to care for their neonate and in education, also this study will serve as the basis for review of neonatology curriculum in pre-services and in-service trainings in medical and nursing education. In research, this study will built body of knowledge based of many researches, and will inspire for further research, Also in nursing care, this study will provide a way of proper preparedness of parents prior to discharge and provide useful approaching into parents awareness level about care of preterm neonates and offers a way for health education, this factors will improve rates of neonatal morbidity and mortality.

Several research conducted worldwide have revealed poor maternal knowledge and negative attitude and practices on preterm care. Finally ,there is not any study found on mothers knowledge and attitudes among preterm neonates applied in Gaza Strip. So, this study, aimed to identify the gaps in knowledge and good attitude of essential care among mothers of preterm neonate at Al Shifa and Nasser hospitals at the point of discharge from the hospital.

1.4 Aim of the study

To Assess the knowledge and attitudes of mothers toward essential care to their preterm neonates who discharged from the NICU of Governmental hospitals in Gaza Strip.

1.5 Objectives of the study

1. To assess the knowledge level of mothers toward the essential care of their preterm neonates post discharge from NICU in governmental hospitals in Gaza Strip.

2. To assess the attitudes level of mothers toward the essential care of their preterm neonates post discharge from NICU in governmental hospitals in Gaza Strip.

3. To identify the relationship between socio-demographic characteristics of mothers and their knowledge and attitudes toward the essential care of their preterm neonates post discharge from NICU in governmental hospitals in Gaza Strip.

4. To determine the relationship between the role of nursing education and knowledge level and attitudes of mothers toward the essential care of their preterm neonates post discharge from NICU in governmental hospitals in Gaza Strip.

5. To Assess the relationship between reproductive characteristics of mothers and their knowledge and attitudes toward the essential care of their preterm neonates post discharge from NICU in governmental hospitals in Gaza Strip.

6. To compare mothers knowledge and attitudes between NICUs in Al Shifa and Nasser Hospitals.

7. To suggest recommendation improve knowledge and attitudes among mothers about caring to preterm neonates post discharge from NICU in governmental hospitals in Gaza Strip.

1.6 Research Questions

1. What is the knowledge level of mother toward essential care of their preterm neonates post discharge from NICU in Al Shifa and Nasser Hospitals?

2. What is the attitudes level of mother toward essential care of their preterm neonates post discharge from NICU in Al Shifa and Nasser Hospitals?

3. Does health education provided by nurse to preterm mothers before discharge play a role in enhance knowledge and attitudes toward the essential care of their preterm neonates?

4. Does the mothers occupation affect to the knowledge level and attitudes of mothers toward the essential care of their preterm neonates?

5. Is there relationship between mothers age and knowledge level and attitudes of mothers toward the essential care of their preterm neonates?

6. Dose the mothers level of education affect their knowledge and attitudes toward providing care to the their preterm neonates?

7. Is there relationship between reproductive characteristics of mothers and their knowledge and attitudes toward providing care of their preterm neonates?

8. What are the recommendations to improve mothers knowledge and attitudes about caring to preterm babies post discharge from NICU o governmental hospitals at GS?

1.7 Context of study

1.7.1 Demographic Context

Palestine is an Arab Country, moderately small one, The total surface area of historic Palestine is about 27.000 Km, Palestine was occupied in 1948 by Israeli occupation and the two remaining parts are separated geographically (West Bank and Gaza Strip) after the 1948 war. Palestine is bordered by Lebanon, Syria, Jordan, Egypt and Mediterranean Sea. The total size of Gaza Strip (GS) and West Bank (WB) is about 6,020 Sq. Km with total population about 4.29 million individuals (1.8 million in GS and 2.8 WB) with population density 653 capita per Km. GS is a narrow piece of land lying in the coast of Mediterranean Sea. The total size of GS is about 365 square kilometer, GS is overloaded area with total population about 1.8 million with residents density of 4279 inhabitants/ Km2 and about 69% of them are refugees as estimated by the year 2010 (Palestinian Central Bureau of Statistics, 2014).

GS is divided into five governorates: Gaza Governorate, North Governorate, Mid-zone Governorate, Khan-Younis Governorate, and Rafah Governorate (MOH, 2016).

According to the annual report of Ministry of Health in 2014, the crude birth rate (CBR) in the Palestinian territories estimated about 30.1/1000 of population in 2016, on the other hand, the crude death rate (CDR) was about 3.5/1000 of population (MOH, 2017).

1.7.2 Socio-economical context

Gaza Strip(GS) has gone under a restriction, political and economic closure after the Palestinian election in 2006, according to PCBS in 2013 the Gross Domestic Product (GDP) was million 6797.3 $ for GDP Per Capita (PCBS, 2014).

The Israeli war on Gaza in December 2008 and January 2009 resulted in hundreds of fatalities and thousands of injuries, and further badly affected the already debilitated status of the water, sanitation and power sector in the GS (PCBS, 2009). Medical supplies

were in very short supply and health facilities were often not able to treat the sick during the crisis (PCBS, 2009). The constant deteriorating economic situations in the GS lead to the rise in the unemployment rate more than 40% in 2015 and 85% of households were living under the poverty line in 2015 household survey (International Monetary Fund, 2016). The overall bad economic status of the Palestinians in GS increases the load on the governmental hospitals to provide secondary care especially in case of emergency and violence. This also increases the need for effective health care provision and effective clinical supervisory system to effectively manage the services.

1.7.3 Palestinian Heath Care System

1.7.3.1 Demographic characteristics of Gaza governorates:

Palestine is an Arab Country, relatively small one, The total surface area of historical Palestine is about 27.000 Km, Palestine was occupied in 1948 by Israel and the two remaining parts are separated geographically (West Bank and Gaza Strip) after the war in 1948. Palestine is surrounded by Lebanon, Syria, Jordan, Egypt and Mediterranean Sea. Gaza Strip is a small Palestinian Area on the eastern coast of the Mediterranean Sea in the southern area of Palestine, with estimated population 1.88 million. The population of children under the age of five is about 316,663. The Gaza Strip is divided into five governorates : North Gaza, Gaza City, Mid Zone, Khanynis and Rafah (PCBS, 2016).

Population of Palestine is generally high at 800/Km2, particularly in Gaza Strip it is 5,154 persons/km2 compared to a lower population density in the West Bank of 519 persons/km2 at mid-2016. According to results of Multiple Indicator Cluster Survey 2014, the total fertility rate in Palestine had declined to 4.1births (2011-2013) compared to 6.0 births in 1997. At the regional level, the fertility rate in Gaza Strip is higher than West Bank during the period between (1997-2013), where it reached3.7 births during the period between (2011-2013) in the West Bank compared to 5.6 births in 1997 While it reached 4.5 births in Gaza Strip during the period between (2011-2013) compared to 6.9 births in 1997 (PCBS, 2016).

1.7.3.2 The socio economic situation:

For the last decade, the socioeconomic situation in Gaza has been in steady decline. The blockade on land, air and sea, imposed by Israel, following the Hamas takeover of the Gaza Strip in 2007, entered its 10th year in June 2016 and continues to have a devastating effect as access to markets and people's movement to and from the Gaza Strip remain severely restricted (UNRWA, 2016).

Years of conflict and obstruction have left 80 per cent of the population dependent on international assistance. The economy and its capacity to create jobs have been devastated, resulting in the impoverishment and de-development of a highly skilled and well-educated society. The average unemployment rate is well over 41 per cent – one of the highest in the world, according to the World Bank. The number of Palestine refugees relying on UNRWA for food aid has increased from fewer than 80,000 in 2000 to almost one million today (UNRWA, 2016). People who live under poverty in Gaza Strip is about 38.8% and people who live under deep poverty about 21.1% in 2011 (PCBS, 2016).

1.7.4 Health care system:

The health system in Gaza is composed of primary, secondary and tertiary care. Service providers include the Ministry of Health (MOH), UNRWA, NGO's, Ministry Of Health and the private sector. With such multitude of service providers there are various challenges in providing a well-coordinated, consistent health service provision during normal times and resistances are deemed to exacerbate during emergencies (WHO, 2014). UNRWA provides health-care services to the vast majority of the over 1.2 million Palestine refugees in Gaza Strip through 22 medical centers, providing primary health care (PHC) and purchasing secondary and tertiary health care services (UNRWA, 2016).

MOH is the main health care provider in the governorates; it provides PHC, secondary and tertiary services for the whole population. It consumptions advanced medical services through mentioning patients to the neighboring countries and other private and NGO health care facilities. It has been seriously affected by the financial crisis being knowledgeable by the Palestinian Authority .In particular, there have been reductions in the numbers of patients being referred outside the occupied Palestinian

territory for particular treatment and there have been growing and considerable shortages of medicines and disposables (WHO, 2013).

1.7.5 Child health care services:

UNRWA provides care for children across the phases of the life cycle, with specific interventions to meet the health needs of newborns, infants under 1 year of children, children under 5 years of age and school-age children. Both preventive and curative care is provided, with a special emphasis on prevention. Services include newborn assessment, well-baby care, periodic physical examinations, immunization, growth monitoring and nutritional surveillance, micronutrient supplementation, preventive oral health, school health services and care of sick children, including referral for specialist care.Growth and nutritional status of children under 5 is monitored at regular intervals through UNRWA health services. Breastfeeding is promoted and mothers are counseled on infant and child nutrition, including the appropriate use of complementary feeding and micronutrient supplements. A new electronic growth monitoring system, based on the revised WHO growth monitoring standards, was introduced in pilot health centers during 2011. The system documents the four main growth and nutrition-related problems among children under 5: underweight, wasting, stunting and obesity (UNRWA, 2016).

The primary health care facilities of MOH provides child health services for children under the age of five including immunizations, child examination and assessment, lab tests and giving supplements (MOH, 2017). Also many NGOs like Ard El Insan Palestinian Benevolent Association.

1.7.6 Governmental Hospital Services

MOH is the main provider of secondary care in the GG. It is responsible for 13 hospitals across the five governorates and percent of hospital bed about 1.4 per 1000 (MOH, 2013). The average occupancy rate at hospitals in the GG is about 78%. The unstable Palestinian political situation increases the load on the health care services in Gaza and West Bank.

1.7.7 Neonatal Intensive Care Units

1.7.7.1 Neonatal intensive care unit in Al-Shifa Hospital

Al-Shifa hospital the biggest hospital in Palestine, located in the west part of Gaza, was established in 1946, the total numbers of beds are 696 beds and it is considered the largest center in the Palestine National Authority, The NICU has been established in 1986, it contains 34 incubators on three level. The first level cover special care babies unit is contain 12 incubators, the second level cover NICU is contain 16 incubators and finally level cover intensive special care was established in 2017, the total members of incubators are 6 incubators (MOH-web site, 2018).

1.7.7.2 NICU in Al-Naaser Pediatric Hospital

It is located in the western part of Gaza strip, providing several medical services for children. The hospital consists of

several different sections, the NICU was established in 1973 started with 7 incubators. In 2011 the NICU department was rehabilitated and renewed by UNICEF. Now the department become fully equipped and contains 33 incubators (MOH, web site, 2012).

1.7.7.3 NICU in Khan-Younis (Nasser) Hospital

Khan-Younis (Nasser) Hospital is located in Khan-Younis governorate, general hospital, and the total beds are 267 beds, the NICU was established in 1989 started with 8 incubators now it includes 14 incubators (MOH, web site, 2011).

1.7.7.4 NICU in European Gaza Hospital

The European Gaza Hospital is situated in the southern of Gaza governote, established in 1993, the total beds are 240 beds. The NICU was established in 2001 started with 12 incubators (MOH, web site, 2011).

1.7.7.5 NICU in Shahadaa Alaqsa Hospital

Located in mid zone governorate, is general hospital with total 74 beds. The NICU was established in 2003 started with 8 incubators (MOH, web site, 2011).

1.7.7.6 NICU in Al-Helal Al-Emaraty Hospital

The hospital is situated in the southern of Gaza governorates (Rafah), it was established in 2000, the total beds 40 beds. The NICU has been established at 2001 with total 6 incubators (MOH, web site, 2011).

1.8 Definition of Variables

This part will contain the definitions of terms included in this study

Essential Preterm Care

A set of recommendations by the World Health Organization on newborn care practices that include thermoregulation, umbilical cord care, neonatal jaundice care, breastfeeding, eye care and immunization (Paula, 2015).

Neonate

Birth to 28 days inclusive (first four weeks of birth) Pertaining to the newborn period which, by conventional is the first four weeks after birth (WHO, 2015).

Preterm

Is the birth occurring before 37 completed weeks of gestation or less than 259 days from the first day of the last menstrual period (WHO, 2015).

Preterm neonate

Preterm neonate defined as babies born alive before 37weeks of pregnancy are completed (WHO, 2015)

Knowledge

The facts, information, understanding that a person has acquired through experience or education (Soanes, 2007).

Attitude

Is a way of thinking about something or behaving towards something (Brooker, 2006).

Neonatal Intensive Care Unit (NICU)

The unit where high-risk neonates including preterm babies are cared for.

1.9 Operational Definitions

This part will contain the operational definitions of terms included in this study

Knowledge

The theoretical understanding of preterm care issues acquired through education or experience and measure through the questionnaires constructed by the researcher.

Attitude

Mothers thinking and feeling on the care of their preterm neonate at discharge and refers to a mothers'overall evaluation of preterm care. It is assumed to have two components which work together: beliefs about consequences of the preterm care and the corresponding positive or negative judgment about the care and measure through the questionnaires constructed by the researcher.

Preterm birth

Preterm is defined as babies born alive before 37 weeks of pregnancy are completed. There are sub-categories of preterm birth, based on gestational age: extremely preterm (<28 weeks), very preterm (28 to <32 weeks) and moderate to late preterm (32 to <37 weeks) (WHO, 2017).

Neonatal period

Neonate is a child under 28 days of age. During these first 28 days of life, the child is at highest risk of dying. It is thus crucial that appropriate feeding and care are provided during this period, both to improve the child's chances of survival and to lay the foundations for a healthy life (WHO, 2017).

1.10 Conceptual Framework

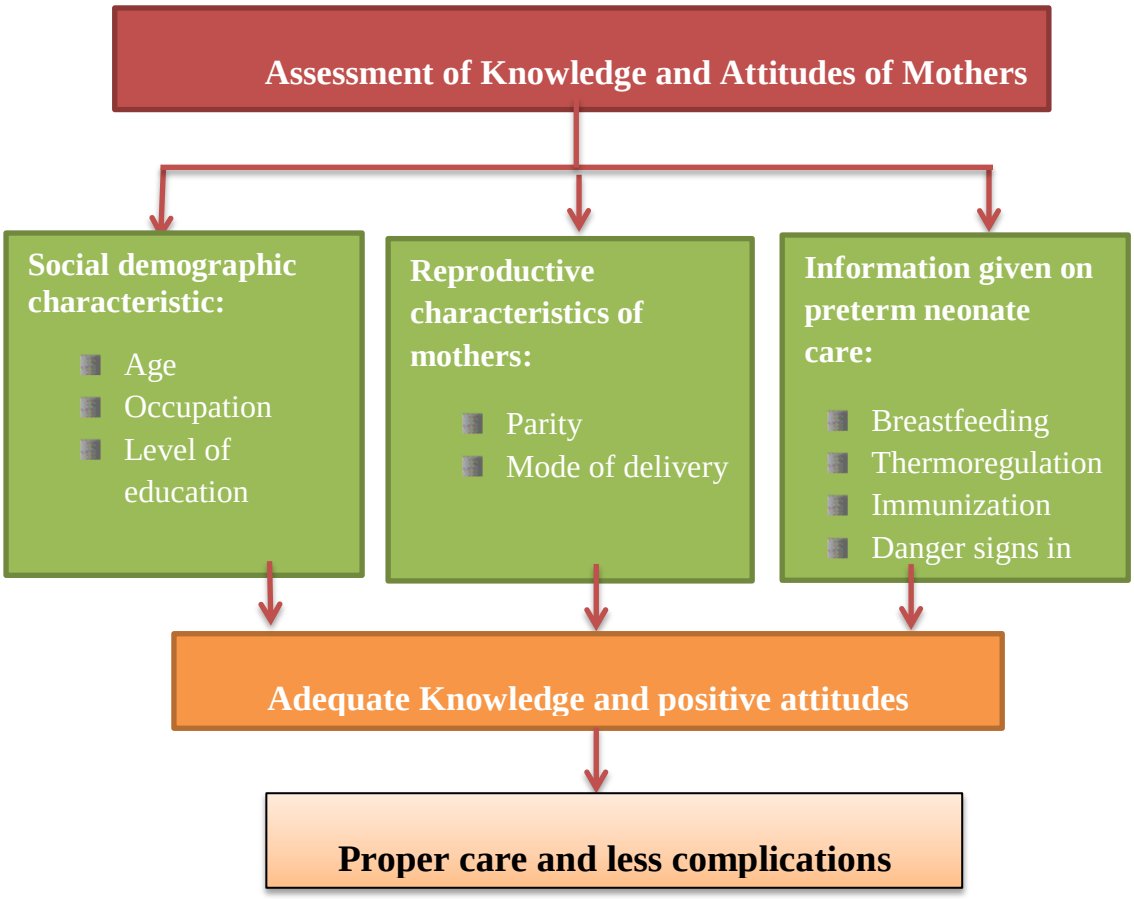

Figure 1.1: Conceptual framework diagram" self developed"

The researcher has developed the conceptual framework to address the major concepts and variables included in this study after reviewing the a variable literatures about the knowledge and attitudes of mother. Also the researcher was classified the main factors affecting on knowledge and attitudes of mothers toward preterm care are:

1. Social demographic characteristic: It includes variables can effect of knowledge and attitudes of mother include: maternal age, occupation and level of education.

2. Reproductive characteristics of mothers: These variables include parity and mode of delivery could be effect to knowledge and attitudes of mothers.

3. Information given on preterm neonate care: It includes breastfeeding, thermoregulation, immunization, danger signs in newborn and infection prevention could be effect to knowledge and attitudes of mothers toward preterm care.

Chapter (2)

2 Literature Review

2.1 Background

Preterm birth is the birth occurring before 37 completed weeks of gestation (WHO, 2015). It is one of the most common health problems seen in neonates and associated with inadequate compatibility with the extrauterine environment. It is considered a challenging problem with greater risk than full-term births of mortality and morbidity (Goswami & Sahai, 2014 and Leifer, 2008). According to WHO, Preterm birth is the leading cause of neonatal mortality and the most common reason for antenatal hospitalization. Although, preterm are prone to serious illness or death during the neonatal period. Without appropriate treatment, those who survive often face lifelong disability and poor quality of life. Complications of prematurity are the single largest cause of neonatal death and currently the leading cause of death among children under 5 years (WHO, 2015).

At the time of discharge home, parents of preterm neonate in (NICUs) are anxious and have difficulty in caring for their baby. Connecting parents in discharge process provide them with self-assurance in caring their preterm neonate at home. Parents should be able to be familiar with signs and symptoms of illness and response adequately, particularly in urgent situations and understand the importance of infection prevention procedure (Jefferies, 2016).

2.2 Epidemiology

Globally, Preterm birth is the most important cause of neonatal mortality and the second-leading cause of death before age of 5 (after pneumonia) worldwide (WHO, 2014). Approximately 2.6 million children died in the first month of life in 2016, approximately 7,000 newborn deaths every day, most of which occurred in the first week, with about 1 million dying on the first day and close to 1 million dying within the next six days. Across 184 countries, the rate of preterm birth ranges from 5% to 18% of babies born. (WHO, 2017 & UNICEF, 2015). Every year, an estimated 15 million neonates are born preterm, this number is rising globally. In 2015, preterm birth and low birth weight accounted for about 17% of infant deaths and more than one million died due to complications in the first month of life, more from indirect effects, and millions have a lifetime of impairment.

The neonatal mortality rate is now widely followed as an important population health measure because a large proportion (45 % in 2015) of the deaths in children under age five years occurs in the first month of life. Preterm birth also accounts for a great part of short- and long-term morbidity. Prevalence of preterm birth ranges from 5 to 18 % with lowest prevalence in Northern European countries and highest in sub-Saharan African countries (Blencowe et al, 2013).

