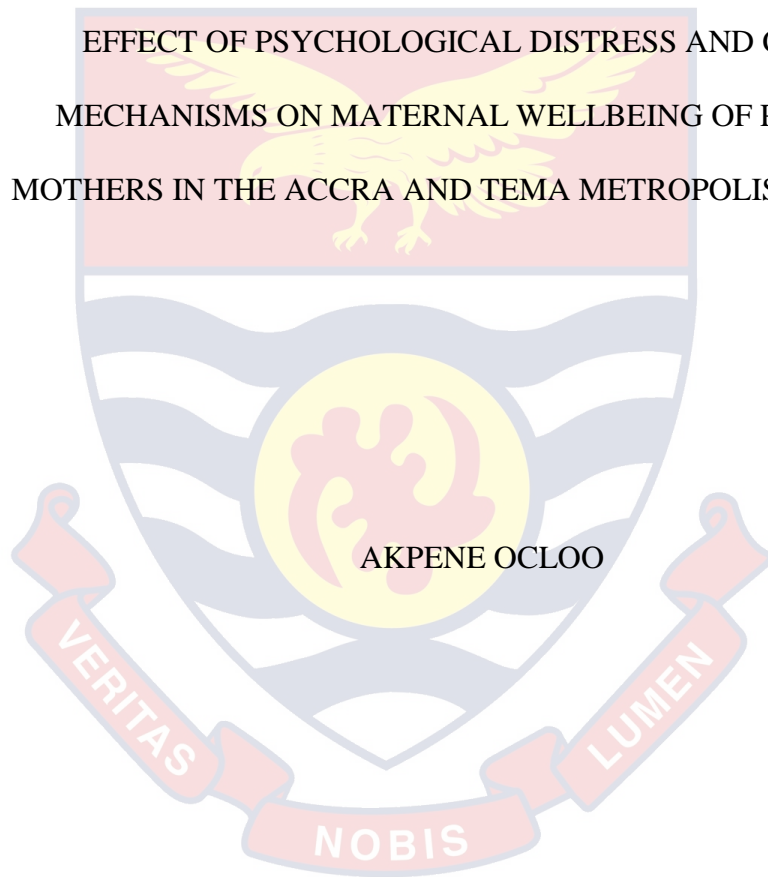


UNIVERSITY OF CAPE COAST

EFFECT OF PSYCHOLOGICAL DISTRESS AND COPING
MECHANISMS ON MATERNAL WELLBEING OF PRETERM
MOTHERS IN THE ACCRA AND TEMA METROPOLIS OF GHANA



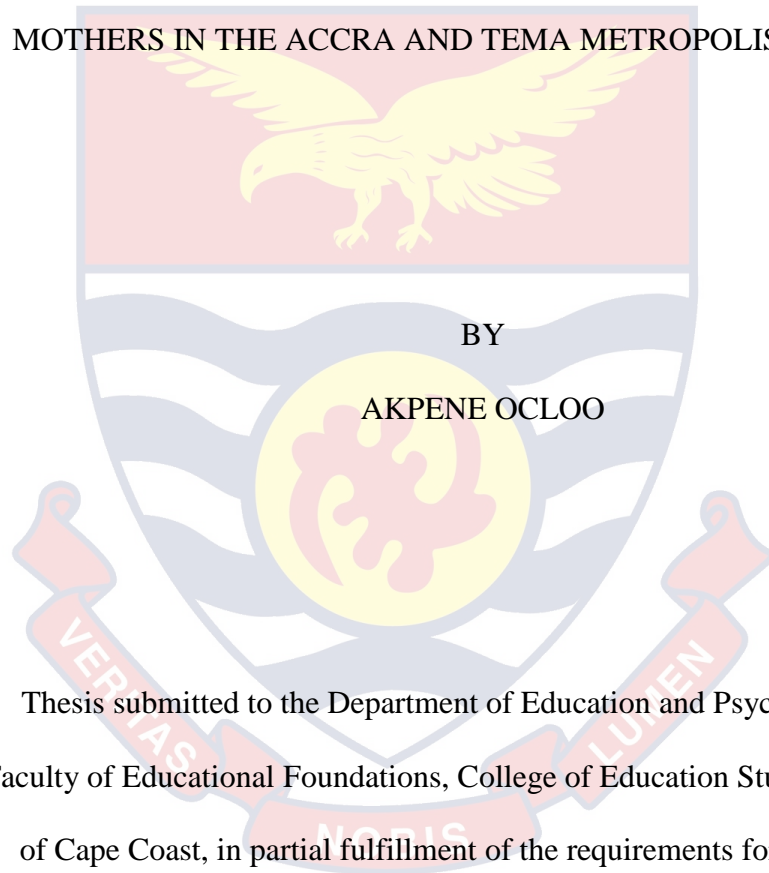
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MECHANISMS ON MATERNAL WELLBEING OF PRETERM
MOTHERS IN THE ACCRA AND TEMA METROPOLIS OF GHANA



BY

AKPENE OCLOO

This thesis submitted to the Department of Education and Psychology of the Faculty of Educational Foundations, College of Education Studies, University of Cape Coast, in partial fulfillment of the requirements for the award of Master of Philosophy degree in Clinical Health Psychology

MAY 2021

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's SignatureDate.....

Name.....

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's SignatureDate.....

Name.....

Co-Supervisor's Signature Date.....

Name.....

ABSTRACT

The study examined effects of psychological distress and coping mechanisms on maternal wellbeing of preterm mothers. Hundred (100) preterm mothers from the Tema General Hospital, Police Hospital and SSNIT (Trust) Hospital participated in this study, sampled in proportions of 73, 18 and 9 respectively. A sequential explanatory mixed study design was employed and the instruments for collecting quantitative data were the Kessler 10, the Impact of Event Scale, Brief COPE, Parental Stressor Scale and the Mental Health Continuum Scale Short Form. Results from the analysis showed that Problem-focused coping did not show any significant difference when compared to levels maternal wellbeing. The frail appearance of infant in incubators in Neonatal Intensive Care Unit and sight and sounds did not significantly predict psychological distress of preterm mothers and there was a weak negative relationship between mother's psychological distress and maternal wellbeing and also between post-traumatic stress reaction and maternal wellbeing. There was also a significant positive relationship between post-traumatic stress reaction and psychological distress. Demographics (age of mother, days in NICU, marital status) did not moderate the relationship between psychological distress and maternal wellbeing. The Interpretative Phenomenological Analysis was used in analysing the qualitative data. Financial constraints, employment, stay in mothers' hostel, fluctuating weight of baby, care of other children and marital issues were identified as Challenges. Levels of maternal wellbeing revealed the themes physical and psychological wellbeing. Coping mechanisms that were identified were prayer, social support and then education of mothers. The study recommends that Clinical Health Psychologists are needed to bring about holistic healthcare for preterm mothers particularly as some hospitals had none.

KEY WORDS

Anxiety depression

Coping mechanisms

Maternal wellbeing

Parental stressors

Post-traumatic stress reaction

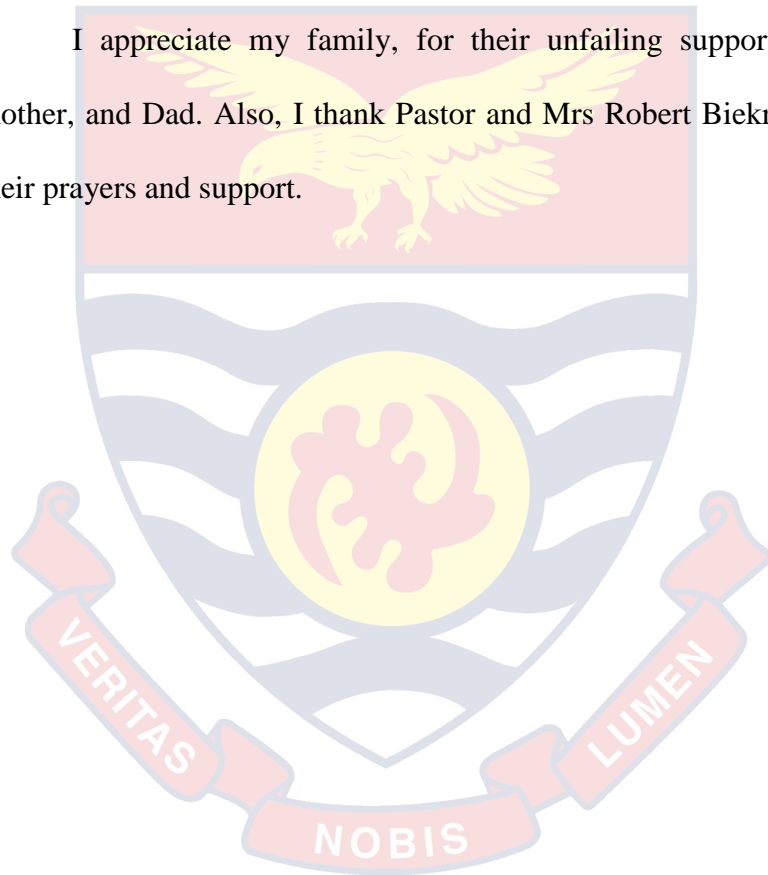
Psychological distress



ACKNOWLEDGEMENTS

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I appreciate my family, for their unfailing support, especially my mother, and Dad. Also, I thank Pastor and Mrs Robert Biekro immensely for their prayers and support.



DEDICATION

To my mother, Miss Mercy Aniagyei



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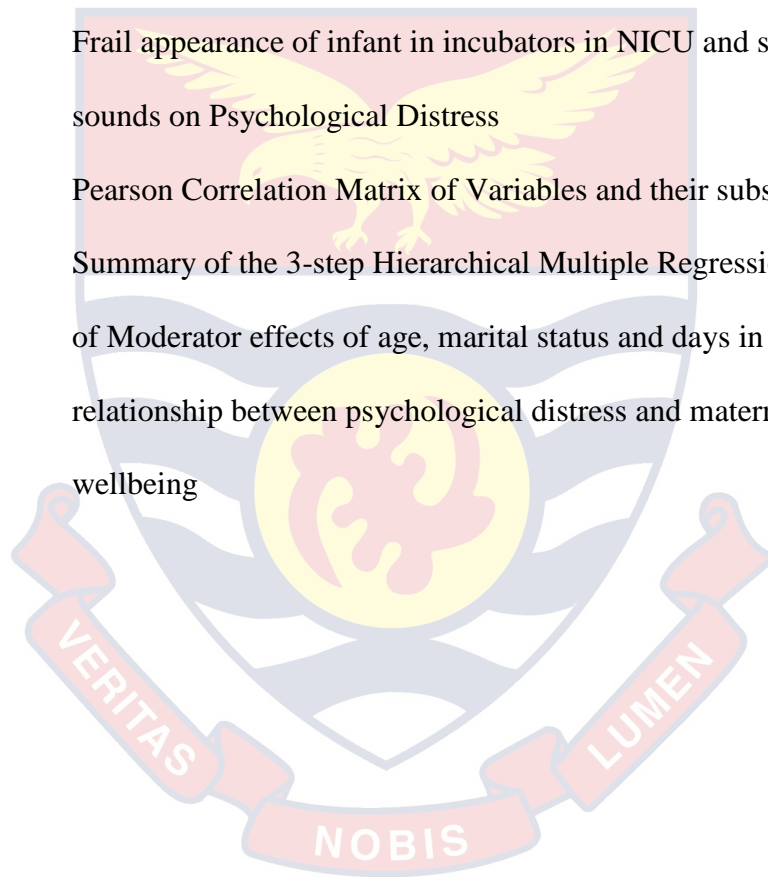
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LIST OF ACRONYMS

GABA	Gamma-Amino butyric acid
LMICs	Low and Middle Income Countries
MOH	Ministry of Health
NICU	Neonatal Intensive Care Unit
PTB	Preterm Birth
PTSR	Post Traumatic Stress Reaction
SA	Sympathoadrenal Medullary
SDG	Sustainable Development Goal
SSRI's	Selective Serotonin Reuptake Inhibitors
S-R	Spiritual-Religious
SVD	Spontaneous Vaginal Delivery
RIING	Research to Improve Infant Nutrition and Growth
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization



CHAPTER ONE

INTRODUCTION

Background to the Study

Preterm birth complications are the single greatest cause of neonatal deaths. It is responsible for approximately, 1,085,000 deaths in a year in the world (Liu et al, 2012). Preterm birth is viewed as the main cause of infantile deaths in practically all low and middle income nations of the world (Liu et al, 2012). As per the American College of Obstetricians and Gynecologists (2019), preterm birth is termed as “a baby born between 20 and 37 weeks of gestation”. Dependent on the gestational age of the infant, preterm birth can further be sub-divided as either extremely preterm (born at less than 28 weeks of gestation), very preterm (infants born between 28 weeks and less than 32 weeks of gestation) or moderate preterm (infants born between 32 weeks and less than 37 completed weeks of gestation) (World Health Organization, 2012b).

From the estimates of preterm birth rates (involving extremely, very and moderate preterm births) conducted in 2010, for 184 countries and a time series carried out on 65 countries with adequate data, there were suggestions that 14.9 million preterm infants would be born in the year 2010 (Blencowe et al., 2012). In congruence with the above, the World Health Organisation in 2012, stated that out of the estimated 130 million babies born globally each year, approximately 15 million are born preterm (WHO, 2012a), and this number keeps rising. This number is more than 1 in 10 babies (WHO, 2018).

The odds of survival for babies born preterm vary significantly reliant on their place of birth. Over 90% of extremely preterm births (infants under 28 weeks old) birthed in low income countries, die within the first few days of being born but on the other hand, in high income countries, the mortality incident for extremely preterm babies is less than 1% (WHO, 2018). The risk of neonatal death resulting from preterm birth complications is about 12 times greater for an African baby than for an European baby. Preterm birth is of global concern with the rates going from 5% to 18% of babies born across 184 countries (WHO, 2018).

Europe has recorded very good statistics over the past decade. Taking a look at records by UNICEF (2018), Netherlands recorded preterm statistics of 3.2 per 1000 live births in 2007 and 2.3 per 1000 live births in 2017. Sub-Saharan Africa and Asia recorded the highest rates of preterm births, accounting for about 80% of the world's births (Chawanpaiboon, Vogel, Moller, Lumbiganon, Petzold, Hogan, Landoulsi, Jampathong, et al, 2019). The countries with the largest rates of preterm births in order of increasing frequency include, DR Congo (341,400), Philippines (348,900), Bangladesh (424,100), Indonesia (675,700), Pakistan (748,100), Nigeria (773,600), China (1,172,300) and with the largest being India (3,519,100)(Blencowe et al, 2012 in WHO, 2018 Preterm Birth report). In terms of countries with the biggest rates of premature birth per 100 live births, Malawi reported the country with highest rate at (18.1%) with Comoros and Congo a close second (16.7%) and Zimbabwe third at 16.6% (Blencowe, et al, 2012 in WHO, 2018 Preterm Birth report). Africa over the years has recorded higher rates. Namibia however, with mortality rates of 19.7 per 1000 live births in 2007 which dropped to a

rate of 17.5 per 1000 live births in 2017 is one country with relatively low infant mortality rates in Africa.

