ASSESSMENT OF POSTPARTUM DEPRESSION AND ANXIETY AMONG MOTHERS OF PRETERM NEONATES AT NEWBORN UNIT-MOI TEACHING AND REFERRAL HOSPITAL ELDORET

BY

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DECLARATION

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DEDICATION

I dedicate this thesis to my late father Mzee Mwalimu Jeremiah Khaemba Sakari (1938-2017), my mother Regina Nekesa Khaemba and my loving wife Eunice Vudembu.

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ABSTRACT

Background: The experience of taking care of a preterm neonate is regarded as highly stressful for the mother given the ill nature and fear of lower survival rates. As medical needs for the preterm neonate take center stage in the Newborn Unit, the mother, and her role are overshadowed resulting in neglect of her physical and emotional needs. These may lead to postpartum depression and anxiety which may remain undetected and if untreated may lead to poor maternal being and dysfunction. Consequently, considering maternal role attainment theory the normal developmental and interactional process between the mother and the neonate is adversely affected. Therefore, the resulting psychological burden on the mothers was thought to result into a significant public health problem. Few studies however have been carried out on the same in low-resource countries.

Aim: This study set out to determine the prevalence and the socio-demographic characteristics associated with postpartum depression, and anxiety among mothers of preterm neonates; and to determine the mothers' perceptions towards nurses' support in the Newborn Unit at the Moi Teaching and Referral Hospital (MTRH).

Methods: This was a hospital based cross-sectional descriptive study. Two hundred and sixty two (262) mothers with preterm neonates were sampled using systematic random sampling technique. Data was collected using self reporting Edinburg Postpartum Depression Scale, Becks Anxiety Inventory and Nurse Parent Support Tool. Data analysis was done using Statistical Package for Social Sciences version 24.0. Descriptive statistics used included frequencies and percentages, while inferential statistics to determine associations between categorical variables involved mainly the Chi-square. A p-value of ≤ 0.05 was considered significant at 95% confidence interval**.**

Results: Prevalence of postpartum depression and anxiety was 65.5% and 63.3% respectively. Significant association existed between depression and: marital status χ^2 (3) and $p = .049$); and level of education at χ^2 (3) and $p = .035$. There was also a significant association between anxiety and age at χ^2 (3) and $p = .049$; education level, χ^2 (3) and $p = 009$ as well as occupation, χ^2 (3) and $p = 012$. Thirty one point seven percent of participants indicated that nurses were not helpful in allaying their worries and 28.2% reported that nurses were not concerned regarding their feeding and sleep.

Conclusions: The prevalence of postpartum depression and anxiety at MTRH was found to be similar to that at Kenyatta National Hospital. It was found to be higher among the single mothers, young or teen mothers with low level of education and low socio-economic status. Unfortunately, it seemed that the mental well being of mothers with preterm neonates was not a priority for most nurses attending to the neonates.

Recommendations: The health sector needs to prioritize screening, diagnosis and treatment of depression and anxiety for postnatal mothers. Nurses also need to include mental health support to mothers of preterm neonates during hospitalization.

Key words: Mother, Preterm neonate, Newborn Unit, Postpartum depression, Postpartum anxiety, Nurse Parent support.

ABREVIATIONS

BAI	Becks Anxiety Inventory
EPDS	Edinburgh Postnatal Depression Scale.
FPC	Finite Population Correction
NBU	Newborn Unit
NPST	Nurse Parent Support Tool
MRAT	Maternal Role Attainment Theory
MTRH	Moi Teaching and Referral Hospital
PPA	Postpartum Anxiety
PPD	Postpartum Depression

OPERATIONAL DEFINITION OF TERMS

Mother: someone who gave birth to a neonate or a caring female dedicated to the well-being of their offspring. In this study, the word "mother" refers to someone who gave birth to a preterm neonate and was caring for her preterm neonate in Newborn Unit.

Mother-infant bond: that attachment that is found between a mother and a neonate from the time of birth.

Newborn Unit: department within hospital facility specialized in care of ill or preterm neonates.

Perception: the way in which something is regarded, understood or interpreted.

Preterm neonate: neonate born alive before 37 weeks of pregnancy is completed.

Postpartum depression (PPD): is a complex mix of physical, emotional and behavioral changes that happen in a woman few days or even months after giving birth. Symptoms may include extreme sadness, worthless, depressed mood, lack of interest in enjoyable things, lack of energy, slowing movement, irritability, trouble concentrating and changes in sleeping patterns.

Postpartum anxiety (PPA): is a mood disorder that happens in women few days after giving birth. The condition manifests with excessive worry, panic attacks, irritable, restless, easily, fatigued, tense, increased heart rate, vigilant, apprehension in thoughts and asking others for constant reassurance.

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CHAPTER ONE

INTRODUCTION

1.1 Background

This section presents the background of the study, problem statement, objectives and research questions. It will also cover justification, significance, theoretical and conceptual framework of the study. Postpartum depression and anxiety are a serious problem with considerable effect on the mother and neonates health, being more common in mothers of preterm neonates (Herizchi, 2017). Research has shown that premature birth is a distressing event for mothers that often report symptoms of postpartum depression and anxiety. Postpartum depression and anxiety impairs mothers' ability to function, make rational decisions and play productive role in the society (Madlala, 2018). Although in the last decade Newborn Units have undergone improvement to take care of very ill and preterm neonates the environment remains stressful for mothers. .

Mothers of preterm neonates experience a continuum of regular and repeated stressful events during Newborn Unit hospitalization compared to mothers of full term neonates (Fowler, Green, & Elliott, 2019). As the medical needs for the preterm neonate take center stage in the Newborn Unit, the mother and her role may be overshadowed resulting in neglect of her physical and emotional being (Tahirkheli, 2014). The first step in addressing this health problem is to identify mothers who may be at risk of postpartum depression and anxieties using standardized screening tools then deliberately attend to factors that would help protect vulnerable mothers from phenomenon now considered an important public health concern.

A study done by (Palumbo, Mirabella, and Gigantesco, 2017) reveals that there are substantial proportion of postnatal mothers that develop postpartum depression and many experience co-morbid postpartum anxiety. A study done by (Trumello, Candelori, and Cimino, 2018) found that in literature, few studies have examined the level of postpartum depression and anxiety immediately after preterm birth and during hospitalization.

According to (Azad & Shrestha,2019) showed global estimate of prevalence of postpartum depression among mothers of preterm neonates ranges from 5.2 % to 74% in developing countries and 1.9% to 82.1% in developed countries. In a study done by Field (2018) found prevalence of postpartum anxiety widely ranged from 13 to 40%. In a meta-analysis and meta-regression study by (Holbrook and Anaya, 2018) found a disparity in postpartum depression prevalence across the nations with the highest rate being Chile, 38%, South Africa 37%, and Turkey 28%. Countries with the lowest rate included Singapore 3%, Nepal 7% and Netherlands 8%. In Kenya a study done by (Mutua, 2017) revealed postpartum depression and anxiety prevalence was 68.6% and 52.3% respectively among mothers of preterm neonates admitted in Newborn Unit at Kenyatta National Hospital Nairobi, Kenya.

There is a broad consensus that postpartum depression and anxiety experienced by mother is closely related to long separation from their preterm neonate and the loss of their parental role as they had previously envisioned hence affecting normal bonding process (Ballantyne,Orava, & Fehlings, 2017). As suggested by (Bhandari and Dongol, 2017) describes that many aspects of the Newborn Unit experiences can be distressing to the mother; the alarms, neonate's physical appearance, medical equipment, chemical scents and pool of health personnel.

Similarly according to (Field, 2018) shows that mothers are greatly concerned and worried about preterm survival which compounds their depression and anxiety symptoms.

Postpartum depression and anxiety among mothers with preterm neonates vastly go undetected hence many go untreated (Trumello et al., 2018). An important step towards preventing occurrence of these ailments would be to have a high index of suspicion when handling vulnerable mothers looking out for associated risk factors (Sulyman,Ayanda, &Dattijo, 2016). (Davila and Segre,2018) revealed that most mothers perceived information given to them by health care providers on technical care offered to their neonates and progress thereof as the most valuable form of mental support they needed. These alleviated many symptoms of depression and anxiety in them. Likewise, (Kantrowitz and Altman, 2016) showed that while dealing with such mothers focused and individualized attention would go a long way to identify and treat postpartum depression and anxiety. In low-resource settings like Kenya few studies have been carried out on postpartum depression and anxiety and this has implication on both the mother and neonates' health and intervention.

The main aims of this study were to determine the prevalence and the socio-demographic characteristics associated with postpartum depression, and anxiety among mothers of preterm neonates; and to determine the mothers' perceptions towards nurses' support in the Newborn Unit at a Hospital at Moi Teaching and Referral Hospital.

1.2 Problem Statement

Postpartum depression and anxiety are common debilitating mental disorders affecting women after child birth (Trumello, 2018). According to Ghaedrahmati, 2017) when left untreated can have substantial adverse effects on the well being of the mother and her preterm neonate, negatively impacting child cognitive, behavioral and emotional dent with lasting consequences.

Given the ill nature of a preterm neonate admitted in the Newborn Unit, it is unsurprising that focus of medical care shifts to the preterm neonate as the mothers physical and emotional needs get neglected (Wheeler et al., 2018). A study by (Petit et al., 2016) indicated that in Newborn Unit, preterm neonate care is a subject of pre occupation leaving sometimes mothers distress in background. As suggested by (Ong et al., 2019) found out that there are a substantial percentage of mothers of preterm neonates admitted in Newborn Unit who suffer postpartum depression, many of whom experience co-morbid anxiety symptoms.

Postpartum depression and anxiety are among the most common debilitating mental disorders in women after giving preterm birth (Matinnia, 2018). According to (Azad, 2019) demonstrated that the status of postpartum depression and anxiety prevalence and risk factors in mothers of preterm neonates have received less attention. (Learman, 2018) states that both postpartum depression and anxiety among mothers of preterm remain undetected and untreated, similarly there is lack of sensitive and validated screening tools with standard cut-offs. In a study by (Matinnia, 2018) reported that development of screening programs as well as designing evidence based prevention programs requires principled collection of scientific documentaries.

In a study by (Ishiola, 2018), indicated that previous postpartum depression and anxiety screening tools had focused on depressed mood with less attention paid to postpartum anxiety and suicidal ideation.

The experience of taking care of a preterm neonate is regarded as a highly stressful event to the mother and therefore the nurses ought to provide required information and assurance (Aftyka, 2017). On the contrary, inadequate responsiveness of Newborn Unit nurses to the mothers of preterm needs can cause high levels of fear and anxiety (Mehdizadeh, 2017). Regardless nurses have an extra ordinary opportunity to help mothers of preterm neonates learn, gain confidence and experience growth as they assume the mother identity (Meighan, 2017).

1.3 Objectives of Study

1.3.1 Broad Objective

The purpose of this study was to examine the postpartum depression and anxiety among mothers of preterm neonates at Newborn Unit at Moi Teaching and Referral Hospital, Eldoret.

1.3.2 Specific Objectives

1. To determine the prevalence of postpartum depression among postnatal mothers of preterm neonates at Newborn Unit-MTRH.
2. To determine the prevalence of postpartum anxiety among postnatal mothers of preterm neonates at Newborn Unit-MTRH.
3. To examine the maternal socio-demographic variables associated with depression and anxiety among mothers of preterm neonates at Newborn Unit.
4. To determine the mothers perception towards nurses' support in Newborn Unit-MTRH.

1.4 Research Questions

1. What is the prevalence of postpartum depression among postnatal mothers of preterm neonates at Newborn Unit-MTRH?
2. What is the prevalence of postpartum anxiety among postnatal mothers of preterm neonates at Newborn Unit-MTRH?
3. Which socio-demographic variables show significant associations between postpartum depression and anxiety among mothers of preterm neonates at Newborn Unit MTRH?
4. What is the mothers' perception towards the nurses' support in Newborn Unit at MTRH?

1.5 Justification of the Study

Postpartum period is physically and emotional stressful time for women (Madlala, 2018). If the additional burden of preterm birth is present it can have serious impact on the well being of the mother and her neonate bonding. In literature, few studies have examined the levels of postpartum depression and anxiety among mothers of preterm immediately after birth and during hospitalization (Trumello, 2018). Postpartum depression and anxiety from statistical point of view are the most important psychological complication related to childbirth (Palumbo, 2017). In a study by (Herizchi, 2017) indicated that postpartum anxiety and depression are serious problem with considerable effect on the mother and neonates health, being more common in mothers of preterm neonates.

Several studies (Ali, 2018), (Cherry, 2016 & Smith, 2016) consistently show that mothers of neonates admitted in Newborn Unit experience postpartum depression and anxiety at higher rates with more elevated symptoms than mothers of healthy term neonate. According to (Greene, 2015) there is need to theoretically conceptualize preterm birth as a unique sub type of pediatric medical stressor and the need for health care providers to address this health issue. There has not been adequate public health attention given to postpartum depression and anxiety in the context of mothers of preterm neonates in Newborn Units (Stube et al., 2018).

An early intervention program reduces depression and anxiety and increases maternal sensitivity among mothers of preterm neonates (Wheeler et al., 2018). According to (Beck, 2017& Fowler, 2019) the unexpected confrontation with a preterm neonate is far from what the parents had anticipated; the shock experienced during a rapid chain of events taking place, an experience of emptiness when the neonate is placed in Newborn Unit, the feeling of powerlessness, the invasive treatment is the main source of postpartum anxiety.