In developed countries, the rate of preterm birth has risen in developed countries over the last decade. Possible explanations include improved registration, broader use of ultrasound-based estimation of gestational age, infertility treatment, and changes in obstetric practice with preterm deliveries induced because of fetal or maternal indication (WHO, 2014). Approximately one-third of all infant deaths in the United States. Infants born at or before 25 weeks gestation have the highest mortality rate (approximately 50 percent) and if they survive, are at the greatest risk for severe impairment (Mandy, 2011).

In North American, Preterm birth is truly a global problem with a high burden being found in high-income countries as well (e.g. the United States where almost 1 in 8 babies is preterm and half of neonates born at 24 weeks may survive, which in low-income settings half of neonates born at 32 weeks still die due to a lack of basic care (Lawn et al, 2013).

In France, preterm birth rate at 11%; they are 60,000, about 85% of these births are moderate (32-33 weeks) to late preterm babies (34-36 weeks), 10% are very preterm babies (28-31 weeks) and 5% are extremely preterm babies (< 28 weeks). Though neonatal mortality rates are dropping, they remain high and are largely determined by gestational age at birth (over 10% mortality for infants born before 28 weeks, 5-10% at 28-31 weeks and 1-2% at 32-34 weeks). Severe neonatal morbidity and disabilities during childhood are also frequent and vary with gestational age (Torchin et al, 2015).

In Europe, approximately 75% of all neonatal deaths and 60% of all infant deaths occur to infants born preterm. Although survival of preterm infants has increased significantly in the past decade, these infants remain at higher risks of long-term motor and cognitive impairments as well as of chronic disease and mortality. Later, in life than infants born at term. Initiatives to prevent preterm births have had limited success (Delnord et al, 2015).

In developing countries In Africa**,** more than 60% of preterm births occur. In the lower-income countries, on average 12% of babies are born too early compared with 9% in higher-income countries (WHO, 2017).

In Sri Lanka, neonatal mortality was estimated at 4 million, while infant mortality was 11.2 per 1,000 live births. Newborns are at risk of dying from various health problems, although they have been born with average birth weights. Thus, neonatal morbidity and mortality rates are higher(Priyadarshanie and Pethiyagoda, 2017).

In Ethiopia, during the last five years period; neonatal mortality is 37 deaths per 1000 live births. Even though there is an improvement compared to the past five years, there is still high home delivery 90 %, and high neonatal mortality about the millennium development goal, which aims to be less than 32/1000 live births in Ethiopia (Misgna et al, 2016).

In South Asia, more than 60% of preterm births occur, but preterm birth is a truly global problem. Within countries, poorer households are at greater risk. In Pakistan, the rate of preterm delivery is 15.8 per 100 live births, Indonesia 15.5 per 100 live births (WHO, 2015). Increased preterm birth rates over the last 20 years. Possible causes include better measurement, increasing maternal age, basic maternal health problems such as diabetes and hypertension, and changes in obstetric practices such as premature cesarean section (WHO, 2015).

In Arab countries, half of the neonates born 32 weeks or less die (two months ago) because of the lack of cost-effective care, such as warmth, breastfeeding support, basic care of the infection and breathing difficulties. There is a significant difference in the survival of preterm neonates depending on where they are born. For example, more than 90% of extremely preterm neonates (less than 28 weeks) born in low-income countries die during the first few days of life; however, less than 10% of preterm infants die in high income conditions (WHO , 2017).

In Saudi Arabia, four hundred and seventy-six preterm neonates were admitted prematurely with a total prevalence rate of 7.5%. Extremely preterm neonates (<28 weeks gestation) are 9%, and very preterm neonates (28 to <32 weeks gestation) are 20%. Extremely low-birth-weight (ELBW) infants (<1000 g) consists of 11%. One hundred and fifty-seven (32%) of infants were small for gestational age. Of the total number of infants

from ELBW, 58% were discharged. The overall mortality rate was 7.6%. Life expectancy ranged from 30-97.6% (Al-Qurashi et al, 2016).

In Oman present the levels and trends of Low Birth Weight (9.5%) that occurred in 2012 were LBW infants. Among those with LBW, (1.2%) had a very low birth weight (VLBW) which is a birth weight of <1,500 g. Thus, VLBW rates infants constituted 13% of the total cases of LBW in Oman. There is an increasing trend in both LBW and VLBW in Oman. The prevalence of LBW was approximately 9.5% in 2012. The rate of infant mortality (i.e. death during the first year of life) dropped from 118 per 1,000 live births in 1970 to 9.5 per 1,000 live births in 2012, a decline of 92% within four decades. Mortality in children under five years dropped by 94% (from 181 to 11.5 per 1,000 live births) in the same period. The data indicate that more than 80% of under-five mortalities have been due to infant mortality in recent decades (Islam, 2015).

In the Eastern Mediterranean Region, given the notable reduction in number of deaths due to pneumonia and diarrhea, preterm birth complications have become the leading cause of death among children under-5 in the Region. It is estimated that around 160, 000 babies die due to preterm birth complications comprising nearly 20% of under-5 deaths. Data from countries show significant variations on the contribution of preterm births to under-5 deaths. In Jordan, for instance, almost a quarter of under-5 deaths are attributed to preterm complications while in a country like Somalia – where post neonatal causes of death are more prevalent – this figure goes down to 6%. However, it is important to highlight that preterm births represent a public health problem in all Member States in the Region. Deaths due to preterm birth complications as percentage of all under-5 deaths, Jordan 24 %, Lebanon 22%, Libya 21%, Iraq 20%, Egypt 20% and Palestine 16% (WHO, 2016).

In Palestine, the new study found that the infant mortality rate among Palestine refugees in Gaza was 18.2 per 1000 live births (WHO, 2016). The rate of neonatal mortality, which is the number of babies that die before they reach four weeks, has also gone up significantly in Gaza, from 13.6 per 1,000 live births in 2008 to 9.3 per 1,000 live births in 2017 (WHO, 2017).

In particular, the socioeconomic condition in the Gaza Strip has deteriorated dramatically following imposition of a blockade by the Israeli occupation in 2007. The blockade has impacted the health sector in Gaza, as hospitals continue to lack adequate physical

infrastructure, drugs and supplies. In addition, armed conflicts during June 2006, December 2008 to January 2009, November 2012 and July and August 2014 have contributed to a health and healthcare environment that may have affected pregnancy outcomes and the health care provided to infants (Van den Berg et al, 2015).

2. 3 Definition of Preterm

The WHO defines a Preterm Birth as babies born alive before 37 weeks of pregnancy are completed. There are sub-categories of preterm birth, based on gestational age; extremely preterm (less than 28 weeks), very preterm (28 to 32 weeks) and moderate to late preterm (32 to 37 weeks) (WHO, 2017). The American College of Obstetrics and Gynecology redefines term into subgroups: early term (37weeks of gestation to 38weeks), full term (39–40 weeks), and late-term (41–42weeks). The early term was previously referred to as late preterm (Bronstein, 2016).

2. 4 Mortality and Morbidity of Preterm

Neonatal mortality remains high even though a declining proportion of deaths among children less than five year. According to WHO, the infant mortality rate has decreased from an estimated rate of 63 deaths per 1000 live births in 1990 to 32 deaths per 1000 live births in 2015. Globally, every year, nearly 44% of all deaths in children under five are among neonates (WHO, 2017 & UNICEF, 2015). Every year worldwide 15 million preterm neonates are born and one out of ten is preterm neonate and 60 % among them are in developing countries (lawn et al., 2013). Preterm birth is the third cause of mortality from highest mortality causes and 20% from all mortality causes in Palestine (Institute for Health Metrics and Evaluation, 2016).

Infant mortality in Nigeria is very high, ranked 74th in the world in 2013 (UNICEF, 2014). This is primarily due to PTBs, pregnancy complications such as preeclampsia and eclampsia, infections such as Human immuno-deficiency virus (HIV), and malnutrition. Furthermore, Nigeria currently has the highest number of newborn deaths in Africa, and the second highest in the world (coming only after India). About 270,000 children in Nigeria per year die within

the first month of life as a direct consequence of PTB and low birth weight, perinatal asphyxia, and, infections. (WHO, 2013).

More than 60% of preterm births occur in Africa and South Asia. In the lower-income countries, on average, 12% of babies are born too early compared with 9% in higher-income countries (WHO, 2017). In 2014, the under-five mortality rate in Palestine was 21.7 per 1000 live births 20.0 in the West Bank compared with 23.7 in Gaza Strip. On the other hand infant mortality rates in Palestine reached 18.2 per 1000 live births; 17.1 in the West Bank and 19.6 in Gaza Strip. Preterm birth and low birth weight accounted (24.6% in the West Bank and 16.8% in the Gaza Strip) of infant deaths (MOH, 2016).

Preterm birth is the third cause of mortality from highest mortality causes and 20% from all mortality causes in Palestine (IHME, 2016). Neonatal mortality remains high even though a declining proportion of deaths among children less than five year (UNICEF, 2015). According to WHO, the infant mortality rate has decreased from an estimated rate of 63 deaths per 1000 live births in 1990 to 32 deaths per 1000 live births in 2015 (WHO, 2015).

2.5 Risk Factors of Preterm

Events leading to preterm birth are still not completely clear; although the etiology is thought to be multifactorial. It is however unclear whether preterm birth results from the interaction of several pathways or the independent effect of each pathway. Causal factors linked to preterm birth include medical conditions of the mother or fetus, socio-economic factors, genetic influences ،environmental exposure, infertility treatments and iatrogenic prematurity (Mahajan and Magon, 2017). The researcher suggested many risk factors which may include:

2.5.1 Socio-Demographic Factors

Several maternal socio-demographic characteristics are associated with preterm birth. Low socio-economic, educational status, young and advanced maternal age. The mechanisms by which the maternal demographic characteristics are related to preterm birth are unknown (Ganchimeg et al, 2013). The main of maternal socio-demographic factors:

Socioeconomic Status

Low socioeconomic status was found to be an significant factor affecting preterm deliveries (Raisanen et al, 2013). A strong constructive correlation exists between both preterm birth and low socioeconomic status. Families of low socioeconomic status have higher rates of maternal undernutrition, anemia, and illness; inadequate prenatal care; drug misappropriation; obstetric difficulties; and maternal history of reproductive inadequacy (abortions, stillbirths, premature or low birth weight babies) (Nelson, 2016).

Ruth et al, (2012) demonstrated a study to illustration the effect of socioeconomic status and gestational age on neonatal outcome, in which the socioeconomic status divided into three groups according to level income as low, middle and high level. This study concluded that the neonates born before 37 weeks (preterm babies) were lived in low socioeconomic status. In addition morbidities that associated with prematurity continue into preterm gestation and are further compounded by of socioeconomic status (Ruth et al, 2012). In a Prospective study of risk factors for preterm births in a teaching hospital among the variables considered as maternal economic parameters, the study resulted that low socioeconomic status were significantly associated with increased risk of preterm delivery (Mahajan and Magon, 2017).

Educational Status

Mother educational status is one of the maternal socio-demographic factors of preterm birth. In a study about mother's education and the risk of preterm and small for gestational age birth establish mother's education was linked to an appreciable risk of preterm and small for gestational age (SGA) births across 12 European countries. The excess risk of preterm births associated with low maternal education. Similar effects were found for SGA births, but absolute inequalities were greater. Inequalities at birth were strong in the Netherlands, the UK, Sweden and Spain and marginal in other countries studied (Ruiz et al, 2015).

Other study in Indonesia for examine determinants of preterm birth, low birth weight and small for gestational age. The results showed that women with high school education (≥ 10 years of education) had 36% lower odds of having preterm birth, compared with women with no primary education while maternal age was not significantly associated with preterm birth (Sebayang et al, 2012).

Maternal Age

Maternal age is a main socio-demographic factor to preterm delivery. The potential relationship between maternal age and preterm birth was suggested by Mahajan and Magon, (2017) which conducted a prospective study to determine the risk factors for preterm births in a teaching Hospital, the study resulted that the mother age group 25-34 years were found high rate of delivered prematurely (Mahajan and Magon, 2017). Also, Abdelhady, et al, (2015) conducted a study rate and risk factors of preterm births in a secondary health care facility in Cairo, he found that elderly mothers (maternal age more than 34 years) were at a significantly higher risk of a preterm delivery (Abdelhady et al, 2015).

Reductions in births to teens and preterm birth rates are two recent public health successes in the United States. From 2007 to 2014, the birth rate for females aged 15–19 years declined 42%, from 41.5 to 24.2 per 1,000 females. The preterm birth rate decreased 8.4%, from 10.41% to 9.54% of live births. Rates of preterm births vary by maternal age, being higher among the youngest and oldest mothers. It is unknown how changes in the maternal age distribution in the United States have affected preterm birth rates. The effects of age distribution changes on the preterm birth rate decrease were different in younger and older mothers. The decrease in the proportion of births to mothers aged ≤19 and 20–24 years and reductions in age-specific preterm rates in all age groups contributed to the overall decline in the preterm birth rate. The increase in births to mothers aged ≥30 years had no effect on the overall preterm birth rate decrease. The decline in preterm births from 2007 to 2014 is related, in part, to teen pregnancy prevention and the changing maternal age distribution. Effective public health strategies for further reducing preterm birth rates need to be tailored to different age groups (Ferré, 2016). Another study conducted by Urmila et al, (2018) aimed to evaluate the knowledge, attitude and practices about KMC in the post-natal mothers of low birth weight and preterm neonates before and after a teaching session by a trained staff, who found that age of the mothers range from 18 to 39 years. Most of sample was age from 18 to 25 years mothers have preterm neonates.

Physical and Psychological Factors

Physical and psychological in mothers may also increase risk for preterm birth, for instance low pre-pregnancy body mass index, exposure to stressful events, and depression (Khashan et al, 2014). Another study indicates that stressful life events for the participants

included hospitalization, surgery or death of family members, family conflict and house or office decorating, as well as having sex during pregnancy were all risk factors for preterm birth (Zhang et al, 2012).

However, other studies have reported no significant relationship between domestic violence and preterm birth. Women experiencing spouse abuse may also have conditions such as sexually transmitted diseases, vaginal bleeding, depression, and stress that increase level of inflammatory factors and consequently leading to preterm birth (Goldenberg et al , 2008).

2.5.2 Maternal Risk Factors

Maternal medical conditions associated with increased risk of preterm delivery included placenta previa, placenta abruption, and preterm premature rupture of membranes, all of which are in concordance with other reported studies in the region and globally. Approximately one in ten women in this cohort was infected with HIV and was in treatment to prevent maternal to child transmission (Joseph et al, 2011).

Other study showed pre-eclampsia, preterm prelabour rupture of membranes, hydramnios or oligohydramnios ،antepartum haemmorrhage and genitourinary infections were significantly associated with increased risk of preterm births (Mahajan and Magon, 2017).

In other studies conducted in Finland , Italy, Brazil, Ireland, and Taiwan risk factors such as prim parity, anemia, congenital anomalies, hypertension, fetal growth restriction, infection, spontaneous rupture of membranes, multiple pregnancy, antepartum hemorrhage, and malnutrition were associated with the preterm birth (Di Renzo et al, 2011 and Raisanen et al, 2013). The researcher suggested many risk factors which may include :

Infection

Infection one of the most maternal risk factor of preterm delivery. Infections and vaginosis are well-known risk factors for preterm birth. In a study, presence of bacterial vaginosis at 28 weeks gestation was associated with an increased risk of spontaneous preterm birth. Nevertheless, these factors were not associated with preterm birth in our study. Antibiotic therapy could either eliminate infections or modify their effects on pregnancy outcome

(Safari & Hamrah, 2017). A number of recent studies have examined the relationship between maternal infection during pregnancy and preterm birth. A retrospective population based study was performed to determine the association between urinary tract infections (UTI) during pregnancy and preterm outcome, the study reported that maternal UTI during pregnancy had significantly higher rates of preterm deliveries (Aagaard et al, 2014).

Another study of determinants of preterm labour, 315 preterm babies in India found that previous history of preterm delivery and recurrent maternal UTI were significantly associated with preterm birth (Shubhada et al, 2013). Persisting or recurrent intrauterine infection during several pregnancies along with the disorders associated with preterm birth (e.g. gestational diabetes, hypertension, and obesity) that tend to last from one pregnancy to the next, might explain many repetitive spontaneous and induced preterm births (Goldenberg et al, 2008).

Hypertension

Other important risk factors were hypertension and pre-eclampsia that increased the risk of preterm birth. Hypertension increases resistance of uterine vessels and reduce uteroplacental fluid, which in turn causes intrauterine growth restriction. Moreover, the high rate of disorders like placenta abruption and pre-eclampsia and intrauterine growth restriction among women with hypertension may results in surgical operations and preterm birth (Cunningham et al, 2010). Although the difference was not statistically significant; Di Renzo et al, (2011) reported the likelihood of preterm birth to be 2.6 times greater among women with chronic hypertension (Di Renzo et al, 2011). Various factors including fetal abnormalities, hypertension, pre-eclampsia, blood transfusion between twins, and chronic leakage of ammonite in ruptured areas of the membrane may lead to Oligohydramnios. Some reports have estimated the likelihood of preterm birth to be 3-10 times higher in women with Oligohydramnios (Cunningham et al, 2010).

In several studies maternal hypertension has been shown to be significantly associated with Preterm birth outcomes. In the current study, we observed a similar trend in which maternal hypertension was significantly associated with all categories of preterm delivery. A study looking at the biological determinant of late preterm birth found that placental ischemia as a result of hypertensive diseases in pregnancy increased the odds of late preterm delivery (Brown et al, 2014). In a study in Iran, about epidemiology and related

risk factors of preterm labor as an obstetrics emergency, results showed that history of chronic hypertension was seen in 59.4% of mothers with preterm labor and 40.6% in mothers with term labor (Safari and Hamrah, 2017).

Inadequate Antenatal Care

Antenatal care is an important service providing by the health care system aiming to deliver a healthy neonate without endangering the mother health (Ganjoei et al, 2011). As well as WHO (2013) recommended that a minimum of four antenatal visits should be provided for a woman with normal pregnancy (WHO, 2013). In a study included 164 preterm babies admitted in NICU found that (52%) of mothers had inadequate antenatal care (<3visits), and multiple pregnancies accounted for (13%) each (Shrestha et al, 2010).

Another supported study concluded by Beeckman et al, (2013) illustrated that the numbers and the content of antenatal care visits can play an important role in the prevention of preterm birth (Beeckman et al, 2012). Mahajan and Magon, (2017) illustrated that the preterm birth group, (59%) patients had no antenatal visit as compared to only (15%) patients in the control group, so the incidence of preterm births is significantly more in patients not having any antenatal care (Mahajan and Magon, 2017). In another study showed that 95.4 percent of women in Kenya receive antenatal care from a medical professional, either from nurses and midwives (64.3%) or doctors (31.1%) (Kenya National Bureau of Statistics, 2015).

Proper antenatal care during pregnancy is very important to provide adequate advice and support to the woman and her family for developing healthy home behaviors and a birth and emergency preparedness plan to increase awareness of maternal and newborn health needs and self care during pregnancy, and the postnatal period, including the need for social support during and after pregnancy besides these preparing for early and exclusive breastfeeding and essential newborn care and considering the role of a supportive companion at birth (Konar, 2014).

Preterm Rupture of Membrane

In prospective study was undertaken in China aimed to investigate the prevalence of premature rupture of membranes (PROM) in urban areas in China and examine the associated risk factors. The main results founded that 2.7% had PROM. Univariate analysis showed an increased risk of PROM before 28weeks of pregnancy in migrant

women, in those with a history of preterm birth. Preterm birth is potential risk factors for PROM in Chinese women (Zhou et al, 2014).