Ghana ranked 14th with a percentage of (14.5) in 2012, this figure is consistent with that which was reported for 2010 (Blencowe, et al, 2012 in WHO, 2018 Preterm Birth report). However of the 14.5% preterm births in 2010 recorded above for Ghana, 7,800 died from preterm complications (WHO, 2012a). In 2013, Ghana ranked 25th for world preterm rates showing an increase in preterm birth per 100 live births (Liu, Oza, Hogan, Perin, Rudan, Lawn, Cousens, Mathers & Black, 2015). In Ghana, one in three neonatal deaths is as a result of preterm birth complications (Liu et al., 2015) and close to 140,000 (14%) of babies born annually in Ghana, are born preterm. Of these 140,000 preterm babies, 8,400 of them die even before they reach 30 days of their existence (UNICEF, 2015).

A factor that could possibly explain the rise and fall in figures as the years go by is mainly the increased technological advancement in medical care. In spite of the great deal of efforts being put in by health care providers and the technological advancements, the total number of preterm births with regard to the total number of births, keeps on increasing (WHO, 2012). Ghana has however recorded recent reduction in preterm birth with numbers decreasing from 32.7 preterm births per 1000 live births in 2007 to 24.2 per 1000 live births in 2017 (UNICEF, 2018). The number of preterm deliveries recorded by a country can substantially influence the society, the economy and one's entire family. Even though we can verify from above an improvement in rates over the past decade, when we consider the Sustainable development Goal (SDG) 3, which targets, decreasing neonatal mortality to at least 12 per

1000 live births and to reduce by one third premature mortality by the year 2030, these advances are still not adequate (UNICEF, 2018).

Common causes of Preterm birth include previous obstetric history (having previous premature birth), mother's age, social status, multiple gestation, smoking during pregnancy, antepartum hemorrhage, infections, premature rupture of fetal membranes, intake of alcohol and conditions that develop during pregnancy such as gestational hypertension and gestational diabetes (Fraser & Cooper, 2003; Ling, Lian, Ho & Yeo, 2009). Genetic interaction is also a risk factor for preterm birth (Behrman & Butler, 2007).

Being born preterm also increases an infant's chances or risk of dying due to neonatal infections (Lawn, Cousens & Zupan, 2005). Aside from the significant impact on mortality, the effects of preterm birth among the survivors can last throughout their lifetime. Preterm infants have many physical, behavioural, psychomotor and emotional challenges (Holditch-Davis & Miles, 2000). Also, they have low birth weight, breathing problems due to immature respiratory system, temperature control problems, infection control problems, feeding difficulties as such, gastrointestinal issues and they generally have poor health and hence, they may need to stay in the hospital for a longer period (Bindler & Ball, 2007). This impairs developmental functions as well as accelerates the risk of complications like cerebral palsy, learning impairments, challenges with vision, hearing problems and their physical and psychological health is also affected in the long term (Rogers & Velten, 2011). Epidemiological and meta-analytic researches have shown that, children born premature are three times more likely to develop emotional disorders, autism

and attention deficit/hyperactivity disorders (Larsson, Eaton, Madsen, Vestergaard, Olesen, Agerbo, Schendel, Thorsen & Mortesen, 2005).

During pregnancy, there is so much stress that a mother goes through from obesity and weight gain, to maintaining their hemoglobin and blood level due to risk of anemia, urinary tract infections, nausea (morning sickness) and hypertensive pregnancy (usually this is linked to one having a higher risk of preterm delivery) these physical changes receive a lot of attention but less attention is given to the emotional and psychological changes one might be experiencing. Even before a woman gives birth, pregnancy manipulates with the structure of her brain. Research shows that grey matter becomes more concentrated and activities increase in regions that control empathy, anxiety and social interactions (Fischer & Lafrance, 2015). Both term and preterm deliveries may involve feelings of helplessness, intense fear, pain and loss of control predisposing them to post traumatic stress reactions (Zaers, Wascke & Ehlert, 2008).

The expectancy and hope of every pregnant woman is to deliver a hale and hearty baby without any complication at the end of the pregnancy. However, mothers who deliver preterm babies become dissatisfied about the weight of their babies since in typical Ghanaian culture, babies are admired when they are “fleshy”. Usually, preterm babies are underweight and therefore much time and care is required to enable them gain weight (Nukunya, 2003).

Typically in the Ghanaian culture, the naming of the child is done on the eighth day of delivery where friends, well-wishers and families would be introduced to the baby and be allowed to see and hold the named baby and welcome him or her into the world. A delay in naming the baby creates

disappointment, worry, despair, anguish and stigmatization to the mother and the entire family (Nukunya, 2003). The preterm infant may have external features of immaturity and poor health status. As such, if the ceremony is performed, the mother feels stigmatized when her baby is revealed to be tiny, skinny and unhealthy at the ceremony. All these may contribute to stressing the mother that could further ruin the very first parent-infant bond between the mother and her infant (de Mier, Hynan, Hatfield, Varner, Harris & Maniello, 2000; Müller-Nix & Ansermet, 2009). Society regards full-term infants as having more physically attractive characteristics than preterm infants who on the other hand are regarded as, less cute and hence as having fewer external infant characteristics (Hildebrandt & Fitzgerald, 1979; Goldberg & DiVitto, 2002). As a result, the naming ceremony is postponed till the infant gains weight (Suraju, 2013).

Moreover, the cost of taking care of a preterm baby after being discharged is extremely high. The whole family is affected economically as much effort and time are necessary to care for preterm babies at home. Mothers who are not able to afford the services of a caregiver have to stay out of work to care for their preterm babies until they put on weight and develop normally. This makes mothers become financially and physically drained since they use their working hours to visit physicians and other health professionals for follow-up and further care (Suraju, 2013).

Also, parents of preterm babies have to abandon their busy daily schedules and spend lots of hours, even days in the Neonatal Intensive Care Unit, where they perpetually experience the frailty and even mortality of the infants (Clottey & Dillard, 2013). They experience further pain and distress

when they have to continuously be psychologically and physically separated from their infants, exacerbated by the physical environment of the Neonatal Intensive Care Unit, where the medical staffs care for their infants' neuropsychological development, total wellbeing and behavioural development (Montirosso, Provenzi, Calciolari, Borgatti & NEO-ACQUA Study Group, 2012; Sansavini & Faldella, 2013). This causes a sense of powerlessness and impairment which could aggravate their depression, anxiety, helplessness, frustration, feelings of guilt and anger levels and further alter the parental role (Müller-Nix & Ansermet, 2009).

According to World Health Organization (2012a), out of 111,500 preterm births which is approximately, 14.5% live births recorded in Ghana, 7,800 died from preterm complications in the year 2010. However, Siakwa, Kpikpitse, Laryea, Ankobil, Dare and Ebu (2014), reported that although the incidence of under-five years' mortality in Ghana has decreased by 40%, there has not been much decline in the mortality rate of infants in Ghana.

In light of the above, few studies have been carried out in Ghana to assess this situation, the focus of this study was based on the need to determine the psychological distress among mothers with preterm infants, the types of coping strategies they employ, as well as physical, social and psychological concerns of mothers with preterm babies at home. As knowledge of this will help improve wellbeing of mothers with preterm babies, which will in turn help in better care of preterm babies.

Statement of the Problem

Globally, psychological distress is the third leading cause of disease burden for women from the ages of 14 to 44 years old (Mayosi, Flisher,

Umesh, Sitas, Tollman, & Bradshaw, 2009). Commonly, when psychological distress is taken into consideration, focus is mainly on depression and anxiety (Mathers, Lopez & Murray, 2006) to the detriment of stress, but stress in an individual, can be attributed to the construct of the fight or flight response initiated by the sympathetic nervous system as it prepares for intense physical activity (Schooler, Dougall & Baum, 2000).

Numerous studies have revealed that preterm mothers have significantly elevated levels of stress both short and long term. Most studies have focused on depression and anxiety (Holditch-Davis, Cox, Miles & Belyea, 2003; Carter, Mulder, Frampton & Darlow, 2007; Saigal, Pinelli, Streine, Boyle & Stoskopf, 2010; Ango, 2016). Studies in Ghana have however shown that there have been significant high levels of spirituality as a coping mechanism significantly influencing the level of anxiety. Few however have explored psychological distress and coping mechanism preterm mothers use and how these tend to affect the wellbeing of these mothers. Stress is psychological and may exhibit itself as depression, anxiety and or trauma. Although the comorbidity of anxiety, depression and Post Traumatic Stress Reaction (PTSR) is well known, knowledge is still limited in relation to PTSR (Kersting, Dorsch, Wesselmann, Lüdorff, Witthaut, Ohrmann, Hörnig-Franz, Klockenbusch, Harms & Arolt, 2004).

In studies conducted in Ghana (Ango, 2016; Atiah, 2016; Suraju, 2013) with preterm infants and mothers in the Korle Bu Teaching Hospital and the 37 Military Hospital, it was proposed that studies should also examine extensively the role of coping with parental stress on the psychological health outcome of mothers. Further, that a new study would throw more light from a

mixed method perspective. In light of the above, as however, few studies have been carried out in Ghana to assess this situation, the focus of this study will be based on this need.

Purpose of the Study

The study seeks to gain insight into the impact of psychological distress of having a preterm neonate and will explore the coping mechanisms mothers use and its effect on maternal wellbeing of preterm mothers.

Specifically, the study seeks to;

1. To assess the relationship between problem-focused coping and maternal wellbeing of preterm mothers
2. To find out the extent to which the frail appearance of infant in incubators in NICU and sight and sounds will significantly predict psychological distress of preterm mothers.
3. To assess the relationship that exists between preterm mothers' psychological distress and maternal wellbeing.
4. To assess if there is a relationship between post-traumatic stress reactions and psychological distress of the preterm mothers
5. To assess the relationship that exists between post-traumatic stress reactions and maternal wellbeing of the preterm mothers
6. To examine the moderating role of Demographics (age of mother, days in NICU, marital status) on the relationship between the psychological distress and maternal wellbeing of the preterm mother.
7. To identify the major challenges and maternal wellbeing of preterm mothers.

8. To identify the coping strategies used by preterm mothers.

Research Questions

The research questions stated below, guided the study:

1. What are the major challenges that preterm mothers face?
2. What is the maternal wellbeing of women who experience premature birth?
3. What coping mechanism do preterm mothers employ to help overcome challenges faced?

Research Hypotheses

The following hypotheses were tested based on the literature reviewed.

1. **H₀**: Preterm mothers who use problem-focused coping mechanisms will report lower levels of maternal wellbeing

H_A: Preterm mothers who use problem-focused coping mechanisms will report higher levels of maternal wellbeing

2. **H₀**: The frail appearance of infant in incubators in NICU and the sight and sounds would not significantly predict psychological distress of preterm mothers

H_A: The frail appearance of infant in incubators in NICU and sight and sounds would significantly predict psychological distress of preterm mothers

3. **H₀**: A significant negative relationship will not exist between preterm mothers' psychological distress and maternal wellbeing.

H_A: A significant negative relationship will exist between preterm mothers' psychological distress and maternal wellbeing.

4. **H₀**: There would not be a significant positive relationship between post-traumatic stress reaction and psychological distress.

H_A: There would be a significant positive relationship between post-traumatic stress reaction and psychological distress.

5. **H₀:** There would not be a significant negative relationship between post-traumatic stress reaction and maternal wellbeing

H_A: There would be a significant negative relationship between post-traumatic stress reaction and maternal wellbeing.

6. **H₀:** Demographics (age of mother, days in NICU, marital status) would not moderate the relationship between psychological distress and maternal wellbeing.

H_A: Demographics (age of mother, days in NICU, marital status) would moderate the relationship between psychological distress and maternal wellbeing.

Significance of the Study

The study will help clinicians to know how well the psychological factors can be dealt with before birth (antenatal period). Again, information gathered in this study will improve upon the antenatal and postnatal care services provided in Hospitals in Ghana, by equipping healthcare providers with more knowledge on psychological issues that affect women during pregnancy and after a preterm birth. For researchers, the results of this study will contribute to literature to help evaluate and understand some of the common psychological factors that preterm mothers face in order to inform psychological practice, as a result, offering a deeper insight to preterm birth in Ghana.

Delimitation

The study is delimited to mothers in the Accra Metropolis, specifically those accessing neonatal intensive care at the Tema General Hospital, Trust (SSNIT) Hospital and Police Hospital. The Greater Accra region was chosen as some major studies done on preterm birth in Ghana were conducted in Kumasi in the Ashanti region of Ghana (Osei-Akoto, Ansong, Wireko Brobby, Damalie, Boakye & Plange-Rhule, 2011; Gold, Spangenberg, Wobil, Schwenb, 2012; Annan & Asiedu, 2018). Although researches have been done in the Greater Accra region of Ghana, focus has been on the Korle-Bu teaching Hospital, Accra (Ango, 2016; Atiah, 2016) and for the Ashanti Region, the focus was on the Komfo Anokye Teaching Hospital, Kumasi. Hence it was found expedient to conduct this study in other hospitals in the region as they are equally large district hospitals and hence there is a large representation of individuals from different ethnic groups.

Again, the centers Tema General Hospital, Police Hospital and Trust (SSNIT) Hospital were of interest due to the fact that they are facilities equipped with incubators and materials needed to take care of neonates born preterm. Medical scientists consider age 15-35 as a safe childbearing age (Suraju, 2013) and maternal age of 35 years and above is seen to be a risk factor for preterm birth (Fraser & Cooper, 2003; Ling, Lian, Ho & Yeo, 2009) as such in order to have a representation of both groups in this study, mothers who were 16-42 years old were used. A study conducted by Ango (2016) in Korle Bu Teaching Hospital in Accra, showed a high frequency of preterm births (88.7%) within these ages.

Also, the study is delimited to the impact of psychological distress (post-traumatic stress reaction, depression and anxiety) and coping mechanisms on preterm mothers' maternal wellbeing (emotional, psychological and social wellbeing).

Limitation

The study has some challenges and limitations that are noteworthy. There is restriction in generalizability of the study results. The proportionate stratified sampling technique which was employed to select participants for the study weakens the generalizability of this study's results. The second part of the sampling technique uses a systematic sampling method and there could be a bias. The bias could be that the researcher could be getting more mothers in a particular age bracket as opposed to the other ages due to the sampling technique used.

Also, the experiences of these women could not be generalized to all preterm mothers in the Accra Metropolis as sample size was small and the individual sample size per hospital was also relatively small.