Association of Women's Health, Obstetric, and Neonatal Nurses (Tahirkheli et al., 2014) recommends that postpartum depression and anxiety screening mechanisms be provided in all medical facilities that serve pregnant women and postnatal mothers. To improve care according to (Akkoyun, 2019) it is very important to understand the experiences of these mothers of preterm neonates who are at a risk of being neglected in Newborn Unit setting.

To address this gap, the current study aims to assess which factors are most useful for identifying mothers at risk for postpartum depression or anxiety during hospitalization of the preterm neonates at Newborn Unit by investigating the impact of demographics and maternal socioeconomic factors.

1.6 Significance of Study.

Most studies assessing the psychological status of mothers of preterm in Newborn Unit have focused on one aspect of depression or anxiety rather than simultaneously comparing and contrasting trends of both depression and anxiety (Greene et al., 2015). According to (Tahirkheli, 2014 & Wagura, 2018) found out that rates of depression and anxiety across Newborn Unit setting in low income countries and Sub-Saharan Africa have not been adequately studied. Understanding of symptoms of postpartum depression and anxiety among medical health providers in Newborn Unit is necessary for early detection and definitive management (Beck, 2017). Identifying perinatal psychological and social risk factors may be important (Palumbo, 2017). This will help built capacity in terms of early detection, appropriate referrals for further assessment and definitive clinical management.

According to (Field, 2018), (Mutua, 2017), and (Tahirkheli, 2014) assessment for postpartum depression and anxiety should be part of standard postnatal care in health facilities. Provision of prevalence rates of postpartum depression and anxiety, its impact, benefits of early screening and intervention programs among mothers of preterm neonates in Newborn Unit are essential not only to medical staff but also to hospital administration (Trumello, 2018). The present study makes relevant contribution to the knowledge regarding physical and emotional state of mothers of preterm neonates admitted in Newborn Unit.

1.7 Scope of Study

The scope of this study was all mothers with stable preterm neonates admitted in Newborn Unit at Moi Teaching and Referral Hospital that met inclusion criteria.

1.8 Theoretical Framework

This study was based on Maternal Role Attainment Theory by Ramona Mercer (Cabrera, 2018). A clear conceptual perception of maternal role is important because transition to motherhood is a universal experience for childbearing women (Shrestha et al., 2018). Child birth and motherhood is a rewarding experience as it is a time of great change. According to (Javadifar, 2016) and (Meighan, 2017) becoming a mother is an important transition for a woman that adds new roles and responsibilities to their lives. In this theory by applying maternal role attainment theory in postpartum period, midwives are better able to educate, support and intervene appropriately to help mothers achieve a strong maternal identity while also promoting the health of the mother and her preterm neonate (Santos, 2019). The goal of developing a strong maternal identity throughout a woman's lifetime was the basis of Dr. Ramona Mercer's Maternal Role Attainment Theory (Meighan, 2017).

Mercer developed the "maternal role attainment becoming a mother" model. It is concerned mainly with maternal and neonate nursing but can be used with many ages and in many situations and environments (Fasanghari, 2019). According to (Javadifar, 2016) the concept of Ramona Mercer's theory is centered on the bond between mother and child which fosters competency, confidence and joy in the motherhood.

Childbirth can potentially be a time of stress as well as joy because it involves several challenges which revolve around leaning neonatal care tasks, getting to know the preterm neonate and confronting ones' self expectations as a mother (Mangeli, 2018).

In the process of becoming a mother a woman goes through a period of change, instability and reorganization of life (Javadifar, 2016). According to (Meighan, 2017) postpartum is a period of change and instability which can trigger symptoms of depression or anxiety in mothers making them prone to what they perceive as stressful situations, dangerous or threatening.

According to study done by (Shrestha, 2018) "The process of becoming a mother requires extensive psychological, social and physical work". A woman experiences heightened vulnerability and faces tremendous challenges as she makes this transition into motherhood. (Santos, 2019) states that maternal role attainment theory serves as a framework for midwives to provide appropriate health care interventions for mothers in order for them to develop a strong maternal identity.

This mid-range theory can be used throughout pregnancy and postnatal care, but is also beneficial for adoptive or foster mothers, or others who find themselves in the maternal role unexpectedly (Mangeli, 2018). The primary concept of this theory is the developmental and interactional process, which occurs over a period of time (Meighan, 2017). In the process, the mother bonds with the neonate, acquires competence in general care tasks of preterm neonate and then comes out to express joy and pleasure in her role as a mother (Cabrera, 2018). The relationship between a mother and her child is one of the most crucial relationships in human dynamics. Secure attachment of the neonate to her mother is crucial to normal growth and development and an integral part of a child's ability to develop a sense of mastery, identity and self-worth (Javadifar, 2016).

In maternal role attainment model, according to (Meighan, 2017) depression is defined as “Having a group of depressive symptoms, and in particular, the affective component of the depressed mood”. A prematurely born neonate is an example of how Mercer’s theory of “Maternal Role Attainment” (MRA) can be applied in practice (Meighan, 2017). According to (Fasanghari, 2019) the stress of becoming a mother is increased in the face of neonate’s critical illness; watching their neonate distressed and exposed to painful procedures causes mothers worry coupled with feelings of incompetence.

Based on Maternal Role Attainment Theory by Ramona, the prevalence of postpartum anxiety and depression among mothers’ of preterm neonates will show the extend of the medical problem at Newborn Unit, MTRH which can be inferred to the community of its catchment. The theory describes on how such mothers of preterm neonates should be able to accommodate outside influences along with the issues at hand in a difficult balancing act. (Meighan, 2017). These factors are the maternal characteristics and Newborn Unit environment that puts the mother under stress. Lastly according to (Javadifar, 2016) this theory states that nurses’ play a vital role in promoting health of mothers following childbirth, they have the most sustained and intense interaction with mothers in their maternity cycle.

According to (Fasanghari, 2019), (Mangeli, 2018) and (Meghan, 2017) in literature there is broad consensus that nurse midwives have an extra ordinary opportunity to help women learn, gain confidence and experience growth as they assume the mother identity. This theory is relevant to this study since mothers with preterm neonates get into unexpected role, weeks or months before the expected date of delivery. The process used in this midwifery model helps mothers to develop an attachment to the neonate, which in turn helps the neonate to form a bond with the mother (Meighan, 2017).

1.9 Conceptual Framework

Conceptual framework according to (Ravitch & Riggan, 2016) is both a process and a product that helps to direct and ground researchers as they work through common research challenges. (Mugenda & Mugenda, 2003) explain that conceptual framework is a scheme of concepts (variables) which the researcher will operationalize in order to achieve the set objectives. In this regard, the study variables were conceptualized as independent, intervening and dependent variables.

The burden of postpartum anxiety and depression among mothers of preterm neonates in Newborn Units is of public health interest (Greene et al., 2015). Feeling depressed or anxious while holding a neonate seems odds with itself, but it is the reality of many women (Ali, 2018). Thousands of mothers worldwide suffer from post partum depression and anxiety in silence, they are left alone to cope because the condition is not recognized or diagnosed (Tahirkheli et al., 2014).

The conceptual framework in this study was developed by the investigator based on the common risk factors associated with postpartum depression and anxiety among mothers of preterm neonates. The independent variables comprise of maternal socio-demographic variables on how they predispose the mother to develop postpartum anxiety and depression. While depression and anxiety are two different medical conditions their symptoms and causes often overlap. The independent variables were five among them was the mothers' age, level of education, occupation, marital status and parity.

To assess both postpartum depression and anxiety the validated tools namely the Edinburgh postpartum Depression Scale (EPDS) and the Beck Anxiety Inventory (BAI) were used. Secondly another independent variable was the role of nurses' support on how they assist in addressing and reducing effects of post partum depression and anxiety among the mothers. They include; continuous education to mothers, assisting mothers in performing tasks and explaining procedures to mothers and reassurance.

The intervening variables looked at socio-economic support on how they lessen the burden of post partum anxiety and depression. Economic empowerment and level of education has a direct bearing on health seeking behavior. Use of screening tools that are sensitive with standard cutoffs to detect cases early enough to allow timely intervention. Lastly the intervening variable was provision of information and assurance by nurses to mothers of preterm neonates' to regain control and self confidence.

Lastly the dependent variable was the outcome, the prevalence of postpartum depression and anxiety.

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Conceptual Framework

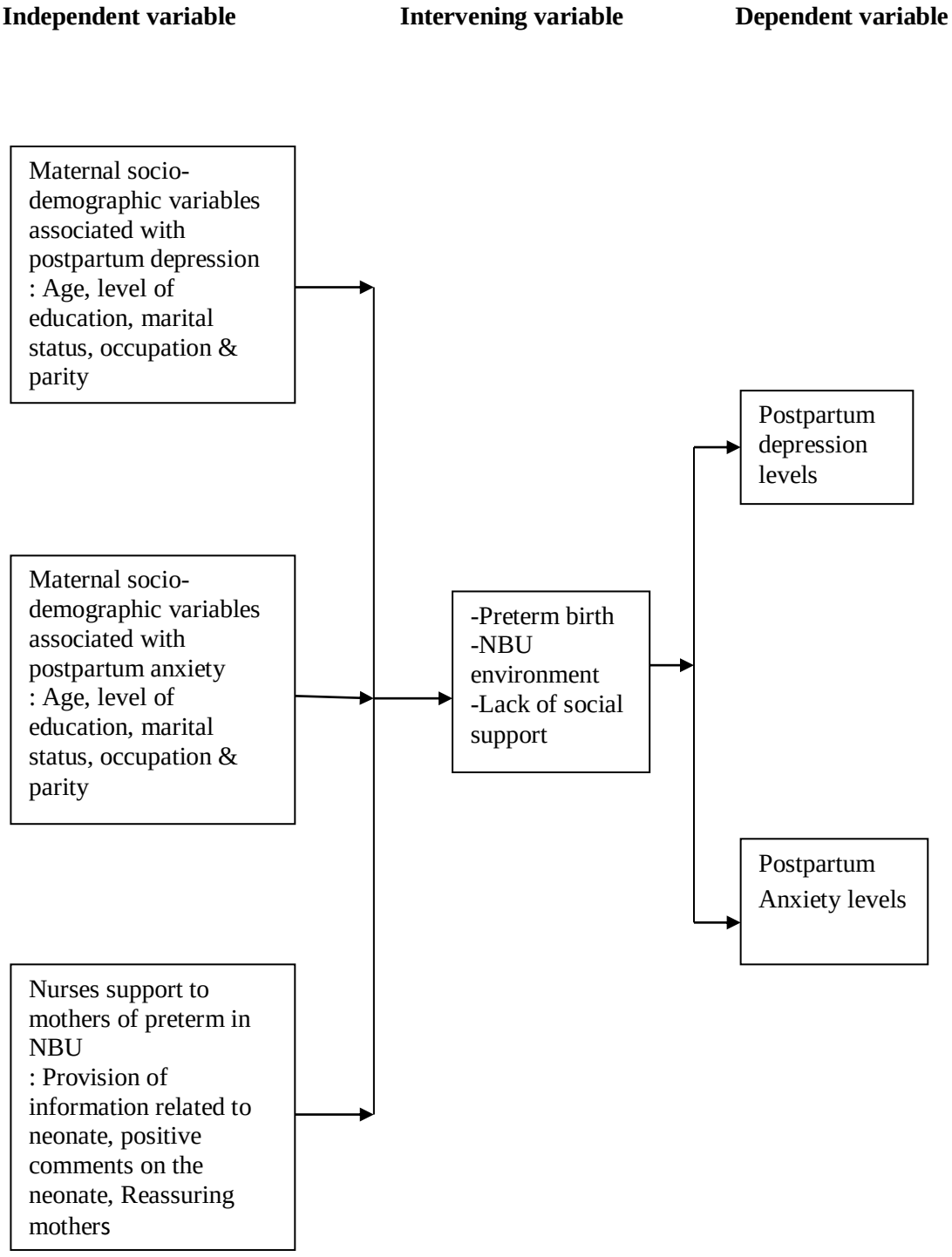

Figure 1: Conceptual Framework

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction.

This chapter provides a detailed overview of the global, regional and local view of postpartum depression, postpartum anxiety, socio-demographic factors of the mothers of preterm neonates, perception of mothers on nurses' role and the related literature.

2.2 Related Literature

In literature few studies have examined the level of postpartum depression and anxiety symptoms immediately after preterm birth in Newborn Unit settings (Trumello, 2018). According to (Fowler, 2019) and (Hawes, 2016) there is broad consensus that preterm birth is a distressing event for mothers that often leads to postpartum depression and anxiety symptoms. According to (Trumello, 2018) several studies have investigated the postpartum depression and anxiety symptoms in postnatal mothers of full term neonates as opposed to mothers of preterm neonates admitted in Newborn Unit.

Most clinical studies on psychological status of mothers of preterm neonates are focused on symptoms, usually symptoms of postpartum depression more than postpartum anxiety (Ali, 2018). Mothers of preterm neonates often experience high levels of depressive and anxiety symptoms which are consistently found to be correlated (Learman et al., 2018). According to (Smith, 2016) found out that mothers of premature neonates are 40% more likely to develop postpartum depression, compared to mothers of full term neonates in the general population.