Another study found that (61%) of cases were associated with preterm rupture of membrane (PROM), 30% had previous preterm birth, (31%) had previous pregnancy loss, 36% had APH and 4% had a history of burning micturition (Irshad et al, 2012). In another study showed that 3.9. preterm rupture of membrane is the most common cause of Oligohydramnios. Some reports have estimated the likelihood of preterm birth to be 3-10 times higher in women with Oligohydramnios (Cunningham et al, 2010).

Mahmoodi, et al, (2010) clarified the association between maternal factors and preterm birth and premature rapture of membranes, the study showed that preterm rupture of membrane has been reported to be related significantly to preterm birth (Mahmoodi, et al, 2010). In other study showed that premature rupture of membranes was the commonest cause of spontaneous preterm labour. Premature rupture of membranes is the commonest cause of preterm labour accounting for 25.6% cases and is an important preventable risk factor for preterm birth (Mahajan and Magon, 2017).

Antepartum Hemorrhage

Antepartum hemorrhage (APH) occurring after the first trimester not attributable to placenta praevia or placental abruption. In retrospective comparative cohort study used individual case records in a National Health Service hospital in the UK suggested that in cases of antepartum hemorrhage, preterm delivery (<37 weeks) is attributed to spontaneous preterm labour (15.4% in APH versus 5.9% in controls) (Jana et al, 2014).

Antepartum hemorrhage is the one of the risk of preterm delivery. A study was concluded by Kildea (2017) to examine the risk factors for preterm birth in Northern Australia indicated that were teenage motherhood, previous preterm birth, inadequate antenatal visits, having pregnancy-induced hypertension, antepartum hemorrhage or placental complications association with preterm birth (Kildea, 2017).

Another study, results showed that intrauterine growth retardation (IUGR), fetal distress and antepartum hemorrhage were the most frequent indications which prompted an intervention at preterm gestational age (Mahajan and Magon, 2017). In a study about the risk of preterm delivery prior to 34 weeks in women presenting with antepartum haemorrhag, results founded that two or more episodes of antepartum haemorrhag and a

history of spontaneous preterm deliveries were significant risk factors for preterm birth prior to 34 weeks in a multivariate logistic regression (Yeung et al, 2012).

Previous Preterm Birth

Experience of previous preterm birth was identified as the most significant risk factor for preterm birth. This study found that women with previous preterm delivery were at increased risk for their next pregnancy. The recurrence risk in women with a previous preterm delivery ranges from 15% to more than 50% depending on the number and gestational age of previous deliveries. The mechanism for this has not been well understood, it can occur in women with prior spontaneous labor as well as those with inducing preterm birth (Khalajinia and Jandaghi, 2012).

Another study showed that history of preterm birth and hypertension were identified as the most important risk factors for preterm birth. Identifying pregnant women at the risk of preterm delivery and proving quality healthcare may decrease the rate of preterm birth and its consequences (Soundarajan et al, 2016). A population-based study in France was aimed to investigate whether risk factors for preterm (<37 weeks gestation) and early-term birth (37 and 38 weeks gestation), the main results founded that common risk factors were a previous preterm delivery that was associated with greater risk of preterm birth (Delnord et al, 2018).

2.5.3 Fetal Factors

Multiple fetal characteristics are associated with spontaneous preterm births, such as fetal distress, birth defects, race and ethnicity. Although many of these variables are not modifiable, knowledge of these risk factors is important for targeting interventions to those at highest risk. The main of fetal factors of preterm birth:

Fetal Gender

Fetal gender has been associated with preterm birth. It has been long noticed that female fetuses have a better perinatal survival than male fetuses. Male fetuses are at an increased risk of being born preterm when compared to female fetuses in both singleton and twin pregnancies and generally males have poorer perinatal outcomes. In the another study, there was no association between infant sex and premature delivery while Ezechi

et al (2012) in Nigeria found that female babies accounted for 55% of preterm births (Ezechi et al, 2012 and Sebayang et al, 2012).

Gender differences in several adverse pregnancy outcomes have been described, including preterm labour and delivery. In the low risk population, the male fetus is at significantly higher risk of spontaneous preterm birth. In a study about gender and preterm birth the main results showed that 14.5 % of women delivered before 37 weeks. Pregnant women were stratified by fetal gender and were comparable for referral risk factors and demographic characteristics. There was no significant association between fetal gender and incidence of preterm births 24 to 37 weeks. There was no gender difference for preeclampsia or premature rupture of membranes (PROM). This is contradictory to low-risk populations and confirms that gender need not be integrated into high-risk management protocols for preterm birth (Teoh et al, 2018).

Fetal Distress

In a study founded that fetal distress and antepartum hemorrhage were the most frequent indications which prompted an intervention at preterm gestational age. Respiratory distress syndrome and Birth asphyxia significantly associated with preterm birth, the risk of RDS and asphyxia was higher in women with preterm because fetal lung maturation is completed late in gestation, respiratory morbidities are a frequent concern for late and moderate preterm neonates (Soundarajan et al, 2016).

In a comprehensive review, Colin et al. (2010) found that infants born 32- 36 weeks gestation had a greater risk of respiratory morbidities compared with term infants. Rates of infant deaths due to respiratory distress syndrome have been found to increase with each week of decreasing gestational age before 37 weeks (0.06 infant deaths per 1000 live births at 36 weeks, 0.11 at 35 weeks, 0.26 at 34 weeks, 0.44 at 33 weeks, and 3.09 at 28-32 weeks) (Colin et al, 2010).

Congenital Malformations

Congenital anomalies are also known as birth defects, congenital disorders or congenital malformations. Congenital anomalies can be defined as structural or functional anomalies (for example, metabolic disorders) that occur during intrauterine life and can be identified prenatally, at birth, or sometimes may only be detected later in infancy, such as hearing defects (WHO, 2016).

In a study about the extents to which congenital anomalies affect risk of preterm birth, the main results showed that the overall risk of preterm birth was higher in newborns with congenital anomalies, as compared to newborns without congenital anomalies. Preterm birth risk was elevated in all organ systems, but especially among newborns with congenital anomalies of the central nervous system or the respiratory system, and among newborns with chromosomal or syndromal anomalies congenital malformations are associated with increased preterm birth rates (Mohangoo et al, 2011). Another study showed that congenital malformation, intrauterine growth restriction, pre-eclampsia, placenta previa, bleeding and cervical conization were all associated with Cerebral palsy. Cerebral palsy was highest with chorioamnionitis main absolute risk to preterm birth (Before 32 weeks' gestation) (Trønnes et al, 2014).

2.6 Prevention of Preterm

Given the lack of effective risk stratification of pregnant women for preterm birth, it is unsurprising to find that treatment options to prevent preterm birth are similarly scarce (Sharp and Alfirevic, 2014). However, there are therapies that have been validated after multiple trials that do prevent preterm birth. Some have been covered in this Section such as:

2.6.1 Progesterone Replacement

The therapy with the most evidence for preventing preterm birth and the one most generally employed is progesterone replacement therapy. It has been tested in many different formulations (90-200 mg per day or 341 mg every 4 days) and administrations (vaginal gel, oral capsules, vaginal pessaries and intramuscular injections) but most have shown a consistent benefit. Treatment typically begins in early to middle second trimester (16-20 weeks) and lasts through the 36th week of gestation. Previous preterm birth is not the only indication of progesterone therapy. Women with a short cervix measured in the second trimester are also eligible to receive progesterone and it appears to have similar effectiveness in reducing preterm birth (Romero et al, 2012). Treating women with other indications for threatened preterm birth has not led to the same reductions. A re-analysis of past trial data suggests that progesterone

supplementation does not benefit women who have had concurrent cerclage placement (Berghella and Mackeen, 2011).

Also, women with PROM do not appear to have their pregnancies extended by administration of progesterone therapy (Briery et al, 2011). There is little consensus on the best dose, route and formulation of progesterone for preventing recurrent preterm birth. However, it remains the most useful therapy for preventing preterm birth in high-risk women. Finding the correct population in which to administer the therapy and what the long term consequences are for mothers and infants deserve further attention (Alleman, 2014).

2.6.2 Tocolysis

Tocolytics are currently used for women in preterm labor. These treatments are capable of inhibiting active labor, but will not typically extend a pregnancy for weeks or months. In addition, tocolytic treatments do nothing to inhibit or reverse the underlying cause of labor and cannot correct the uterine and cervical changes undergone. Currently this field of study lacks any truly cohesive guidelines for dealing with preterm labor. For most women, the calcium channel blocker nifedipine is the first line therapy for tocolytic agents. It is administered orally, has limited side-effects and can be given at any time during pregnancy (Hubinont and Debiève, 2011).

Second-line therapy includes beta-adrenergic receptor agonists (de Heus et al, 2010). Other potential therapies such as magnesium sulfate and oxytocin receptor antagonists should be avoided due to a possibility of harm to the fetus (Han et al, 2010).

2.6.3 Cerclage

Cerclage is a suture or other material placed in or on the cervix with the purpose of providing reinforcement to the cervix during pregnancy. The procedure can be performed both transvaginally or transabdominally with the transvaginal procedure being the more common approach. Cervical cerclage is another viable option for preventing PTB in women who are at sufficiently high risk. More research into its interaction with progesterone therapy is necessary (Alleman, 2014).

A cerclage placed during the second trimester of pregnancy has been shown to reduce PTB in a correctly chosen at-risk population. In women with singleton pregnancies who have had a previous PTB and had a cervix measured at <25 mm a cerclage placed during the second trimester will reduce the risk of PTB between 30-40% before 35 weeks. All other PTB endpoints (28, 32, 37 weeks) have shown similar reductions as well. Apart from preventing PTB, cerclage placement in this group of women may reduce perinatal morbidity and mortality by one third. Conversely, those with a past history of PTB but without a short cervix do not require placement of a cerclage (Berghella and Mackeen, 2011).

2.7 Medication to Improve Preterm Neonates

Corticosteroids

A single course of antenatal corticosteroid therapy is recommended for pregnant women at risk of preterm birth between 24 and 33 weeks' gestational age. However, 50% of women remain pregnant 7 to 14 days later, leading to the question of whether additional courses should be given to women remaining at risk for preterm birth (Asztalos et al, 2013).

Antenatal administration of corticosteroids to the mother reduces neonatal morbidity and mortality from respiratory distress, intraventricular hemorrhage, and patent ductus arteriosus. Glucocorticoids act generally in the developing foetus to promote maturation over growth. In the lung, corticosteroids promote surfactant synthesis, increase lung compliance, reduce vascular permeability, and generate a greater response to postnatal surfactant treatment. Randomised, placebo-controlled trials and meta-analyses confirm the beneficial effects of antenatal corticosteroids, including reduced occurrence of respiratory distress syndrome, intraventricular haemorrhage, neonatal death, necrotising enterocolitis, patent ductus arteriosus, and bronchopulmonary dysplasia (Sættem, 2015).

Antibiotic Treatment

Antibiotic treatment of all women with threatened preterm labour to prevent neonatal infection with group B streptococcus is recommended because preterm infants have an increased risk of this infection. Rates of neonatal group B

streptococcus infection and corresponding mortality rates have declined since this strategy was adopted in the USA (Iams et al, 2008).

If the preterm birth is due to PROM the mother should receive prophylactic antibiotic treatment. The benefit of antibiotic treatment was established mainly by two clinical trials in which prophylaxis with ampicillin plus erythromycin and erythromycin or amoxicillin/clavulanic acid was associated with prolongation of pregnancy, a reduced rate of maternal chorioamnionitis, and a reduced frequency of neonatal morbidity, measured as composite neonatal outcome (Sættem, 2015).

Magnesium Sulphate

Magnesium Sulphate is recommended for pregnancies at 24 to 32 weeks of gestation, for women with PROM or preterm labour who have a high likelihood of imminent delivery (i.e. within 24 hours), or before an indicated preterm delivery. In utero exposure to magnesium sulphate provides neuroprotection against cerebral palsy and other types of severe motor dysfunction in offspring born preterm (Sættem, 2015).

2.8 Complications of Preterm

There is little doubt that gestational age exerts the greatest influence on outcomes of preterm births. In a prematurely born infant, most organs are immature. The lungs are especially susceptible to the consequences of preterm birth. Compared with infants born at term, preterm infants have higher rates of temperature instability, respiratory distress, apnea, hypoglycemia, seizures, jaundice, kernicterus, feeding difficulties, periventricular leucomalacia, and rehospitalisations. About a quarter of survivors have substantial neurological morbidity, examples of such as sensory impairments (visual and auditory deficits) (Saigal et al, 2008). Following are a list of specific complications of preterm neonates face:

Neonatal Sepsis

Preterm infant have a higher risk of bacterial sepsis. However basic hygienic practices such as hand washing and maintaining a dirty free environment are well known but poorly done (Lawn et al., 2013). Neonatal sepsis remains one of the leading causes of morbidity and mortality both among term and preterm infants (Camacho-

Gonzalez et al, 2013). Although advances in neonatal care have improved survival and reduced complications in preterm infants, sepsis still contributes significantly to mortality and morbidity among very-low-birth-weight (VLBW, <1500 g) infants in NICU (Hornik et al, 2012).

The signs and symptoms of neonatal sepsis are nonspecific. These include fever or hypothermia, respiratory distress including cyanosis and apnea, feeding difficulties, lethargy or irritability, hypotonia, seizures, bulging fontanel, poor perfusion, bleeding problems, unexplained jaundice, or more importantly, "just not looking right". Infants with hypoxia–acidosis may gasp in utero and lead to pneumonia and meconium aspiration (Shah and Padbury, 2014).

Respiratory Distress Syndrome (RDS)

Respiratory distress syndrome (RDS) remains a significant cause of morbidity and mortality in preterm infants, affecting approximately 70% of all infants born <33 weeks' gestational age (Canadian Neonatal Network, 2012). The most common lung problem in a preterm neonates is RDS. This was previously known as hyaline membrane disease. A baby develops RDS when the lungs do not produce sufficient amounts of surfactant. This is a substance that keeps the tiny air sacs in the lung open. As a result, a preterm neonate often has difficulty expanding her lungs, taking in oxygen, and getting rid of carbon dioxide. On a chest X-ray, the lungs of a baby with RDS look like ground glass. RDS is common in preterm neonates. That's because the lungs do not usually begin producing surfactant until about the 30th week of pregnancy (Jackson, 2018).

As RDS is generally due to lung immaturity, the best intervention would be to prevent preterm birth. However, if preterm birth cannot be avoided, RDS may be prevented or its severity decreased with the use of antenatal steroid therapy, early administration of positive airway pressure and, in some cases, exogenous surfactant therapy (Sakonidou and Dhaliwal, 2015).

Pneumothorax

Another complication is a pneumothorax, which usually occurs in the first 2–3 days of a preterm neonate's life, and at this age, the heart is remarkably easy to see with echocardiography, because the parasternal echocardiographic window is large. This is a

feature of all newborns, but is even more evident in the preterm, partly due to the lungs typically being rather under-inflated with premature and hyaline membrane lung disease in the first 2–3 days. Mechanical ventilation and inspired a fraction of oxygen higher than 40%, needed to provide adequate oxygenation in the first 12 hours of life in preterm neonates, could be a predictive factor in selecting the highest risk babies for development of neonatal pneumothorax (Skinner, 2016).

Hypothermia

Hypothermia is associated with increased morbidity and mortality rates. Preterm neonates frequently have hypothermia when they are admitted to the NICU, but there is no data on the occurrence of hypothermia during the first hours after admission. The large body surface area in relation to weight and the relative lack of subcutaneous fat make preterm neonates at risk for hypothermia (body temperature below 36.5°C), especially in the first few hours after birth. Hypothermia occurred often and for a long period in preterm neonates in the first three hours of life, low gestational age and admission temperature were independent complications (Mank et al, 2016).

Hypothermia continues to be a major problem for preterm neonates, necessitating special care at birth and throughout the neonatal NICU hospitalization. An infant loses heat through its skin and respiratory tract to the environment through radiation, conduction, convection, and evaporation. Fat under the skin acts as an insulator to prevent heat loss; however, the more prematurely an infant is born, the less fat insulation there will be. It is important to understand the mechanisms of heat loss so that interventions can be aimed to block the transfer of heat from the infant to the environment (Knobel, 2014).

Retinopathy of Prematurity

Retinopathy of prematurity (ROP) is a vasoproliferative disorder of the retina occurring principally in preterm neonates, it is an avoidable cause of childhood blindness; a simple screening test done within a few weeks after birth by an ophthalmologist can avoid this preventable blindness (Shah et al, 2016).

ROP due to abnormal proliferation of the blood vessels around the retina of the eye, which is more severe if the baby is given too high levels of oxygen (Sættem, 2015). It is a disorder of retinal vascular development in preterm neonates. It continues to be a significant complication in preterm neonates despite advances in neonatal care and remains a major cause of childhood blindness worldwide (Hakeem, 2012).

2.9 Mothers Knowledge and Attitudes on Preterm Care

Thermoregulation

Newborn regulates temperature less efficiently than adult and loses heat more easily; low birth weight and preterm neonate are at greater risk. Hyperthermia is auxiliary temperature above 37.5ºC and hypothermia below 36.5ºC (WHO, 2013). Mothers as close care givers of neonates are supposed to be knowledgeable about thermoregulation of their neonates, bathing after six hours of life and preferably on the second or third day of life, skin to skin contact, breastfeeding, bathing and measuring weight postponed, appropriate clothing, warm transportation, training and awareness raising. All those techniques must be maintained by mothers at home. It is essential to continue to focus on thermal stability and eliminate hypothermia in the low birth weight population (Akimana, 2014). According to study in 2013, the simple methods to maintain the temperature of the baby after birth include the following procedures: increasing environmental temperature, delaying the first bath ,skin to skin contact with the mother and covering both with a blanket. Kangaroo mother care has demonstrated the effect on mortality for infant less than 2kg (Lawn et al, 2013).

Neonatal hypothermia is a major condition of public health importance in countries of sub-Saharan Africa. Awareness of the burden of the diseases is still low in some communities. Risk factors for neonatal hypothermia in the region include poverty, home delivery, low birth weight, early bathing of babies, delayed initiation of breastfeeding and inadequate knowledge among health workers. Low-tech facilities to prevent heat losses and provide warmth are available in sub-Saharan Africa and are thus recommended as well as continuous efforts at sensitizing caregivers on the thermal needs of preterm neonates (Onalo, 2013).

A study done in Zambia on prevention and management of neonatal hypothermia shows that Mothers, grandmothers and health workers all believe that the baby should be kept warm to imitate the conditions and thermal environment in utero. Respondents said that newborns used to be bathed immediately after birth, but this is now usually late until the day after delivery. Education has helped to propagate delayed bathing as a thermo protective measure, drying and wrapping are part of newborn routine care. Both caretakers and health workers emphasize the importance of keeping babies warm

with this simple measure. Respondents did not mention breastfeeding in the context of neonatal hypothermia. However, in consideration of the strain a delivery puts on a mother, breastfeeding is not consistently immediately after birth (Lunze et al, 2014). Another study conducted by Karsten et al, (2012) on prevention and management of neonatal hypothermia showed that mothers and grandmothers believe that the baby should kept warm to imitate the conditions and thermal environment in utero (Karsten et al, 2012).

Breastfeeding

Breastfeeding is a normal way of giving to infants the nutrients they need for healthy growth and development. The breast milk is the best for neonates. Exclusive breast milk is recommended until to 6 months of age and continues with complementary foods up to two years of age or beyond (WHO, 2014). Early initiation of breastfeeding within one hour after birth has been discovered to decrease neonatal mortality. Lack of exclusive breast feeding significantly increases the risk of poor newborn and childhood outcome. Preterm infant benefit from breast milk nutritionally, immunologically and developmentally. The short term and long term benefits compared with formula feeding are well established with lower incidence of infection and necrotizing enter colitis and better neuro-developmental outcome. Routine supplementation of human milk given to preterm infant is not presently recommended by WHO (Lawn et al., 2013).