Another limitation to the study was that responses from the preterm mothers about their experiences in caring for their babies could be subjective.

Definition of Terms

Some key terms in the study have been operationally defined below:

Preterm birth: Birth occurring from 28 to 37 completed weeks of gestation.

Maternal psychological distress: a state of emotional suffering or unpleasant feelings that impact one's functioning. In this study, psychological distress is anxiety, depression and post-traumatic stress reactions.

Maternal wellbeing: refers to how comfortable, healthy or well a mother is generally, after child birth.

Preterm mothers: Nursing mothers from the selected hospitals who have delivered preterm babies and are residing in the mothers' hostel caring for their infants at NICU or nursing mothers newly discharged home.

Preterm babies/Prematurity: Babies born between less than 28 to less than 37 weeks of pregnancy irrespective of their weight.

Low Birth Weight: When a baby is born weighting less than 2.5 kilograms.

Very Low Birth Weight: When a baby is born weighting 1.5 kilograms or below.

Neonatal Intensive Care Unit (NICU): Hospital unit equipped with machines and staff, where dangerously ill infants and preterm babies are given intensive care.

Coping mechanism: structures put in place by mothers or those around them to help them adjust.

Mother's Hostel: a hostel in the hospital with close proximity to the Neonatal Intensive Care Unit, located in the hospital.

Organization of the study

This study is categorized into five chapters with the first chapter consisting of the background of the study, statement of the problem, purpose of the study, research hypotheses/questions, significance of the study, delimitations of the study, limitations of the study, definition of terms and organization of the study. The second part of the study discusses the theoretical framework, review of empirical literatures on study variables maternal wellbeing, coping mechanisms and psychological distress and

conceptual framework to the study. The third chapter of the study discusses the methodological aspect of the research which includes the research design, population, sampling techniques, data collection method, instruments used to collect data and method of analysis of collected data. The fourth chapter presents the results of the study and discussions, based on the study questions and hypothesis. The fifth chapter provides a summary, conclusion, recommendations and suggestions for further research.



CHAPTER TWO

LITERATURE REVIEW

Introduction

This study sought to investigate the effects of psychological distress, and coping mechanisms on the maternal wellbeing of preterm mothers in the Accra and Tema Metropolis of Ghana. In this chapter, the general overview of the theoretical frameworks, review of related studies and conceptual framework that guide this research were explored.

The chapter begins with the theoretical frameworks of the study. The theories which help to explain the phenomenon are the Transactional Model of Stress and Coping, Parental NICU Stress Model and the Biopsychosocial(s) Theory.

Following this, is the review of related empirical studies to help determine the past and present trends in research on preterm mothers, their coping mechanism and their maternal wellbeing and to also determine gaps in the literature. The review of the empirical studies is divided into three sections specifically: Psychological Distress in having a preterm infant, Psychological distress, Coping and maternal wellbeing.

Theoretical Frameworks

Three main theories were used to guide this research. These theories are the Parental NICU Stress Model (Wereszczak, Miles, & Holditch-Davis, 1997), the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) and the Biopsychosocial(s) theory (Engel 1977, 1980).

Parental Neonatal Intensive Care Unit Stress Model (Wereszczak, Miles, & Holditch-Davis, 1997)

The Parental NICU Stress Model by Wereszczak, Miles & Holditch-Davis (1997) identifies multiple elements that contribute to the preterm mother's stress response. A potential stressful occurrence is giving birth to a frail baby who is in turn nursed at NICU. Many mothers experience this and this stress does not only influence their psychological relationship with their babies but the relationship between them and their partners as well as their infant's development. These multiple factors noted by Wereszczak et al., (1997) were then integrated into the NICU Stress Model (Miles, Funk, & Carlson, 1993). Four factors were identified.

The first factor was sights and sounds. Sight and sounds represented the physical environment of the neonate inclusive of machines like the incubators, the continuous positive airway pressure equipment, lights, like the bili light used to treat jaundice, constant beeping noises, the presence of other infants in similar or worse conditions as the preterm mother's infant, as well as the presence of the NICU staff taking care of the neonates.

The next component is the infant appearance and behaviour and this was described as the outlook and behaviour of the parent's infant, like the baby's skin that may be translucent, dry or flaky, bruises, cuts or incisions on baby, baby looking to be in pain or the baby looking so small as a result of low birth weight and medical treatments.

The third factor which was the parent-infant relationship was explained as changes to the usual parent-infant relationship like not being able to hold or

feed baby or feeling helpless and having to watch, as the nurses take care of their neonates as the primary caregivers.

Lastly, the component staff was explained as how staff communicated and behaved towards the parents of preterm babies with respect to the tests and treatments being done for their babies and information about their baby's condition.

This theory posits that, the environment of the infant would influence mothers' psychological distress and that mothers in NICU are likely to be psychologically affected by factors such as high temperature, communication problems and bad attitudes of healthcare practitioners, overcrowding of NICU, travelling to and from home to NICU, physical wellness after the delivery of their baby, poor social support system, financial problems, marital status of mother, low birth weight of newborns and many more factors.

Transactional Model of Stress and Coping (Lazarus & Folkman, 1984)

This model is used to evaluate or appraise a situation and the coping skills to use based on one's appraisal of the stressful occurrences. The model's main assumption is that a potential stressful event will activate the primary appraisal process where the individual would evaluate the extent of the threat in relation to their welfare. When it becomes apparent that the occurrence is a threat, there is a triggering of the secondary appraisal process providing the individual with a global assessment of his or her coping resources as well as the ability to manage it. Coping responses are launched right after these cognitive appraisals and the stress response depends on how effective one's cognitive appraisal was (Lazarus & Folkman, 1984).

Two major coping strategies were identified by Lazarus and Folkman. These are problem-focused and emotion-focused coping. Lazarus and Folkman (1984), state that problem-focused or approach coping strategies are commonly used in work contexts by adult individuals, while emotion-focused coping strategies are employed in the context of one's health care (Lazarus & Folkman, 1984). Problem-focused is direct. It is more probable when the situation has been appraised and it is realized that it is amenable to change. Strategies include, reducing, modifying, or eliminating the source of stress. Problem-focused coping has strategies used to gather information, make decisions, plan and resolve conflicts. Typically, these coping efforts like being instrumental, situation-specific and using task-oriented actions is directed at acquiring resources that help one handle the core problem (Folkman & Moskowitz, 2004). Approach coping responses can be directed to internally alter some aspect of self or externally to modify some aspect of the environment. A classic example is, if the parenting role is extremely demanding or stressful and one's appraisal shows that it is a threat, she may talk over her challenges with a health professional who would equip her with effective strategies to cope or she will have appropriate time schedules.

Emotion-focused or avoidant coping focuses on managing or decreasing one's emotional distress, with the use of cognitive strategies such as focusing on the positive, or behavioural strategies including talking it out with one's partner, friend or family, venting one's emotions like anger and in extreme cases, resorting to drugs and or alcohol (Folkman & Moskowitz, 2004). It is mostly probable to happen after an appraisal shows that nothing can be done to change the damaging or difficult environmental conditions.

Instances where some emotion-focused strategies can be used for regulating emotional distress could be: Avoidance (e.g. ‘I don’t think I can take care of my baby’), distancing oneself from the problem (e.g. ‘I will try to forget the whole thing’), wishful thinking (e.g. ‘I wish I could turn back time and add some days to my pregnancy so that I have a normal and healthy baby’”) (Lazarus & Folkman, 1984).

According to Nolan, Grant & Keady, (1996) at the various stages of caregiving, different coping strategies are used and Folkman and Lazarus (1980) also suggest that the best stress-management strategy is probably a combination of problem-focused and emotion-focused coping. Nevertheless, irrespective of the coping mechanism that is chosen, an event outcome occurs. That is, there is either a favourable or an unfavourable outcome or no resolution at all. Event outcomes elicit emotional responses which can be positive or negative. The model by Lazarus and Folkman (1984) suggests that, both coping mechanisms complement each other. As problem-focused coping decreases the level of problems that could generate to stress, emotion-focused coping reduces internal emotional distress levels.

All coping mechanism used are either emotion-focused or problem-focused. Depending on the type of coping mechanism employed by preterm mothers, it is theorized to influence the maternal wellbeing of mothers. If mothers use a combination of both coping mechanisms which is stated above as the best technique, it is expected hence that this would influence psychological distress and hence lower the psychological distress of mothers as it increases maternal wellbeing.

Biopsychosocial Model (Engel 1977, 1980)(Spiritual)

The Biopsychosocial model suggested by Engel about four decades ago posits that, every disease has a multi-dimensional aetiology and that in treating it the biological, psychological and social (spiritual) aspects must be addressed (Engel, 1977). This theory seeks to explain diseases or health as integration of biological, psychological and social (spiritual) factors. It postulates that biological, psychological and social components play a very significant role in assessing, preventing and treating health conditions (Havelka, Lucanin & Lucanin, 2009; Babalola, Noel & White, 2017). This model describes health and illness holistically and not only as caused by biological determinants like external pathogens or dysfunctions of organs and body systems. According to this model, one factor in isolation is not adequate to lead ultimately to a diagnosis of health or illness, rather, it is the interconnection of these three components that lead to a holistic understanding health and illness. This is supported by the WHO's (1999) proposed definition of health cited as "a dynamic state of complete physical, mental, spiritual and social wellbeing and not merely the absence of disease or infirmity".

From the biological perspective, illness is caused by internal or external complications, classified into vascular (cells, organs and tissues), immunological (immune system), metabolic (digestive system), physical, chemical and microbiological respectively. It also refers to genetic traits and the brain functioning that we "inherit" (Bourne, 2000). This further explains that, biological factors play the main role in the proper functioning of the body, and a disorder or disease is as a result of a broken-down of these

mechanisms. Therefore, treatment must focus on correcting the functioning of these systems.

Psychological distress encompasses depression, stress and anxiety. Depression is biologically explained as a mood disorder caused by chemical imbalance in neurotransmitters, malfunction of the endocrine system, an upset in the biological clock and a decrease in the development of the frontal lobes and hippocampus of the brain. Studies have shown that low level of norepinephrine and serotonin can cause depression (Young, Midgley, Carlson & Brown, 2000; Bernstein, Penner, Clarke-Stewart, & Roy, 2006).

Stress has also been biologically explained as a normal biological reaction to a potentially dangerous situation where the sympathoadrenal medullary (SA) activates the fight-or-flight (adrenaline) response through the sympathetic nervous system while the hypothalamic-pituitary-adrenal axis (HPA) regulates the release of cortisol (Stephens & Wand, 2012).

It is thought that anxiety is biologically explained as decreased levels of serotonin that is why commonly prescribed medications for anxiety are ones that help in increasing the levels of available serotonin like Selective Serotonin Reuptake Inhibitors (SSRI's). It is also found that people with anxiety might experience more anxiety as their body is always in an intensified arousal state, thus leading to a biological susceptibility to increased stress levels. This is why some other classes of medications known as benzodiazepines are given to increase the release of GABA and cause a relaxing effect (Barlow, 2002).

The psychological factor refers to a person's thoughts, beliefs and perceptions about their experiences, environment and themselves. The ways

people view or appraise their world, think about it and respond to events in their lives have profound consequences and this contributes to their mental wellbeing. In the case of preterm mothers, mothers may go through numerous contrasting emotional reactions such as feeling sad, guilty, fearful, angry, loosing of her self-esteem, grief and a sense of failure. They associate themselves with the worst side of every situation and may be very emotional to the extent that they may distance themselves from their children.

Social factors include one's social economic status, culture, technology, our social networks/support system and family relationships on the expression and experience of the illness. One major social factor that affects maternal mental health is social support. A large body of research demonstrates that mothers who receive good social support have the best mental health outcome (Fisher, de Mello, Patel, Rahman, Tran, & Holton, 2012; Leahy-Warren, McCarthy & Corcoran, 2012). Another study shows that, mothers are five times more likely to experience post-partum depression if they receive no or minimal supports after their babies are born (Kim, Connolly & Tamim, 2014).

The spiritual factor is the final component of the Biopsychosocial model. It refers to many different aspects which can be religious or non-religious elements. Religiosity and spirituality are distinct, but the commonalities between the two have thus resulted in the term spiritual-religious. It has to do with aspects like the preterm mothers' positive thinking, repetitive prayer, and religious commitments. This has to do with a preterm mother's aspirations, goals and beliefs, a search for meaning in life and her interconnectedness with nature and the transcendent. These help preterm

mothers, cope with challenges and overcome the challenges they face during the period of caring for their infants.

Prevalence of preterm birth

Preterm delivery, according to Blencowe et al. (2013), is considered as the leading cause of infant mortality. Its global prevalence has increased slightly from about 9.6% of all births in 2005 (Beck et al., 2010) to roughly 10% of all births in 2010 (World Health Organization [WHO], 2012b). Reportedly, about 15 million preterm infants are birthed globally every year (WHO, 2012a). It is further reported that the rate of preterm delivery varies from country to country, with the highest rate (11.8%) occurring in low-income countries such as Malawi, Comoros and Congo.

Over 60% of the world's preterm births happen in sub-Saharan Africa and South Asia regions reported to be behind with regard to the care of preterm babies, hence having a low survival rate (WHO, 2012a). Consequently, it is in these continents that more than 80% of the total numbers (1.1 million) of babies born die due to complications of preterm delivery (WHO, 2012a).

Furthermore, in the low-income countries, neonatal deaths are attributed to the inadequacy and sometimes lack of amenities, such as maternity health facilities, favourable social conditions and adequate care before pregnancy, during the antenatal, intra-natal and postnatal periods (Liu et al., 2015). Particularly in sub-Saharan Africa, deaths of neonates result from preterm delivery, neonatal sepsis and birth asphyxia (Kinney, Kerber, Black, Cohen, Nkrumah, Coovadia, Namapla & Lawn 2010). According to the eighth United Nations Secretary General Ban Ki-Moon, a lot of the babies born

preterm who manage to live face a lifetime of disability, which adds to the burden on the families, health care sector, and society at large (WHO, 2012).

Empirical Review

Psychological Distress in having a preterm infant

Psychological distress as already established, is a crucial mental health problem in low and middle income countries of which sub Saharan African countries are inclusive. Ghana as a middle income country is no exception. Research has shown that stress in preterm mothers is higher when their babies are admitted to the neonatal intensive care unit (Fowlie & McHaffie, 2004). This sometimes results in postnatal blues, post-traumatic stress disorder and depression among preterm mothers (Sawyer et al., 2013; Shaw, Bernard, Storfer-Isser, Rhine & Horwitz, 2013; Watson, 2011). Erlandsson and Fagerberg (2004) conducted a qualitative study in Sweden that sought to describe the NICU experiences of mothers of preterm and sick mature babies and its influence on their health. A semi-structured and opened ended interview guide was used in interviewing the six mothers and the data was analyzed with the Husserlian phenomenological approach. The researcher conducted study in the neonatal intensive care unit using the notion of co-care and part-care. The findings of the study showed that mothers of premature infants desired close physical contact with their infants at the hospital and they also wanted to constantly be informed about their babies' health status all the time.