Literature examining psychological maladjustment in mothers of neonates admitted to the Newborn Unit reports that these women have consistently higher rates of postpartum depression, ranging from 28%–40% compared with mothers of healthy term neonates outside of the Newborn Unit (Wheeler, 2018).

(Petit & Eutrope, 2016) found out that postpartum depression is a common mental complication among mothers following childbirth affecting 10%-15% of women globally. This condition goes vastly undetected and untreated, inflicting long-term consequences on both mother and preterm neonate (Ballantyne et al., 2017). Mothers of preterm neonates in the Newborn Unit experience postpartum depression and anxiety at higher rates with more elevated symptoms than mothers of healthy neonates (Beck, 2017).

In case of preterm birth, mothers show high levels of anxiety symptoms that might compromise the maternal functions (Helle, 2016). There has been increased awareness regarding the overall prevalence of postpartum anxiety and recognition of the need for health care providers to address this health issue, in literature few studies have examined prevalence of postpartum anxiety in the context of the Newborn Unit (Kantrowitz et al., 2016). The long lasting effects of parental anxiety in the Newborn Unit may also affect the parent-neonate relationship until the neonate reaches two years of age (Ncube, 2016).

According to (Trumello, 2018) having preterm neonate in the Newborn Unit is also associated with stressful environmental and psychological factors. According to study done by (Tahirkheli, 2014) the environment of the Newborn Unit is often unfamiliar, highly technological, and seemingly unpredictable.

Many aspects of the Newborn Unit experience can be distressing, including the sights, sounds of the unit, the neonate's physical appearance, the medical equipment used, the medical terminology used by personnel, and the relationships between mothers and health care personnel (Fowler, 2019).

Several studies (Azad, 2019), (Goodman, 2016 & Pace, 2016) indicates that mothers of preterm neonates in Newborn Unit are impacted by several psychological factors, including concerns about long-term outcomes and or survival of the neonate, being separated from the neonate, having an altered parental experience, feelings of limitations about their ability to care for the neonate and feelings of helplessness.

The perception of lose in carrying out maternal roles has been identified as one of the most significant contributors to depressive and anxiety symptoms for mothers of preterm neonates (Tahirkheli et al., 2014). As suggested by (Sulyman, 2016) studies have shown that mothers of neonates in the Newborn Unit frequently encounter situations seemingly out of their control. They are likely to encounter more difficulty developing perceptions of mastery of control resulting in a higher risk of distress, anxiety, and depression. The Newborn Unit experience evokes environmental and psychological distress, which leads to a need for increased attention to this high-risk group (Vismara, 2016).

Studies (Azad, 2019), (Cheng, 2016) and (Tahirkheli, 2014) have provided evidence of risk factors for postpartum depression and anxiety among socio demographic factors, such as low economic status, low social support, and low maternal education have been implied as predictors of postpartum depression and anxiety for mothers of preterm.

Mothers often appear to be confused by the environment of Newborn Unit with such a situation for the first time (Stube, 2018). According to (Field, 2018) and (Palumbo, 2017) most stressful experiences among mothers is seeing their child in pain, seeing their child frightened, sad and the inability of the child to communicate with the mothers. Postpartum depression and anxiety of Newborn Unit mothers following preterm birth can affect the ongoing parenting relationship with the neonate (Fowler et al., 2019).

According to (Ishiola, 2018) medical health providers being involved in the day-to-day care of neonates in Newborn Unit can help mothers learn the parenting and increase their emotional sensitivity toward their preterm neonate. (Mehdizadeh et al., 2017) demonstrated that providing support to mothers of neonates in Newborn Unit has additional physical benefits for the neonate as it can improve the neonates' physical outcomes and shorten their length of hospital stay.

2.3 Preterm Birth

Preterm birth is defined as a neonate born alive before 37 weeks of pregnancy are completed. More than 60% of preterm births occur in Africa and South Asia, but is truly a global problem. According to (Lui et al., 2016) an estimated 15 million neonates are born too early every year that is, more than one in ten neonates. Based on World Health Organization reports approximately one million babies die each year due to complications of preterm birth and many survivors face lifetime disabilities including learning and visual problems (Matei et al., 2019).

According to (Lui, 2016) globally, prematurity is the leading cause of death in under-five years of age. Inequalities in survival rates around the world are stark. A study by (Wagura, 2018) indicates that in low income settings more than half of preterm neonates die due to lack of feasible, cost effective care such as warmth, basic care for infections and breathing difficulties. However, in high income countries, almost all these neonates survive (Menon, 2019). As suggested by (Purisch, 2017) in middle income setting, use of technology is causing an increased burden of disability among preterm that survive the neonatal period.

(Azhar & Beck, 2017) has shown that preventing deaths and complications from preterm birth start with having a healthy pregnancy. According to (Azhar & Beck, 2017) preterm birth occurs for variety of reasons; most preterm births happen spontaneously, but some are due to early induction of labor or cesarean section. The other common causes of preterm birth include multiple pregnancies, infections, chronic conditions such as diabetes and hypertension. Based on this challenges (Herizchi, 2017) states that focus on the need to provide guidelines for management of mothers of preterm birth, provision of kangaroo mother care, feeding, treating infections and respiratory infections is fundamental.

2.4 Newborn Unit

Newborn unit is a special area in hospital with advanced technology and trained health care professionals to give care for preterm and sick neonates (Stube et al., 2018). Research has shown that premature neonates are not quite physically and physiologically mature therefore unable to transition to the outside environment (Menon et al., 2019). In the light of aforesaid factors they cannot control temperature, often have excessive weight loss and have unstable vital signs.

As suggested by (Purisch, 2017) the survival of preterm neonate in a serious clinical state due to prematurity has been enabled by the complexity, technological and human resources of the Newborn Unit. These preterm neonates need to remain in a controlled, enclosed environment known as incubator which provides heat to keep a constant body temperature and mimic the uterine environment. It is hard to predict the average length of Newborn Unit stay as it depends upon a multitude of factors (Menon, 2019). The general rule is if a neonate has been stable, not needing oxygen, eating orally and otherwise stable.

According to (Stube, 2018) having a preterm neonate in Newborn Unit is very stressful for mothers due to the uncertainty, worry and stress about the well being of the neonate. The environment is stressful with specific routines and equipment, which makes it less welcoming and is associated with death and fragility of the preterm neonate. Study by (Wagura, 2018) indicates that mother's expectation that the birth of a neonate is related to the idea of taking a healthy neonate home, however this fact does not materialize following birth of a preterm neonate and subsequent admission in Newborn Unit leads to stress. During admission of a preterm neonate in Newborn Unit, the mother experiences a mixture of feelings, resulting from the frustration of dreams, joy replaced by insecurity, fear anguish, anxiety, apprehension and mourning (Wheeler et al., 2018). (Ali, 2018) and (Fallon, 2016) studies showed that anxiety among mothers is related to events such as watching their preterm neonate in distress, noise from alarms, environmental machines and prolonged separation of the mother from the preterm neonate.

Several studies (Akkoyun, 2019), (Mehdizadeh, 2017) and (Shrestha, 2018) indicate that medical team needs to take a strategic look, respect the peculiar characteristics of this vulnerable population of mothers, combined with humanized care. This will assist mothers to deal with challenges of hospitalization of the preterm neonate in Newborn Unit and make the moment an opportunity for learning and personal development. As suggested by (Ong et al, 2019) postpartum depression and anxiety evaluation provides support for reflections, discussion and actions of health professionals working in Newborn Unit. This ought to trigger public policies of attention in neonatology, health promotion, recovery and prevention of complication and improvement of quality of life which can contribute to the reduction of the period of hospitalization of the preterm neonate (Trumello, 2018).

2.5 Postpartum Depression

Postpartum depression is a type of mood disorder associated with childbirth (Smith, 2016). According to (Azad, 2019), (Learman, 2018) and (Mutua, 2017) there is broad consensus that emotional symptoms present with persistent sadness, low mood, severe mood swings, irritability, restlessness, anger, feelings of hopelessness or helplessness, guilt, shame, worthlessness and low self-esteem. They also include numbness, exhaustion, and inability to be comforted, trouble bonding with the neonate and feeling inadequate in taking care of the preterm.

As suggested by (Cheng, 2016) depression may also manifest through behavior characterized by lack of interest or pleasure in usual activities, low energy, low libido, changes in appetite, fatigue, decreased energy, poor self-care, social withdrawal and insomnia.

According to (Sahile, 2017) indicates that depression may present with cognitive domain symptoms that include diminished ability to make decisions and think clearly, lack of concentration and poor memory, fear that you cannot care for the neonate or worry about harming self or neonate.

Postpartum depression affects about 15% of women in general population (Hezrich et al., 2017). Several studies (Greene, 2015), (Herizchi, 2017) and (Matinnia, 2018) indicate that postpartum depression is among the most common debilitating mood disorder in women following child birth. According to study by Azad (2019) a systematic review on low and middle income countries found the prevalence of postpartum depression to be approximately 20%, however compared in mothers of preterm neonates the rate increases to 28% to 78%. The risk of postpartum depression in mothers of preterm is higher than mothers of term neonates; therefore this group needs more care (Greene et al., 2015).

While the exact cause of postpartum depression is unclear, the cause is believed to be a combination of physical and emotional factors (Lara, 2016). Studies by (Azad, 2019) and (Lara, 2016) demonstrated that there are various factors associated with postpartum depression; preterm birth, young age, unemployment, socio-economic deprivation, poor emotional support, sleep disturbances, poor marital relationship and daily hassles. According to (Pace, 2016) maternal depression is a typical and debilitating inconvenience to the mother during postpartum period. As suggested by (Surkan, 2017) up to 25% of women encounter some depressive moments over their life time, with the pinnacle occurrence happening amid the childbearing years. (Cherry, 2016) asserts that prevalence of postpartum depression among mothers of preterm neonates postpartum is higher than mothers of full term neonates.

2.6 Postpartum Anxiety

Postpartum anxiety refers to unpleasant emotional state or condition in response to a perceived stressful or threatening situation in context of childbirth. Postpartum anxiety is common during hospitalization in the first days following childbirth at about 13% to 40% (Field, 2017). According to study by (Trumello, 2018) maternal anxiety can be caused by high stresses such as preterm childbirth, characterized by chronic excessive worry accompanied by three or more of the symptoms; restlessness, fatigue, concentration problems, irritability, muscle tension, and sleep disturbance.

In case of preterm birth, mothers show high levels of anxiety symptoms that might compromise the maternal functions (Fallon, 2016). Postpartum anxiety is especially considerable in women of childbearing ages (Goodman, 2016). Moreover, according to (Helle, 2016) it was demonstrated that lack of social support is associated with postpartum anxiety. (Mutua, 2017) and (Pace, 2016) research identified risk factors for postpartum anxiety specific to include single motherhood, lack of social support, mothers perception of the neonate's illness severity, poor coping skills, perceived parental role alteration and prolonged length of stay in the Newborn Unit. According to (Ali, 2018) and (Ong, 2019) one main challenge in better understanding of postpartum anxiety during the postpartum period is the lack of knowledge, few studies on postpartum anxiety and little discussion about this issue as a public health concern.

In contrast to the abundant research, as well as ample social and media discussions are focused on postpartum depression, there is little consistent information about the prevalence and presentation of postpartum anxiety in mothers of preterm neonates admitted in Newborn Unit (Trumello, 2018).

According to (Beck, 2017) given that postpartum anxiety might be more common than is generally recognized, and that women who struggle with anxiety might not receive adequate acknowledgement, support, or treatment such mothers risk being neglected. As suggested by (Field, 2018) indicated that prevalence rates of postpartum anxiety may be as high as 40%. According to (Trumello, 2018) with little information that does exist, as seen in these studies, there is some strong evidence to suggest that postpartum anxiety is relatively common and problematic for many women in postpartum period.

2.7 Screening Tools

Several studies (Abdullah, 2019), (Green, 2018) and (Tungchama, 2018) have indicated that there has not been a consensus among medical community regarding which tool is most effective for screening postpartum depression and anxiety. As such, there is no universal policy in place for when and how to screen mothers for postpartum depression and anxiety (Ukuta, 2018). The accuracy of screening tools is dependent upon a number of factors. There is need to review different types of screening tools, timings in which screening tools would be administered , the geographic location of patients screened and reference standard cut offs used (Ukuta, 2018). According to (Learman, 2018), no one tool can be deemed best at accurately detecting postpartum depression and anxiety on the basis on sensitivity and specificity. Additionally there is no recommended time duration in which screening should be done.

A study by (Smith, 2016) suggests need to define a predictive tool that is clinically useful, has acceptable sensitivity and specificity especially to be used in the primary care settings. In literature there is broad consensus that postpartum depression and anxiety are common, burdensome and more often under recognized (Smith, 2016). According to (Knight, 2016) there is need of having variety of validated patient questionnaire that are effective in screening of postpartum depression and anxiety among postnatal women.

Among numerous screening tools for postpartum depression, the Edinburg postpartum depression scale is the most widely used; it has sensitivity of more than 80% but findings for specificity was inconclusive (Abdullah, 2019).