The American Academy of pediatrics says breastfeeding also plays a role in the prevention of SIDs (sudden infant death syndrome). It's been supposed to lower the risk of diabetes, obesity and certain cancers as well and for mothers breastfeeding scalds extra calories, so it can aid to lose pregnancy weight faster. It releases the hormone, the oxytocin which helps uterus reappearance to its pre-pregnancy size and may reduce uterine bleeding after birth. When maternal breast milk is not obtainable in adequate quantity for reasons such as baby being at risk of getting diseases and infections from a mother with certain diseases or for the sick ،hospitalized newborn, pasteurized human donor breast milk should be recommended as a bridge to satisfy the needs of these infants and compensate for the inadequate supply of their mothers (Akimana, 2017).

In a study about knowledge of healthcare providers regarding breastfeeding preterm neonates in mainland China, main results showed that the knowledge about breastfeeding in the preterm neonate population among NICU healthcare professionals in mainland

China was limited. More targeted training is needed to improve NICU healthcare provider knowledge regarding breastfeeding preterm neonates (Yang et al, 2018). In other study aimed to assess the maternal knowledge on selected components of essential newborn care: breastfeeding showed that more than 90% of mothers knew about breastfeeding, exclusive breastfeeding for 6 months and that colostrum should be given to their newborns (Amolo et al, 2017).

An assessment of the breastfeeding practices and infant feeding pattern among mothers in Mauritius founded that many mothers understand the importance of breastfeeding, others are less knowledgeable on the benefits of breastfeeding and weaning 500 mothers were interviewed using a questionnaire which was designed to elicit information on infant feeding practices. The prevalence of breastfeeding practices in Mauritius has risen from 72% in 1991 to 93.4% as found in this study, while only 17.9 % breastfed their children exclusively for the first 6 months and the mean duration of EBF (exclusive breastfeeding) is 2 years and 10 months. Complementary feeding was more commonly initiated around 4-6 months (75.2%) (Motee et al, 2013).

A study done in teaching hospital on knowledge, attitude and practice of exclusive breastfeeding shows that there is a positive attitude of mothers toward exclusive breastfeeding as 69.6% of them agreed that breast milk alone is sufficient to the baby during the six months of life as well as they believed that exclusive breastfeeding has benefits to both the infants and the mother (Aliyu et al, 2013). Another descriptive cross-sectional study aimed to assess infants' characteristics and their impact on Jordanian mothers' attitudes toward breastfeeding, who found more positive attitude toward breastfeeding was manifest (mean 63.5%). Positive attitudes toward breastfeeding were higher among women who delivered normally than women who delivered by cesarean section. In addition, women who had healthy infants were more likely to have positive attitudes toward breastfeeding compared to women with ill infants. However, women with preterm deliveries were less likely to have positive attitudes compared to women with full-term deliveries. Likewise, women whose infants admitted to neonatal intensive care unit recorded less positive attitudes toward breastfeeding than women with healthy neonates (Shosha, 2015).

Other cross sectional study aimed to assess mothers' knowledge on newborn care as well as factors associated with poor knowledge. The main results shows that more than 90% of mothers knew about breastfeeding on demand, the advantages of colostrum and the

duration of exclusive breastfeeding (Upul Senarath et al, 2007). Another study conducted in India was aimed to assess knowledge and attitude of postnatal mothers towards neonatal care, who found that seventeen percent mothers initiated breast feeding within one hour of delivery, 15% after two days while 33% did not give colostrum to the baby. Thirty seven percent women gave no pre lacteal feeds (Chaudhari and Virmani, 2016).

Recognition of Danger Signs

Early detection of neonatal illness is an important step towards improving newborn survival. There is a need for the mothers to be able to identify signs in neonates that signify severe illnesses. In a cross-sectional study was aimed to assess knowledge about neonatal danger signs and its associated factors among postnatal mothers attending in Ethiopian. The results showed that information on different neonatal danger signs was not provided to 46.7% postnatal mothers during their antenatal clinic attendance by the healthcare providers. The majority of mothers, 88.3% identified less than six neonatal danger signs. Maternal knowledge level about neonatal danger signs was very low (Jemberia et al, 2018). The important step towards improving newborn survival is early detection of neonatal illness. Every year about 3.07 million die during their first month of life and about one third of these deaths occur during the first 24 hours. Majority of these deaths occur at home indicating that few families recognize danger signs of newborn illness, and majority of the preterm neonates are not taken to the health care facilities when they are sick. Ninety eight percent of all neonatal deaths occur in low and middle –income. Poor knowledge of newborn danger signs delays care seeking (UNICEF, 2015). WHO focuses on assessment of general danger signs of severe illness which includes convulsions،difficulty in breathing, and difficulty in feeding, hypothermia, fever and jaundice on day one of life (WHO, 2014).

In Cameroon, a cross sectional study conducted on three hundred and forty seven mothers revealed that mothers were not knowledgeable on danger signs and they had poor practice on breastfeeding. This was argued by Sandberg et al (2014) in Uganda on knowledge of neonatal danger signs among recently delivered women in Southwestern Rural Uganda which showed poor knowledge of key newborn danger signs: 58.2% could identify one and 14.8% could identify two. Poor knowledge associated with delay in care seeking (Monebenimp et al, 2013 and Sandberg et al, 2014).

Awareness and knowledge of parents about problems of their preterm neonate are related to their age and being a mother or father. Parents have little knowledge about some

NICU principles and preterm neonates needs and care. Mothers have higher awareness and knowledge than fathers. The most awareness in parents are doing hygienic principle (Khalesi et al, 2015).

Immunization

According to WHO, immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against infection. It is the most effective public health intervention that reduces morbidity and mortality from vaccine preventable diseases (WHO, 2017). The Expanded Program of Immunization was established by WHO in 1974 to ensure universal access to the routine recommended childhood vaccine include BCG, Polio, DTP, measles vaccine preventable against tuberculosis, poliomyelitis, diphtheria, tetanus, pertussis and measles (Drain, 2012). Preterm neonates are at increased risk of infections, there is a need for timely vaccination of preterm neonates, using the same schedules as recommended for term infants (WHO, 2013). Vaccination is often delayed in preterm neonates, lack of knowledge about safety and effectiveness of vaccines in preterm neonates among healthcare workers and parents may explain this delay. Fear or adverse events could also explain this delay, as an increase in cardio respiratory events following immunization in very preterm. The information given to parents during hospitalization of preterm neonates is an important stage in the understanding of the vaccination process for their children (Gagneur et al, 2015).

Another study conducted in Saudi Arabia in 2013 on parents' knowledge and attitudes on childhood immunization founded that parents have good knowledge on aspects related to the general role of vaccination in prevention of infectious diseases 91.9%, timing of the first dose in vaccination Schedule 86.9% poor knowledge was documented among parents in other aspects like the importance of administration of multiple doses of the same vaccine immunity and administration of multiple vaccines at the same time have no negative impacts on child immunity (Yousif et al, 2013).

A prospective cohort study was conducted in the new born unit of kenyatta national Hospital. The objective of the study was to assess knowledge and practices recommended for care of preterm and low birth weight infants while in hospital and after discharge, knowledge on vaccines prevent diseases in your baby 63%. Knowledge on

thermoregulation was insufficient with 52.9% of the mothers reporting that they had not been counselled on kangaroo mother care and 54.1% on ensuring their infant was in warm room (Ontita et al, 2016). Also another study conducted by Meseka et al, (2017) who found that knowledge among mothers of the need for vaccine at birth and its benefits was high (91.7%), which is pushed aggressively through the expanded programme on immunization in the country (Meseka et al, 2017) .

Umbilical Cord

The cord stump is a potential source of infection if not adequately cared for. The findings show 99% of mothers agreed a dirty cord could cause infection and that a previously used razor blade should not be used to cut the cord. Only 26.1% of those interviewed agreed with WHO recommendation of cleaning a soiled umbilical stump with water and only 4 mothers agreed that the umbilical cord should be left clean and dry without applying any substances. Majority of mothers (67.2%) thought that surgical spirit was appropriate for cleaning the soiled cord. A study done in Sri Lanka showed similar findings with majority of mothers (76.2%) also of the opinion that surgical spirit was best used to clean the soiled cord (Senarath et al, 2006). Variation in opinions among postnatal mothers is due to a lack of consensus among healthcare providers on the best practice for cord care. A Cochrane meta-analysis showed that there was no significant advantage of use of antibiotics and antiseptics over keeping the cord clean and dry in high income setting (Amolo et al, 2017).

In other study showed that 74% had applied some substance to the cord stump. These included coconut oil, mustard oil, ghee (purified butter), olive oil, turmeric and machine oil. In this study, poor practices were found regarding cord care. The reason for applying various substances to the cord stump was the belief that they help dry the cord (Gul et al, 2014). Another study aimed to learn about household maternal and newborn health knowledge and practices to aid the design of newborn programming within save the children's haripur program have also reported poor cord care practices. Unhygienic cord care, including an unclean cut and application of ghee on the cord-stump, was the normal (Khadduri et al, 2008).

Infection Prevention

preterm birth are at higher risk than term infants to develop infections due to their more immature immune system. In retrospectively study aimed to evaluate treated infection rates and risk factors for infection in moderate and late preterm neonates. The main results showed that late and moderate preterm neonates have an increased significant risk of infection compared to term infants. Infections, given the high frequency of negative cultures in neonates, should be often suspected and treated on the basis of clinical features and inflammatory markers, trying always to avoid a possible overtreatment (Picone et al, 2014). Preterm neonate have a higher risk of bacterial sepsis. However basic hygienic practices such as hand washing and maintaining a dirty free environment are well known but poorly done (Lawn et al., 2013). Hand washing is the most significant procedure that must be encouraged in caring for preterm neonate. In addition the best method to improve the weight of preterm newborn (Sweet et al, 2013).

Clean birth practices reduce maternal and neonatal mortality and morbidity from infection-related causes, including tetanus (Blencowe et al., 2013). Premature babies have a higher risk of bacterial sepsis. Hand cleansing is especially critical in neonatal care units. However basic hygienic practices such as hand washing and maintaining a clean environment are well known but poorly done. Unnecessary separation from the mother or sharing of incubators should be avoided as these practices increase spread of infections. For the poorest families giving birth at home, the use of clean birth kits and improved practices have been shown to reduce mortality (Seward et al., 2012). Another study conducted by Srinivasa et al, (2018) of knowledge, attitude and practice of mothers in infantile skin care, who founded that only 36.3% practice correct hand washing attitude before handling (Srinivasa et al, 2018).

Jaundice

The neonatal (newborn) period define as the time of birth up to 28^{th} day of life. It is the most critical time for the survival of an infant. Approximately 60% of term and 80% of preterm neonates during the first week suffered from most common and important conditions needing medical attention in neonates called jaundice, or icterus, and about 10% of breastfed babies are still jaundiced at 1 month (Hussein & Aziz, 2016).

Neonatal jaundice (NNJ), a preventable cause of brain damage, is the most common cause of admission in the 1st week of life in neonatal intensive care unit. In a study aim to

determine the knowledge, attitude and practices of postnatal mothers toward NNJ in tertiary care hospital, the findings showed that 73% of the mothers knew the site of recognition in NNJ. However, inadequate knowledge regarding causes, danger signs of severity, complications and treatment were seen among respondents. At least one correct answer for cause, danger sign and complication of NNJ was reported by 28%, 54%, and 33% mothers, respectively. Only 8% mothers attributed it as a risk factor for death in the baby. Phototherapy and exchange transfusion as treatment modality was answered by 15% mothers only. Their knowledge score was significantly associated with parity, education level, residence, religion and previously affected babies but not with age. Regarding attitude, 20% mothers were willing to take the baby to the hospital within 24 hrs. on recognition of jaundice, and almost 91% of those seeking medical advice were ready to follow it (Aggarwal et al, 2017).

Furthermore, 14% mothers were clueless about the possibility of neonate developing jaundice. A study about newborn care by Punitha and Kumaravel, (2016) in Tamil Nadu described adequate knowledge in almost 75% mothers regarding NNJ, but details were not described. Respondent's knowledge about causes of NNJ, recognition of danger signs of the severity of NNJ and complication was unexpectedly poor putting the babies at risk for developing immediate as well as long-term complications if the baby were to develop NNJ at home (Punitha and Kumaravel, 2016).

In a study about Assessment of mothers' knowledge and beliefs toward care of neonatal jaundice in Pediatric Teaching Hospital. The findings revealed that knowledge of mothers related to neonatal jaundice were low (34%), while that beliefs of mothers related to neonatal jaundice were high (78%). Also revealed that there is a significant relationship between mothers 'knowledge and their demographic characteristics (age, level of education and socioeconomic status, neonate's age, neonate's ordinal position family and baby affected in one family). There is a high significant relationship between mothers knowledge and their beliefs (Hussein and Aziz, 2016). Another study conducted by Rodrigo and Cooray, (2011) who found that maternal attitude towards neonatal jaundice is satisfactory, mean attitude and the behavior score of this study was 65.7 and 66.1 respectively. There was significant correlation between their attitude and behavior scores (Rodrigo and Cooray, 2011).

2.10 Factors Affecting on Knowledge and Attitudes of Mothers

2.10.1 Socio- Demographic Characteristic

The term "socio-demographic" refers to a group defined by its sociological and demographic characteristics. It looks at the life around individuals and characteristics such as age, gender, race, religion, income, marital status, birth rate, death rate, average size of family, heritage, education, and medical history (Stone, 2016). The researcher suggested many risk factors which may include:

Maternal Age

Maternal age is one of the socio-demographic factors affect knowledge and attitude to preterm caring post discharge from NICU. In the study about mothers awareness and attitudes on the care of their preterm neonate at discharge from NICU in Rwanda. The socio-demographic characteristics of participants are presented, the majorly 51.2% of respondents have high level of knowledge were between 20-30 of age, 38% of represents have mild knowledge were between 31-40 of age and 4.2% of represents have poor level of knowledge were under 20 years. This showed that maternal age from 20-30% have high level of knowledge about care babies post discharge from NICU (Akimana, 2017).

A cross-sectional study was conducted on 200 mothers in Iran on knowledge of mothers about post-discharge newborn care showed that significant direct correlation was found between the age of mothers and their knowledge scores regarding newborn care (Adib-Hajbaghery and Khosrojerdi, 2017). However, the higher knowledge of older mothers might to some extent be attributed to their previous experience or knowledge gained through various sources such as relatives and media. Some of the earlier studies have also reported that mothers' awareness regarding newborn care is improved by getting older (Esmaeeli, 2013).

Maternal Occupation

The potential relationship between maternal occupation and mother knowledge of caring neonates was suggested by Esmaeeli, (2013) which conducted a cross-sectional study to determine knowledge assessment of neonatal care among postnatal mothers, the study results that the employed mother were found to have high level of knowledge (50%) compared with housewife mother (41%). That means significant relation between mother occupation and mother knowledge of neonatal caring (Esmaeeli, 2013).

Another study, (2017) A considerable proportion of mothers were unemployed (86%), maternal occupation and age too were found to be significantly associated with knowledge level. A large proportion of them 45.52% were in the poor knowledge group and (42.2%) of them were in very poor knowledge group. Results showed clearly that mothers' knowledge of prevention of neonatal hypothermia was the most deficient knowledge field of mothers (Priyadarshanie and Pethiyagoda, 2017). A study aimed to assess the knowledge of mothers on home based neonatal care at selected area of rural Bangalore, the main results founded that most of the mothers 86% were homemakers have moderate knowledge (67%) and (14%) was coolies have moderate knowledge (50%). The mother's knowledge, education, occupation, and dietary pattern has significantly associated with their knowledge on home based neonatal care (Mohini and Shetty, 2017).

Level of Education

Education status of mother is one of the main socio-demographic factors affecting postnatal care of preterm neonate. A community based cross-sectional study was conducted the educational status of the mother had statistically significant association with mothers' knowledge on care practice. Mothers who attained beyond primary education were 2.5 times more likely to have sufficient knowledge than mothers who attained lower than secondary education (Demilew, 2017).

A study done in Italy on knowledge, attitudes and behaviors of parents towards vaccination, a total of 414 parents, only 26.6% parents knew that the vaccine was available and the number of doses and this knowledge was significantly higher in those who had a university degree, in those who had received information on the vaccination from a health care provider, and in those who vaccinated their child. the positive attitude towards the utility of vaccination was higher in parents with a level of education not higher than middle school, in those who had vaccinated their child. The recommendation of this study showed that educational programs are needed among parents as support to improve knowledge about vaccination and immunization coverage (Vezzosi et al, 2017). Also, according of cross-sectional study about knowledge assessment of neonatal care among postnatal mothers,(2013) showed that the highest mean score of knowledge devoted to individuals with academic level of

education and the lowest mean score assigned to elementary level which showed significant difference (Esmaeeli, 2013).

2.10.2 Reproductive Characteristics of Mothers

Parity

Parity is one if the main reproductive factors of mother affecting knowledge and attitudes of preterm care. A study done in Iran on pregnant mothers knowledge about breastfeeding as well as to study its associated factors. results shows that mothers had very poor, average, good and very good level of knowledge about breastfeeding. There was a significant association between mothers knowledge and parity, mothers education and breastfeeding history, however, no significant association was found with age and the month of pregnancy. The most frequent source of obtaining information was health centers personnel (34.3%) followed by family and friends. A significant number of pregnant mother had average knowledge that indicating necessity of interventional programs by health system, particularly for pregnant mothers with lower education level (Karimi et al, 2014).

A descriptive cross-sectional study done by Nepal and Thapa, (2017) on knowledge and practice of newborn care among mothers of infants on 96 mothers founded that approximately 78% have inadequate knowledge and 7.3% mother have unsafe practice on newborn care. The association was founded between parity of mother and place of birth to knowledge on newborn care and parity of mother to the practice of newborn care. A study findings conclude that there was a huge gap between knowledge and practice on newborn care (Nepal and Thapa, 2017).

Another cross-sectional study about knowledge assessment of neonatal care among postnatal mothers, showed that mothers with 2 or 3 children had highest mean of knowledge of neonatal care, this results focused that the parity association with knowledge level of neonatal care among postnatal mothers (Esmaeeli, 2013).

Mode of Delivery

Mode of study this factor association with mother knowledge and attitudes. A study in Iran, (2012) about Women's knowledge and attitude towards mode of delivery and frequency of cesarean section on mother's request in six public and private hospitals in Tehran showed from 600 deliveries, 83.5% were CS and 16.5% were normal vaginal

delivery. The CS rates in university hospitals versus private hospitals were 78.5% and 91.9%, respectively. In total, mothers' knowledge scores were poor, intermediate, and good in 55.6%, 37.9%, and 6.5% of cases, respectively, and no significant difference in knowledge was observed between mothers attending private or public hospitals (Ghotbi et al, 2014).

A descriptive study aimed to assess knowledge and practice of postnatal mothers on newborn care. The findings of the study showed that (50%) had normal vaginal delivery and (50%) had C.S. Majority of the newborns, (80%) were above 37 weeks of gestation, most of the new born (70%) were below 6 days of age. Majority (76%) of mothers had good knowledge on newborn care. (53%) of mothers had good practice on newborn care. The education of the mothers had significant association with the knowledge of the mother regarding care (Castalino et al, 2014).

2.11 Role the Health Education

Mothers are taught all they need to know about caring for their preterm neonate during the NICU stay: in a study conducted 36 parents were interviewed regarding NICU instructions. Nearly half (47%) of mothers reported receiving less than 1 hour of discharge teaching from NICU staff; 47% reported feeling prepared to take their infant home; 49% felt "somewhat" prepared 3% were not sure, and even though 69% were hospitalized for more than two weeks, 85% of the mothers were unable to name any specific problem for which their infant might be at risk after discharge (Phillips-Pula, 2011). There also appears to be differences between what discussions the staff had with parents prior to discharge and what parents were able to recall being discussed, demonstrating the degree of stress these mothers are under (Sneath, 2009).

Other study about the effect of empowerment program on mother-infant interaction and weight gain in preterm neonates suggested that knowledge transfer from nurses to parents can promote parents' participation in the care process, strengthen behaviors such as breastfeeding, and improve neonates' weight gain (Borimnejad et al., 2013).