Additionally, separating babies from their mothers was found to affect how the mothers felt and realized their motherhood roles. Consequently, this negatively influenced the health of the preterm mothers. Again, the mothers

viewed their stay in the hospital as an episode and were not able to distinguish between their experiences in the maternity ward and the neonatal intensive care unit. According to the researcher, the mothers also need to be cared for while on admission at the ward. It was also reported that the mothers were given the opportunity to practice caring for their babies and this helped form a bond between the mothers and their babies. Furthermore the findings showed that, mothers who had gone through the co-care were overwhelmed and assured that they could handle any situation related to caring for the babies.

Moreover, mothers who were detached from their infants felt otherwise and were feeling guilty about abandoning their babies. Mothers felt pained when they had to leave their babies in the unit, unable to take their babies home. Some of the mothers had grown apart from their babies as a result of the part-care because they did not collaborate with the staff for their needs to be understood. As a result, part-care mothers felt sad and abandoned due to the constant change in staff, making it difficult for the staff to detect the mothers' needs. Unfortunately due to the study design, conclusions could not be drawn about the co-care and the part-care. They were however able to highlight the implications of the study and gave suggestions that, mothers with preterm infants and mothers of sick babies be treated individually by taking time out to listen to each of them, and provide appropriate support.

Generally, the study was very useful as it threw more light challenges these mothers go through. The significance of both care techniques; co-care and part-care were identified, with valuable recommendations made. However, the study could not be generalized to other settings, because the study was qualitative hence having a generally smaller sample.

Garel, Dardennes and Blondel (2006) undertook a qualitative study on the psychological distress of mothers' after one year of delivering a very preterm childbirth in France. The study aimed at assessing mothers' physical and psychological wellbeing, perceptions of their infant's health and development after 2 months of being discharged to one year through a semi structured interview. The study population was twenty-one (21) mothers who had delivered at less than 33 weeks of gestation in a Parisian and Rouen maternity unit in France. The study showed that, the main themes reported by the mothers were weariness, depression, anxiety, physical indicators, withdrawal and feeling of guilt. All the mothers gave mixed descriptions about their perceptions of the child's behaviour. Eight mothers reported challenges showing that the delivery of the preterm had been a traumatic event.

It was found that mothers used coping mechanisms such as denial, idealization and rationalization in order to be able to cope with the difficulties. None of the mothers however, ever received psychological or psychiatric help for this. Significant results are noted in these finding, however, there are limitations to the findings. First, the study was qualitative in nature. Hence the findings could not be generalized to a larger population of preterm mothers. Also, the authors did not provide any psychological or psychiatric help to preterm mothers, after soliciting for possibly triggering information (psychological distress) from mothers, who as already noted, present a high risk of anxiety and depressive symptomology and hence it is pertinent to give close attention to their emotional experiences.

Again, a study conducted by Holditch-Davis, Hudson, Levy and White-Traut (2015) using a sample of 232 preterm mothers, employing a

longitudinal repeated measure design to estimate psychological distress patterns among preterm mothers in a multi-ethnic sample of mothers of preterm infant throughout the first year of the baby's life at the ages of 2 months, 6 months and 12 months of prematurity. The respondents completed brief demographic questionnaire that assessed ethnicity, maternal age, marital status, education, recruitment site, first time mothers and if they were or were no longer on admission. The parental stressor scale was used in measuring the parents' perception of stressors that arose as a result of the physical and psychosocial environment of the Neonatal Intensive Care Unit.

Additionally, the Center for Epidemiologic Studies Depression Scale assessed how frequent one experienced depressive symptoms. Also, the State Sub-Scale of the State-Trait Anxiety Inventory which assesses maternal situational anxiety was used. Another was the Perinatal Post-Traumatic Stress Symptom Questionnaire which measures the degree to which mothers suffered post-traumatic stress symptoms in reaction to giving birth to a high-risk infant and their experiences in NICU was administered. The Parental Stressor Scale: NICU measuring the extent of stress a mother experiences during neonatal hospitalization. Parental Stress Scale: Prematurely Born Child, was also used to assess the mothers' perception of stress connected to being a parent to their infants after discharge from hospital. Other scales used were, the Worry Index and the Vulnerable Child Scale.

The results of the study indicated that, all five measures of maternal distress correlated significantly. Fifty-two mothers were in the lower distress class, 57 mothers had moderate distress and 78 mothers had high NICU related distress with high scores on infants' appearance and behaviour as well

as parental role stress with the other factors having moderate scores, 20 had high depressive and anxiety symptoms and 25 mothers were in the extremely distressed. Findings also showed that both categories of mothers did not differ statistically on age, marital status and first time motherhood. Mothers in the low distress category, also had the second lowest mean educational level, mothers in the high depressive and anxiety category and the extreme distress category had the highest educational level (Holditch-Davis, Hudson, Levy & White-Traut, 2015). All mothers including preterm mothers whose infants were in the neonatal intensive care units, experienced some form of psychological distress due to stressors related with the NICU environment.

Generally, the study was beneficial as it brought to bear the fact that, the NICU environment has the possibility of intensifying stress levels of parents with infants admitted to the unit. Also, it is reported that mothers, irrespective of their baby's condition, as far as the babies were admitted in the Neonatal Intensive Care Unit, they became very worried. The babies' appearance and behaviour as well as change in the parental role (babies were not constantly in their mothers arms but rather were resident in the Neonatal Intensive Care Unit), was a major source of worry for the mothers also.

Psychological distress, coping and maternal wellbeing

Coping with preterm delivery can be mentioned as actions that an individual mother can effect in order for her to endure the stressful situation that preterm delivery causes. The neonatal intensive care unit deals with weak, underweight and sick neonates, hence posing challenging situations that demand the use of advanced technology such as sophisticated machines. The busy nature of the unit and sometimes the practice of invasive procedures

become challenging and affect mothers leading mothers into an overwhelming state that is psychologically demanding, hence causing stress and anxiety (Athanasopoulou & Fox, 2014).

Due to advancement in technology many preterm babies today are able to see more days of their lives unlike in the past, where many of these preterm infants died before or within the first few hours of life. However, a high mortality rate, high morbidity rate and long hospital stay for preterm babies have been reported by Lawn et al. (2005). Research has shown that these aspects place a lot of pressure on the mothers who wait anxiously for their baby's condition to get better in the neonatal unit (Lawn et al., 2005).

A study was carried out in Sweden to find about the experiences both parents of preterm infants go through in caring for their infants (Jackson, Ternstedt & Schollin, 2003). A phenomenological approach was used. Seven sets of mothers and fathers of preterm babies birthed at 34 weeks of pregnancy without any congenital defect were recruited. Interviews were conducted 1 to 2 weeks after delivery of their infants, and at 2, 6 and 18 months of age. Internalization of parenthood connoted a time-dependent process which comprised four experiences syntheses which were alienation, responsibility, confidence and familiarity. These syntheses were used during the interview sessions. The questions described how both parents of preterm infants played their parental roles concerning the child in relation to adjustment, insecurity and the relationship with the infants.

With regard to differences in experience, mothers had more responsibilities and control over the care and needs of the infants whilst the fathers also described and explained how confident they were, leaving the

infants in the care of the NICU nurses during admission and later the mothers when the babies were discharged.

According to the authors, fathers did not normally participate actively in the routine care of their infants except a few. Fathers would normally want to cuddle, and talk to their infants only, this is as a result of their nature of work. However, some fathers tried to balance responsibilities between work and family life. The positive aspect of parental experience was seen when the infants could be removed from the incubator at the NICU sometimes and discharged home due to the fact that the infant looked normal like a full term baby. Parents became happy and relieved because they were no longer in the hospital environment.

The phenomenological approach of parenthood experiences were structured together by the four syntheses; “alienation” “responsibility”, “confidence” then “familiarity” and was centered on the parents’ expectation of their parental role, the baby’s condition of health and the environment where the infant receives health care. However, those factors were influenced by the mothers’ cultural beliefs. The study appeared innovative and original because it provided an avenue for fathers to participate in the care of preterm babies. The fathers with preterm babies showed how caring they were at the Intensive Care Unit during admission of the babies. However, not much of the fathers’ experiences were explained.

Davis, Edwards, Mohay and Wollin (2003) carried out a study to find out how giving birth to a very premature baby would impact the mothers’ psychological health in Australia, with the use of a quantitative survey design and a population of sixty-two preterm mothers with singleton infants born at

below 32 weeks of gestation at a tertiary care center. Data collection was done from May 2000 to February 2001 with the use of structured questionnaires. The study's objective was to examine the correlation of maternal depressive symptoms among mothers of one month old preterm babies admitted to the neonatal intensive care. The hypothesis was tested on correlates of maternal depressive symptoms like having previous history of depression, poor social support from family and/or hospital staff, limited formal education, high stress levels, birth weight, limited use of coping strategies, Apgar score and infants of low gestational age, following one month post-premature birth.

A survey questionnaire booklet consisting of some research instruments which had previously been validated was used. The instruments included the Edinburgh Postpartum Depression Scale, the Depression Anxiety and Stress Scale, Social Support Interview, Nurse Parent Support Tool and Coping Health Inventory for Parents. The data was analyzed using the t-tests, Chi square and the Man-Whitney for variables that were not normally distributed. The study findings suggested that, the mothers had mild to moderately stress levels. They expressed somewhat satisfaction with how much efforts they put into coping and reported that the nursing staff gave them lots of support.

According to the Bivariate associations conducted, previous history of depression, their family social support scores, the infant's birth weight and Apgar scores did not show any statistical association with the Edinburgh Postpartum Depression Scale scores. Also, the factors education, maternal stress scores, the infant's gestational age and nurses' support scores, were linked with the Edinburgh Postpartum Depression Scale scores and employed

also, in the logistic regression model. There was a statistically significant relationship between maternal stress and depressive symptom. Hence, one-point rise in stress score led to an increase in the risk of having depressive symptoms by 14%. There was also a statistically significant relationship between mothers' perception of support received from nursing staff and depressive symptoms. As such, a point reduction on nursing support could lead to the increase in depression by 6%.

When depressive symptoms were associated with the mothers' educational status, their risk of developing depressive symptoms was significantly higher among mothers who had completed primary or had had some secondary education compared to those mothers who were completing their secondary education. A similar trend was seen when comparison was made between mothers who had completed primary or some secondary education and mothers who had had tertiary education but this did not have statistical significance. Again, when prevalence of depression was associated with mothers who were completing their secondary education and mothers who had received tertiary education, no significant difference was found between them ($p = 0.598$). The gestational age of the baby and maternal coping scores, were also not statistically significant when inputted into the final logistic model.

These effects of preterm delivery on the babies can have a negative effect on the mothers' coping abilities, which can in turn affect the way the mother looks after the baby, leading to poor growth and development or even in extreme cases, the death of the child. The negative effects of preterm delivery have been reported to extend to the mothers. In a study conducted by

McIntosh, Stern & Ferguson (2004), optimism, coping and psychological distress were assessed in mothers with regard to their reaction to the NICU. Results showed that mothers used cognitive, ventilation and active coping strategies which were related to less distress during their baby's hospitalization and one (1) month post discharge. One can note that some of the coping strategies are negative coping strategies, as mothers used ventilation/venting as coping. It is important to note that even though venting is a good coping mechanism, it can become negative when it is not used in moderation and hence pondering on the negative can lead to strained relationships overtime which then requires intervention to be given to mothers.

Flacking, Ewald and Starrin (2007) also conducted a study on the experiences of becoming a preterm mother and breastfeeding infants after being discharged from a neonatal unit. It was a grounded theory approach with twenty five mothers of very preterm infants receiving care in seven neonatal units in Sweden. The data collection was done by interviewing preterm mothers from between one to twelve months after discharge. The data were collected from three university hospitals and four other hospitals in the chosen country. The researchers found that the mothers were emotionally exhausted due to suppressed feelings like fear of losing the babies, being angry with staff or feelings of shame about being rejected as mothers who could not meet the expectations of being great mothers.

Also, the mothers of the preterm babies expressed feelings of relief when the infants were discharged from the intensive care unit. It was also discovered that the mothers developed various coping strategies for mothering by identifying the needs and behaviours of the infants. They tried to imitate

how the staff cared for their preterm infants so that they could be good mothers. Although, many of the mothers felt insecure about how to interpret their babies' behaviour and how to care for them, they later became conversant with the infants' behaviour and gained confidence as mothers to nurse them.

Furthermore, culturally, the norm of "good mothering" was linked to breastfeeding. The breastfeeding experience was a strong symbol of maternal-infant bonding. According to the researchers, positive breastfeeding experiences led to feelings of trust and pride among the mothers while negative experiences led to feelings of distrust and shame in the mothers. The study was appropriate since a large sample was used even though it was a grounded theory approach. However, the findings of the study could not be generalized even though the study was carried out in different hospitals in Sweden.

Again, a study was conducted by Cheon (2012) on psychological wellbeing of preterm mothers to examine the influence of psychological distress and maternal coping on the psychological wellbeing of preterm mothers whose wards have been on admission in NICU from the day of birth to two weeks post-partum. The study specifically aimed at, examining how perceived social support would impact the psychological wellbeing of preterm mothers and also to pinpoint maternal and infant characteristics which could influence the psychological wellbeing of these mothers. The researcher conducted a quantitative study with a sample size of a hundred preterm mothers. The researcher employed a repeated measures design at two points in the study with the use of instruments comprising Brief Symptom Inventory,

Patient Health Questionnaire mood scale, General Wellbeing Schedule, Parental NICU stress scale, Perceived stress scale, Brief COPE inventory, the Multidimensional Scale of Perceived Social Support and the Nurse Parent Support tool.

The study results revealed that, maternal psychological stress was a negative predictor of psychological wellbeing. As such, as maternal stress increased it worsened their psychological wellbeing. Perceived social support was positively associated with psychological wellbeing. Hence, as perceived social support increases, psychological wellbeing also increases. Mothers employed more emotion-focused coping strategies at the time of admission and they used more problem-focused coping strategies after 2 weeks of hospitalization.

Mothers of preterm babies use different strategies to cope with preterm delivery, admission and discharge (Ntswane-Lebang & Khoza, 2010). The coping time frame varies from mother to mother. While some mothers gradually adapt to the situation after some days or some weeks, other mothers find it difficult to do so; this may be the result of their babies' fragile health condition or their own inability to cope with the stressful event (Watson, 2011).