As indicated by (Trumello, 2018) given the magnitude of effects of postpartum anxiety on mothers and her preterm neonate, it is important to better understand the complexity of this phenomenon. Unfortunately treatment rates for postpartum anxiety are low suggesting that more work is required to identify women who may benefit from treatment (Fallon, 2016). As suggested by (Ali, 2018) to date there is lack of consistent screening measures for postpartum anxiety and there is no anxiety specific screening instruments routinely used in the postpartum period. Although anxiety screening instruments exist, there are no anxiety-specific screening instruments routinely used during the postpartum period (Learman, 2018). (Knights, 2016) states that lack of standardized screening tools poses problem because it leads to co-morbidities being under-recognized and this hampers provision of appropriate care to postnatal mothers who are suffering. According to (Ukuta, 2018) further complicating problem is the issue of co-morbidities between anxiety and depression with many symptoms being similar in both disorders.

According to (Fallon, 2016) three recent endeavors have been made to create an anxiety scale relevant to postpartum women, Becks anxiety scale(BAI), Perinatal anxiety screening scale (PASS) and the Postpartum worry scale revised (PWSR). (Abdullah, 2019) and (Ukuta, 2018) they state that universal screening programs can successfully overcome mother, clinicians and system barriers and reduce the burden of postpartum depression and anxiety. In this study Edinburg postpartum depression scale (EPDS) and Becks anxiety inventory (BAI) were used in screening postpartum depression and anxiety respectively.

2.8 Nurses Support

Role of nurses receives more attention than other members of health care team due to their longer contact time with mothers of preterm neonates (Davila, 2018). Due to lack of knowledge among mothers about preterm birth there is need for nursing support to these vulnerable mothers during hospitalization period ((Mehdizadeh, 2017). A study done by (Fowler, 2019) indicates that preterm neonate behavior and appearance may be stressful to the mother hence there is need to explain the characteristic features of preterm neonate including; weight, size, lack of epidermal fat, fast respiration and weak cries to the mother. Moreover, the sight of their preterm neonate connected to devices, tubes and surrounded by large pool of medical providers can be very stressful to the mother (Fowler, 2019). Several studies (Becks, 2017). (Fowler 2019) and (Unesi, 2017) have found out that mothers of preterm neonates experience a continuum of regular and repeated stressful events during Newborn Unit stay.

Newborn Unit remains a stressful environment for mothers of preterm neonates as demonstrated by above studies. According to (Pace, 2016) life and death situations are common feature of Newborn Unit making it stressful event for mothers of preterm neonates. Despite improvement in technology events such as the unknown survival chances of the preterm neonate compound the postpartum depression and anxiety. A study by (Tumello, 2018) indicates that as the preterm neonate needs remain a priority for Newborn Unit medical staff, the mother and her role may be overshadowed resulting in her physical and emotional needs being neglected.

According to (Snapp, 2019) it was found out that it is important to involve Newborn Unit nurses to optimize the care of mothers immediately after the preterm birth and during the neonates' hospitalization, taking into account psychological needs of mothers. Therefore in light of these mothers specific mental condition, the nurses should adopt appropriate psychological nursing to provide them with emotional support, information and behavioral support. A study by (Stube, 2018) indicates that mothers' worries and fears are eliminated by emotional and information support.

Information can make mothers know relative knowledge about the preterm medical condition and its management and then let them face the disease and cooperate positively with medical health providers. Crafting responses to the mothers' perceived expectations and supporting their emotional well being must be part of newborn policy (Trumello, 2018). To improve care, it is very important to also understand the experiences of these mothers who are at risk of being neglected (Fowler, 2019). Midwives nurses require increased awareness of psychosocial needs of mothers with preterm neonates.

Improved health professional education needs to be provided that focuses on this vulnerable group of mothers so that support is tailored to their particular needs (Unesi, 2017). A study done by (Beck, 2017) suggested that trusting relationship between the nurse and the mother is essential for acceptance of any professional support offered in Newborn Unit. According to (Unesi, 2017) indicates that ensuring that mothers are included in decision making and that they provide informed consent is essential part of regaining control and evolving into a mothering role.

A study by (Aftyka, 2017) found out that nursing support plays a pivotal role in alleviating stress among mothers of preterm neonates. Therefore nurses should provide informational and emotional support to these mothers. Generally nurses are advocates for their patients and play significant roles in educating and supporting mothers for preterm neonate care (Mehdizadeh, 2017).

Nurses are in strategic position to help mothers learn about their preterm neonates conditions (Akkoyun, 2019). Nurses can reduce stress in mothers by supporting and providing them with all the required information as well as provide better care for their neonates by creating a calm environment. Studies by (Fowler, 2019) and (Trumello, 2018) have shown that mothers' needs in the areas of assurance and information were the most important perspective. Information and emotional support for these mothers helps them to cope with their neonates' hospitalization and empowers them to control situations. According to (Davila, 2018) found out that due to their constant presence in Newborn Unit, nurses play an important role in supporting mothers and alleviating the stress. On contrary, inadequate responsiveness of Newborn Unit nurses to the mothers needs often cause high levels of fear and anxiety among mothers (Stube, 2018).

Nurses have an extra ordinary opportunity to help women learn, gain confidence and experience growth as they assume the mothers new role. According to (Beck, 2017) found out that support of neonatal nurse is necessary to control and reduce the stress of mothers. Nurse mother support may play a role in effective stress management and make positive contribution to the health of mothers of preterm neonates. According to (Davila, 2019) study indicates that perception of nurse support had a significant inverse relationship with depressive and anxiety symptoms, reiterating that nurses are a vital resource for mothers of neonates in Newborn Unit.

(Mehdizadeh, 2017) notes that Newborn Unit nurses have ample opportunity to observe mother neonate interactions daily, allowing for further identification of mothers who may need services or extra support. (Mehdizadeh, 2017) added that, mothers could benefit from nurses who have been educated about the complex nature of maternal anxiety and depressive symptoms in the Newborn Unit, as the nurses would then be able to more appropriately identify mothers at higher risk for developing postpartum depression and anxiety. According to (Aftyka, 2017) indicated that Newborn Unit nurse specialists need expert personnel dedicated to handling the intricate medical and social needs of the mother to better develop parent–neonate relationships during hospitalization.

Mothers with preterm neonates have high rates of depression and anxiety than mothers with full term neonates, which can adversely affect their parenting abilities (Fallon, 2016). In literature (Bhandari, 2017) and (Potter, 2017) found out that mothers need support from nursing staff to learn about their neonates' illness, treatment measures and hospital rules and regulation. Based on study done by (Mehdizadeh, 2017) expression of concern, caring, reassurance optimistic statements about the pre term neonate are valued by mothers. Nurses both at individual and group level provide an important support for mothers in responding to their neonates needs. According to (Unesi, 2017) supportive behavior of a nurse has been identified as listening, empathizing, giving information, explanation, encouraging, reassuring, providing validation, showing interest, valuing, preserving integrity, giving suggestions and problem solving (Akkoyun, 2019). Mothers want nurses who care about them, listen to their feelings, concerns and understand them as individuals.

2.9 Summary of Literature Review

Mothers of preterm neonates have rates of clinically elevated depressive and anxiety symptoms as high as 68.6% and 52% respectively during the preterm neonates' hospitalization (Mutua, 2017). Few studies have examined occurrence of postpartum depression and anxiety among mothers of preterm neonates in context of Newborn unit (Trumello, 2018). According to (Fowler, 2019) despite the high prevalence rate of both postpartum depression and anxiety still they are not detected early and mothers do not get the much needed treatment.

This study seeks to find out the prevalence of postpartum depression and anxiety to inform policy formulation and planning at Newborn Unit-MTRH. To determine the maternal characteristics that predisposes mothers to postpartum depression and anxiety with aim establishing of prevention programs. Lastly to understand mothers needs and expectation from nurses' to determine the types interventions necessary to improve the emotional wellbeing of mothers.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter describes the research design, location of the study, target population of study, sampling techniques and sample size, research instruments, validity, reliability, data collection instruments, data analysis procedures and ethical considerations.

3.2 Study Design

A hospital based cross-sectional descriptive study design was used involving mothers of preterm neonates admitted in Newborn Unit at MTRH. Different variables of interest of maternal socio-demographic variables were measured at a single point in time. It was also suitable because it was not costly to perform and did not require a lot of time.

3.3 Study Area

This study was conducted at the Riley Mother and Baby Hospital Newborn Unit and postnatal wards at MTRH that provides a continuum of care for women and their preterm neonates. The hospital serves as the referral for women and neonates for large part of western Kenya, North rift of Kenya, neighboring countries Uganda and South Sudan.

Newborn Unit at MTRH admits preterm neonates either born within the facility or referred from other peripheral facilities. The Newborn Unit has a bed capacity 120 and over 90% of beds are always occupied at any given time as indicated in hospital records.

3.4 Study Population

In this study the target population of interest was mothers of preterm neonates admitted in the Newborn unit. However the preterm neonates are the focus of

medical attention at Newborn unit at MTRH. In this study a preterm was defined as a neonate born alive before 37 completed weeks and were not classified based on either gestational age or birth weight.

Based on MTRH admission register there are about 2000 admissions for mothers of preterm neonates annually (MTRH-NBU Register, 2016 & 2017). An average of 160-180 preterm neonates and their mothers are admitted per month at MTRH comprising both mothers of preterm neonates who delivered at MTRH maternity facility and mothers referred from other peripheral facilities.

3.5 Sample Size Determination

(Pye et al., 2016) describe a sample as a part of a target population procedurally selected to represent that population. It is crucial to ensure that the study has sufficient participants in order to detect the expected effect estimate. In this study the sampling units are mothers of stable preterm neonates. The study adopted Fisher's formula to calculate the sample size:

$$n = \frac{Z^2 P\,(1-P)}{d2}$$

Where:

n is the minimum sample size.

Z is confidence level at 95 % (standard value of 1.96).

P is the expected proportion of mothers of preterm neonates with postpartum depression 21.8 % (Tungchama, 2018).

d is the precision- 5% (0.05).

$$n = \frac{(1.96)^2\ 0.218\ (1-0.218)}{0.05^2}$$

$$= 262$$

In this study sampling was done without replacement therefore Finite Population Correction (Fpc) was applied to capture the difference between sampling with replacement and sampling without replacement (Li & Ding, 2017). With annual number of mothers with preterm neonates at around 2000 and a sample size of 262 the FPC was 0.9324 which is almost equal to one therefore has insignificant effect on the standard error and the results reflects the general population.

Fpc = sqrt [(N-n)/(N-1)]

= sqrt [(2000-262)/(2000-1)]

= 0.9324

3.6.1 Sampling Technique

A sample of 262 respondents who met the criteria were selected by systematic random sampling. Selection of 27 mothers was done on every Thursdays of the week prospectively for a period of ten (10) weeks from 11th April to 13th June 2019 until the desired sample size of 262 was achieved.

To avoid double selection of mothers from participating in the study the following measures were taken into account. In week 1 the first 27 mothers for study were systematically selected to participate in study. During week 2, mothers who had participated in week 1 were excluded in study. All mothers who had participated in previous study were excluded in the subsequent weeks up to the tenth week.

3.6.2 Data Collection Procedure

One week prior to collection of data, investigator and research assistants approached Newborn Unit nurse manager and clinical instructor to obtain permission to conduct research in their unit. A copy of approved research proposal and Institutional Research and Ethics Committee of Moi University & Moi Teaching and Referral Hospital were

handed over to nurse manager. Permission was granted followed by short session of orientation in the Newborn Unit.

3.6.3 Study Selection Procedure

On the morning of data collection day, the investigator with help of Newborn Unit nurse manager and nurses on duty assisted in selecting preterm neonates that met inclusion criteria based on general medical condition, date of admission and pediatrician medical reviews. The investigator selected all preterm neonates 27 (*N*). The baby cots, incubators and beds in kangaroo room hostels were labeled numerically in ascending order starting with cube one to seven, the first cot/bed/incubator in cube one was the starting point labeled as one (1). All preterm neonates were assigned numbers in ascending order and the number was divided by 27(n=number of neonates selected per week) to get sampling interval as shown below.

$k = N/n$

Where:

N is the population size of sampling frame (selected preterm neonates)

n is desired sample size of (27 selected preterm neonate per week)

k is sampling interval or skip that varied from week to week.

$$k^{th} = \frac{\text{Preterm neonates not participated in previous weeks}}{27}$$

During the subsequent weeks mothers who had participated in previous weeks were excluded. Exclusion was achieved by ensuring that all files were coded for ease of identification and control for repetition.

Based on the *k* interval above, the researcher selected 27 preterm neonates who were paired with their respective mother in postnatal wards or kangaroo room hostels for study.

3.6.4 Inclusion and Exclusion Criteria

Inclusion Criteria

The study included mothers of preterm neonates admitted in Newborn Unit whose preterm neonate were;

- Receiving specialized care in the Newborn Unit.
- Preterm neonate hospitalized in Newborn Unit for at least five (5) days.

Exclusion Criteria

- Mothers who were severely ill with postnatal complications.
- Mothers who had been receiving psychopharmacological drugs prior to hospitalization of preterm neonate as such drugs impair judgement.

3.6.5 Study Personnel

Data was collected by investigator and two research assistants. The research assistants were qualified Registered Community Health Nurses (KRCHN) with valid practicing licenses deployed in postnatal ward. They were trained on all procedures regarding the study, they were involved in pilot study at Kakamega County Referral Hospital New born Unit to enable them understand all the procedures.

The investigator together with research assistants delivered research instruments personally to the selected mothers on respective day of data collection.