2.12 Summary

Preterm birth is the birth occurring before 37 determined weeks of gestation. It is one of the greatest collective health problems seen in neonates and connected with insufficient compatibility with the extrauterine environment. It is reflected an exciting problem with

greater risk than full-term births in term of mortality and morbidity. The mother of preterm neonate has an important character in providing contact to health care facilities and showing attitudes and performances that impacts the neonate care. Reduced knowledge among mothers about the needs of preterm neonate are an essential reason for direct readmissions to NICU after discharge and the mother's attitudes about different aspects of care of preterm neonates is important to prevent complications in the neonates. The main objective to identify the gaps in knowledge and attitude of essential care among mothers of preterm at the point of discharge from the hospital because to improve the basic knowledge and attitudes to mothers that will reduce the complications, mortality and morbidity.

Chapter (3)

3. Research Methodology

This chapter presents the method of the study to answer the research questions. In this chapter different items were explained: study design, study population, study setting, period of the study, sample and sampling, instruments of the study, validity and reliability, data collection, pilot of study, data analysis data management, ethical consideration, and limitation of the study.

3.1 Study Design

The design of this study is quantitative, descriptive cross sectional. This design in suitable for the nature of variables included on the study. In the other hand, their design saved time and inexpensive in terms of money and it is relatively practical and manageable. It was chosen because it enable the researcher to meet the study objectives in a short time.

3.2 Study Population

The target population of the study consisted of all the mothers of preterm neonates alive discharged from the NICUs of governmental hospitals (Al Shifa and Nasser) in Gaza Strip during the period of data collection.

3.3 Study Setting

This research carried out at NICU departments in Al Shifa and Nasser governmental hospitals located in Gaza Strip.

3.4 Period of the Study

The study was implemented immediately after the approval of the proposal. A pilot study was conducted in February 2018. Data collection started in March 2018 and continued to mid June 2018. Data entry, analysis and writing the final report continue to the September 2018. Annex (1) explain time table of proposed activities.

3.5 Sample and Sampling

A convenient sample consisted of first 60 mothers of preterm neonates discharge from NICU in Al-Shifa hospital and first 60 mothers of preterm neonate discharge from NICU in Nasser hospital in Khanyounis. According to the health annual reports in governmental hospitals, approximately 30 preterm neonates discharge from NICU every month, this study obtained in two months (MOH, 2017).

3.6 Instruments of the study

A structured interviewed questionnaire (Annex 2) was constructed by the researcher himself after reviewing the related previous studies. The questionnaire had four parts, part one included socio-demographic data, part two comprised questions on antenatal and birth history of neonate, part three comprised questions on assessment of mothers' knowledge on preterm neonate care and part four comprised questions on assessment of mothers' attitude on preterm neonate care.

3.7 Validity and Reliability

Content validity was calculated to determine the degree to which the used tool measure what it was supposed to measure (Elshair, 2012). Tool developed by the researcher was examined by a panel of experts to determine whether the included items clearly and adequately cover the domains of the content addressed (Annex 3). Comments of experts were considered and modifications needed were done accordingly. Content validity include 7 experts. The questionnaire was pretested to 15 sample population to ensure validity and reliability of the questionnaire before commencement of the study. This study tool revised accordingly and internal consistent reliability was statistically computed and Cronbach's alpha over 0.7 obtained which 15 as pilot study are acceptable value for reliability of the tool. The questionnaire translated in Arabic in order to facilitate every participant to respond in mother language.

3.8 Data Collection

Data were collected by the researcher through face to face an interviewed questionnaire with mothers of preterm neonates when will discharge from NICU. The researcher was collected questionnaires in NICU in Al-Shifa hospital and one qualified data collector was collected questionnaires in NICU in Nasser hospital, who get explanation and training by

the researcher about the study; its purpose, objectives, procedures and how to distribute and collect the questionnaires with respect to confidentiality. A consent form was added in front of each questionnaire and ask the participated mothers to freely participate in the study and fill the questionnaire form which distributed during their working hours. The average time for filling the questionnaire was 20-30 minutes.

3.9 Pilot of the Study

A pilot study conducted 15 participants from the study sample before starting the data collection. This was done to test the clarity, point out weaknesses in wording, predict response rate, determine the real time needed to fill the questionnaire and identify areas of vagueness and to test the reliability, validity, and suitability of the questionnaire. All participants recruited to the pilot study met the criteria of the sample selection. The pilot study lasted for two weeks and it revealed that the time needed to complete the questionnaire was 20-30 minutes. The 15 participants were chosen from the first eight mothers of preterm neonates who were discharged from NICU in Al-Shifa hospital and the first seven mothers of preterm neonates who were discharged from NICU in Nasser hospital. Since modifications on the data collection questionnaire were not needed, the 15 participants in the pilot study were included within the study sample.

3.10 Data Management and Data Analysis

The collected data were entered into the computer software "Statistical Package for Social Sciences" SPSS program by the researcher after coding of the questions and then cleaning of the entered data. Data were analyzed using the SPSS program version (20). The research checked all data to avoid any discrepancies, data were examined for coding and entry error. Numerical data were expressed as mean, medians and standard deviations. Quantitative data were expressed as frequency and percentage. The stages of data analysis was included: coding the questionnaire, data entry, data cleaning, constructing frequency tables for all the study variables, testing reliability for each categorized questions, and forming cross tabulation. The Chi square was used for examining for significance at level (0.05). The researcher used the standard approaches to statistical analysis of questionnaire data including frequencies and descriptive summaries for the categorical data, means, ranges, and standard deviations. Data cleaning performed by reviewing frequency tables, random selection of questionnaire to ensure that accurate data entry was performed.

3.11 Ethical Considerations

- An official letter of approval to conduct the study was obtained from the Helsinki committee (Annex 4).
- An official letter of request was obtained from Ministry of Health to conduct the study in the governmental hospitals, Al-Shifa and Nasser hospitals (Annex 5).
- To guarantee participants rights, a covering letter (consent form) was added in front of the questionnaire to indicate that the participation was voluntary, and to insure the confidentiality of the information and the right to refuse participation or withdraw at any time. Consent received from each participant.
- Mothers were assured of the confidentiality of the results.

3.12 Limitations of the study

- The study was based on reported rather than observed knowledge and attitude towards preterm neonate care.
- Lack of general agreement on the definition of good or poor knowledge and attitude was a defy in the study. Similar studies conducted used the mean as cut off point to differentiate poor knowledge and satisfactory knowledge which was applied in this study.
- Financial constraints since the study was self funded by the researcher.
- Frequent electricity cuts affected the ability to accomplish the work in a timely manner.

Chapter (4)

Results and Discussion

This chapter illustrates the results of statistical analysis of data, including descriptive analysis that presents the socio-demographic characteristics of study sample, preterm neonates characteristics, mean score of knowledge and attitudes of the mothers about preterm care, and relations that effect of mothers knowledge and attitudes level according to preterm care. The researcher used simple statistics including frequencies, means and percentages, also independent sample *t* test, and One-way ANOVA.

4.1 Socio-demographic characteristics of study sample

The study population consisted of 120 mothers of preterm neonates, divided into hospital as equally, 60 mothers of preterm neonates will discharge from NICU at Al-Shifa and Nasser hospitals. The study showed obvious variations in characteristics such as mothers age, mothers educational level, mothers occupation and the residence.

4.1.1 Sample distribution according to the mothers' age groups, mothers' occupation, and the residence

Table 4.1: Sample distribution according to the mothers' age groups, mothers' occupation, and the residence

Variable	Number	Percentage (%)
Age groups of the mothers		
Less than 20	38	31.7
20-30	56	46.7
31-40	26	21.6
Mother occupation		
Employee	31	25.8
Housekeeper	89	74.2
Residence		
Gaza	39	32.5
North Gaza	16	13.3
Middle area	11	9.2
Khanyounis	40	33.3
Rafah	14	11.7
Total	120	100.0

Table 4.1 shows the distribution of study participants' according to the mothers' age, mothers' occupation, and their residence. The table shows that (46.7%) of the mothers are belonging to the age group 20 – 30 years, and (31.70%) of them are below 20 years. The researcher explained that the main age of marriage in Gaza strip was more the 20 years. This finding consistent with a study conducted by Priyadarshanie and Pethiyagoda, (2015) to assess mothers' knowledge regarding neonatal baby care, who showed that the mean age of the sample was 26 years. Also another study conducted by Esmaeeli, (2013) consistent with our finding study, who showed that the sample included 316 mothers with the mean age of 25.87±5.08 participated.

Also, the table shows that (74.2%) of the mothers are housewives. The researcher describes that the most mothers in the Gaza Strip are seeking to take care of their children, mothers attention to home-based education, and increase unemployment and work shortages. This result consistent with a study conducted by Esmaeeli, (2013) has been carried out for assessing the knowledge regarding to neonatal care among postnatal mothers, who show that the (91.8%) of participants were housewife and (7.6%) employee contributed. Also this finding in our study consistent with a study conducted by Adib-Hajbaghery and Khosrojerdi, (2017) to assess their knowledge about post-discharge newborn care, who found that the most of the mothers were housewives (88%).

Moreover, the table shows that (33.3%) of the study participants are from Khanyounis governorate, (32.5%) of them are from Gaza governorate, and only (9.2%) are from the Middle area. The researcher clarifies that the sample was taken from Nasser and Al-Shifa Hospitals. There are no hospital in Khanyounis other than Nasser Hospital. In Gaza city, there are several hospitals contain NICUs. Also Khanyounis governorate is one of the most densely populated cities in the Gaza strip. These findings in our study consistent with a study conducted by Adib-Hajbaghery and Khosrojerdi, (2017) aimed to assess their knowledge about post-discharge newborn care, who found that (76.5%) of mothers living in urban areas but (23.5%) of mothers living in rural areas. Also, this result consistent with a study conducted by Esmaeeli, (2013) who show that the according to place of inhabitants, urban participants are higher as comparison with rural participants.

4.1.2 Sample distribution according to the educational level of the mothers

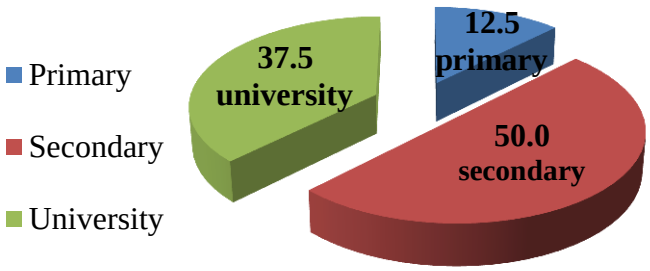

Figure 4.1: Sample distribution according to the mothers' educational level

Figure 4.1 shows that (50.0%) of the mothers have secondary level education, (37.5%) have university degree, while only (12.5%) of them studied primary school. The researcher describes that the result of the difficult conditions experienced at Gaza Strip in recent years have had a negative impact on the level of education for girls. As most families in the Gaza Strip prefer of marry a girl to her education. These findings in our study consistent with a study conducted by Chaudhari and Virmani, (2016) aimed to assess knowledge and attitude of postnatal mothers towards neonatal care in a rural area of Maharashtra, India, who found that (50.0%) had secondary education, while (7.0%) were illiterate.

These findings in our study consistent with a study conducted by Amolo et al, (2017) who shows that the proportion of women who had received some basic level of education was relatively high with (48.2%) secondary education, (45.5%) having received tertiary education, and (3.9%) primary education and only (2.4%) with no education.

4.1.3 Sample distribution according to the level of family income

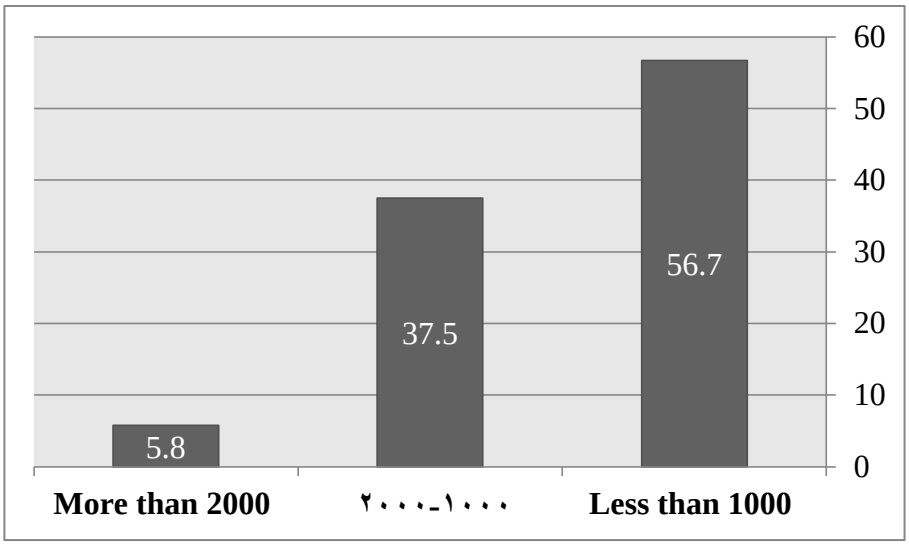

Figure 4.2: Sample distribution according to level of family income

Figure 4.2 shows that more than half (56.7%) of the study participants have a monthly income of less than 1000 Shekel, (37.5%) of them have monthly income from 1000 – 2000 Shekel, while only (5.8%) have more than 2000 Shekel. The researcher explains that the result of the difficult conditions experienced at Gaza Strip and the increase in poverty and unemployment, a lot of families have a salary less than 1000 shekels. This result inconsistent with a study conducted by Mohini and Shetty, (2017) who found that regarding family income per month 78% had income of more than 2000 rupees followed by (12%) had 2000 to 1000 rupees and the remaining (10%) had income 4000 to 6000 rupees.

This finding in our study consistent with other study conducted by Padiyath et al, (2010) aimed to assess the knowledge and attitude of neonatal care practices among postnatal mothers in a tertiary care hospital, who shows that the most of the mothers (37%) belonged to families which had a per capita income ranging from 500 to 1000 rupees and (16%) ranging from 1000-1500 rupees.

4.1.4 Sample distribution according to hospitals and family members

Table 4.2: Sample distribution according to hospitals and family members

Variable	Number	Percentage (%)
Hospital		
Shifa medical complex	60	50.0
Nasser Hospital	60	50.0
Total number of family members		
Less than 3 members	89	74.2
4 – 7 members	31	25.8
Total	120	100.0

Table 4.2 shows that the percentage of mothers who were recruited within the study sample from Al-Shifa medical complex is same as who were recruited from Nasser hospital. The researcher showed that the sample was selected equally between the two hospitals in a different time period. These hospitals are the biggest in Gaza strip and have the biggest neonatal departments.

Also, (74.2%) of the mothers are living within a family of less than 3 members, while (25.8%) of them are living with 4 – 7 members. The researcher explains that although most of families in the Gaza Strip prefer to have children, in recent years, as a result of poverty, they have used contraceptive methods. Also a lot of families that include less than 3 persons prefer to use pregnancy methods, such as IVF, so the proportion of preterm neonates will be higher. This result disagree with other study conducted by Priyadarshanie and Pethiyagoda, (2015) who found that the percentage of postnatal mothers, who had two children was 30%. Others had more than two children. This result inconsistent with a study conducted by Amolo et al, (2017) who found that the (53%) from mothers family have more than 2 children.

4.2 Preterm neonate characteristics

The study showed obvious variations in preterm neonates characteristics such as gender, cause of hospitalization, and duration of entry NICU. Table 4.3 shows the main characteristics include preterm gender, part of twins, gestational age and weight.

4.2.1 Sample distribution according to the preterm neonate characteristic

Table 4.3: Sample distribution according to the preterm neonate characteristic

Variable	Number	Percentage (%)
Preterm gender		
Male	67	55.8
Female	53	44.2
Part of twins		
Yes	32	26.7
No	88	73.3
Gestational age		
26 – 31 weeks	34	28.3
32 – 37 weeks	86	71.7
Weight in gram		
Less than 1000	1	0.8
1000 – 1500	17	14.2
>1500 - 2500	28	23.3
>2500	74	61.7
Total	120	100.0

Table 4.3 shows that the distribution of the study sample based on preterm information. The table shows that (55.8%) of the mothers in the current study was male neonates, while (44.2%) was female neonates. This finding inconsistent with a study conducted by Mohini and Shetty, (2017) aimed to assess the knowledge of mothers on home based neonatal care at selected area of rural Bangalore, who showed that male infants were (41%) and females were (59%). The table also shows that (26.7%)of the neonates are considered as part of twins. The researcher demonstrations that the proportion of life for twins' children globally is low because the size of a preterm neonate was small, loses heat quickly and have low` immunity.

Most of the sample (71.7) have gestational age from 32-37 weeks. The researcher clarifies that survival rate of preterm less than 32 weeks was low and mortality was high because these need very special intensive care. This finding agree with a study aimed to assess the

knowledge, attitude and practice of Kangaroo mother care among post-natal mothers in a tertiary care center of North Kerala, India conducted by Urmila et al, (2018) who found that neonates less than 28 weeks were (7.7%), 28-32 weeks constituted (44.6%), 32-37 weeks were (46.7%) and more than 37 weeks were 2 (1%).

On the other hand, (61.7%) of the neonates are more than 2500 grams, and (14.2%) have body weight of 1000 – 1500 grams because survival rate of preterm less than 2500 grams is very low, this effect of low immunity. This result agree with a study conducted by Urmila et al, (2018) who found that the birth weight less than 1000 grams constituted 29 babies (14.9%), 1000-1500 grams were 66 babies (36.1%); babies ranging from 1.5 kg to 2.5 kg were the maximum 100 babies (49%).

4.2.2 Sample distribution according to the health status of the preterm

Table 4.4: Sample distribution according to the health status of the preterm

Variable	Frequency	Percentage (%)
Cause of hospitalization		
Respiratory distress	58	48.3
Poor feeding	24	20.0
Congenital anomalies	21	17.5
Preterm need follow up	17	14.2
Duration of entry NICU		
Days	114	95.0
Months	6	5.0
Does the preterm need to cardio pulmonary resuscitation		
Yes	10	8.3
No	99	82.5
Don’t know	11	9.2
Status at discharge state		
Improvement	74	61.7
Need follow-up	20	16.7
Need special care	14	11.7
Chronic disease	12	10.0

Table 4.4 shows that (48.3%) of the neonates were admitted to the hospital due to respiratory distress, (20.0%) of them were admitted due to poor feeding, while (14.2%) were admitted because the infant need follow up. The researcher describes that the respiratory distress is very common on preterm neonates, this preterm don’t have

surfactant in the lung as compare with other babies, so these neonates appearance of symptoms of respiratory distress.

The table also shows that the vast majority (95.0%) of the neonates have been admitted in the NICU for days, and the rest (5.0%) have been admitted for months. The researcher suggest this is because improve medical care in NICUs in Gaza strip. This result agree with a study conducted by Urmila et al, (2018) who show that the average duration of stay in NICU ranged from 10 to 48 days. 18 babies were stay 9 days and 17 babies were stay 14 days.

Most of the sample (82.5%) of neonates don't need to cardio pulmonary resuscitation. The researcher suggested that this is because of the progress of medical devices used in the NICUs and medical follow-up by doctors and nurses. On the other hand, the health of (61.7%) of the neonates has been improved at discharge, (16.7%) of them need follow up, while (11.7%) of them need special care. Also the researcher showed that this because of progress of medical devices and used developed devices such as: high frequency ventilator device for preterm neonates that lead to decrease mortality rate.

4.3 Mean score of knowledge and attitudes of the mothers about preterm care

Table 4.5: Mean score of knowledge and attitudes of the mothers about preterm care

Variables	Maximum score	Mean score	Mean %
Level of Knowledge	19[1]	9.91	52.19
Level of attitude	140[2]	118.56	84.69

Table 4.5 shows that the mean score of mothers' knowledge and attitude regarding neonate care, the maximum score for knowledge and attitude is 19 and 140 respectively. The table shows that the mean score of mothers' knowledge regarding preterm care is 52.19%. The researcher explains that don't implication health education programs to mothers about preterm care in NICUs and during antenatal visits. These results consistent with a study conducted by Akimana, (2017) showed that the highest score of knowledge was (85%) and the lowest (31%), the mean was (57.3 %). Also these findings consistent

[1] Calculated by the summation of each question score, the score for every question within the 19 questions is (1)
[2] Calculated by multiplying the total number of questions (28) by the maximum score for each question (5)

with a study conducted by Mohini and Shetty (2017) aimed to assess the knowledge of mothers on home based neonatal care at selected area of rural Bangalore, who founded that knowledge of mothers are classified into 3 levels, majority of the mothers (64.6%) have moderate knowledge on home based neonatal care, (21.2%) of mothers have inadequate knowledge and only (14.2%) have adequate knowledge. The aspect wise mean knowledge of mothers ranged between (55.2%) and (65.3%).