Various coping strategies employed by preterm mothers have been documented, and these include mothers participating in the care of their child, gathering information about preterm delivery and care, involving friends in the care process, and engaging with other parents of preterm babies in talks about the preterm event (Smith, Steelfisher, Salhi, & Shen, 2012; Goutaudier, Lopez, Séjourné, Denis & Chabrol., 2011). Moving away from the baby has been

reported as a coping strategy used by mothers of preterm babies (Smith et al., 2012). Other studies have documented coping strategies such as confrontative coping, avoidance coping, problem solving and positive reappraisal (Madu & Roos, 2006). Seeking social support and self-control have also been identified as coping strategies by Madu and Roos (2006). When preterm babies are miserable, restless and easily irritated, mothers tend to demonstrate negative coping strategies. On the other hand, when their babies are calmer and easily adapting to changing conditions these mothers demonstrate positive coping strategies (Burnham, Feeley & Sherrard, 2013).

Cooper, Golding, Gallagher, Sternesky, Ledsky and Berns (2007) found positive correlation between emotion-focused, problem-focus, dysfunctional coping and depression among mothers with preterm infants admitted in NICU. Additionally, Spirituality as a coping strategy had positive effects on an individual (Rippentrop, Altmaier, Chen, Found & Keffala, 2005). The culture of a people is peculiar to them and this determines and influences their choice of coping (Chiang, Hunter, & Yeh, 2004; Frydenberg, Lewis Kennedy, Ardila, Frindte & Hannoun, 2003).

Coping techniques among mothers in Africa particularly Ghana, will vary from what has been found by the research by Cheon (2012). Taking this, into account, it is vital that a further mixed research be conducted to examine coping strategies of the preterm mothers to be able to specifically identify the types of coping mechanism that is particular to the Ghanaian mothers. As such after the use of a quantitative tool to elicit the coping strategies of mothers, there is also the need to collect qualitative data to help subjectively identify the coping styles among the African mothers.

Infant characteristics like infant morbidity score, gestational age, hospital discharge and maternal characteristics like their language, race and ethnicity, educational level, income, marital status, pregnancy complications employment status and 2 weeks of breastfeeding were found to be the predictors of maternal psychological wellbeing. The researchers conclusively indicated that psychological wellbeing is compromised in preterm mothers upon NICU admission.

Suraju (2013) conducted a qualitative study looking at the experiences of mothers in taking care of their preterm infants at home. This study was conducted in the Accra Metropolis, Ghana. The study focused on mothers with preterm infants who had been discharged with their babies and were now home. The study was conducted at the Korle-Bu Teaching Hospital, Department of Child Health NICU clinic using nine (9) preterm mothers. The analysis of data yielded six major themes and twenty-five sub-themes all of which were directly related to the topic. The major themes were: Care of preterm babies, perceptions of prematurity among mothers and attitudes of significant others, mothers' health and wellbeing, challenges, support and coping strategies.

Most of the mothers perceived their babies to be abnormal. To them prematurity was an abnormality and as a result they felt embarrassed taking their babies out. The attitudes of significant others such as husbands, in-laws, family members and friends appeared to influence the mothers both positively and negatively and consequently impacted also on care of their preterm infants. Husbands and family members were found to be the major sources of hope and reassurance to the mothers during these difficult times. With the

preterm mothers' health and wellbeing, all the mothers experienced some form of physical and psychological problems after delivery and during care of their preterm babies. They feared losing their babies and as a result, became anxious.

The preterm mothers cited numerous challenges. They reported the overarching task of care for preterm babies. Some participants described caring for preterm babies as traumatizing and time consuming. Information needs was one of the challenges encountered by the mothers as it appeared they were not given enough information on care of preterm babies at discharge. Some mothers were not happy with the brief period within which health teaching was done on the ward before discharge while others thought it would have been better if they were given contact lines to call or detailed handouts on care of preterm babies for more information when the need arose.

Suraju found also that, all nine preterm mothers did not have any meaningful social lives after the delivery of the preterm babies. They became isolated from social gatherings and other social activities by the constant and tedious care of preterm babies. Parents found it difficult to name their babies because they were too small to be exposed. Furthermore, the cost of care was described as expensive as all the mothers had stopped working in order to care for their babies and the burden of care had therefore been shifted unto their husbands.

This period was again challenging for siblings of the preterm babies since they were not given much attention by their mothers, creating emotional problems for the children and in turn caused displeasure to the mothers. Finally, all the nine mothers developed some form of coping strategies that

helped them manage the daunting task of taking care of their preterm babies at home. The strategies included in-depth understanding of babies' needs and religious beliefs of the mothers.

A study was conducted in Ghana by Gold, Spangenberg, Wobil, Schwenk, (2013). The study aimed at describing the incidence and risk factors for depression among a high-risk population of mothers who had given birth to newborn babies who were ill in Ghana. The mothers' depression levels were measured with the Patient Health Questionnaire-9 (PHQ-9). Semi-structured interviews were used with mothers who had their sick infants hospitalized at the Komfo Anokye Teaching Hospital in Kumasi, Ghana.

A hundred and fifty-three (153) mothers of sick infants admitted at the Mother-Bay Unit of the hospital were recruited for the study. The study was limited to mothers who were eighteen years old or older. Out of the total 153 mothers, 50 mothers (32.7%) had PHQ-9 scores of 5-9 indicative of mild depression. Forty two (42) (27.4%) of them had PHQ-9 scores of 10-14, translating as moderate depression and 15 mothers (9.8%) scored 15 or higher, which indicated moderate to severe depressive levels.

Again, the study suggested that, over two-thirds these mothers had many positive indicators of depression. The study finally indicated that, delivering one's baby at home, lack of perceived social support, poor self-rated health and history of interpersonal violence with current partner were relevant risk factors to the development of postpartum depression among mothers of ill infants in Ghana.

Although, the research was the largest study of its kind, in Ghana, its limitations was also the population used. The population comprised of all

mothers whose infants were hospitalized in the Mother-Bay Unit. The population was very general and as such inferences cannot be made about particular findings in different conditions infants hospitalized in NICU present.

The current study sought to know the psychological distress, coping mechanisms and wellbeing of mothers with preterm babies. Misund, Nerddrum and Diseth (2014) in their study aimed to discover the extent to which anxiety, psychological distress and trauma-related stress reactions affected mothers who had given birth to preterm babies. Their result indicated that, mothers with preterm infants reported levels of psychological distress two weeks after delivery. As such, preterm mothers at 2 weeks to 6 months after birth were recruited for the study. This area has been sparsely studied in Ghana. Hence the need for this study to be conducted to identify and address the concerns of mothers who had delivered preterm babies.

Gaps in the Literature

A comprehensive review of literature identifies several gaps in our knowledge of maternal stress, use of coping strategies, and psychological wellbeing in preterm mothers during their infants' hospitalization in NICU. First, in the majority of studies, the pattern of coping strategies or the association between use of coping strategies and state of wellbeing in mothers of preterm infants was not clearly identified. Second, maternal wellbeing comprising both, psychological and physical was rarely discussed in the related literature. Consequently, the maternal wellbeing state in the NICU is not well understood. Additionally, although psychological distress has been

shown to be high in the NICU, the role of post-traumatic stress disorder seems to have been left out with attention given to anxiety and depression.

Another important limitation of the previous research is that most of the studies especially those conducted in Ghana were predominantly in one hospital, usually, the Korle-Bu Teaching Hospital or the Komfo Anokye Teaching Hospital. Researches with different samples in other hospitals in Ghana are few in the literature.

Given these gaps in the literature, this current research studied the psychological distress of preterm mothers and how they cope with the distress. The study also tried to find out if staff behaviour and communication, had an influence on mothers' psychological distress. Few studies have been conducted on "the impact of psychological distress, coping styles and maternal wellbeing among preterm mothers" in Africa and particularly, Ghana. It is important that this current study sheds more light on understanding what preterm mothers experience, the predictors of their distress and the type of coping techniques they use in dealing with their challenges.

Conceptual Framework

The conceptual framework is illustrated in Figure 1, and it explains the study graphically: specifically, the main variables to be studied, the concepts and the presumable relationships between the variables. The figure shows the likely significant predictions between the variables in the study. Stress from the NICU environment (sights and sounds and the frail appearance of infant in NICU) is expected to influence psychological distress (depression and anxiety). Post-traumatic stress reaction would have a relationship with psychological distress and post-traumatic stress reaction would influence

maternal wellbeing. Demographic variables and coping style are expected to influence psychological distress. Psychological distress and coping mechanisms will ultimately influence maternal wellbeing.



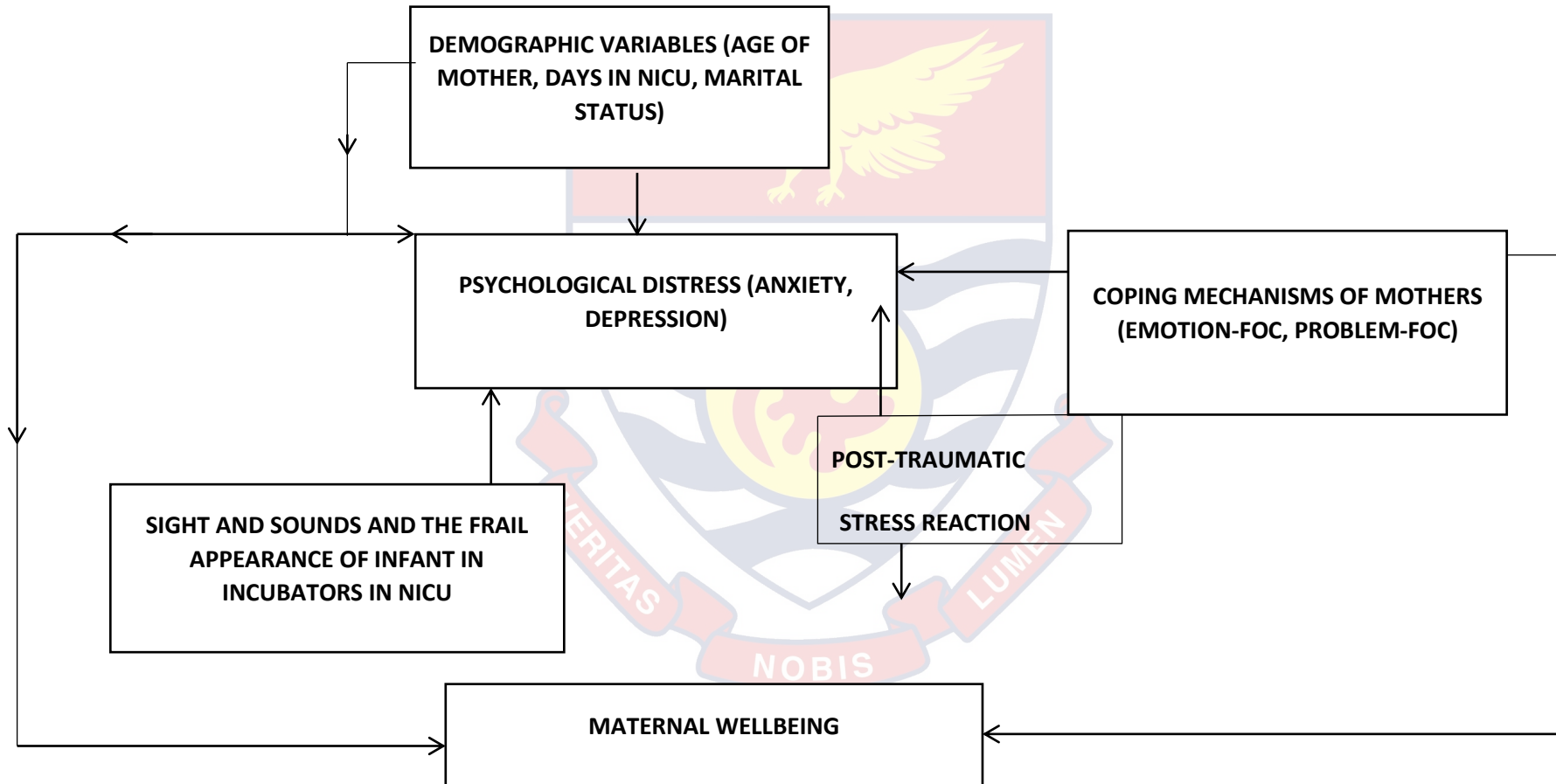
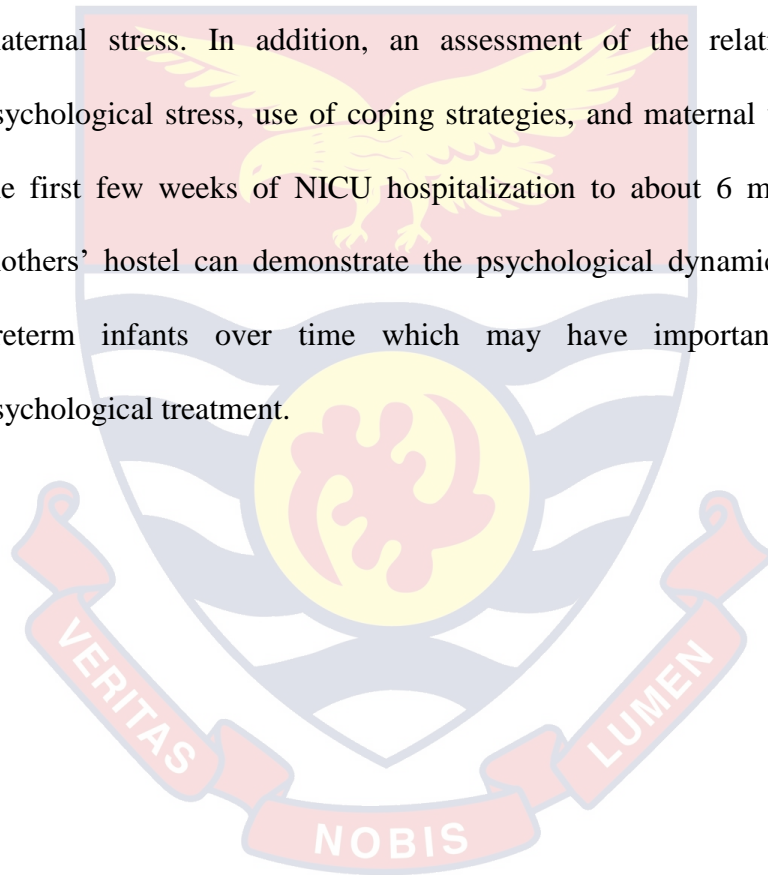


Figure 1: Conceptual framework Source: Based on the Literature

Chapter Summary

The admission of preterm infants to the Neonatal Intensive Care Unit causes emotional and psychological distress to mothers of preterm infants. Coping strategies identified were the problem-focused coping or approach coping as well as the emotion-focused coping for up until 2 weeks of hospitalization and other coping mechanism like religion, venting, acceptance and education were some that were used beyond 2 weeks these also affected maternal stress. In addition, an assessment of the relationship between psychological stress, use of coping strategies, and maternal wellbeing during the first few weeks of NICU hospitalization to about 6 months of stay in mothers' hostel can demonstrate the psychological dynamics in mothers of preterm infants over time which may have important influence for psychological treatment.



CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter looks at the research techniques and methods used in the study. It discusses the research design, study area, the population from which sample was selected, sample and sampling procedure, the research instruments and technique, data collection procedure, data processing and analysis and ethical issues of the study.

Research Design

The study used an explanatory sequential mixed method study design. Creswell (2003) explains that this study design consists of two distinct phases; the quantitative phase is conducted then the qualitative phase is done. In this study, as Creswell and Plano Clark (2011) explained, in the sequence qualitative data is collected and analysed second, to help expound or augment the quantitative outcomes obtained in the first phase. This design was chosen because the mixed method approach helps the researcher to incorporate both qualitative and quantitative research approaches in data collection and analysis, which provides a more detailed understanding of a phenomenon (Creswell, 2003).

The explanatory sequential approach is divided into two sub categories; the participant selection model and the follow-up explanations model. In this study, the participant selection model was used. The researcher took quantitative data to identify and purposefully select participants (mothers

who ranked high on psychological distress) for a follow-up in-depth qualitative phase. Some researchers argue that using this approach draws from the strengths and reduces the weaknesses of both the quantitative and qualitative approach in the testing and formulation of theories since they complement each other (Flick, 2009). It is appropriate when making generalizations from a sample to a study population since it sought to understand general and subjective views of the mothers on the variables.

The sequential explanatory design has numerous advantages. It is easy to apply since the steps are categorized into clear and distinct stages, it helps in explaining, interpreting and contextualizing quantitative findings and it is able to do more detailed examination of unexpected results from the quantitative phase. This design lends itself to either multiphase investigation or single mixed method studies (Creswell, Plano Clark, Gutmann & Hanson, 2003)

Notwithstanding the advantages, this research design has some weaknesses. The primary weakness of using the sequential explanatory design is that it takes a substantial amount of time to finish collection all the data given that, it has two separate phases. Another weakness is confidentiality. Often participants do not tell the truth, they tell the researcher what they think the he or she wants to hear instead of what the researcher needs. This becomes particularly difficult during interviews because participants may similarly refuse to answer questions they consider as too personal (Creswell, Plano Clark, Gutmann & Hanson, 2003)

Study Area

The study was carried out in the Greater Accra Region of Ghana, specifically in the Accra and Tema Metropolis of the region. The Greater Accra Region has a 2017 projected population size of about 4.9 million. It has the least land area in the country and a high population density. The region has a doctor to patient ratio of 1:1651 (Ghana Health Service, 2015). Eighty percent of births in the region are attended to by skilled attendants, all health facilities are powered by electricity and have the highest ratio of midwives to deliveries ratio as 15:1000.

The three health facilities in which data was collected include the Tema General Hospital, Police Hospital and Trust (SSNIT) Hospital. All the three facilities have Neonatal Intensive Care Units which are well equipped.

The Tema General Hospital is located in Tema, the industrial hub of Ghana. It is a major referral site for facilities in and around Tema. It serves a population of about 628,053. It has a total bed capacity of about 294. From the 2016 annual report, the obstetrics and gynecology department has 3 specialists, 3 medical officers, and 45 midwives. The unit has a total bed capacity of 99. It had 6,029 deliveries in 2016. Still birth rate of 4.8%, preterm birth rate of 66 per 1000 births, and had 1311 total in-referrals (Tema General Hospital, 2016; 2017).

The Trust (SSNIT) Mother and Child hospital which is a subsidiary of the Trust (SSNIT) hospital company limited is located in Osu, Accra, in the La Dade- Kotopon Municipality, Greater Accra Region. It started operations from September, 2014. The facility has all resources regarding the offering of medical care to both women and children. It is a private hospital and has 6

executive delivery suites. Statistics indicate that from the year 2010 to 2013, a total of 3075 women were safely delivered at the Trust hospital (Trust Hospital, 2016).

The Ghana Police Hospital was established in 1976. It is located in Osu in the La Dade-Kotopon Municipality in the Greater Accra Region. It provides quality healthcare to the Ghana Police Service, their family and the general public. The hospital serves as a referral point to other private hospitals and clinics in the municipality. It provides obstetric and gynecological services to mothers and has a well-equipped NICU unit for new born neonates (Ghana Police Hospital, 2016).

Population

The target population were preterm mothers aged 16-42 who have delivered preterm babies and are 2 weeks to 6 months old accessing post natal and NICU clinic at the Tema General Hospital, The Trust Hospital (SSNIT) and Police Hospital in the Greater Accra region, Ghana. According to the Information and Records Unit of the NICU, the centers provide treatment to averagely Thirty-one (31), Three (3) and Seven (7) new preterm mothers and referrals on weekly basis, respectively. This accounted for approximately, Tema General Hospital (1,496), The Trust Hospital (SSNIT) (172) and Police Hospital (344) annually. The accessible population for this study was therefore, 374, 43, 86 preterm mothers who visit the hospitals quarterly.

Sampling Procedure

A sample size of 100 mothers was used in the research. The proportionate stratified sampling technique was used in recruiting the participants for the study. This is a probability sampling technique. It is used

when the researcher is interested in a particular strata (group) within a population. In this case we are interested in the same type of people (preterm mothers) from three (3) different hospitals making them 3 different strata. The sample strata is proportionate to the size of the population. After this, systematic sampling was done. Here, the researcher recruited every (third) 3rd mother she met orderly in line to the NICU clinic on a daily basis from the various hospitals till the sample size of 100 was reached. The sample size selected was deemed appropriate because according to Field (2009), in order to analyze data using multiple regressions and obtain a medium effect size (.8), a sample size of 100 is enough for 6 predictors.

According to Wilson, Voorhis and Morgan (2007), the general principle to ensure statistical power, is to use, at least 50 participants for a correlation or regression this number increases with higher numbers of independent variables. Additionally, based on the technique by Tabachnick and Fidell (1996) to determine sample size it is suggested that the formula $N > 50 + 8 (m)$ is used when doing a regression analysis, this current study required the use of regression analysis for hypothesis testing. For this study, using the above formula, the minimum sample size was 74 considering that there are three independent variables in the regression analysis (age, marital status and days in NICU), therefore, $50 + 8 (3)$ gave a value of 74. The sample size of 100 used in this study was hence justified as it was adequate.

Calculating the proportionate strata, according to the sample size stated above Tema General Hospital was 73 preterm mothers, Police Hospital was 18 preterm mothers and Trust (SSNIT) was 9 preterm mothers. Candidates who met the selection criteria for the study, and were willing to partake in the study

were recruited. The systematic sampling method was used and the researcher recruited every (third) 3rd mother she met orderly in line to the NICU clinic on a daily basis from the various hospitals till the sample size of 100 was reached. Five (5) participants who rated high on psychological distress and low on maternal wellbeing were interviewed on the coping mechanisms they adopted and how it has or has not improved their maternal wellbeing. To guarantee a more detailed interpretative account in IPA (Interpretative Phenomenological Analysis), Tindall, Smith, Flower and Larkin (2009) recommend that, between five (5) and ten (10) participants be employed when using IPA. IPA studies are also conducted on small sample sizes rather than larger sample sizes, to prevent tedious and very lengthy analysis (Smith & Osborn, 2003).

Inclusion Criteria

All admissions of mothers of preterm babies were used for the study as well as those visiting on outpatient basis and they were up to 2 weeks to about 6 months post birth and mothers whose babies were discharged from NICU but were still at the mothers hostel for further observation.

Mothers were 15 years or older and not more than 42 years old. Also, preterm mothers at 2 weeks to 6 months after birth were recruited for the study. They were willing to participate voluntarily. Babies were between the ages of less than 28 weeks to below 37 weeks of pregnancy (extreme to moderate preterm) as usually this is the majority of preterm mothers found in Ghana, in this range, hardly do preterm births younger than 26 weeks of gestation this survive (Ewusi-Emmim, 2018).

Exclusion Criteria

Mothers who had given birth to twins, triplets, quadruplets or multiple babies and mothers of children who were ill and may not survive were excluded. This is because, the situations they found themselves in, was stressful and inclusion of such participants may spike up numbers and bias the study.

Data Collection Instrument

A five section questionnaire was administered to gather information from the participants (Appendix B). The study also relied on an interview guide (Appendix C) to collect qualitative data. The questionnaire comprised the following items: Mothers demographic data (Chronological age and type of delivery, education, marital status, number of children); baby's demographic data (sex, gestational age); Baby's weight at birth. The study used the following set of test as tools for data collection. All tests tools were adopted for the study.

The Impact of Events Scale- IES-r

The Impact of Events Scale- IES-r was developed by Weiss (2007). This scale examines trauma related indicators that the individual experiences directly after going through a potentially traumatic event. For the purpose of this study, the event can be classified as the birth of a premature child. This is a 22-item scale developed in order to measure the underlying impact of event that is present across three more specific areas which are Intrusion 1, 2, 3, 6, 9, 14, 16, 20, Avoidance were items 5, 7, 8, 11, 12, 13, 17, 22, and items 4, 10, 15, 18, 19, 21 were on Hyper Arousal. Each item is rated from 0 (Not at all) to 4 (Extremely). The ratings of each item are summed to obtain total score of

the items with a scoring range of 0 to 88. A score of 24 or more indicates that Post-Traumatic Stress Disorder is of clinical concern. A total score of 33 or more is a possible diagnosis of Post-Traumatic Stress Disorder (PTSD) and a score of 37 or more suggests that one has a severe post-traumatic stress disorder. This scale indicated good psychometric properties and internal consistency of Cronbach's alpha value of .96.

The Kessler Psychological Distress Scale (K10)

The Kessler Psychological Distress Scale also termed as the (K10) was developed by Kessler, Barker, Colpe, Epstein, Gfroerer, Hiripi, Howes, Normand, Manderscheid, Walters and Zaslavsky (2003). The scale is a 10 item simple measure of psychological distress. All items are measured on a five-level response scale from 1 to 5 point rating scale. The scores are the sum of the ratings of the items. Ten (10) is its minimum score and 50, the maximum score. Low scores are indicative of low psychological distress levels while high scores indicate that one has high psychological distress levels (Andrews & Slade, 2001; Kessler, Andrews, Colpe, Hiripi, Mroczek, Normand, Walters & Zaslavsky, 2002). One study conducted in 2018 by Sampasa-Kayinga, Zamorski and Coleman to check the psychometric properties of the K10 revealed a Cronbach alpha of 0.88 which indicates high internal consistency.

Brief COPE

This scale contains 28 items. It is rated on a four-point Likert scale, ranging from "I haven't been doing this at all" (a score of one) to "I have been doing this a lot" (a score of four). The items on the scale deal with ways one has been coping with stress in their life. Precisely the problems related to

one's overall health over the past several months. In this study, higher scores indicates higher coping strategies used by the respondent. A total of 14 sections are covered by this scale. They are emotion-focused coping (self-distraction, self-blame, denial, substance use, behavioural disengagement, substance abuse and venting) and problem-focused coping (positive reframing, planning, use of emotional support, humour, active coping, use of instrumental support, acceptance and religion). Every dimension has two items.

The Brief COPE scale indicated small to moderate effect sizes (0.00 to 0.53) per dimension (Carver, 1997).

Parental Stressor Scale: Neonatal Intensive Care Unit

This questionnaire was administered to mothers of preterm babies only. The scale was used to assess mothers' stress levels and perceptions connected to the NICU. The scale consists of 34 items and is made up of 4 subscales that measure stress related to sights and sounds of machines and equipment in the NICU unit, e.g. "*The presence of monitors and equipment*"), stress related to the appearance and behaviors of the infant (e.g. "*The wrinkled appearance of my baby*"), stress related to the parents' role as caregivers and their relationship with their babies, e.g. "*Not being able to care for my baby myself*" and the staff behaviour and communication (e.g. "*staff telling me different (conflicting) things about my baby's condition*"). Parents were to respond to items on a 5-point likert scale ranging from 0 (*not applicable*) to 5 (*extremely stressful*) (Miles, Funk, & Carlson, 1993).

Findings by Miles, Funk, and Carlson (1993) show that the Parental Stressor Scale: NICU, revealed high test-retest reliability, with subscale correlation of .69 and total scale correlation of .87. Internal consistency was

shown by Cronbach alpha coefficients scores ranging from .73 to .92 for the subscales and .89 to .94 for the total scale.

Mental Health Continuum Short Form (MHC-SF)

The Mental Health continuum short form was developed by Keyes (2005). It is composed of 14 items; 3 items (items 1,2,3) for emotional (hedonic) wellbeing, 5 items (items 4,5,6,7,8) for social wellbeing and 6 items (items 9,10,11,12,13,14) for psychological wellbeing). Parents have to rate items on a 6-point Likert scale which ranges from 0 “never” to 5 “everyday”. Items are summed and yield a total score going from 0 to 70 points. Subscales scores 0-15 social wellbeing, from 0-25 emotional (hedonic) wellbeing, from 0-30 for psychological wellbeing. Higher scores indicate a higher level of positive wellbeing. It has shown excellent internal consistency with Cronbach alpha coefficient of (>.80) and discriminant validity among adolescents and adults (Keyes, 2005).

In addition to these questionnaires, a set of semi-structured interview questions, developed by the researcher, were used to elicit qualitative responses.

Pre-Testing and Validation of the Research Instrument

The data collection instruments were pre-tested at the La General Hospital in the Greater Accra Region on ten (10) preterm mothers to ascertain the reliability of the instrument after reviewing and approval by experts. To ensure the accuracy of the constructs, the questionnaire was reviewed and evaluated exhaustively and face validity of the instrument was determined by experts. The Cronbach alpha coefficient was determined in this study to be .86. To ensure the validity of the instruments, it was evaluated on the concept

it purports to measure by supervisors. The data from the pre-testing was analyzed and in case of any ambiguities in the questionnaire, they were corrected.

The purpose of the pre-testing was to ascertain the clarity and the applicability of the study tools and to detect the obstacles that may be faced during data collection. It also helped to approximate the time required to fill in the questionnaire. Based on the results of the pre-testing, all tools were adopted.