The questionnaires were administered in either English or Kiswahili (the national language in Kenya) depending on their preferred language and level of education by the participant. The investigator and research assistants clarified instructions for respective study subjects to be clear and consented. The investigator and research assistants cross checked the completed forms for any omissions as respondents handed them in at the end of session.

3.7 Research Instruments

The following four instruments were used to collect data appropriately. The Socio-demographic questionnaire, Edinburgh postpartum Depression Scale (EPDS), the Beck Anxiety Inventory (BAI) and Nurse Parent Support Tool (NPST) as shown in appendices III-VI. The above data collection tools are adopted and validated with high sensitivity and validity.

The respondents had adequate time to give well thought answers against the Likert scale provided in the questionnaire. Respondents were easily approachable and a large sample was achieved therefore the results were made more dependable and reliable. Moreover these tools were used because they enabled the researcher to collect data from a large number of respondents within a short period of time. The tools were used as prescribed by the authors without change hence they maintained their validity.

3.7.1 Socio-demographic Questionnaire

A semi structured questionnaire was designed by investigator to obtain personal information which literature suggested being risk factors.

In this study the following socio-demographic factors were captured; age, level of education, marital status, occupation, and parity of the sampled mothers.

3.7.2 Edinburgh Postpartum Depression Scale (EPDS)

Edinburgh Postpartum depression scale (EPDS) is an adopted tool developed by (Cox, Holden & Sagovsky, 1987). EPDS is the most widely used tool for screening post partum depression. It is a 10 item self rating questionnaire on a four point Likert scale, with responses ranging from a scale of zero to three (0-3) points with a maximum of 30 points..

An example of a statement of depression scale; “I have felt happy 0- ‘Yes, all the time’, 1-‘Yes, most of the time’, 2 - ‘No, not very often’ and 3- ‘No, not at all’.

A score of 0-6 points indicates a low probability of depression, a score of 7-9 points on baby blues and score of 10-12 points indicates possibility of PPD and preventive measures should be instituted, while score of more than 13 points indicated clinical depression that needs medical attention. In this study the cutoff score of ≥13 was classified as postpartum depression.

The scale is acceptable to most women and clinicians, easy to score and is available in over 50 languages and can be filled within 5-10 minutes. The specificity for EPDS tool is enhanced because the instrument does not include items that ask about somatic depression symptoms such as changes in sleep and appetite which are common in postpartum depression women who are not depressed. A study by Green et al. (2018) using EPDS among pregnant and new mothers in rural setting in Western Kenya, found a sensitivity and specificity of .70 and .72 respectively, and an internal consistency reliability as measured by Cronbach's alpha, of .81.

3.7.3 Beck Anxiety Inventory (BAI)

This tool was developed by (Beck, Epstein & Steer, 1988). It has 21 statements rated on a 4 point Likert scale for symptoms of anxiety. The scale includes symptoms that the respondent has experienced in the past including the day of data collection. In a meta-analysis review of (BAI, Bardhoshi, 2016) found an aggregated internal consistency-coefficient of alpha of .91 and test-retest reliability of .65.

An example of an anxiety symptom on the scale is 'I feel terrified or afraid' with responses ranging from 0 'not at all', 1' mildly-but it didn't bother me much', 2 moderately-it wasn't pleasant at times', 3 'severely-it bothered me a lot'. This tool has standardized cut offs to minimize overlap between depression and anxiety. Cut offs points are 0-21 points is low anxiety, 22-35 points is moderate anxiety, more than 36 points indicates severe anxiety and mother needs medical attention. The current study used a cut-off of ≥22 points for positive sign of anxiety.

3.7.4 Nurse Parent Support Tool (NPST)

This tool was designed by (Miles, Carlson & Brunnsen, 1999) to measure mothers' perception of nursing support during the neonates' hospitalization. NPST assesses four domains of support namely: (1) supportive communication and provision of information related to the illness, treatment and related issues; (2) mothers esteem support focused on respecting, enhancing and supporting the parental role; (3) emotional support to help mothers to cope with their own emotional responses and needs related to care of the preterm; (4) care giving support involving the quality of care provided to preterm.

The NPST has an acceptable reliability, in a study by (Unesi, 2017) found Cronbachs alpha of .90. The tool was used in this study as originally described. A higher score corresponds with higher mothers perceived nurse support. In scaling and scoring of NPST, mothers were asked to rate the service provided by nursing staff based on 21 items on a 5 point Likert scale ranging from 1(almost never) to 5 (almost always An example of a statement on the NPST scale is ' the nurse helped me talk about my feelings, worries or concerns with 5 point responses ; 1- 'almost never', 2- 'not very often', 3- 'some of the time' , 4- 'most of the time' and 5- 'almost always'.

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3.8 Reliability of Research Instruments

According to (Mugenda, et al., 2003), reliability is a measure of degree to which a research instrument yields consistent results or data after repeated trials.

The EPDS scale has high specificity and sensitivity in detecting postpartum depression with good psychometric properties. In a systematic review by Shrestha (2016) indicated that in resource-constrained countries EPDS had sensitivity of 88.9% and specificity 86.8% which is commendable to improve in early detection and timely management of postpartum depression.. More recently, Green et al. (2018) in a study among pregnant and new mothers in rural setting in Western Kenya, found the sensitivity and specificity of EPDS, to be .70 and .72 respectively, and an internal consistency reliability as measured by Cronbach's alpha, of .81.

The BAI tool was also used in this study. The internal consistency for the Becks Anxiety Inventory had Cronbach's α=0.92 and test-retest reliability (1 week) for the BAI = 0.75 (Beck, Epstein, Brown, & Steer, 1988).

Nurses Parent Support Tool has Internal consistency a high value of Cronbach's $\alpha = 0.9$.

3.9 Validity of Instruments

Validity concerns what an instrument measures and how well it does so (Mohajan, 2017). Involves degree to which the research instruments measures what it is supposed to measure (Mugenda et al., 2003). Validity is the accuracy and meaningfulness of inferences of the results. Therefore, validity refers to the extent to which an instrument has to measure what it ought to measure accurately on the variables of the study and produce data, which can be used to explain the phenomenon and give meaningful inferences.

3.10 Ethical Consideration

The researcher sought and got approval of conducting research from Institutional Research and Ethics Committee of Moi University and MTRH. Moi University and MTRH rules and regulations regarding human research were observed and followed. Other necessary administrative approvals were granted by the administration of Moi Teaching Referral Hospital.

Consent: Informed consent was obtained from the respondents before conducting the data collection. For young mothers below age of 18 years their parents or guardians gave consent. However for those young mothers that did have parents or guardians on day of study they themselves gave mature minor consent as they were considered to have necessary understanding to give consent to participate in study. Participation was voluntary without coercion and a respondent was free to withdraw from study at any stage including disregarding data already collected with no consequences.

On assessment mothers who had a cut-off of ≥ 13 on Edinburg Postnatal Depression Scale and ≥ 22 on Becks Anxiety Inventory were linked to Newborn Unit psychologist for further evaluation and management.

Confidentiality: Information given by respondents was kept confidential and all questionnaires were de-identified.

Results: The information obtained from this study on mental health status of mothers of preterm neonates was to be shared by Moi University and Moi Teaching and Referral Hospital with respondents' names remaining anonymous in the report.

3.11 Pilot Study

A pilot study was approved (appendix VIII) and conducted at Kakamega County Referral Hospital. The County Referral and Teaching Hospital is located in western Kenya and has capacity of 100 beds and 20 cots/incubators for the Newborn Unit.

Mothers of preterm neonates at Kakamega County Referral Hospital share similar characteristics with those of MTRH, as Kakamega County is within the catchment area of MTRH in western region Kenya.

A pilot study was carried out using ten (10) sample questionnaires administered randomly to mothers of preterm neonates in New born unit prior to the commencement of the study on 3rd of April 2019. This was done with the aim of improving efficiency and understanding of the research tools' stem statements in main study.

3.12 Data Management

Data coding was treated as a unique code number for each respondent. The new unique code number was matched on the database with completed instruments for analysis. The Edinburg postnatal Scale, Becks Anxiety Inventory and Nurse Parent Support tools were scored using the standardized developed procedures by the authors of instruments. The data collected was kept under lock and key and only the principal investigator had access to them.

3.13 Data Analysis and Presentation

Data was coded, cleaned, verified and analyzed using SPSS computer software version 24. Maternal socio-demographic characteristics, Edinburg Postnatal Scale and Becks Anxiety Inventory scores were summarized in frequency distribution tables and charts describing measures of central tendencies for quantitative data. The associations between socio-demographic characteristics vis a vis postpartum depression and anxiety were conducted using Chi- square. A p value of ≤ 0.05 at 95% confidence interval was considered significant. Prevalence rate for postpartum depression and anxiety was calculated and described by simple proportion.

Respondents' perception towards nurses' support during preterm hospitalization was rated against the 21 stem statement questions listed in the Nurse Parent Support Tool. Significant scores against the stem statement were interpreted qualitatively.

3.14 Limitations and Strength of the Study

The cross-sectional design of this study limits measure of incidence and the inference to causal direction of postpartum depression and anxiety. However, use of validated tools lends credence to the findings of this study. Furthermore, this study makes relevant contribution to the knowledge regarding mental health of mothers of preterm neonates admitted in Newborn Unit.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter will present results on prevalence of postpartum depression, anxiety and associated socio demographic characteristics. The chapter also presents results on mothers' perception on nurses' support to mothers of preterm neonates.

4.2 Socio-demographic Characteristics of Respondents

In this study five socio-demographic variables considered were age, level of education, marital status, occupation and number of children among mothers of preterm neonates admitted in Newborn Unit.

Table 4.1 presents the socio-demographic characteristics of the respondents.

The age range of preterm neonate mothers was between 15 – 45 years of age. The highest category of the respondents was aged between 15–24 years at 27.5% and 25–29 years at 26.2%. On marital status 48% of respondents were married while 52% were single status as they did not have the significant other. Premarital single mother were 23.4%, widowed 17.2% and divorced 11.5%. The level of education among the respondents was 35.4% had secondary education and a third of respondents had low level of education at 18.9% for primary level and 12.8% had no formal education.

In category of occupation the majority of respondents 40.7% were house wives 32.5% were self-employed or business ladies and 11.9% were students. Regarding number of children among the respondents, the highest was 35.4% mothers had two children and 21.8% were first time mothers with one child who was the hospitalized preterm neonate.

Table 4.1: Socio-demographic Characteristics of Respondents

Socio-demographic distribution of all participants (*N* = 262)	
Socio-demographic Variables	*n* (%)
Age groups (years)	
15-24	72 (27.5)
25-29	69 (26.2)
30-34	69 (26.2)
35-45	52 (20.1)
Marital status	
Single	61 (23.4)
Married	126 (47.9)
Divorced	30 (11.5)
Widowed	45 (17.2)
Level of education	
Primary	59 (18.9)
Secondary	83 (35.4)
Tertiary	86 (32.9)
None	34 (12.8)
Occupation	
House wife	107 (40.8)
Employed	39 (14.8)
Self employed	85 (32.5)
Student	31 (11.9)
Number of children	
One	56 (21.8)
Two	93 (35.4)
Three	50 (18.9)
≥Four	63 (23.9)

Mean age =27.7 ± 6.73 Age range 15-45 years

It is to be noted that although the socio demographic tool did not capture respondents based on nationality, the following observations in the results were made. Among the study participants were a few mothers from South Sudan who were refugees in neighboring Turkana County. Also among the participants were a few mothers of Ugandan origin who were from Busia County, a county with geographical proximity with Uganda.

4.3 Prevalence of Postpartum Depression

The mean score on the Edinburgh Postpartum Depression Scale of all participants was 14.08 ± 4.48 standard deviation. In this study the lowest score was 4 points and highest was 22 points out of maximum of 30 points [Table 4. 2].

Table 4.2: Distribution of Edinburg Postnatal Depression Score

Distribution of Edinburg Postnatal Depression Scores of participants (*N* = 262)	
Edinburg Postnatal Depression Scale points	*n* (%)
4	5 (1.9)
5	6 (2.3)
6	14 (5.3)
7	6 (2.3)
8	5 (1.9)
9	4 (1.5)
10	12 (4.6)
11	18 (6.9)
12	21 (8.0)
13	17 (6.5)
14	18 (6.9)
15	23 (8.8)
16	26 (9.9)
17	27 (10.3)
18	18 (6.9)
19	12 (4.6)
20	14 (5.3)
21	11 (4.20)
22	5 (1.9)
Total	**262 (100.0)**

A cut off of 13 points on Edinburg Postnatal Depression Scale tool indicates significant symptoms of postpartum depression. Using simple proportion 171 (65.5%) of mothers scored 13 points and above had postpartum depression as shown in Table 4.3.

Table 4.3: Prevalence of Postpartum Depression Status

Distribution of Postpartum Depression scores for the study group (*N* = 262)		
Postpartum depression status	EPDS Score	*n* (%)
Postpartum Depression	≥13	171 (65.49)
No Postpartum Depression	<13	91 (34.51

4.4 Association between Socio-demographic Variables and Postpartum Depression

A statistical analysis using Chi square showed that there was significant association between postpartum depression and marital status χ^2 (3, N = 262) = 96.029, p. = .049); as well as level of education χ^2 (3, N =262) = 84.75, p= .035. There were more mothers who were single and with low level of education that had postpartum depression.