These findings inconsistent with a study conducted by Adib-Hajbaghery and Khosrojerdi, (2017) to assess their knowledge about post-discharge newborn care, who shows that the mothers gained a mean knowledge score of 16.96 out of 27. In other words they obtained about 63% of the total knowledge score regarding newborn care. Also, in our study the mean score of mothers' attitude is 84.69%. This score is good as compared with knowledge, the researcher shows that these mothers take care of their babies and provide all basic care services. These findings consistent with a study conducted by Akimana, (2017) who founded that the highest score of attitude was (93%) and lowest (78%), the mean score (85.2%) ($P < 0.05$).

Another cross-sectional study was inconsistent with our study conducted by Amolo et al, (2017) who shows that postnatal mothers have a positive attitude towards breastfeeding but negative attitude towards other components of newborn care. Lack of antenatal education on newborn care and those who fail to attend all the recommended four antenatal clinic are likely to have poor knowledge, attitudes and should be targeted for newborn education.

4.4 Relationship between maternal characteristics variables and the level of mothers' knowledge and attitude regarding preterm care

The researcher supposed that the maternal characteristics variables may influence to the level of mothers' knowledge and attitude regarding preterm care. These variables include education level, mother age, income, area of residence, family members, and working status. Table 4.7 shows the relationship between knowledge and attitudes regarding preterm care with mother educational level.

4.4.1 The level of mothers' knowledge and attitude regarding preterm care according to educational levels

Table 4.6: Differences in the level of mothers' knowledge and attitude regarding preterm care according to educational levels

Variable	N	Mean (SD)	F (df)	*P* value*
Level of knowledge				
Primary	15	54.38 (10.65)	1.548 (2,117)	0.217
Secondary	60	53.24 (9.79)		
University	45	50.05 (11.42)		
Level of attitude			1.257 (2, 117)	0.288
Primary	15	83.76 (3.49)		
Secondary	60	85.04 (3.05)		
University	45	84.52 (2.58)		

*One way ANOVA

Table 4.7 shows that there are no significant differences in the level of mothers' knowledge regarding preterm care between their different educational levels ($p>0.05$). This means mother education as university have lowest of mean knowledge regarding preterm care. The researcher clarifies that during mother education in university don't found courses that focus on health babies. Another explains that these mothers are busy and don't have more time to ask or search about caring of neonates. Also, there are no significant differences in the level of mothers' attitude regarding neonate care between their different educational levels ($p>0.05$). That means mothers have secondary education have more attitudes than mothers have university education.

These results inconsistent with a study conducted by Esmaeeli, (2013) who showed that the highest mean score of knowledge devoted to individuals with academic level of education and the lowest mean score assigned to elementary level. These findings also inconsistent with other study conducted by Mohini and Shetty, (2017) who showed that the highest level of knowledge devoted to mother with university education, moderate knowledge (70%) ($p<0.05$), while in primary education was (58%) ($p<0.05$). Also the findings of our study inconsistent with a study conducted by Adib-Hajbaghery and Khosrojerdi, (2017) who shows that the total knowledge score were significantly higher in mothers with higher education levels.

4.4.2 The level of mothers' knowledge and attitudes regarding preterm care according to mother age groups

Table 4.7: Differences in the level of mothers' knowledge and attitudes regarding preterm according to mother age groups

Variable	N	Mean (SD)	F (df)	*P* value*
Level of knowledge				
Less than 20 years	38	52.63 (10.09)	0.231 (2, 117)	0.794
20 – 30 years	56	51.50 (10.70)		
31 – 40 years	26	53.03 (11.32)		
Level of attitude			0.622 (2, 117)	0.539
Less than 20 years	38	84.24 (3.94)		
20 – 30 years	56	84.91 (2.41)		
31 – 40 years	26	84.86 (2.29)		

*One way ANOVA

Table 4.8 shows that there are no significant differences in the level of mothers' knowledge regarding infant care between their different age groups ($p>0.05$). Which means that the age of mothers less than 20 years have knowledge more than mothers age 20-30 years. The researcher describes this is result of easy access to information through multiple methods of social media and the internet in all homes.

Also, there are no significant differences in the level of mothers' attitude regarding infant care between their different age groups ($p>0.05$). That means all age groups have the same level of attitudes. The researcher indications that mother in any age group take care

of your baby. These findings inconsistent with a study conducted by Therese, (2017) who found that the majorly (51.2%) of respondents have high level of knowledge were between 20-30 of age, (38%) of represents have mild knowledge were between 31-40 of age and (4.2%) of represents have poor level of knowledge were under 20 years.

These results also inconsistent with other study conducted by Mohini and Shetty, (2017) who showed that the age of mothers significantly affect the mother's knowledge on home based neonatal care. Mothers age less than 25 years have moderate knowledge (70%) ($p<0.05$) but age of mothers more than 25 years have moderate knowledge (40%) ($p<0.05$). These findings also inconsistent with a study conducted by Adib-Hajbaghery and Khosrojerdi, (2017) who shows that the a significant direct but weak correlation was found between the mothers' age and their knowledge scores (P=0.02).

4.4.3 The level of mothers' knowledge and attitude regarding preterm care according to levels of income

Table 4.8: Differences in the level of mothers' knowledge and attitude regarding preterm care according to levels of income

Variable	N	Mean (SD)	F (df)	*P* value*
Level of knowledge				
Below 1000 Shekel	68	53.32 (10.04)	2.414 (2,117)	0.094
1000 – 2000 Shekel	45	51.69 (11.12)		
More than 2000 Shekel	7	44.36 (10.01)		
Level of attitude			0.951 (2,117)	0.389
Below 1000 Shekel	68	84.44 (3.05)		
1000 – 2000 Shekel	45	85.15 (2.71)		
More than 2000 Shekel	7	84.08 (3.49)		

*One way ANOVA

Table 4.9 shows that there are no significant differences in the level of mothers' knowledge regarding preterm care between their different level of income ($p>0.05$). Which means that the families income more than 2000 Shekel have the lowest level of knowledge. The researcher explains this is because families who receive high salaries go to private centers and do not follow up with the departments of health care and education in public hospitals. This finding inconsistent with a study conducted by Mohini and Shetty, (2017) who founded that family income less than 2000 NIS have the highest level

of knowledge 67.6 % and income 4000-6000 NIS have the lowest level of knowledge 40%. The family income of the mothers are not associated with their knowledge ($p<0.05$).

Also, there are no significant differences in the level of mothers' attitude regarding preterm care between their different level of income ($p>0.05$). This result of any mother take care of her baby despite of family income. This finding in our study inconsistent with other study conducted by Padiyath et al, (2010) aimed to assess the knowledge and attitude of neonatal care practices among postnatal mothers in a tertiary care hospital, who shows that the mothers belonged to families which had a per capita income ranging more than 1500 rupees have highest level of knowledge, attitudes and mothers belonged to families which had a per capita income ranging less than 500 rupees have lowest level of knowledge and attitudes.

4.4.4 The level of mothers' knowledge and attitude regarding preterm care according to area of residence

Table 4.9: Differences in the level of mothers' knowledge and attitude regarding preterm care according to area of residence

Variable	N	Mean (SD)	F (df)	*P* value*
Level of knowledge				
Gaza	39	51.95 (9.89)	0.686 (4, 115)	0.603
North Gaza	16	50.98 (14.41)		
Middle zone	11	49.28 (12.51)		
Khanyounis	40	54.21 (10.12)		
Rafah	14	50.75 (10.44)		
Level of attitude			1.897 (4, 115)	0.116
Gaza	39	85.65 (2.90)		
North Gaza	16	84.46 (2.58)		
Middle zone	11	84.22 (3.35)		
Khanyounis	40	84.39 (2.62)		
Rafah	14	83.46 (3.65)		

*One way ANOVA

Table 4.10 shows that there are no significant differences in the level of mothers' knowledge regarding infant care between their different area of residence ($p>0.05$). That

means the level of knowledge don't difference according preterm care. The researcher expressions that result of Gaza Strip is limited and health services provided by primary care centers and UNRWA in follow-up of pregnancy and health education are somewhat similar in all Gaza governorates. Also, there are no significant differences in the level of mothers' attitude regarding infant care between their different area of residence ($p>0.05$).

These findings inconsistent with a study conducted by Adib-Hajbaghery and Khosrojerdi, (2017) to assess their knowledge about post-discharge newborn care, who shows that the a significant direct mothers who lived in urban areas have more knowledge than mothers lived in rural areas. The investigations in our study was consistent with a study conducted by Esmaeeli, (2013) aimed to assessing the knowledge regarding to neonatal care among postnatal mothers, who shows that the level of knowledge in urban the same in rural places.

4.4.5 The level of mothers' knowledge regarding preterm care according to hospitals, family members, and working status

Table 4.10: Differences in the level of mothers' knowledge regarding preterm care according to hospitals, family members, and working status

Variable	Classification	N	Mean (SD)	*t* statistics (df)	*p* value*
Hospital	Shifa	60	51.14 (10.57)	-1.090 (118)	0.278
	Nasser	60	53.24 (53.24)		
Family members	Less than 3	89	52.09 (10.43)	-0.164 (118)	0.870
	4 – 7 members	31	52.46 (11.16)		
Working status	Working	31	52.29 (10.86)	0.060 (118)	0.952
	Housewife	89	52.15 (10.54)		

*Independent sample *t* test

Table 4.11 shows that there are no significant differences in the level of mothers' knowledge regarding infant care between those who were admitted to Shifa medical complex and those who were admitted to Nasser hospital ($p>0.05$). That means knowledge level of mothers on Nasser hospital was the same in Al-Shifa hospital. The researcher indications that the health system in government institutions is similar and services are provided to mothers such as: health education was standard. These findings

inconsistent with a study conducted by Esmaeeli, (2013) who showed that the place of inhabitants, urban participants achieved higher mean score in knowledge comparison with rural participants.

Also, there are no significant differences in the level of mothers' knowledge regarding preterm care between those who are living within a family of less than 3 members and those who living with 4 – 7 family members ($p>0.05$). That means family number don't affect with mother knowledge according preterm care. The researcher explains that don't found health education during antenatal visits. These findings inconsistent with a study conducted by Esmaeeli, (2013) who showed that mothers with 2 or 3 children had highest level of knowledge comported with less than 2 children, this result focused that the parity association with knowledge level of neonatal care among postnatal mothers. These results consistent with a study conducted by Priyadarshanie and Pethiyagoda, (2015) who found that as expected parity did not show a significant association with the maternal knowledge regarding neonatal care.

Moreover, there are no significant differences in the level of mothers' knowledge regarding infant care between those who are working and who do not ($p>0.05$). That means mother have work or not have the same level of knowledge according preterm care. The researcher indications that the mothers don't have work can be easy access to social media and internet to search about preterm care. These findings also inconsistent with a study conducted by Esmaeeli, (2013) who showed that the employed mother were found to have high level of knowledge (60%) compared with housewife mother (40%) that mean significant relation between mother occupation and mother knowledge of neonatal caring. These findings in our study consistent with a study conducted by Amollo et al (2014) who found no significant difference in knowledge across various employment categories possibly due to the fact that mothers received health education sessions while their infants were admitted and this likely contributed to increase in knowledge amongst all the mothers.

4.4.6 The level of mothers' attitude regarding preterm care according to hospitals, family members, and working status

Table 4.11: Differences in the level of mothers' attitude regarding preterm care according to hospitals, family members, and working status

Variable	Classification	N	Mean (SD)	*t* statistics (df)	*p* value*
Hospital	Shifa	60	85.34 (2.77)	2.480 (118)	0.015
	Nasser	60	84.03 (3.00)		
Family members	Less than 3	89	84.83 (2.75)	0.885 (118)	0.378
	4 – 7 members	31	84.28 (3.47)		
Working status	Working	31	84.56 (2.13)	-0.338 (78.97)	0.736
	Housewife	89	84.73 (3.20)		

*Independent sample *t* test

Table 4.12 shows that there are significant differences in the level of mothers' attitude regarding preterm care between those who were admitted to Shifa medical complex and those who were admitted to Nasser hospital ($p<0.05$), those who were admitted to Shifa medical complex have significantly higher attitudes than who were admitted to Nasser hospital. The researcher explain that because culture in Gaza city different to culture in Khanyounis city. There are no significant differences in the level of mothers' attitude regarding preterm care between those who are living within a family of less than 3 members and those who living with 4 – 7 family members ($p>0.05$). That means family number don't affect with mother attitudes according preterm care. The researcher explains that don't found health education programs during antenatal visits focus on methods to take care of babies.

Moreover, there are no significant differences in the level of mothers' attitude regarding infant care between those who are working and who do not ($p>0.05$). That means mother have work or not have the same attitudes level according preterm care. The researcher suggestions that because mothers at home spend most of their time with their children, increasing their motherhood and affection and caring for their children.

4.5 Maternal reproductive history and the level of mothers' knowledge and attitude regarding preterm care

The researcher will investigate the relationship between maternal reproductive history such as: antenatal care and the level of mothers' knowledge and attitude regarding preterm care.

4.5.1 The level of mothers' knowledge regarding preterm care according to reproductive history

Table 4.12: Differences in the level of mothers' knowledge regarding preterm care according to reproductive history

Variable	Classification	N	Mean (SD)	*t* statistics (df)	*p* value*
Pregnancy	First time	72	52.26 (11.39)	0.092 (118)	0.927
	Multiple	48	52.08 (9.35)		
Antenatal care	Yes	110	52.39 (10.41)	0.683 (118)	0.496
	No	10	50.00 (12.71)		

*Independent sample *t* test

Table 4.13 shows that there are no significant differences in the level of mothers' knowledge regarding infant care between those who have been pregnant for the first time and who have been pregnant for more than one time ($p>0.05$). That means level of knowledge don't difference according to mothers party. The researcher describes that mother first time pregnant can ask her friends or family about preterm care and maybe used social media and internet. This result inconsistent with a study conducted by Amolo et al, (2017) who found that mothers primipara have (42.6%) of knowledge of essential care and mothers multipara have (77.2%) of knowledge of essential care.

Also, there are no significant differences in the level of mothers' knowledge regarding infant care between those who have received antenatal checkup and who have not ($p>0.05$). The researcher clarifies that don't found health education about preterm care during antenatal visits. Failure to attend at least four antenatal clinic visits was found to be an independent predictor of poor knowledge among postnatal mothers. In agreement with findings of study conducted by Upul Senarath et al, (2007) which showed no association between antenatal visits and maternal knowledge. These results inconsistent with a study

conducted by Amolo et al, (2017) who shows that the postnatal mothers most likely to have poor knowledge on essential newborn care practices included those who failed to fully attend antenatal clinic visits and those who did not receive any source of newborn education during pregnancy.

However, in disagreement with our findings were Weiner et al, (2011) who showed that antenatal education increases mothers' understanding of basic newborn care. The main conclusion from Weiner et al, study is that antenatal clinics provide an opportunity to educate mothers on newborn care which results in sustained knowledge in the postnatal period.

4.5.2 The level of mothers' attitude regarding preterm care according to reproductive history

Table 4.13: Differences in the level of mothers' attitude regarding preterm care according to reproductive history

Variable	Classification	N	Mean (SD)	*t* statistics (df)	*p* value*
Pregnancy	First time	72	84.31 (2.96)	-1.717 (118)	0.089
	Multiple	48	85.25 (2.87)		
Antenatal care	Yes	110	84.74 (2.97)	0.691 (118)	0.491
	No	10	84.07 (2.73)		

*Independent sample *t* test

Table 4.14 shows that there are no significant differences in the level of mothers' attitude regarding infant care between those who have been pregnant for the first time and who have been pregnant for more than one time ($p>0.05$). Also, there are no significant differences in the level of mothers' attitude regarding infant care between those who have received antenatal checkup and who have not ($p>0.05$). The researcher indications that because the attitudes are present in the mothers and their have sense of motherhood, compassion and tenderness to care for their preterm neonates.

4.6 Health education and the level of mothers' knowledge and attitude regarding preterm care

The researcher will investigate the relationship between main variables of health education and the level of mothers' knowledge and attitude regarding preterm care. These variables include: received health education, types of health educators and methods of health education.

4.6.1 The level of mothers' knowledge regarding preterm care with regard to received health education and awareness

Table 4.14: Differences in the level of mothers' knowledge regarding preterm care with regard to received health education and awareness

Variable	Classification	N	Mean (SD)	*t* statistics (df)	*p* value*
Received health education	Yes	75	51.22 (10.81)	1.293 (118)	0.199
	No	45	53.80 (10.09)		
Brochures	Yes	37	51.77 (10.26)	-0.286 (118)	0.776
	No	83	52.37 (10.77)		

*Independent sample *t* test

Table 4.15 shows that there are no significant differences in the level of mothers' knowledge regarding infant care between those who have received health education and those who have not ($p>0.05$). That means mothers received health education have knowledge as the same of mothers don't received health education. The researcher describes that the mothers can access to information about neonate care depending on multiple methods of social media and the internet in all homes. Also during health education don't focus to essential preterm care. The researcher suggestions that also because the sample was small number may be effect of results.

These findings inconsistent with a study conducted by Akimana, (2017) showed that found correlation between mothers received health education about preterm neonates care such as: breastfeeding and high mean score of knowledge. The findings of our study inconsistent with the findings of a study conducted by Ontita et al, (2016) who found that the majority of mothers (90.4%) had received health education have adequate knowledge about essential care. These investigations inconsistent also with a study conducted by

Amolo et al, (2017) who founds that mothers received health education have (73%) mean of knowledge according preterm neonates care.

Also, there are no significant differences in the level of mothers' knowledge regarding preterm neonates care between those who have received brochures and who have not ($p>0.05$). That means mothers received brochures have knowledge as the same of mothers don't received health education. The researcher explains that also, easy access to social media and internet found in all the homes.

4.6.2 The level of mothers' attitude regarding preterm care with regard to received health education and awareness

Table 4.15: Differences in the level of mothers' attitude regarding preterm care with regard to received health education and awareness

Variable	Classification	N	Mean (SD)	*t* statistics (df)	*p* value*
Received health education	Yes	75	84.52 (3.06)	-0.797 (118)	0.427
	No	45	84.96 (2.76)		
Brochures	Yes	37	84.20 (2.89)	-1.195 (118)	0.234
	No	83	84.90 (2.97)		

*Independent sample *t* test

Table 4.16 shows that there are no significant differences in the level of mothers' attitude regarding infant care between those who have received health education and those who have not ($p>0.05$). That means mothers received health education have attitudes as the same of mothers don't received health education. Also, there are no significant differences in the level of mothers' attitude regarding infant care between those who have received brochures and who have not ($p>0.05$).

That means mothers received brochures have attitudes as the same of mothers don't received brochures. The researcher describes that the attitudes are present in the mothers and their have sense of motherhood, compassion and tenderness to care for their preterm neonates.