Data Collection Procedure

Ethical approval was sought from the Institutional Review Board of the University of Cape Coast, to conduct the research and this was granted in the form of an Ethical Clearance form (Appendix E). Formal permission was sought from the Hospitals in the form of an introductory letter from the Department of Education and psychology (Appendix D) and ethical clearance. The Tema General Hospital, Trust Hospital and the Police Hospital (Appendix F and G) granted permission for the research to be conducted in their facilities at no cost but participants were refreshed with snacks. Research at the hospitals was well monitored by the Nursing officers in charge of NICU in every facility. Ethical clearance of this study at the various institutions was important because it ensured that the study was ethically sound and will not violate the rights and privacy of the susceptible participants. The necessary arrangements were made with the nursing officer in Charge (OIC) at the Police Hospital and the Matrons at the Tema General and Trust Hospital. At the Police Hospital the researcher was assisted by the Public Health and Obstetrics and Gynecology Department, at the Tema General Hospital, the

researcher received assistance from the Obstetrics and Gynecology, specifically, the NICU Clinic and at Trust Hospital, assistance was given by the Obstetrics and Gynecology department. They assisted the researcher by introduction to the other health professionals of the unit and the preterm mothers who attended the clinic.

Preterm mothers who met the inclusion criteria and were attending postnatal or child welfare clinic, or were in the Hostels taking care of their children on admission as well as those who came for NICU clinic at the various hospitals and were willing to take part in the study were administered the questionnaire after an explanation of the informed consent was given and signed. The questionnaires were administered under the supervision of the researcher and one other research assistant, who had received prior training on how to administer the questionnaire. The questionnaires had to be administered by only females as the nurses felt it was imperative to make the mothers comfortable especially as they gave Kangaroo Mother Care to their infants. In order to ensure that a good return rate was achieved for the study, the participants were engaged at the public health unit after the baby's vital signs (weight and temperature) were measured in preparation to see the doctor (Tema General Hospital) or the matron (Police Hospital/ Trust Hospital) for review.

The researcher and research assistant established rapport with participants for the study before administering the questionnaires to them. This was to build a cordial relationship with the participants and to ensure that they were relaxed before answering the questionnaire. A total of 100 participants voluntarily took part in the quantitative study within three months period from

March to May for Trust Hospital and from July to September, 2019 for Police and Tema General Hospital while 6 of them participated in the qualitative study.

The selected participants were briefed on the study and mothers who were willing to be participants signed a consent form (Appendix A). Consent and confidentiality was assured and ensured. Participation in the research was highly voluntary. Questionnaires were then administered to the participants on postnatal meeting days or NICU Clinic days. Follow up interviews was conducted with participants on a convenient scheduled date at the same time period but after quantitative data had been collected. With their permission, a digital voice recorder was used to record all interviews. A semantic level transcription was used in transcribing all the interviews conducted to help maintain data originality (Smith & Osborn, 2008). Although most interviews were conducted in English, interviews conducted in the local language were also transcribed to English.

Data Protection Policy

For the purpose of anonymity and confidentiality, all questionnaires, interviews and tapes were coded and stored separately from any names or other direct form of identification of participants. The recorded audio was saved and was password protected. Also, the audio was strictly transcribed by the researcher only and was discarded right after transcription. Data transcribed has been kept for when need arises for a further analysis in future.

Data Processing and Analysis

After collection of data, the individual question items on the questionnaire were coded in a code book. Data cleaning was done to check for

any error during the data entry. This was done by running a frequency of all the categorical variables in the questionnaire and examining their minimum and maximum scores to confirm if they fall within the range numbers used to code the variables. A descriptive statistics test was run for all continuous variables in the questionnaire to find out the mean, minimum and maximum scores for data entered. The unit of analysis for the study was preterm women since the study was interested in finding out the impact of psychological distress of having a preterm neonate and explored the coping mechanisms mothers use and its effect on maternal wellbeing of preterm mothers. Demographic characteristics of participants were also presented. Parametric test was used to test the study hypotheses. This was because of the strength of parametric analysis in testing the study hypothesis. Research questions adopted a qualitative approach specifically the Interpretative Phenomenological Analysis to understand how preterm mothers coped and how these coping mechanisms influenced their maternal wellbeing.

An independent t-test was used to test for hypothesis one, preterm mothers who use problem-focused coping mechanism will have higher level of maternal wellbeing. This tool was used because we wanted to compare 2 individual groups (high maternal wellbeing and low maternal wellbeing) to see if there will be a difference with these preterm mothers in terms of problem-focused coping. The Hierarchical Multiple Regression was employed to test for hypothesis two (the frail appearance of infant in incubators in NICU and sight and sounds would significantly predict psychological distress of preterm mothers). This was used, because the researcher wanted to find out if there

would be a statistically significant amount of variance in the dependent variable (psychological distress).

The Pearson's Product Moment Correlation was used in testing hypothesis three (a significant negative relationship will exist between mother's psychological distress and maternal wellbeing), this was to indicate whether they would be a statistically significant linear relationship between psychological distress and maternal wellbeing. The Pearson's Product Moment Correlation is used for Hypothesis four, which states that (there would be a significant positive relationship between post-traumatic stress reaction and psychological distress) and for hypothesis five (there would be a significant negative relationship between post-traumatic stress reaction and maternal wellbeing)

For hypothesis six (Demographics (age of mother, days in NICU, marital status) will moderate the relationship between psychological distress and maternal wellbeing) a Moderated Hierarchical Regression Analysis was used. This model was used so that, the researcher can examine when an independent variable (age of mother, days in NICU, marital status) influences the relationship between the independent (psychological distress) and dependent variable (maternal wellbeing).

With respect to the qualitative section, Interpretative Phenomenological Analysis was used to analyze the data. The multiple regression analysis was used since it is a correlation coefficient appropriate for examining and predicting the extent to which the continuous variables determine the phenomenon.

The research questions adopted a qualitative method to further understand the challenges that preterm mothers experience after giving birth, the coping mechanisms they use, and their maternal wellbeing after birth. Qualitative data analysis is the grouping and organization of information so that it makes sense of the data and so that the final report is factual and genuine (Mayan, 2001). In-depth interviews were recorded by the use of a tape recorder and field notebook. The data was analyzed using the thematic analysis because it was recognized as suitable for the analysis of the interview scripts. It is a procedure where reading, thinking, writing and rethinking happens almost concurrently (Mayan, 2001).

The audiotaped data were played and transcribed verbatim and 3 out of 5 in local dialect were translated to English. The field notes (recorded observations of participants) were read severally to check for uniformity and rectify mistakes and then it was added to the data. The atheoretical (ideographic) case-study approach was employed, a type of case study approach by Harry Eckstien which selects cases for analysis with the intent to understand the distinctive dynamic of the case under investigation. The field notes (recorded observations of participants) were read and added to the transcribed audio data. The interview data were compared script by script across all the interviews. In doing this, the researcher was able to verify the accuracy of the transcripts. The researcher then identified the emerging themes and supported them with recorded observations of participants. Analysis from this approach created a mental image of the challenges that mothers experience after having a preterm birth, the coping mechanisms they use, and their maternal wellbeing after birth.

Chapter Summary

This chapter explained the research method adopted for this study. A sequential explanatory mixed-method research design was used to find out the impact of psychological distress and coping mechanisms on the maternal wellbeing of mothers with preterm babies.

The study adopted the proportionate stratified sampling technique to select preterm mothers who satisfied the inclusion criteria and were accessing postnatal care at the Tema General Hospital, Trust (SSNIT) Hospital and the Police Hospital. A mixed method approach, specifically sequential explanatory method was used to explore and explain levels of psychological distress and challenges of preterm mothers after giving birth it also sought to know the coping mechanisms they use, and the level of maternal wellbeing after birth. The IES, PSS: NICU, Brief COPE, MHC and K10 questionnaires were used to collect quantitative data on post-traumatic stress reaction, parental NICU stress, coping mechanism, maternal wellbeing and psychological distress respectively. A semi-structured interview guide was used in collecting qualitative data on challenges of preterm mothers after giving birth subjective coping mechanisms they use, and their general maternal wellbeing after birth (Appendix C). The Independent t-test, the Pearson's Product Moment Correlation Coefficient and the Hierarchical Multiple Regression Analysis were used to test the research hypotheses while the Interpretative Phenomenological Analysis (IPA) precisely, the ideographic case-study approach was employed to analyze the research questions.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents the results of collected data and the discussion of the study as it sought to determine the impact of psychological distress of having a preterm neonate and explored the coping mechanisms mothers use and its effect on maternal wellbeing of preterm mothers. The study adopted a sequential explanatory mixed method approach; the hypotheses were tested using independent t-test, the Pearson's Product Moment Correlation and the Hierarchical Multiple Regression Analysis. To further explore the challenges, level of wellbeing as well as coping mechanisms of mothers, qualitative interviews were conducted and analyzed using the Interpretative Phenomenological Analysis. The study results and discussion are categorized into two main sections with the first section dealing with the demographic characteristics and descriptive variables of the study as well as the outcomes of the tested stated hypotheses to find out whether the data was supported or not. Also, the answers to the research questions as well as other relevant findings from the study were presented while section two, discussed the results and interpreted the findings in reference to the literature.

Demographic variables

The details of the findings are presented below. First, the demographic characteristics of participants (preterm mothers) such as their ages, marital status, religion, educational level, occupational status, delivery method

gestational age, birth weight, child order and days in NICU are summarized in

Table 1.

Table 1: *Demographic Characteristics of Respondents*

This table presents the personal characteristics of the respondents.

Variable	Frequency (f)	Percentage (%)
Age		
15-23	23	23.0
24-32	45	45.0
33-42	32	32.0
Marital Status		
Single	9	9.0
Married	67	67.0
Cohabiting	24	24.0
Religion		
Christian	86	86.0
Muslim	13	13.0
Other	1	1.0
Educational Level		
Primary	14	14.0
Secondary	61	61.0
Vocational	3	3.0
Tertiary	14	14.0
No formal education	8	8.0
Occupational status		
Self employed	71	71.0
Private sector	15	15.0
Government worker	8	8.0
Unemployed	6	6.0
Delivery method		
SVD	53	53.0
Caesarian	47	47.0
Gestational age		
Extreme (< 28 wks)	13	13.0
Very preterm(28-32 wks)	31	31.0
Moderate(32 wks - < 37 wks)	56	56.0
Birth weight		
Very LBW(<=1.5kg)	46	46.0
Low birth weight (1.6-2.4kg)	54	54.0
1st child		
Yes	55	55.0
No	45	45.0
Days in NICU		
Less than a week	33	33.0
Less than 2 weeks	42	42.0
2 weeks or more	13	13.0
More than 4 weeks	12	12.0

Source: Field survey, Ocloo (2019)

Descriptive statistics

The summary of the means and standard deviations of scores on the scales of posttraumatic stress, psychological distress, coping, parental stressor and maternal wellbeing as well as internal consistencies of scales are presented in Table 2.

Table 2: Means, Standard Deviations and Cronbach's alpha for Variables in the Study

Variable	Mean	S. D	Cronbach alpha(α)	Skewness	Kurtosis
Post-traumatic stress	11.46	10.46	.91	.94	.18
Psychological Distress	14.28	8.40	.91	.42	-.12
Emotion-focused coping	20.68	5.01	.61	-2.39	4.82
Problem-focused coping	44.30	5.37	.75	-2.38	7.55
Sight and sound	13.14	6.07	.98	-.47	.02
Appearance	27.07	12.66	.99	-.22	.21
Parental role	9.53	7.88	.95	.32	-.89
Staff behaviour	2.68	4.71	.94	1.71	2.29
Maternal wellbeing	1.60	.49	.91	-.41	-1.87
Social wellbeing	16.02	4.15	.93	-.88	1.52
Emotional wellbeing	10.25	2.83	.85	-1.16	1.42
Psychological wellbeing	20.05	4.92	.81	-.96	2.22

Field survey, Ocloo (2019)

Table 2, explained that the participants in the study had a post-traumatic stress mean score of 11.46 and a standard deviation score of 10.46 (Reliability = .91). With regards to levels of psychological distress, participants had a mean score of 14.28 and a standard deviation score of 8.40 (Reliability =.91). About the different coping strategies implemented by the participants, they had a mean emotion focused coping score of 20.68 and a standard deviation score of 5.01 (Reliability = .61) and on problem-focused coping a mean of 44.30 and a standard deviation score of 5.37 (Reliability =.75) were recorded.

Additionally, the participants obtained scores on subsets of the parental stressor scale a mean sight and sound score of 13.14 with standard deviation score of 6.07 (Reliability = .98), mean appearance score was 27.07 with a standard deviation score of 12.66 (Reliability = .99), the parental role mean score was 9.53 with standard deviation score of 7.88 (Reliability = .95) and lastly staff behaviour mean scores of 2.68 with standard scores of 4.71 (Reliability = .94).

Further, on their overall maternal wellbeing participants reported a mean score of 1.60, and a standard deviation score of .49 (Reliability = .91). On the specific domains of maternal wellbeing, respondents obtained a mean social wellbeing score of 16.02 and a standard of 4.15 (Reliability = .93), a mean emotional wellbeing score of 10.25 and a standard deviation score of 2.83 (Reliability = .85) and a psychological wellbeing mean score of 20.05 with a standard deviation of 4.92 (Reliability = .81). This further implies that all the tools used in the questionnaire measured the variables they were to measure and showed high reliability throughout.

Hypotheses Testing

1. ***H₀***: *Preterm mothers who use problem-focused coping mechanisms will report lower level of maternal wellbeing.*

H_A: *Preterm mothers who use problem-focused coping mechanisms will report higher level of maternal wellbeing.*

Mothers with low maternal wellbeing Group 1 (N = 40) when associated with problem-focused coping revealed $M = 43.60$ ($SD = 5.93$) and by comparison Group 2 (N = 60), representing mothers with high maternal wellbeing was associated with problem-focused coping showed $M = 44.77$,

($SD = 4.95$). To examine the hypotheses above, an independent t-test was employed to investigate the difference between mothers with high maternal wellbeing and mothers with low maternal wellbeing on the use of problem-focused coping and the results are summarized in Table 3;

Table 3: Association between problem-focused coping and levels of maternal wellbeing

Maternal Wellbeing		N	M	SD	SE			
					M	t	df	p
Problem	Low maternal wellbeing	40	43.60	5.93	0.94	-1.065	98	.289
Focused coping	High maternal wellbeing	60	44.77	4.96	0.64			

An examination of Table 3 showed that the assumption of homogeneity of variance was satisfied through the Levene's F test, $F(100) = .15$, $p = .701$. The independent sample t –test showed that there was no significant difference between the two groups in their use of problem-focused coping, $t(98) = -1.065$, $p = .289$, two-tailed). Thus the researcher failed to reject the H_0 , which states that mothers who use problem-focused coping mechanisms are more likely to report lower level of maternal wellbeing.