Table 4.4: Postpartum Depression and Associated Socio-demographic Factors

Association between socio-demographic factors and Postpartum Depression in all participants						
	Depression status		**Total, *N* = 262 (100%)**	**x^2**	***Df***	***P***
Variables	**Depression** (*n*=171), *n* (%)	**No Depression** (*n*=91), *n* (%)				
Age groups (years)						
15-24	61(84.7)	11(15.3)	72 (100.0)	60.807	3	0.658
25-26	54(78.3)	15(21.7)	69 (100.0)			
30-34	45(65.2)	24(34.8)	69 (100.0)			
35-45	11(21.1)	41(78.9)	52 (100.0)			
Marital status						
Single	54(88.5)	7(11.5)	61 (100.0)	96.029	3	0.049*
Married	56(44.4)	70(55.6)	126 (100)			
Divorced	23(76.7)	7(23.3)	30 (100.0)			
Widowed	38(84.4)	7(15.6)	45 (100.0)			
Level of education						
Primary	49(83.1)	10(16.9)	59 (100.0)	84.75	3	0.035*
Secondary	51(61.4)	32(38.6)	83 (100.0)			
Tertiary	42(48.8)	44(51.2)	86 (100.0)			
None	29(82.8)	5(17.2)	34 (100.0)			
Occupation						
House wife	85(79.4)	22(20.6)	107 (100.0)	63.975	3	0.442
Employed	11(28.2)	28(71.8)	39 (100.00			
Self employed	56(65.9)	29(34.1)	85 (100.0)			
Student	19(61.3)	12(38.2)	31 (100.0)			
Number of children						
One	47(83.9)	9(16.1)	56 (100.0)	69.868	3	0.258
Two	71(76.3)	22(23.7)	93 (100.00			
Three	27(54.0)	23(46.0)	50 (100.0)			
≥Four	26(41.3)	37(58.7)	63(100.0)			

Asterisk (*) indicates variable of significant P value

4.5 Prevalence of Postpartum Anxiety

Postpartum anxiety was determined using Becks Anxiety Inventory screening tool where by the mean score was found to be 25.4 ± 3.09 standard deviation. The score range was 10-40. In this study the lowest score was 10 points and highest was 40 out of maximum 63 points [Table 4.5].

Table 4.5: Distribution of Becks Anxiety Inventory Score

Distribution of Becks Anxiety Inventory Scores of participants (*N* = 262)	
Becks Anxiety Inventory Scale	*n* (%)
10	7 (2.6)
11	4 (1.5)
12	7 (2.7)
13	7 (2.7)
14	8 (3.1)
15	8 (3.1)
16	14 (5.3)
17	6 (2.3)
18	5 (1.9)
19	9 (3.4)
20	10 (3.8)
21	11 (4.2)
22	9 (3.4)
23	7 (2.7)
24	13 (4.9)
25	9 (3.4)
26	7 (2.7)
27	9 (3.4)
28	8 (3.1)
29	9 (3.4)
30	6 (2.3)
31	7 (2.7)
32	11 (4.2)
33	12 (4.6)
34	6 (2.3)
35	10 (3.8)
36	6 (2.3)
37	11 (4.2)
38	5 (1.9)
39	7 (2.7)
40	13 (4.9)
Total	**262 (100.0)**

A cut off of 22 points on Becks Anxiety Inventory scale indicates significant symptoms of anxiety. Out of the 262 participants using simple proportion 166 (63.5%) of respondents scored 22 points and above had postpartum anxiety as shown in Table 4.6.

Table 4.6: Prevalence of Postpartum Anxiety Status

Prevalence of Postpartum Anxiety for the study group (n=262)		
Postpartum anxiety status	**BAI Score**	**n (%)**
Postpartum Anxiety	≥22	166 (63.5)
No Postpartum Anxiety	<22	96 (36.5)

4.6 Association between Socio-demographic Variables and Postpartum Anxiety

A statistical analysis using Chi square showed that there was a significant association between anxiety and age, at $\chi 2 = 3$ and $p = .049$; and level of education at $\chi 2 = 3$ and $p = .009$ as well as occupation $\chi 2 = 3$ and $p = .012$ as seen in Table 4.7

Table 4.7: Postpartum Anxiety and Associated Socio-demographic Factors.

Association between socio-demographic factors and postpartum anxiety in all participants						
Variables	**Anxiety Status**		Total, n=262 (100%)	x^2	*Df*	*P*
	Anxiety (*n*=165), *n* (%)	**No Anxiety** (*n*=97), *n*(%)				
Age groups (years)						
15-24	65(90.3)	7(9.7)	72 (100.0)	75.443	3	0.049*
25-29	58(84.1)	11(15.9)	69 (100.0)			
30-34	31(44.9)	38(55.1)	69 (100.0)			
35-45	11(22.2)	41(78.8)	52 (100.0)			
Marital status						
Single	47(77.1)	14(22.9)	61 (100.0)	3.246	3	0.544
Married	59(46.8)	67(53.2)	126 (100.0)			
Divorced	22(73.3)	8(26.7)	30 (100.0)			
Widowed	37(82.2)	8(17.8)	45 (100.0)			
Level of education						
Primary	51(86.4)	8(13.6)	59 (100.0)	34.745	3	0.009*
Secondary	62(74.7)	21(25.3)	83 (100.0)			
Tertiary	20(23.3)	66(76.7)	86 (100.0)			
None	29(85.3)	5(14.70	34 (100.0)			
Occupation						
House wife	82(76.6)	25(23.4)	107 (100.0)	56.243	3	0.012*
Employed	12(30.8)	27(69.2)	39 (100.0)			
Self employed	49(57.7)	36(42.3)	85 (100.0)			
Student	22(70.9)	9(29.1)	31 (100.0)			
Number of children						
One	43(76.8)	13(23.2)	56 (100.0)	5.189	3	0.828
Two	74(79.6)	19(20.4)	93 (100.0)			
Three	22(44.0)	28(56.0)	50 (100.0)			
≥ Four	26(41.3)	37(58.3)	63 (100.0)			

Asterisk (*) indicates variable of significant *P* value

4.7 Nurses Parent Support.

Respondents were asked to rate the level of support they received from nurses who were caring for their preterm neonates in a four-domain Likert scale with a total of 21 stem statements as shown in Table 4.8.

Eighty three (31.3%) of respondents felt nurses never addressed their worries and 35(13.4%) were never told the technical management their neonates were given.

On the other hand, one third of the mothers 96(36.7%) felt that their parental role to the neonates were appreciated, 75(28.2%) felt their doubts and queries were adequately addressed and 69(26.2%) felt they were closely involved in decisions made about their preterm neonates. Ninety three (35.5%) felt nurses gave good care to their neonate and 89(33.9%) felt nurses were sensitive to their neonates special needs.

Eighty (30.5%) of mothers felt the nurses equipped them well to care for the preterm neonate and 78(29.6%) were satisfied with the information about changes and progress of their neonates. Seventy four (28.2%) of respondents felt nurses were not concerned about their feeding and sleep.

Table 4.8: Nurse Parent Support Tool Scores.

Nurse parent support tool for all participants (*N* = 262)					
Stem statements	**Almost Never (1)**	**Not very Often (2)**	**Some of the Times (3)**	**Most of the Times (4)**	**Almost Always (5)**
Helped me talk about my feelings, worries or concerns	83(31.7%)*	46(17.6%)	46(17.6%)	56(21.3%)	31(11.8%)
Helped me understand what is being done to my child e.g. lab test, treatment	35(13.4%)*	53(20.3%)	56(21.2%)	54(20.7%)	64(24.4%)
Taught me how to give care to my child	26(9.9%)	32(12.3%)	54(20.6%)	80(30.5%)*	70(26.7%)
Made me feel important as a parent	20(7.5%)	37(14.1%)	44(16.6%)	66(25.1%)	96(36.7%)*
Let me decide whether to stay or leave during medical procedures	20(7.7%)	30(11.4%)	75(28.5%)	66(25.2%)	71(27.2%)
Answered my questions to satisfactorily or found someone else who could	27(10.2%)	31(11.8%)	51(19.6%)	79(30.2%)	74(28.2%)*
Told me about changes/improvement of my child's condition	27(10.5%)	32(12.1%)	53(20.3%)	78(29.6%)*	72(27.5%)
Included me in discussions when decision were made about my child's care	28(10.7%)	40(15.2%)	52(20.1%)	73(27.8%)	69(26.2%)*
Helped me understand my child's behavior and reactions	24(9.0%)	40(15.2%)	48(18.4%)	73(27.9%)	77(29.5%)*
Helped me know how to comfort my child during and after procedures	25(9.4%)	27(10.3%)	53(20.1%)	77(29.5%)	80(30.7%)*
Let me know am doing a good job in helping my child	27(10.3%)	30(11.6%)	43(16.5%)	89(33.9%)	73(27.7%)
Responded to my worries and concerns	24(9.2%)	40(15.1%)	63(23.9%)	58(22.4%)	77(29.4%)
Showed concerns about wellbeing e.g. sleep and eating	30(11.4%)	74(28.2%)*	61 (23.3%)	31(11.8%)	66(25.3%)
Helped me know the names and roles of the staff caring for my child	48(18.4%)	29(11.1%)	46(17.6%)	65(24.6%)	74(28.3%)
Gave good care to my child	19(7.2%)	40(15.1%)	48(18.4%)	62(23.8%)	93(35.5%)*
Encouraged me to ask questions about my child	26(9.9%)	36(13.6%)	44(16.9%)	74(28.3%)	82(31.3%)
Were sensitive to my child's special need	28(10.7%)	28(10.7%)	43(16.4%)	74(28.1%)	89(33.9%)*
Allowed me to be involved in my child's care whenever possible	26(9.8%)	38(14.3%)	60(22.9%)	68(26.1%)	70(26.9%)
Showed that they like my child	26(9.9%)	33(12.6%)	47(18.3%)	78(29.6%)	78(29.6%)
Responded to my child's needs in timely fashion	32(12.2%)	31(11.8%)	46(17.6%)	79(30.2%)	74(28.2%)
Said something optimistic about my child's condition	27(10.3%)*	35(13.2%)	50(18.9%)	69(26.3%)	82(31.3%)
Asterisk (*) indicates a score significance					

CHAPTER FIVE

DISCUSSION

5.1 Introduction

This chapter will present discussion, conclusion and recommendations on prevalence of postpartum depression, anxiety and socio demographic characteristics associated with the conditions. The chapter also presents discussion on mothers' perception on nurses' support to mothers during preterm neonate hospitalization in Newborn Unit.

5.2 Prevalence of Postpartum Depression

The prevalence of postpartum depression in this study was 65.5% which is similar to a study done by (Mutua, 2017) at Kenyatta National Hospital Newborn Unit in Kenya that showed prevalence of 68.8%. This similarity may be explained based on the utilization of the same screening tool; Edinburgh Postpartum Depression scale with a cutoff of ≥13 points among mothers of preterm neonates (Tungchama, 2018). The high level results in this study are comparable with other research that explored postpartum depression in mothers of premature neonates as compared to mothers of full term neonates (Surkan, 2017). According to (Azad, 2019)reported wide range of global estimate of prevalence of postpartum depression among mothers of preterm neonates to be between 5.2 % to 74% in developing counties and 1.9% to 82.1% in developed countries.

More specifically, studies by (Ballantyne et al., 2017) and (Pace et al., 2016) indicated that mothers of premature neonates are 40% more likely to develop postpartum depression, compared to mothers of full term neonates in general population carrying substantial risk of morbidity.

In this study it was demonstrated that mothers of preterm neonates who had low level of education and single marital status were more likely to experience postpartum depression. Mothers who attained primary level education recorded 83.1% occurrence of postpartum depression and was no different from those who did not attain any formal education who recorded 82.8% occurrence of depression. These figures were significantly lower in those who attained secondary and tertiary education at 64.4% and 48.8% respectively. This was partly explained by (Lara, Navarrete, & Nieto, 2016) reported that educational level had an effect on knowledge, cognitive skills and also analytical abilities in coping with situations that can cause mental turmoil.

These findings are consistent with previous studies reporting that low level of education and being single mother is a positive predictive index for increased rate of postpartum depression (Beck, 2017 & Azad, 2019). In a study done by (Kawafha, 2018), respondents with primary level of education or nil education had the highest depression score compared to mothers with higher education level. Low level of education may also mean low knowledge and confidence in caring for neonate and where the neonate is a preterm, the challenge is even greater. Such mothers tend to have self doubt and lower problem solving skills leading to inability to make decisions regarding care of the preterm neonate, hence preponderance to depression (Tungchama et al., 2018). Furthermore (Patel et al., 2018) reported that low knowledge among mothers contributed to their fear and apprehension in asking for nurses' help in caring for their preterm neonates which worsen their feelings of incompetence and helplessness. (Kawafha, 2018) in his study 'Parental stress in the neonatal intensive care unit and its association with parental and neonate characteristics' concluded that mothers with no formal education or those with primary level of education had the highest depression scores compared to mothers with higher education level.

Single parenthood tended to engender a high risk for postpartum depression. The occurrence of depression was as high as 88.5% among premarital mothers 84.5%, among widowed and 76.7% among the divorced. Conversely, only 44.4% of the married mothers manifested symptoms of postpartum depression. Marital status was associated with postpartum depression, being single mother, widowed or divorced were shown to be at higher risk for postpartum depression in this study. In African context, marriage is a culturally acceptable norm of raising family and being married makes a woman more acceptable and respectable. Therefore according to (Sulyman et al., 2016) a single mother represented low family cohesion and vulnerable to isolation and depression.