4.6.3 The level of mothers' knowledge and attitude regarding preterm care according to types of health educators

Table 4.16: Differences in the level of mothers' knowledge and attitude regarding preterm care according to types of health educators

Variable	N	Mean (SD)	F (df)	*P* value*
Level of knowledge				
Physician	33	51.03 (10.14)	0.839 (2, 117)	0.435
Nurse	42	51.37 (11.43)		
Did not receive education	45	10.9. (9.99)		
Level of attitude			1.594 (2, 117)	0.207
Physician	33	83.91 (2.98)		
Nurse	42	85.05 (3.12)		
Did not receive education	45	84.92 (2.71)		

*One way ANOVA

Table 4.17 shows that there are no significant differences in the level of mothers' knowledge regarding infant care between different types of the source of health education ($p>0.05$). That means don't found difference in knowledge level according to types of health educators (physician or nurse). The researcher shows that the persons are giving information and instructions on the care of preterm neonates are responsibility from physicians and nurses. These results were inconsistent with the findings of a study conducted by Akimana, (2017) who found that the majority of information was provided by nurses at (67%) to mothers have more knowledge and attitudes about newborn care than information provided by doctors were at the low level (32.9%). These investigations inconsistent with a study conducted by Amolo et al, (2017) who found that the high level of knowledge according preterm care provided by nurses/midwives.

These findings were inconsistent with a study conducted in Kenya who found that (95.4%) of women receive antenatal education from nurses and midwives, show that mothers have more knowledge than provided by doctors (Kenya National Bureau of Statistics, 2015). Also, there are no significant differences in the level of mothers' attitude regarding preterm care between different types of the source of health education ($p>0.05$). That means don't found difference in attitudes level according to types of health educators (physician or nurse).

4.6.4 The level of mothers' knowledge and attitude regarding preterm care according to methods of health education

Table 4.17: Differences in the level of mothers' knowledge and attitude regarding preterm care according to methods of health education

Variable	N	Mean (SD)	F (df)	*P* value*
Level of knowledge				
Individual	64	51.48 (10.46)	0.954 (2, 117)	0.388
Group	11	49.76 (13.18)		
Did not receive education	45	53.80 (10.09)		
Level of attitude			0.403 (2, 117)	0.669
Individual	64	84.46 (3.01)		
Group	11	84.87 (3.49)		
Did not receive education	45	84.96 (2.76)		

*One way ANOVA

Table 4.18 shows that there are no significant differences in the level of mothers' knowledge regarding infant care between different methods of health education ($p>0.05$). That means mothers received health education by individual method that have the same knowledge by group method. The researcher shows that health educators providing information about preterm care whether mother individual or group.

Also, there are no significant differences in the level of mothers' attitude regarding infant care between different methods of health education ($p>0.05$). That means mothers received health education by individual method that have the same attitudes by group method**.**

Chapter (5)

Summary, Conclusion and Recommendation

5.1 Summary

Preterm birth is the birth occurring before 37 determined weeks of gestation. It is one of the greatest collective health problems seen in neonates and connected with insufficient compatibility with the extrauterine environment. It is reflected an exciting problem with greater risk than full-term births in term of mortality and morbidity. This study aimed to assess the knowledge and attitude of mothers toward providing care to their preterm neonates who discharged from the NICU of governmental hospitals in Gaza Strip. It was a descriptive cross sectional study, data were collected from the mothers of all preterm neonates who were discharge from NICU departments in Al-Shifa medical complex and Nasser hospital.

The factors categorized into socio-demographic, maternal and fetal that are associated with knowledge and attitudes. The study findings may contribute to decrease number of rehospitalization of preterm neonates and may assist decision- makers in taking actions and implementing intervention that aid in increasing knowledge and attitudes as possible. The target population consisted of first 60 mothers of preterm neonates was discharge from NICU in Al Shifa medical complex and first 60 mothers of preterm neonate was discharge from NICU in Nasser hospital.

The main findings of the study indicated that knowledge level of mother toward essential preterm care was 52.1 % ($P< 0.05$). One sample t-test was analyzed to determine the mother attitudes level about care of preterm. The weighted mean for the topic of mother attitudes level about care of preterm was 84.6% and significantly less than 0.05 by using one sample t-test which means the participants agree about this topic. The main findings shows that there are significant differences in the level of mothers' attitude regarding preterm care between those who were admitted to Shifa medical complex and those who were admitted to Nasser hospital ($p<0.05$), those who were admitted to Shifa medical complex have significantly higher attitude than who were admitted to Nasser hospital.

In contrast, Analysis of variance (ANOVA) test showed that there are no significant statistical differences in the level of mothers' knowledge regarding preterm care between their different level of income ($p>0.05$). Also, there are no significant differences in the level of mothers' attitude regarding preterm care according to level of income ($p>0.05$).

Also, there are no significant differences in the level of mothers' knowledge and attitudes regarding preterm care between those who are living within a family of less than 3 members and those who living with 4 – 7 family members ($p>0.05$). This mean that family member less than 3 and from 4-7 have the same mean of knowledge was (52%) and same mean of attitudes was (84%). There are no significant differences in the level of mothers' knowledge and attitudes regarding preterm care according to age of mother ($p>0.05$). Which means that the age of mothers less than 20 years have knowledge more than mothers age 20-30 years.

Moreover, there are no statistically significant differences in the level of mothers' knowledge and attitudes regarding preterm care between those who are working and who do not ($p>0.05$). The results showed that the housekeepers and employers mothers have the same knowledge and attitudes. There are no significant differences in the level of mothers' knowledge and attitudes regarding preterm care according to educational levels ($p>0.05$). There are no significant differences in the level of mothers' knowledge and attitudes regarding preterm care between those who have been pregnant for the first time and who have been pregnant for more than one time ($p>0.05$). Also, there are no significant differences in the level of mothers' knowledge and attitudes regarding preterm care between those who have received antenatal checkup and who have not ($p>0.05$).

There are no significant differences in the level of mothers' knowledge and attitudes regarding preterm care between those who have received health education and those who have not ($p>0.05$). Also, there are no significant differences in the level of mothers' knowledge and attitude regarding preterm care between those who have received brochures and who have not ($p>0.05$). Regarding the relation between mothers' knowledge and attitudes with types of the source of health education, there are no significant differences in the level of mothers' knowledge and attitudes regarding preterm care according to types of the source of health education ($p>0.05$). Also there are no significant differences in the level of mothers' knowledge and attitudes regarding preterm care according to methods of health education ($p>0.05$)

5.2 Conclusion

Knowledge on postnatal and early neonatal care is a fundamental requirement to effective community participation (Akimana, 2017). This study revealed the presence of knowledge gap. The existing knowledge gap in key area of preterm neonate care can greatly affect the success of child care services: some maternal education on preterm neonate care was received during hospitalization.

The major findings in this study were that (52%) of mothers have knowledge on preterm neonate care and (84.6%) have positive attitude towards preterm neonate care. There was significant differences in the level of mothers' attitude regarding preterm care between those who were admitted to Al-Shifa medical complex and those who were admitted to Nasser hospital, those who were admitted to Al-Shifa medical complex have significantly higher attitude than who were admitted to Nasser hospital. There was not association between parity and the level of knowledge among mothers of preterm neonate (P-value>0.05), there was no statistical differences in knowledge and attitudes with other factors: income, educational level, mothers age, area of residence, types of health educators, family members, and working status.

5.3 Recommendations

According to the results of the current study, the following recommendations are suggested:

1. More emphasis is needed in maternal education during hospitalization in NICUs prior to discharge.

2. In neonatal department, induced components of necessary preterm neonate care package need more prominence during education program.

3. Provide suggestions to hospital policy makers to improve practices and management of preterm neonates regarding helping mothers to care for their neonate.

4. Review of neonatology curriculum in pre-services and in-service trainings in medical and nursing education contain mother education about preterm care.

5. Provide a way of proper preparedness of parents prior to discharge and provide useful approaching into parents knowledge level about care of preterm neonates and offers a way for health education, this factors will improve rates of neonatal morbidity and mortality.

6. The importance of work between the intensive care departments of newborns and the department of health education of ministry of health.

7. A qualitative researches are recommended to elaborate more on preterm neonate care knowledge and attitudes in other governmental hospitals.

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Annex (1)

Time table of proposed activities

Task \ Date	February 2018		April 2018		May 2018		June 2018		July 2018		Aug 2018		Sep 2018		Oct 2018	
Preparation of proposal/ Material Revision																
Approval of Helsinki																
Approval of MoH																
Development of Instrument																
Pilot Study																
Sample collection																
Data entry and coding																
Data cleaning and analysis																
Data interpretation																
Research writing																

Annex (2)

Questionnaire (English)

Dear Mother:

I am a researcher / Ali Abdelrahman Mahmoud Aldirawi, I am pleased to participate actively in the research entitled "The level of knowledge and attitudes of the mother on care for preterm neonates post discharge from neonatal intensive care units in Governmental Hospitals in the governorates of Gaza." This study is submitted for a master's degree in Pediatric Nursing in Al-Quds University.

This study aims to determine the level of knowledge and attitudes of mothers about the care of their preterm neonates post discharge from neonatal intensive care units in the Governmental Hospitals of the Ministry of Health in the Governorates of Gaza. It may take up to 15 minutes to complete the questionnaire. All data will be treated in strict confidence and will be used for scientific research purposes only. Please answer all questions as you see fit. There is no correct answer and wrong answer.

With high respect and appreciation

Researcher

Ali Abdelrahman Aldirawi

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Questionnaire

1.Socio-demgraphic Information
1. Address : □Gaza □North Gaza □ Middle zone □Khanyounis □ Rafah
2. The hospital: □AlShifa Medical Complex □ Naseer Medical Complex
3. Age of mother : □Less than 20 years □20-30 years □More than 30 years
4. Number of family members: □Less than 3 □ 4-7 □More than 7
5. Mother occupation : □ Housekeeper □ Employee □Others, specify……..…
6.Mother educational level: □ Illiterate □ Primary □ Secondary □University □ Post- university
7.Mothly income: □ Less than 1000 NIS □1000-2000 NIS □More than 2000 NIS
2.Maternal History
2.1 Past Obstetric History
1. Is it your first pregnancy? □Yes □ No
2. If (No), answer the following : Gravida……. Para……. Abortion…….
3.Had any of your infants admitted to NICU ? □Yes □No
4. If (Yes), the cause of admission : □Respiratory problems □Congenital anomalies □Preterm □Other, specify ……..
5.Type of discharge : □Improvement □Death □Chronic problem, specify…….
2.2 Present Pregnancy
1. pregnancy type : □ Normal □ ART e.g. IVF
2. Did you have any disorder associated with pregnancy? □Yes □ No
3. If (Yes) circle the appropriate: □UTI □Anemia □Gestational diabetes □PIH □Other, specify……..
4. Antenatal care checkup: □Yes □ No
5.If (Yes), Number of visit to health center for follow-up? □Two and less □ 3-5 □More than 5 visits

7.Mode of delivery: □Normal vaginal □Caesarean section
8. If (Caesarean section), indication ? □Large baby □chronic Health problem □mother or infant complications □Others , specify……
9. Did any complications occur during the birth? □ Yes □No
10. If (Yes), Complications ? □ Seizers □Bleeding □Heart problem □Other, specify……..…
11. Have you received any health education or awareness during your pregnancy? □Yes □No ***If (No) please go to paragraph (3.Preterm Information)***
12. If (Yes), How was the awareness meetings? □Group □Individual
13. If Yes, Who provided you with information? □ Physician □Nurse □Midwife □Others, specify……
14. Have you received leaflets or brochures? □Yes □No
3. Preterm Information
1. Gender of preterm: □Male □Female
2. Age of baby: □Days(number of days)…… □Hours (numbers of hours)……
3.Part of twins: □Yes □ No
4.Gestational age: □ Less than 25 weeks □ 26-31 weeks □ 32-37 weeks
5. Cause of hospitalization? □Poor feeding □Respiratory distress □Congenital anomalies □Other, specify……
6. Duration of entry NICU? □Hours □Days □Months
7. Does the preterm need to revive the heart and lungs? □Yes □ No □ Don't know
8. Discharge state: □Improvement □Need follow-up □ Need special care □ Chronic disease
9. Weight at birth: □ Less than 1 kg □ 1-1.5 kg □1.5- 2.5 kg □More than 2.5 kg
10. Does the preterm have health problems when leaving the hospital? □Yes □ No
11. If yes, choose a nature of problem? □Reparatory distress □ Jaundice □Congenital anomalies □ Other, specify…….

12. What is the method of feeding? □Breastfeeding □Bottle feeding □ Ryle feeding
4. The level of mother knowledge about care of preterm
1. Have you received any information about care your neonate in the hospital? □ Yes □ No
2. If yes, what is the nature of the information provided ? ***Can choose more than one answer.*** □ Infection control □Increase of weight □ Jaundice □Umbilical care □Breastfeeding □Temperature regulation □ Others, specify……
3. If Yes, Who provided you with information ؟ □ Physician □Nurse □Midwife □Others, specify……
4.If Yes, How was the mechanism of education: □Individual □Group
5. Do you provide services to your neonate, such as breastfeeding while in hospital? □Yes □No
6. Have you been given enough time to ask educational questions about your child's care? □Yes □No
7 .Have you ever attended health awareness and education seminars in the hospital? □ Yes □No
8. How should you keep your baby warm at home? □ Warming clothes □Remove the bed from the windows □ All of them are true
9. Do you wake up your baby when breastfeeding? □Yes □No
10. Period of feeding: □Every 1 hour □Every 3 hours □Random

11. Duration of feeding: □ 15-20 minutes □More than 20 minutes □According to need of neonate
12.Position after feeding ? □on the side □ on the abdomen □on the back
13. Breastfeeding is faster in absorption and digestion than bottle feeding ? □Yes □No □Don’t know
14. Breastfeeding has the same health benefits as breastfeeding? □Yes □No □ Don’t know

15. Colostrum milk contains antibodies that reduce the infection of preterm baby ? □Yes □No □Don't know
16. Breastfeeding reduces the percentage of jaundice in preterm neonates? □Yes □ No □ Don't know
17.Is increasing the probability of jaundice a health problem that needs follow-up in the hospital? □Yes □No □Don't know
18. Jaundice is a serious health problem affecting the brain? □ Yes □ No □ Do not know
19. Does preterm neonate need vaccinations like full term neonates? □ Yes □ No □ Do not know
20. Do you wash your hands before dealing with your child? □ Yes □ No
21. I aware of signs of illness for my child who need medical intervention? □ Yes □No □ Do not know
22. Have you been instructed how to take umbilical care of preterm neonate ? □ Yes □No
23. Do you use alternative medicine recipes for umbilical care of your baby? □ Yes □ No
24.If Yes: What items do you add to take care of your baby? □ Olive oil □ Coffee □ Other, specify .....
25. Have you been instructed to add vitamins to your baby beside to breastfeeding? □ Yes □ No

5. The level of mother attitudes about care of preterm

Very disagree	Dis agree	Neither agree nor disagree	Agree	Very agree	Questions
					1. I will follow the important advice and guidance in caring my child
					2. I attend health education programs
					3. I visit the primary care center regularly to follow up health state of my child .
					4. I want to breastfeed because it reduces infection and increases my relationship with my child
					5. I want to continue breastfeeding of my baby for at least a year.
					6. I will keep my breast clean constantly as it reduces infection for me and my child.

					7.Good breastfeeding helps to increase the weight of my baby
					8. I am happy and comfortable when I breastfeed my baby.
					9. I will commit to breast feeding because it reduces of jaundice to my baby.
					10. I a sure to wash bottle of feeding with boiling water after each feeding.
					11. I want to breastfeed my baby because it is faster in absorbing and digesting than bottle feeding.
					12. I want to breastfeed my baby because it contains antibodies that reduce infection.
					13. During feeding, be sure to eat plenty of spices and caffeine
					14. After breastfeeding, be sure to stop my baby on my chest and make light strokes or circular movements on the middle of the back until a sound is issued
					15.I bring my baby for vaccination in the first month after leaving from hospital.
					16. I will abide by the schedule of vaccinations in primary care center.
					17. Hypothermia helps to increase of my baby weight.
					18. I should not expose my baby to cold air or air currents after bathing
					19. Should not dry my baby immediately after bathing to prevent heat loss.
					20. Be sure to warm my baby after the bath and not expose it to any cold air stream because it may cause hypothermia.
					21. I will commit to hand washing while taking care of my child because it is protect him from infection.
					22. Should not to expose your child to perfume as it may adversely affect his or her health.
					23. I show love to my baby by touching, embracing, hugging and smiling.
					24. I will commit to giving my child enough time to sleep and wake him up only when breastfeeding.
					25. If appear any signs of inflammation or jaundice on my baby, I will bring him to the nearest hospital.
					26. Olive oil will reduce the inflammation of the umbilical and helps to heal it faster.
					27. I want to use alternative medicine recipes because they are less expensive and more useful.
					28. Be sure to add vitamins to my child prematurity along with breastfeeding.

Annex (3)

Control panel

Name	Position
Dr. Ahmed Najem	Al-Azhar University- Gaza
Dr.Hatem Eltabaky	Al-Quds University – Gaza
Dr. Shireen Abed	Al Naser Pediatric Hospital - Gaza
Dr. Alam abohamda	Al-Shifa Hospital – Gaza
Dr. Mahammed Algergawee	Palestine Collage of Nursing
Dr. Ahmed Alshair	Islamic University – Gaza
Dr. Osama Eliyan	Al-Azhar University- Gaza

Annex (4)

Approval from Helsinki committee

المجلس الفلسطيني للبحث الصحي
Palestinian Health Research Council
تعزيز النظام الصحي الفلسطيني من خلال مأسسة استخدام المعلومات البحثية في صنع القرار
Developing the Palestinian health system through institutionalizing the use of information in decision making

Helsinki Committee
For Ethical Approval

Date: 05/02/2018 **Number:** PHRC/HC/327/18

Name: ALI A. ALDIRAWI الاسم:

We would like to inform you that the committee had discussed the proposal of your study about:

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:

Knowledge and Attitudes of Mothers Toward the Essential Care of their Preterm Neonates Post Discharge from NICU in Governmental Hospitals in Gaza Strip.

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/327/18 in its meeting on 05/02/2018

و قد قررت الموافقة على البحث المذكور عاليه بالرقم والتاريخ المذكوران عاليه

Signature

Member **Member**

5/2/2018

Chairman

Genral Conditions:-
1. Valid for 2 years from the date of approval.
2. It is necessary to notify the committee of any change in the approved study protocol.
3. The committee appreciates receiving a copy of your final research when completed.

Specific Conditions:-

E-Mail:pal.phrc@gmail.com
Gaza - Palestine غزة - فلسطين
شارع النصر - مفترق العيون

Annex (5)

Approval from MOH

State of Palestine
Ministry of health

دولة فلسطين
وزارة الصحة

التاريخ:20/06/2018
رقم المراسلة 222569

السيد : رامي عيد سليمان العبادله المحترم

مدير عام بالوزارة /الإدارة العامة لتنمية القوى البشرية - /وزارة الصحة

السلام عليكم ,,,

الموضوع/ تسهيل مهمة الباحث//علي الديراوي

التفاصيل //
بخصوص الموضوع أعلاه، يرجي تسهيل مهمة الباحث/ **علي عبدالرحمن الديراوي**
الملتحق ببرنامج ماجستير التمريض – تخصص تمريض أطفال- جامعة القدس أبوديس في إجراء بحث بعنوان:-
"Knowledge and Attitudes of Mothers toward the Essential Care of their Preterm Neonates Post Discharge from Neonatal Intensive Care Units (NICUs) in Governmental Hospitals in Gaza Strip"
حيث الباحث بحاجة لتعبئة استبانة من عدد من أمهات الأطفال الخدج عند الخروج من أق في أقسام العناية المركزة للأطفال حديثي الولادة في مجمع الشفاء الطبي ومجمع ناصر الطبي.
نأمل التكرم بتوجيهاتكم لذوي الاختصاص بضرورة الحصول على الموافقة المستنيرة من أمهات الأطفال اللاتي هن على استعداد للمشاركة في البحث ومن ثم تمكين الباحث من التواصل معهن، بما لا يتعارض مع مصلحة العمل وضمن أخلاقيات البحث العلمي، ودون تحمل الوزارة أي أعباء أو مسئولية.
وتفضلوا بقبول التحية والتقدير،،،
ملاحظة/ البحث حصل على موافقة لجنة اخلاقيات البحث الصحي
ملاحظة / تسهيل المهمة الخاص بالدراسة أعلاه صالح لمدة 6 شهر من تاريخه.

محمد ابراهيم محمد السرساوي
مدير دائرة/الإدارة العامة لتنمية القوى البشرية -

التحويلات

■ محمد ابراهيم محمد السرساوي(مدير دائرة)	← رامي عبد سليمان العبادله(مدير عام بالوزارة)	إجراءاتكم بالخصوص(20/06/2018)
■ رامي عبد سليمان العبادله(مدير عام بالوزارة)	← عبد اللطيف محمد محمد الحاج(مدير عام بالوزارة)	إجراءاتكم بالخصوص(21/06/2018)
■ عبد اللطيف محمد محمد الحاج(مدير عام بالوزارة)	← مدحت عباس خضر حسن (مدير عام بالوزارة)	إجراءاتكم بالخصوص(21/06/2018)
■ عبد اللطيف محمد محمد الحاج(مدير عام بالوزارة)	← محمد خليل محمد زقوت(مدير)	إجراءاتكم بالخصوص(21/06/2018)
■ محمد خليل محمد زقوت(مدير)	← عمر عبد الله حسين الاسطل(مدير دائرة)	للإطلاع و توجيهاتكم بالخصوص(21/06/2018)
■ محمد خليل محمد زقوت(مدير)	← بيان مصباح غانم شراب(مدير صيدلية)	للإطلاع و توجيهاتكم بالخصوص(21/06/2018)
■ محمد خليل محمد زقوت(مدير)	← علاء الدين محمود فايز المصري(طبيب رئيس قسم)	للإطلاع و توجيهاتكم بالخصوص(21/06/2018)
■ محمد خليل محمد زقوت(مدير)	← وليد عبد احمد ابوحطب(طبيب مسجل مساعد / معايس عام)	للإطلاع و توجيهاتكم بالخصوص(21/06/2018)

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Annex (6)

Questionnaire (Arabic)

استبانة

بسم الله الرحمن الرحيم

عزيزتي الأم المشاركة:

أنا الباحث / علي عبد الرحمن محمود الديراوي يسعدني مشاركتك الفاعلة في بحث بعنوان " **مستوى معرفة وتوجهات الأم عن كيفية رعاية أطفالهم الخدج عند الخروج من أقسام العناية المركزة للأطفال حديثي الولادة في المستشفيات الحكومية في محافظات غزة**"، وهذه الدراسة مقدمة للحصول على درجة الماجستير في تمريض الأطفال في جامعة القدس أبو ديس فرع غزة .

تهدف هذه الدراسة لتحديد مستوى معرفة وتوجهات الأمهات عن رعاية أطفالهم الخدج عند الخروج من أقسام العناية المركزة لحديثي الولادة في المستشفيات الحكومية التابعة لوزارة الصحة في محافظات غزة. قد تستغرق تعبئة الاستبانة 15 دقيقة. ستعامل جميع البيانات بسرية تامة وسوف تستخدم لأغراض البحث العلمي فقط. يرجى الاجابة على جميع الأسئلة وفق ما ترينه مناسب مع العلم انه لا توجد اجابة صحيحة واجابة خاطئة.

مع فائق الاحترام والتقدير

الباحث

علي عبد الرحمن الديراوي

الايميل/ mr_ali_90@hotmail.com

جوال/0597062293

استبانة

معلومات شخصية عن الأم
1. العنوان : □ غزة □ شمال غزة □ الوسطى □ خانيونس □ رفح
2. المستشفى : □ مجمع الشفاء الطبي □ مجمع ناصر الطبي
3. عمر الأم بالسنوات □ اقل من 20 سنة □ 20-30سنة □ اكثر من 30 سنة
4.عدد افراد الاسرة □ 3 فأقل □ 4-7 □ اكثر من 7
5.مهنة الام : □ موظفة □ ربة منزل □ أخرى، حددي.....
6.مستوى تعليم الام: □ امية □ تعليم اساسي □ تعليم ثانوي □ جامعية □ دراسات عليا
7.الدخل الشهري □ اقل من 1000 شيكل □ 1000- 2000 شيكل □ اكتر من 2000 شيكل
تاريخ الحمل للأم
1. هل حملك بهذا المولود هو الأول ؟ □ نعم □ لا
2. اذا كانت الاجابة لا:كم عدد مرات الحمل..... عدد مرات الولادة ..... عدد الاجهاضات(ان وجدت).....
3. هل تم دخول أي من اطفالك السابقين الي قسم الحضانة □ نعم □ لا
4. *اذا نعم ما هو السبب؟* □ مشاكل في التنفس □ عيوب خلقية □ طفل خداج □ اخرى ،حددي.....
5. نوع الخروج من القسم ؟ □ تحسن □ وفاة □ مشاكل مزمنة ،حددي.....
تاريخ الحمل بالمولود الحالي
1. نوع الحمل؟ □ طبيعي □ زراعة او حمل انابيب
2. هل تعاني من أي مضاعفات مرتبطة بالحمل؟ □ نعم □ لا
3.اذا نعم ، ما هي؟ □ انيميا(فقر الدم) □ السكري □ ضغط الدم □اخرى ،حددي.....
4. هل كانت هناك عناية ومتابعة اثناء الحمل؟ □ نعم □ لا
5 .اذا *نعم ، كم كانت* عدد الزيارات للمركز الصحي للمتابعة ؟ □ مرتين فاقل □ 3-5 مرات □ اكثر من 5 مرات
6. كم من الوقت مكثت في المستشفى قبل الخروج؟ □ ساعات(عدد الساعات)..... □ ايام(عدد الأيام).....
7. طبيعية الولادة ؟ □ ولادة طبيعية □ ولادة قيصرية

8. ان كانت الولادة بعملية قيصرية ما هو السبب ؟ □ حجم الجنين كبير □ مشاكل صحية مزمنة عند الام
□ مضاعفات للام او الجنين □ اسباب اخرى ،حددي .....
9.هل حدثت أي مضاعفات للأم أثناء الولادة ؟ □ نعم □ لا
10.اذا نعم ما هي المضاعفات؟ □ نزيف □ تشنجات مستمرة □مشاكل في القلب □اخرى، حددي.....
11.هل تلقيت أي توعية او تثقيف صحي خلال فترة الحمل ؟ □ نعم □ لا ***اذا لا انتقل للفقرة التالية***
12.اذا الاجابة بنعم، كيف كانت اللقاءات التوعوية؟ □ فردية □ جماعية
13.اذا الاجابة بنعم، من الذي قام بتزويدك بالمعلومات؟ □ طبيب □ ممرضة □ قابلة □اخرون، حددي.....
14.هل حصلتي على منشورات او كتيبات توعوية ؟ □ نعم □ لا
معلومات عن الطفل الخداج
1. الجنس □ ذكر □ انثى
2. العمر □ ساعات(عدد الساعات)..... □ ايام (عدد الأيام).....
3. توائم □ نعم □ لا
4. العمر الرحمي □ اقل من 25 اسبوع □ 26 -31 اسبوع □ 32-37 اسبوع
5. سبب دخول المستشفى؟ □ مشكلة في التنفس □ صعوبة في الرضاعة □ عيوب خلقية □ اخرى،حدد.....
6 .مدة دخول قسم الحضانة □ ساعات □ أيام □ شهور
7 . هل احتاج المولود لانعاش القلب والرئتين □ نعم □ لا □ لا أعرف
8. حالة الخروج □ تحسن □ يحتاج متابعة □ مرض مزمن □ يحتاج رعاية خاصة
9. الوزن عند الولادة؟ □ أقل من 1كجم □ 1-1.5 كجم □ 1.5-2.5 كجم □ أكثر من 2.5 كجم
10. هل الطفل يعاني من مشاكل صحية عند الخروج من المستشفى؟ □ نعم □ لا
11. *اذا كانت الاجابة بنعم اختاري طبيعية المشكلة*
□ اضطرابات في التنفس □ ارتفاع نسبة الصفار □ عيوب خلقية □ اخرى، حددي .....
12. ما هي طريقة الرضاعة □ رضاعة طبيعية □ رضاعة صناعية □ تغذية بالأنبوب المغذي
مستوى معرفة الام عن رعاية الطفل الخداج
1. هل تلقيتي أي معلومات عن رعاية طفلكي الخداج في المستشفى؟ □ نعم □ لا

2. ادا كانت الاجابة بنعم ما هي طبيعية المعلومات المقدمة لكم؟ ***يمكن اختيار اكثر من اجابة***
□ منع العدوى □ زيادة الوزن □ زيادة نسبة الصفار □ رعاية وتنظيف السرة
□ الرضاعة الطبيعية □ تنظيم درجة حرارة □ اخرى، حددي.....
3. اذا الاجابة بنعم ،من الذي قام بتزويدك بالمعلومات؟ □ طبيب □ ممرضة □ قابلة □ أخرون حددي.....
4. اذا الاجابة بنعم ، كيف كانت الية التعليم؟ □ فردي □ جماعي
5.هل قمتي بتقديم خدمات لطفلك مثل الرضاعة اثناء دخوله في المستشفى؟ □ نعم □ لا
6. هل تم إعطائك الوقت الكافي لطرح اسئلة تعليمية عن رعاية طفلك؟ □ نعم □ لا
7. هل سبق وحضرتي ندوات توعوية وتثقيف صحي داخل المستشفى؟ □ نعم □ لا
8. كيف تحافظي على دراجة حرارة طفلكي في المنزل ؟
□ المحافظة على درجة حرارة الغرفة □ تدفئة الملابس □ ابعاد السرير عن الشبابيك □ جميعها صحيح
9.هل تقومي بإيقاظ طفلك عند الرضاعة ؟ □ نعم □ لا
10. فترة الرضاعة؟ □ كل 3 ساعات على الاقل □ كل اكثر من 3 ساعات □ عشوائية
11. مدة الرضاعة؟ □ حسب حاجة الطفل □ 15-20 دقيقة □ اكثر من 20 دقيقة
12 . وضعية ما بعد الرضاعة ؟ □ على الجانب □ على الظهر □ على البطن
13. حليب الام اسرع في الامتصاص والهضم من الحليب الصناعي؟ □ نعم □ لا □ لا اعرف
14. الرضاعة الصناعية لها نفس الفوائد الصحية للرضاعة الطبيعية ؟ □ نعم □ لا □ لا اعرف
15.حليب اللبا تحتوي على اجسام مضادة تقلل من العدوى للطفل الخداج ؟ □ نعم □ لا □ لا اعرف
16.تقلل الرضاعة الطبيعية من نسبة الصفار عند الأطفال ؟ □ نعم □ لا □ لا اعرف
17. تعتبر زيادة نسبة الصفار مشكلة صحية تحتاج متابعة داخل المستشفى ؟ □ نعم □ لا □ لا اعرف
18. يعتبر الصفار المرتفع من المشاكل الصحية الخطيرة التي تؤثر على الدماغ؟ □ نعم □ لا □ لا اعرف
19.يحتاج الطفل الخداج تطعيمات مثل الطفل الطبيعي ؟ □ نعم □ لا □ لا أعرف
20. هل تغسلي يديك قبل التعامل مع طفلك ؟ □ نعم □ لا
21. أنا على معرفة بالعلامات المرضية لطفلي التي تحتاج الي تدخل طبي؟ □ نعم □ لا □ لا أعرف
22.هل تم ارشادك الي كيفية الاهتمام بسرة الطفل ؟ □ نعم □ لا

23.هل تتبعين وصفات الطب البديل في الاعتناء بسرة طفلك ؟ □ نعم □ لا
24.اذا نعم :ما هي المواد التي تضيفينها للاعتناء بسرة طفلك؟ □ زيت الزيتون □القهوة □ اخرى،حددي.....
25.هل تم ارشادك الي اضافة فيتامينات لطفلك الخداج الي جانب الرضاعة الطبيعية ؟ □ نعم □ لا

مدى توجهات الأم عن رعاية الطفل الخداج

الاسئلة	موافق بشدة	موافق	محايد	غير موافق	**غير موافق بشدة**
1. سأقوم باتباع النصائح والارشادات المهمة في رعاية طفلي					
2. احرص على حضور برامج التوعية والتثقيف الصحي					
3. احرص على متابعة مراكز الرعاية الاولية باستمرار وفحص طفلي للاطمئنان على صحته .					
4.ارغب في الرضاعة الطبيعية لأنها تقلل من العدوى وتزيد علاقتي بطفلي					
5. ارغب في الاستمرار في رضاعة طفلي سنة على الاقل					
6. سألتزم بنظافة ثديي باستمرار لأنها تقلل من العدوى لي ولطفلي.					
7.الرضاعة الطبيعية الجيدة تساعد على زيادة وزن طفلي					
8.اشعر بالسعادة والراحة عندما اقوم بإرضاع طفلي					
9.سألتزم بالرضاعة الطبيعية لأنها تقلل من نسبة الصفار عند طفلي					
10. احرص على غسل الرضاعة بالماء المغلي بعد كل رضعة					
11.ارغب بإرضاع طفلي من صدري لأنه اسرع في الامتصاص والهضم من الحليب الصناعي					
12.ارغب بإرضاع طفلي من صدري لأنه يحتوي على اجسام مضادة تقلل من العدوى					
13.اثناء فترة الرضاعة احرص على الاكثار من تناول البهارات والكافيين					
14.بعد الرضاعة احرص على ايقاف طفلي على صدري واجري ضربات خفيفة او حركات دائرية على منتصف الظهر حتى يصدر صوت					
15.اقوم بإحضار طفلي للتطعيم في الشهر الأول بعد خروجه من المستشفى					
16. سألتزم بجدول التطعيمات المعمول فيه في مراكز الرعاية الاولية					

17. انخفاض درجة حرارة طفلك يساعد على زيادة وزنه					
18. يجب ان لا اقوم بتعريض طفلي للجو البارد او تيارات الهواء بعد الاستحمام					
19. يجب عدم تنشيف طفلي مباشرة بعد الاستحمام حتى امنع فقدان للحرارة					
20. أحرص على تدفئة طفلي بعد الحمام وعدم تعريضه لأي تيار هواء بارد لأنه قد يسبب في انخفاض حرارته أكثر.					
21. سألتزم في غسل اليدين اثناء القيام برعاية طفلي لانها وسيلة اساسية لحمايته من العدوى .					
22. احرص على عدم تعريض طفلي للعطور لأنها تؤثر سلبا على صحته .					
23. اقوم بإظهار الحب لطفلي عن طريق اللمس والعناق والضم والابتسام					
24. سألتزم بإعطاء طفلي الوقت الكافي للنوم ولا ايقظه الا عند الرضاعة					
25. ادا ظهرت على طفلي أي علامات التهابات او اصفرار سأقوم بإحضاره الي اقرب مستشفى					
26.اضافة زيت الزيتون يقلل من التهاب السرة ويساعد على شفاؤها بوقت اسرع					
27.ارغب في استخدام وصفات الطب البديل لأنها اقل تكلفة واكثر منفعة					
28.احرص على اضافة فيتامينات لطفلي الخداج الي جانب الرضاعة الطبيعية					

شكرا جزيلا على تعاونكم معنا

معرفة وتوجهات الأمهات عن الرعاية المقدمة لأطفالهم الخدج قبل الخروج من أقسام العناية المركزة للأطفال حديثي الولادة بالمستشفيات الحكومية في مدينة غزة

اعداد الباحث : علي عبد الرحمن الديراوي

اشراف: د. علي حسن الخطيب

ملخص الدراسة

مقدمة

الولادة المبكرة هي الولادة التي تحدث قبل 37 أسبوعا من الحمل. إنها واحدة من أكثر المشاكل الصحية شيوعا التي تظهر في الأطفال حديثي الولادة وسبب اساسي لدخولهم الي أقسام العناية المركزة للأطفال حديثي الولادة. في عام 2016 تشكل نسبة الأطفال الخدج 40% من مجموع حالات الدخول الي اقسام العناية المركزة للأطفال حديثي الولادة. نقص المعرفة بين الأمهات حول احتياجات أطفالهم الخدج هو سبب مهم لإعادة دخولهم بشكل فوري الي المستشفى ، كما ان توجهات الأمهات حول الرعاية الخاصة المقدمة للأطفال الخدج هو شيء ضروري ومهم في التقليل من المضاعفات الصحية لديهم.

أهداف الدراسة

الهدف العام لهذه الدراسة هو التعرف على مدى معرفة وتوجهات الأمهات عن الرعاية المقدمة لأطفالهم الخدج قبل الخروج من أقسام العناية المركزة للأطفال حديثي الولادة بمستشفيات الحكومية في مدينة غزة.

منهجية الدراسة

تكونت عينة الدراسة من 120 من الأمهات تم اختيارهم بشكل ملائم ووزعت بالتساوي على أول 60 من الأمهات للأطفال الخدج الذين تم اختيارهم عند الخروج من أقسام العناية المركزة للأطفال حديثي الولادة في مجمع الشفاء الطبي ومستشفى ناصر الطبي. تم عمل استبيان عن طريق الباحث بالاستدلال مع دراسات سابقة وجمعت البيانات من قبل الباحث من خلال مقابلة وجها لوجه مع أمهات الخدج.

أهم النتائج

- اظهرت النتائج أن 52% من الأمهات للأطفال الخدج لديهن معرفة كافية عن رعاية أطفالهم وأن 84.6 % لديهم توجهات ايجابية عن رعاية أطفالهم الخدج.
- بينت نتائج الدراسة وجود علاقة ذات دلالة احصائية بين مدى توجهات الأمهات عن رعاية أطفالهم الخدج والمستشفى الذي تم اخد العينة منه، حيث اثبتت الدراسة أن توجهات الامهات في مجمع الشفاء الطبي اعلى من توجهاتهم في مجمع ناصر الطبي. لكن لا يوجد علاقة ذات دلالة احصائية بين معرفة الأمهات عن رعاية أطفالهم الخدج بين المستشفيين.

- بينت الدراسة انه لا يوجد علاقة ذات دلالة احصائية بين مستوى معرفة وتوجهات الامهات عن رعاية أطفالهم الخدج وبين مستوى الدخل الشهري للعائلة.
- بينت الدراسة انه لا يوجد علاقة ذات دلالة احصائية بين مستوى معرفة وتوجهات الامهات عن رعاية أطفالهم الخدج وبين مستوى التعليم عند الأم ومكان السكن .
- وضحت الدراسة انه لا يوجد علاقة ذات دلالة احصائية بين مستوى معرفة وتوجهات الامهات عن رعاية أطفالهم الخدج وبين عمر الأم وعدد أفراد الأسرة.
- أظهرت نتائج الدراسة عدم وجود فرق ذات دلالة احصائية بين مستوى معرفة وتوجهات الامهات عن رعاية أطفالهم الخدج وبين عمل الأم و مهنة مقدمي التوعية الصحية للأمهات.

أهم التوصيات

خرجت الدراسة بعدة توصيات منها:

- هناك حاجة إلى مزيد من التركيز على تعليم الأمهات قبل خروج أطفالهم الخدج من أقسام العناية المركزة للأطفال حديثي الولادة .
- يوصى الباحث بإجراء بحثوث نوعية لتوضيح المزيد حول معرفة وتوجهات الأمهات عن رعاية أطفالهم الخدج في المستشفيات الحكومية الأخرى.
- تقديم مقترحات إلى صانعي القرارات في المستشفيات الحكومية لتحسين الممارسات التي يقدمونها للأطفال الخدج فيما يتعلق بمساعدة الأمهات في تقديم الرعاية الكاملة لأطفالهم.
- مراجعة المناهج الدراسية الخاصة بالتخصصات الصحية التي تدرس عن علم الحضانة و الأطفال حديثي الولادة متل تخصص التمريض بالتركيز على اهمية دور التثقيف الصحي للأمهات واعطائهم دورات عن الخدمات التي يقدمونها .
- يوصي الباحث بأهمية العمل المشترك بين أقسام العناية المركزة للأطفال حديثي الولادة وبين قسم التثقيف الصحي التابع لوزارة الصحة، حيث لابد من وجود مثقف صحي يوميا داخل اقسام الحضانات لكي يعطي اهم التوصيات حول رعاية الأطفال الخدج .