Similar conclusions were drawn by (Hewitt, Strazdins & Martin, 2017) & Patel et al., (2018) found that single mothers were often stigmatized in African context. They experience a triad of negative distortion and negative feelings about self and easily slide into postpartum depression. On the other hand (Tungchama et al., 2018) and (Tahirkheli et al., 2014) demonstrated that marriage boosts mothers' self-esteem. It can be concluded therefore, that a low level of education and single-motherhood are a strong positive predictive index for increased rate of postpartum depression (Beck, 2017) and Azad, 2019).

5.3 Prevalence of Postpartum Anxiety

In this study the prevalence of postpartum anxiety among mothers of preterm neonates at Moi Teaching and Referral Hospital Newborn Unit was 63.3%. Several studies (Fairbrother et al., 2016), (Fowler et al., 2019) and (Greene et al., 2015) found that postpartum anxiety experienced by mothers of preterm neonates is related to separation from their preterm neonate and the total loss of their parental role which they may neither have anticipated nor desired pre-term.

In literature few studies have examined the levels of postpartum anxiety among mothers of preterm neonates during Newborn Unit hospitalization as compared to mothers of full term neonates (Craig, 2015).

The findings in the current study are comparable to a study done by (Mutua, 2017) which reported a prevalence of postpartum anxiety to be 52.3% among mothers with preterm neonates at Kenyatta national Hospital, Kenya. According to Field, (2018) & Helle (2016) argues that the high prevalence of postpartum anxiety among such mothers can be explained by worries about survival of their preterm neonates which is not a prevailing concern among mothers of full term neonates.

The environment in the Newborn Unit is often intimidating with unfamiliar, highly technological processes and seemingly unpredictable situations. Many aspects of the Newborn Unit experience can be distressing, including non reassuring neonates physical appearance, complex medical equipment, cacophony of sounds and beeps, jargon freely used by health care personnel. Consequently the mother becomes disconcerted, perturbed and anxious (Field et al., 2018) and (Vazquez, 2016).

Age, education and occupation of mothers were significantly associated with postpartum anxiety. Younger ages of mothers portend a higher risk of postpartum anxiety. Those aged between 15-24 years recorded 90.3% prevalence of postpartum anxiety and those between 25-29 years recorded 84.1% prevalence. Conversely, other factors remaining constant mothers at 35years of age and above recorded only 22.2% of postpartum anxiety.

Similar findings were reported by (Bardhoshi, 2016), (Khan, 2017) and (Matinnia, 2018) across different racial groups. The demands of coping with needs of preterm neonate may be often stressful and difficult for young mothers (Tungchama, 2018).

On the other hand older women had better coping strategies than young mothers (Ncube, 2016) and (Eke, 2019). It is also possible that the experiences of old age in life gave them an edge over their younger counterparts.

The relationship between level of education and postpartum anxiety closely mirrored that of postpartum depression. Postpartum anxiety was reported in 85.3% of the mothers with no formal education, 86.4% with primary, 74.7% with secondary education and only 23.3% among those with tertiary education (23.3%). This compares to a study by (Eke, 2019). (Holbrook et al., 2019) and (Matinnia, 2018) reported that education level was a significant predictor of community health. It shaped occupation and income levels, which was related to access to health care. Mothers who have formal education are better equipped to be engaged in health related activities such as reproductive health education and enlightenment (Hawes, McGowan & Tucker, 2016). With higher level of education, a woman gets easily informed about choices on things that may improve her health status (Ncube et al., 2016). Such mothers tend to better assimilate the principles of health related quality of life interventions than those that have no formal education or have lower level of education.

In this study unemployed mothers such as housewives and students had a high postpartum anxiety at 76.6% and 70.9% respectively compared to the employed at 30.8%. Studies by (Matinnia 2018) and (Lara et al. 2016) found that postpartum anxiety was predictably higher in participants who were unemployed or had low income.

According to (Goodman et al., 2016) and (Khan et al., 2017) the cost of care for premature neonates in a neonatal unit may be huge and have severe financial implication in the lower socio-economic class. The likelihood of having unpaid bills at the end of the hospital stay is high. Adding to the uncertainty of the neonate's survival at the end of the day arouses intense anxiety (Helle et al., 2016). Students most of them who are teenage mothers lack source of income, experience high level of depression and anxiety (Dare, 2016).

As suggested by (Knights et al., 2016) postpartum anxiety was less common in women who were on paid maternity leave. On the other hand, according to (Hewitt et al., 2017), postpartum anxiety was not associated with household income status within slum areas, possibly because people in slum areas are more concerned with immediate economic survival rather than long term economic stability. Their economic status may have insignificant differences between homes that don't have differential impact on factors contributing to anxiety. Being in the hospital with their preterm neonates meant mothers could not attend to their income generating activities and those in jobs didn't have substantial maternity privileges, if any (Mutua, 2017).

5.4 Nurses Parent Support

It is obvious that preterm birth does not only threaten the wellbeing of the preterm neonate but also the wellbeing of the mother (Palumbo et al., 2017). Establishing positive and trusting relationships with mothers has long been recognized not only as therapeutic, but also as an essential component of nursing practice and effective care (Foe, Rasmussen, & Weichula, 2016). A study done by (Bhandari et al., 2017) indicates that role of nurses receives more attention than other members of the health team due to their more frequent contact with mothers and their neonates.

This study indicate that the nurses focused on two out of the four domains of nurse parent support; information support and quality care given to the preterm neonate. The other two domains with regard to emotional support and boosting esteem of the mothers received less attention during their neonates' admission.

Regarding information support, 24.4% participants reported that the nurses almost always made them understand the care their neonates received always and 30.2% were satisfied with answers given to their questions as well as being briefed on changes or improvement their preterm neonate was undergoing most of the time.

These findings were consistent with studies done by (Davila, 2018) and (Foe et al., 2016) that showed that mothers valued the most assurance and information given to them about the characteristics of their preterm neonate such as weight, body size, lack of epidermal fat, fast respiration and weak cries among others (Trumello et al., 2018).

Thirty one to 35.5% of mothers appraised positively the quality care being given to their neonates, based on the near constant optimism the nurses had about the condition of their preterm neonates. As recommended by (Potter, 2017), it is important that the Newborn Unit nurses get involved with the mothers immediately after preterm births and henceforth during the neonates' hospitalization deliberately addressing their psychological needs in order to optimize outcomes in this regard.

A lower rating on emotional support that entailed listening, exhibiting caring behavior and being concerned in ways that could help mothers cope with neonates' condition was recorded. Nurses just occasionally helped mothers talk about their worries and concerns as reported by 31.7% of mothers. Mothers also indicated that nurses sometimes were not concerned regarding their eating and sleep at 28.2%. Esteem support domain that envisaged enhancing, reinforcing and supporting the maternal role at caring for the preterm received low rating as well.

Almost half of the mothers were rarely given opportunity for mothers to decide whether to stay or leave during medical procedures. (Potter, 2017) and (Bhandari et al., 2017) assert that as technological advancement progresses in Newborn Units, nurses work load becomes redefined and refocused thereby finds no ample time to support and understand maternal mental needs. According to (Davila, 2018) communication provides satisfaction and is highly dependent on the amount and quality of communication between the nurse and mothers.

CHAPTER SIX

CONCLUSION & RECOMMENDATION

6.1 Introduction

The birth of a preterm neonate is a stressful event for mothers as they navigate through the emotions of depression and anxiety for the survival of the neonate and feeling of guilt for not carrying pregnancy to term. Post partum depression and anxiety are considered a public health problem and are a major part of worldwide mental health concern. The present study makes a relevant contribution to knowledge regarding emotional state of mothers of preterm neonates, highlighting a difficult emotional situation during Newborn Unit hospitalization.

6.2 Conclusion

The prevalence of postpartum depression among mothers to preterm neonates admitted in the Newborn Unit at MTRH was 65.5%. It was similar to that reported at Kenyatta National Hospital at 68.6%. This was similar for postpartum anxiety at 63.5 % and 52.3% respectively. This high rate may partly be attributed to non prioritization of maternal mental health care by health care providers among other factors. Single mothers as well as young and teenage mothers with low level of education and unemployed were at a higher risk of developing postpartum depression and anxiety than older, married and employed mothers. A significant number of mothers with hospitalized preterm neonates perceived minimal psychological support from the nurses who are busy caring for the preterm neonates.

6.3 Recommendations

Postpartum depression and anxiety is high and therefore the health sector should prioritize its prompt screening and diagnosis among mothers of preterm neonates. Nurses require increased awareness of psychosocial needs of mothers with preterm neonates.

Improved health professional education needs to be provided that focuses on specifically on this vulnerable group of mothers so that support is tailored to their particular needs. Recommend future longitudinal studies with rigorous screening and diagnostic methods to examine the symptoms of postpartum depression and anxiety throughout the postpartum period, as well as their effect on social functioning of the mother and the relationship between mother and her preterm neonate.

6.4 Key Points

Mothers of preterm neonates admitted in the Newborn Unit have a higher prevalence of postpartum depression and anxiety than mothers of full term neonates.

Use of standardized and validated screening tools is logical step in protecting mothers from postpartum depression and anxiety.

Supporting the mental health of mothers of preterm neonates not only improves maternal well being, but there are positives for the neonate who has a caregiver who is available and responsive to the preterm neonates' unique needs.

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APPENDICES

Appendix I: Informed Consent Form

NBU ☐ KMC ☐

Study Title: Postpartum Depression and Anxiety among mothers of preterm babies at New Born Unit- Moi Teaching and Referral Hospital Eldoret.

Researcher: Philip Simiyu Sakari; Masters of Science in Maternal and Neonatal Health

P.O Box 4606 - 30100 Eldoret; Contact person: Tel 0710252125

Why the study: A research on postpartum depression and anxiety among mothers of preterm neonates admitted in Newborn Unit at MTRH, Eldoret. You have been selected as one of the respondents. I kindly request you to fill the right information. The information is purely for research purpose and will be treated with utmost confidentiality**.**

Procedure: By you consenting to participate, you will be asked questions by the researcher with only aim to collect information that will meet the purpose of this study. The researcher and research assistants will help you to understand the questionnaire if there is challenge. It will take about 10 minutes to complete this questionnaire.

Benefits: No direct benefit will be achieved following participation in this study but the findings from it will benefit mothers found to have postpartum depression and anxiety.

Risk: There is no anticipated medical risk to the participants in this study. There will be some inconvenience due to interruption from your daily routine at the hospital.

Confidentiality: Information gathered in this study will be considered confidential and no names will be written on the questionnaire. Filled questionnaires and consent forms will be locked for access only by the researcher, to enhance confidentiality.

Right of participants:

Your participation in this study is on voluntary basis. You are free to either refuse to take part or disregard data already collected or to withdraw at any stage in the course of study.

Signed Consent for Participation

I agree to participate in this study:

Sign..... Date……..

Researcher..... Date.....

Appendix II: Fomu ya Ridhaa (Ruhusa) ya Mgonjwa

CHUMBA CHA WATOTO WACHANGA ☐

MALEZI YA KANGARUU ☐

Jina langu ni Philip Simiyu Sakari

Nasomea shahada ya uzamili katika idara ya uuguzi katika ChuoKikuu cha Moi, Eldoret. Nafanya utafiti kuhusu mambo yanayofungamana na kushuka moyo na wasiwasi baada ya kujifugua mtoto mapema kabla ya siku zake kufika.

Naomba kutumia matokeo yenu kwa lengo la kuboresha matibabu ya kushuka moyo na wasiwasi kwa mama waloijifungua mapema kabla ya siku za mtoto kufika.

Majina hayatahitajika na matokeo hayo yatahifadhiwa kwa usiri wa hali ya juu. Hakutakuwa na udadisi mwengine wowote wa kulipishwa kwa lengo la utafiti.

Habari zote zitakazopatikana katika utafiti huu zitachukuliwa na kuhifadhiwa kwa usiri wa hali ya juu na hazitapewa yeyote ambae simhusika.

Tafadhali, kumbuka yakuwa, kushiriki kwako ni kwa hiari na uko na haki ya kukataa au kujiondoa kutoka utafiti huo.

Sahihi ya mshirika …… Tarehe ……

Nathibitisha yakuwa, mgonjwa ameelewa na kukiri kushiriki katika utafiti huu.

Philip Simiyu Sakari

Sahihi ……..... Tarehe ……..

Appendix III: Socio-Demographic Questionnaire Form

NBU ☐ **KMC** ☐

I am a post graduate student of Moi University undertaking a research on postpartum depression and anxiety among mothers of preterm babies at New Born Units at MTRH, Eldoret. You have been selected as one of the respondents. I kindly request you to fill the right information. The information is purely for research purpose and will be treated with utmost confidentiality.

Instruction: tick the appropriate response in the space provided

Date ---------- **Study number----------**

Background information

1. How old are you?

   15-24 years ( ) 25-29years ( )

   30-34 years ( ) 35 years and above ( )

2. What is your marital status?

   Single ( ) Married ( )

   Separated/Divorced ( ) Widowed ( )

3. What is your highest level of education?

   Primary ( ) Secondary ( )

   College/university ( ) No formal education ( )

4. What is your current occupation?

   House wife/unemployed ( ) Employed ( )

   Self-employed/Business lady ( ) Student ( )

5. How many children do you have including this preterm neonate?

   One ( ) Two ( )

   Three ( ) Four or more ( )

Appendix IV: Edinburg Postnatal Depression Scale Form (EPDS)

NBU ☐ **KMC** ☐

As you have recently had a baby, we would like to how you are feeling.
Please check the answer that comes closest to how you have felt
IN THE PAST 5 DAYS, not just how you feel today.
The scores are as indicated below.
Instruction: tick the appropriate response in the space provided

Date ---------- Study number----------

1. I have been able to laugh and see the funny side of things
   Nimeweza kucheka na kuona jambo la kuchekesha katika mambo
   a) As much as I always could
   b) Not quite so much now
   c) Definitely not so much now
   d) Not at all
2. I have looked forward with enjoyment to things
   Nimetarajia mambo kwa furaha
   a) As much as I ever did
   b) Rather less than I used to
   c) Definitely less than I used to
   d) Hardly at all

3.* I have blamed myself unnecessarily when things went wrong
   Nimejilaumu bila sababu wakati mambo yalipoenda vibaya
   a) Yes, most of the time
   b) Yes, some of the time
   c) Not very often
   d) No, never

4. I have been anxious or worried for no good reason
   Nimekuwa na wasiwasi bila sababu nzuri
   a) No, not at all
   b) Hardly ever
   c) Yes, sometimes
   d) Yes, very often

5.* I have felt scared or panicky for no very good reason
   Nimeshikwa na uwoga au hofu bila sababu njema
   a) Yes, quite a lot
   b) Yes, sometimes
   c) No, not much
   d) No, not at all

6.* Things have been getting on top of me

Mambo yamekuwa yakinilemea

a) Yes, most of the time I haven't been able to cope at all
b) Yes, sometimes I haven't been coping as well as usual
c) No, I have been coping as well as ever
d) No, most of the time I have coped quite well

7.* I have been so unhappy that I have had difficulty sleeping

Nimekuwa na huzuni sana hadi nimekuwa na ugumu kupata usingizi

a) Yes, most of the time
b) Yes, sometimes
c) Not very often
d) No, not at all

8.*I have felt sad or miserable

Nimesikia huzuni sana na kutokua na furaha

a) Yes, most of the time
b) Not very often
c) Yes, quite often
d) No, not at all

9.*I have been so unhappy that I have been crying

Sijakuwa na furaha kabisa hadi nimetokwa na machozi

a) Yes, most of the time
b) Yes, quite often
c) Only occasionally
d) No, never

10.*The thought of harming myself has occurred to me

Nimekuwa na mawazo ya kujitendea mabaya

a) Yes, quite often
b) Sometimes
c) Hardly ever
d) No, never

QUESTIONS: 1,2,&4 are scored with top box as 0 and bottom box as 3 **QUESTIONS:** 3,5-10 with an Asterisk are reverse scored with the top box scored as 3, and bottom box as 0
Source:Cox J.L.; Holden J.M.; Sagovsky R. (1987). "Detection of postnatal depression": Development of the 10-item Edinburgh Postnatal Depression Scale". Br J Psychiatry. **150**: 782–6.

Appendix V: Beck Anxiety Inventory Form (BAI)

NBU ☐ **KMC** ☐

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past, including today, by circling the number in the corresponding space in the column next to each symptom.

Instruction: tick the appropriate response in the space provided

Date ----------- Study number----------

S/ no	Stem statement	Not At All (0)	Mildly but it didn't bother me much (1)	Moderately - it wasn't pleasant at times(2)	Severely – it bothered me a lot(3)
1	Numbness or tingling *Nahisi mwili kuganda*	□	□	□	□
2	Feeling hot *Nahisi joto mwilini*	□	□	□	□
3	Wobbliness in legs *Naishiwa na nguvu miguuni*	□	□	□	□
4	Unable to relax *Nashindwa kutulia*	□	□	□	□
5	Fear of worst happening *Nakuwa na hofu kitu kibaya kutendeka*	□	□	□	□
6	Dizzy or light headed *Nahisi kisunzi*	□	□	□	□
7	Heart pounding/racing *Nahisi moyo kupiga kwa kasi*	□	□	□	□
8	Unsteady *Nashindwa kuwa imara*	□	□	□	□
9	Terrified or afraid *Nahisi uwoga ama hofu*	□	□	□	□
10	Nervous *Nahisi kuwa na wasiwasi*	□	□	□	□
11	Feeling of choking *Nahisi kama nanywongwa*	□	□	□	□
12	Hands trembling *Nahisi mikono kutetemeka*	□	□	□	□
13	Shaky/unsteady *Nahisi mwili kutetemeka*	□	□	□	□
14	Fear of losing control *Nashindwa kujidhibiti*	□	□	□	□
15	Difficulty in breathing *Naishiwa na pumzi*	□	□	□	□
16	Fear of dying *Najawa na uoga wa kufariki*	□	□	□	□

17	Scared *Nahisi kuwa uoga*	□	□	□	□
18	Indigestion *Nahisi kuchafuka tumbo*	□	□	□	□
19	Faint/light headed *Nahisi kuzimia*	□	□	□	□
20	Face flushed *Nahisi kukasirika*	□	□	□	□
21	Hot/cold sweats *Nahisi kutokwa na jasho nyembamba*	□	□	□	□
Source: Beck, A. T., Epstein, N., Brown, G., Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56,* 893-897.					

Appendix VI: Nurses Parent Support Tool Form

NBU ☐ **KMC** ☐

I am a post graduate student of Moi University undertaking a research on Postpartum depression and anxiety among mothers of preterm babies at New Born Units at MTRH, Eldoret. You have been selected as one of the respondents. I kindly request you to fill the right information. The information is purely for research purpose and will be treated with utmost confidentiality.

Instruction: tick the appropriate response in the space provided

Date ---------- Study number ----------

Item	Question	Almost never (1)	Not very often (2)	Some of the time (3)	Most of the time (4)	Almost always (5)
1	Help me talk about my feelings, worries or concerns *Nilisaidiwa kujieleza kuhusu hofu*					
2	Helped me understand what is being done to my child e.g. Lab tests, treatments, medicines *Nilielezwa matibabu anayopata motto kama vile vipimo vya mahabaa, dawa*					
3	Taught me how to give care to my child *Nilifunzwa jinsi ya kulea mtoto*					
4	Made me feel important as the parent *Nilidhaminiwa kuwa mzazi wa maana.*					
5	Let me decide whether to stay or leave during medical procedures *Nilikubaliwa kukaa ama kuondoka wakati mtoto anatibiwa*					
6	Answered my question satisfactorily or found someone else who could *Nilijibiwa maswali kwa ukamilifu ama nilipewa mhudumu mwingine kunieleza*					
7	Told me about changes/improvements of my child's condition *Nilielezwa mabadiliko na kuimarika kwa afya ya motto*					
8	Included me in discussions when decision were made about my child's care *Nilihusishwa kwa mipango ya matibabu ya mtoto*					
9	Helped me understand my child's behavior and reactions *Nilielezwa kuhusu tabia ya motto*					

10	Helped me know how to comfort my child during and after procedures *Nilisaidiwa kujua jinsi ya kumutuliza mtoto anapopata matibabu*					
11	Let me know I am doing a good job in helping my child. *Nilielezwa kuwa nafanya kazi nzuri kumsaidia motto*					
12	Responded to my worries or concerns *Walishughulikia hofu na matakwa yangu*					
13	Showed concerns about my well being e.g. sleep and eating *Walinishughulikia mahitaji yangu kama kulala na kupumzika*					
14	Helped me know the names and roles of the staff caring for my child *Walinisaidia kuwajua wahudumu wa afya na majukumu yao kwa motto*					
15	Gave good care to my child *Walimushughulikia motto vyema*					
16	Encouraged me to ask questions about my child *Walinihimiza kuwauliza maswali kuhusu motto*					
17	Were sensitive to my child's special needs *Walijali masilahi maalum ya motto*					
18	Allowed me to be involved in my child's care whenever possible *Nilishiriki shwa katika matibabu ya mtoto wakati kulikuwepo uwezekano*					
19	Showed that they like my child *Walidhihirisha wanapenda mtoto*					
20	Responded to my child needs in timely fashion *Walishughulikia mahitaji ya mtoto kwa wakati unaofaa*					
21	Said something optimistic about my child's condition *Walinieleza ujumbe wa matumaini kuhusu hali ya mototo*					
SOURCE: Miles, M.S, Carlson, J. & Brunnsen, S. (1999). The Nurses Parent Support Tool. *Journal of Peadiatric Nursing 14 (1): 44-50.*						

Appendix VII: Pilot Study Approval

COUNTY GOVERNMENT OF KAKAMEGA

E-mail: wpgh15@yahoo.com
Telephone: Kakamega 0702930346
When replying, please quote:
REF: ERC/CGTRH/GEN/67

COUNTY GENERAL TEACHING
& REFERRAL HOSPITAL
P.O. Box 15-G.P. O-50100
KAKAMEGA

DATE: 28th March 2019

MINISTRY OF HEALTH SERVICES

PHILIP SIMIYU SAKARI,
REG.NO. SN/MNH/04/2015.

Dear Madam,

REF: RESEARCH PROPOSAL APPROVAL (092/03/2019)

This is to inform you that the Ethics and Research Committee has reviewed and approved your pilot study titled"**POSTPARTUM DEPRESSION AND ANXIETY AMONG MOTHERS OF PRETERM NEONATES AT NEW BORN UNIT IN KAKAMEGA COUNTY GENERAL TEACHING AND REFERRAL HOSPITAL".**

The approval is valid for 1 year from the above date and any continuation thereafter will necessitate a request for renewal.

Note that this approval is only for the work that you have submitted to us. The committee must be notified of any changes or amendments and serious or unexpected outcomes related to the study. You will be expected to submit a final report at the end of the study and may be requested to do a presentation of the same to the hospital.

This information will form part of the database that will be consulted in future when processing related research studies so as to minimize chances of study duplication.

Thank you for your interest in research in our institution.

KAKAMEGA COUNTY GENERAL HOSPITAL MATRON 28 MAR 2019 & REFERRAL HOSPITAL

Dr. AUSTIN S. AJEVI
CHAIRMAN
ETHICS AND RESEARCH COMMITTEE

CC.Medical Superintendent

Appendix VIII: MTRH Research Approval

An ISO 9001:2015 Certified Hospital

MOI TEACHING AND REFERRAL HOSPITAL

Telephone :(+254)053-2033471/2/3/4
Mobile: 722-201277/0722-209795/0734-600461/0734-683361
Fax: 053-2061749
Email: ceo@mtrh.go.ke/directorsofficemtrh@gmail.com

Nandi Road
P.O. Box 3 – 30100
ELDORET, KENYA

Ref: ELD/MTRH/R&P/10/2/V.2/2010

3rd April, 2019

Dr. Philip Simiyu Sakari,
Moi University,
School of Medicine,
P.O. Box 4606-30100,
ELDORET-KENYA.

APPROVAL TO CONDUCT RESEARCH AT MTRH

Upon obtaining approval from the Institutional Research and Ethics Committee (IREC) to conduct your research proposal titled:-

"Postpartum Depression and Anxiety among Mothers of Preterm Neonates at New Born Unit- Moi Teaching and Referral Hospital, Eldoret".

You are hereby permitted to commence your investigation at Moi Teaching and Referral Hospital.

03/04/2019

MOI TEACHING AND REFERRAL HOSPITAL
CEO
APPROVED
03 APR 2019

DR. WILSON K. ARUASA, *MBS*
CHIEF EXECUTIVE OFFICER
MOI TEACHING AND REFERRAL HOSPITAL

P. O. Box 3 - 30100, ELDORET

cc - Senior Director, (CS)
- Director of Nursing Services (DNS)
- HOD, HRISM

Appendix IX: MU/MTRH IREC Approval

MU/MTRH-INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 33471//2/3

MOI UNIVERSITY
COLLEGE OF HEALTH SCIENCES
P.O. BOX 4606
ELDORET

Reference: IREC/2018/201
Approval Number: 0003281

1st April, 2019

Dr. Philip Simiyu Sakari,
Moi University,
School of Medicine,
P.O. Box 4606-30100,
ELDORET-KENYA.

INSTITUTIONAL RESEARCH & ETHICS COMMITTEE
01 APR 2019
APPROVED
P.O. Box 4606-30100 ELDORET

Dear Dr. Sakari,

RE: FORMAL APPROVAL

The MU/MTRH- Institutional Research and Ethics Committee has reviewed your research proposal titled: -

"Postpartum Depression and Anxiety among Mothers of Preterm Neonates at New Born Unit- Moi Teaching and Referral Hospital, Eldoret".

Your proposal has been granted a Formal Approval Number: ***FAN: IREC 3281*** on 1st April, 2019. You are therefore permitted to begin your investigations.

Note that this approval is for 1 year; hence will expire on 31st March, 2020. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date. You will be required to submit progress report(s) on application for continuation, at the end of the study and any other times as may be recommended by the Committee.

Furthermore, you must notify the Committee of any proposal change (s) or amendment (s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. You will also be required to seek further clearance from any other regulatory body/authority that may be appropriate and applicable to the conduct of this study.

Sincerely,

DR. S. NYABERA
DEPUTY-CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc CEO - MTRH Dean - SOP Dean - SOM
Principal - CHS Dean - SON Dean - SOD