2. H_0 : *The frail appearance of infant in incubators in NICU and the sight and sounds would not significantly predict psychological distress of preterm mothers*

H_A : *The frail appearance of infant in incubators in NICU and sight and sounds would significantly predict psychological distress of preterm mothers*

A hierarchical multiple regression was performed to assess the ability of two variables (the frail appearance of infants in incubators in NICU, and

sight and sounds at NICU) to predict mothers' psychological distress. Preliminary analyses were conducted to make sure that there were no violation of distribution assumptions of normality, linearity, multicollinearity and homoscedasticity

Table 4: Frail appearance of infant in incubators in NICU and sight and sounds on Psychological Distress

<i>Model</i>	<i>B</i>	<i>SEB</i>	<i>β</i>	<i>t</i>	<i>ρ</i>
Step 1					
Constant	12.730	2.015		6.318	.000
Sight and Sounds	.118	.139	.085	.847	.399
Step 2					
Constant	12.425	2.115		5.87	.000
Sight and Sounds	.033	.222	.024	.148	.883
Appearance	.053	.106	.079	.495	.622
Step 3					
Constant	10.378	1.986		5.225	.000
Sight and Sounds	.003	.203	.002	.015	.988
Appearance	-.008	.103	-.012	-.075	.940
Parental role	.264	.112	.248	2.364	.020
Staff	.579	.168	.325	3.452	.001

$R^2 = .01, .01, .09$ & $.19$ and $\Delta R^2 = -.00, -.01, .06$ & $.15$ for steps 1, 2 and 3 respectively. *** = $\rho < .001$

Table 4 indicates that at step 1, sight and sounds did not explain the significant variance in psychological distress, $\beta = .09, \rho > .001$.

Step 2, of the results indicate that sight and sounds $\beta = .024, \rho > .001$ was still not significant in explaining the variance in psychological distress, as well as appearance ($\beta = .079, \rho > .05$).

Results in step 3, revealed that the interaction between sight and sounds ($\beta = .002, \rho > .05$) was not significant, appearance ($\beta = -.012, \rho > .05$) was not significant and was negatively skewed, however, parental role and staff were statistically significant with beta values of ($\beta = .248, \rho < .05$) weak positive and ($\beta = .325, \rho < .05$) moderate positive respectively.

This indicates that sight and sound and appearance did not significantly predict psychological distress of preterm mothers. Therefore, the hypothesis that the frail appearance of infant in incubators in NICU and sight and sounds would significantly predict psychological distress of preterm mothers was not supported. The results however revealed that the interaction between parental role and especially staff behaviour was moderately significant in predicting psychological distress.

Hence the researcher failed to reject the null hypothesis (H_0) that the frail appearance of infant in incubators in NICU and the sight and sounds would not significantly predict psychological distress of preterm mothers.

3. **H_0 :** *A significant negative relationship will not exist between preterm mothers' psychological distress and maternal wellbeing.*

H_A : *A significant negative relationship will exist between preterm mothers' psychological distress and maternal wellbeing.*

A Pearson's Product-Moment Correlation Coefficient examined the relationship between mothers' psychological distress (measured with the Kessler Psychological Distress Scale) and maternal wellbeing (measured by the Maternal Health Continuum). Preliminary investigations were conducted to ensure that there was no violation of the distributional assumptions of normality, linearity and homoscedasticity.

Table 5: Pearson Correlation Matrix of Variables and their subscales

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Age													
2 PTSR	.16												
3 E-C	-.04	-.08											
4 P-C	-.15	-.09	.70**										
5 S.S	.08	-.01	.09	.16									
6 App	.09	-.06	.06	.13	.78**								
7 Role	.11	.08	.01	.05	.33**	.45**							
8 S.B	-.09	.38**	-.06	-.13	.03	-.01	.15						
9 MHC	.02	-.17	.11	.11	-.05	.01	-.16	-.09					
10 Dis	-.10	.44**	-.23*	-.31**	.09	.10	.29**	.36**	-.27**				
11 Emo	-.17	-.16	.18	.25*	-.14	-.09	-.04	.04	.60**	-.15			
12 Soc	.14	-.06	.05	.06	-.18	-.05	-.03	-.10	.75**	-.17	.67**		
13 Psy	.10	-.03	.12	.08	-.01	.05	-.08	-.07	.68**	-.13	.46**	.74**	

- Indicates ($p < .05$) ** indicates ($p < .01$)
- PTSR= post-traumatic stress, E-C=Emotion-focused coping, P-C=Problem-focused coping, S.S- Sights and sound, App= Appearance, Role=Parental Role, S.B =Staff Behaviour, MHC= maternal wellbeing, Dis= Psychological Distress, Emo=Emotional wellbeing, Soc =Social Wellbeing, Psy =Psychological wellbeing.

From Table 5, a weak negative correlation was found to exist between the psychological distress and maternal wellbeing of preterm mothers, $r(98) = -.27, \rho < .01$. The researcher hence rejected the null hypothesis (H_0) as it states that, a significant negative relationship will not exist between mother's psychological distress and maternal wellbeing.

Additionally, psychological distress correlated negatively with all the specific domains of wellbeing, Emotional [$r(98) = .15, \rho < .05$], Psychological [$r(98) = -.13, \rho < .05$] and Social [$r(98) = -.17, \rho < .05$].

4. *H_0 : There would not be a significant positive relationship between post-traumatic stress reaction and psychological distress*

H_A : There would be a significant positive relationship between post-traumatic stress reaction and psychological distress.

Pearson's Product Moment correlation was used to test this hypothesis and the results as indicated on table 5, reveals that a significant positive relationship exists between post-traumatic stress reaction and psychological distress at the .01 level of significant, $r(98) = .44, \rho < .01$. This suggests that as the level of post-traumatic stress reaction increases, psychological distress levels also increase and hence, the hypothesis four that there will be a significant positive relationship between post-traumatic stress reaction and psychological distress is supported. The null hypothesis (H_0) is therefore rejected.

5. *H_0 : There would not be a significant negative relationship between post-traumatic stress reaction and maternal wellbeing.*

H_A : There would be a significant negative relationship between post-traumatic stress reaction and maternal wellbeing.

A Pearson's Product Moment Correlation was used to test this hypothesis aimed at establishing a significant negative relationship between post-traumatic stress reaction and maternal wellbeing. Table 5, shows that a negative relationship existed between post-traumatic stress reaction and maternal wellbeing at the .05 level of significant, $r(98) = -.17, \rho < .05$. The relationship between post-traumatic stress reaction and maternal wellbeing is a weak negative relationship. As such, hypothesis five that states that there will be a significant negative relationship between post-traumatic stress reaction and maternal wellbeing is supported. The null hypothesis (H_0) is therefore rejected.

6. *H_0 : Demographics (age of mother, days in NICU, marital status) will not moderate the relationship between psychological distress and maternal wellbeing.*

H_A : Demographics (age of mother, days in NICU, marital status) will moderate the relationship between psychological distress and maternal wellbeing.

Hypothesis six sought to investigate the moderating effects of age of mother, marital status, and days in NICU on the relationship between psychological distress and maternal wellbeing. Three separate hierarchical regressions were run to find a possible moderating effect of age, marital status, and days in NICU respectively on the relationship between psychological distress and maternal wellbeing.

Table 6: Summary of the 3-step Hierarchical Multiple Regression Analysis of Moderator effects of age, marital status and days in NICU on the relationship between psychological distress and maternal wellbeing

Variables	B	SEB	β	t
Step 1				
Model 1				
(Constant)	48.036	3.689		13.022
10 TOTAL	-.205	.123	-.168	-1.670
Age	.578	1.392	.042	.415
Model 2				
(Constant)	54.821	6.228		8.802
K10 TOTAL	-.685	.306	-.561	-1.820
Age	-2.477	2.656	-.179	-.933
K10_Age	.221	.164	.452	1.349
Step 2				
Model 1				
(Constant)	52.855	2.827		18.695
K10 TOTAL	-.218	.120	-.179	-1.815
Marital_Status	-1.300	.739	-.173	-1.760
Model 2				
(Constant)	56.774	4.400		12.903
K10 TOTAL	-.492	.265	-.403	-1.859
Marital_Status	-2.766	1.463	-.369	-1.891
K10_Marital_Status	.104	.089	.313	1.161
Step 3				
Model 1				
(Constant)	49.208	2.778		17.716
K10 TOTAL	-.211	.123	-.173	-1.717
Days_in_NICU	.059	1.025	.006	.057
Model 2				
(Constant)	44.692	4.037		11.070
K10 TOTAL	.177	.281	.145	.630
Days_in_NICU	2.141	1.698	.210	1.261
K10_Days_in_NICU	-.176	.115	-.421	-1.532

Model 1: $R^2 = .030$, $F(2, 97) = 1.480$, $p > .05$

Model 2: $\Delta R^2 = .023$, $F(1, 96) = 1.783$, $p > .05$

From Table 6, for the first analysis, in the first step, psychological distress and age were included, while the interaction variable between psychological distress and age was added to the regression model in the second step. Model 1 was not significant, $R^2 = .031$, $F(2, 97) = 1.567$, $p > .05$. Model 2 was also not significant, $\Delta R^2 = .018$, $\Delta F(1, 96) = 1.660$, $p > .05$.

In the second analysis, psychological distress and marital status were added in the first step, with the interaction variable between psychological distress and marital status added to the regression model in the second step. The amount of variance explained in this model was not significant, $R^2 = .060$, $F(2, 97) = 3.075$, $p = .051$. Model two also did not account for a significant amount of the variance in maternal wellbeing either, $\Delta R^2 = .013$, $\Delta F(1, 96) = 2.507$, $p > .05$.

In the third analysis, psychological distress, and days in NICU were included in step 1. The interaction variable between psychological distress, and days in NICU were added to the regression model in step 2. Therefore, the researcher fails to reject the null hypothesis (H_0). Hence, demographics (age of mother, days in NICU, marital status) would not moderate the relationship between psychological distress and maternal wellbeing.

Interpretative Phenomenological Analysis

Participants were told to talk as broadly as possible about their experiences of giving birth to a preterm infant, their maternal wellbeing and their coping mechanisms.

Qualitative Findings

Research question 1: What are the major challenges that preterm mothers face?

The findings following exploration of the major challenges that preterm mothers face while caring for their preterm babies at home after having been discharged from the Neonatal Intensive Care Unit are now presented.

To answer this question, the following themes were yielded:

These were financial constraints of respondents, fluctuating weight of baby, stay in mothers' hostel, employment, care of other children and marital issues.

Financial Constraints

The first theme that emerged from participants' responses was financial responsibilities. It was observed that two (2) participants engage in petty trading that requires minimal capital. Participants' earnings range from 100 cedis per month to 600 Ghana cedis. One mother had stopped working after she got pregnant and the other had stopped working to engage in petty trading. The last mother was not working at all. Almost all of the respondents ascribed that one of the main reasons for their depression and anxiety was as a result of the low income and high financial responsibilities. This is evidenced from the following quotes:

“hmm, you know that with taking care of a baby like this, you should have some kind of happiness for him and when you are not able to buy something's for him, you will begin to say to yourself that, I have been able to give birth to a child but I am not able to do what I should do for him. Then it begins to disturb me...” (Respondent 6)

“The most difficult aspect for me was oxygen and medications. It was very expensive to buy the medications and oxygen because we needed to buy it on a daily basis and this was draining us financially. Notwithstanding we did everything the doctors and nurses instructed us to do” (Respondent 2)

“Last month when I came to NICU clinic, I was given review to come in the next 3 months. I know that I also have to come for post natal clinic every month and as a result of that I decided to visit a hospital in my area for weighing (postnatal clinic) and come for the NICU clinic when it is time (3 months). I live at Tema West and it is quiet far from the hospital and this is it is financially draining.....When I was on admission; there were a lot of financial issues pertaining to my operation and other things. And this has made things very difficult” (Respondent 3)

“Financial issues are my headache. You see, I am not working myself and it is not easy for me especially the financial strain from the hospital.” (Respondent 1)

Care of Other Children

Another theme that emerged is the care for the other children the participants had. It was only one mother who had other children aside from her preterm child. She did not have any challenges with the number of children they had, but she had challenges with the fact the having to take care of her child post-partum, had deprived her of some time with her other children.

“...he is the 5th born. When I was not around and I had to be in the mother’s hostel to take care of him, the other children were very, very sad. They had their father only to take care of them. Some of them are old enough to take

care of their personal hygiene and they help the younger ones. All the same, when I came back they were excited” (Respondent 3)

However, all those who were first time mothers and as such, first time preterm mothers experienced a number of problems as they had to muster strength to adjust to the new development.

“We all found it very difficult because me for instance, I had never seen a preterm baby before and also he was very small. So when it was time for me and my baby to move to mother’s hostel, I and my family were very excited because I saw a lot of mother lose their babies. I was scared because my baby is a boy and I heard that the females survive better than the males... (Respondent 2)

Fluctuating Weight of Baby

Again, another theme that arose was the fluctuating weights of baby and as a result extended stay in the mothers’ hostel. These quotations supported their assertion:

“I can say that me being alone here in the mothers hostel has been the most difficult for me. You remember that I told you that I want to go home, yes. My baby’s birth weight was at 1.2 kg, we were at NICU for a week. Now his weight is 1.032kg, if the weight does not reach 1.5 kg you cannot leave the mothers’ hostel” (Respondent 4)

“One thing I know is that for the doctor, usually, when we go for review she wants to see that the child is doing better so she’d let you go and come back. She checks, that we feed him well, the way they want the child to be. So when we come like this and the weight goes up they get very excited but when the

weight comes down they complain a lot that you are not taking good care of your child. (Respondent 2)

Stay in Mothers' Hostel

Uncomfortable experiences, like, waking up at odd hours and worry were some of the issues, the respondents reported. Some of the excerpts from the respondents are as follows:

“Yes, I have been feeling like this, that my baby would wake up and I would be asleep and I cannot take care of him because I am asleep. So I'd rather stay awake and wait for him to wake up.” (Respondent 4)

“I have to always be awake on time to go and see my baby in NICU. We have schedules, you need to go and take care of your baby every 3 hours. From 9 am in the morning, then 12 noon, 3pm in the afternoon. 6pm in the evening and at 12 midnight then 3 am after which you can rest and then another day starts. I was fortunate that my baby took breast milk. You will need to extract the milk into a cup and use a very tiny spoon to feed the milk to them because they cannot suckle your breast like term babies can... hmm and I also kept very long at the hostel, I spent 3 months there” (Respondent 1)

“For me, sometimes, when I think about how I used to be scared..... (Sighs)..... I can go and feed and take care of my baby at the allocated time at NICU and come back to cry, it took some time for me to be able to adjust.... (Respondent 2)

Employment

Another subtheme identified was employment. Mothers posit that due to pregnancy and care of preterm babies, they either lost their jobs or were not allowed to work, some voluntarily withdrew and others changed jobs.

“hmm.....I used to sell things in the market but I have stopped working now to be able to take care of my baby...(Respondent 1)

“I was working in the private sector but now, my husband’s brother’s wife has opened as store and now that is what we do. So I do money transfer and sell airtime cards small, small I also do toffees, and local snacks for sale. This gives me time for my baby” (Respondent 2)

“My work is someway...Because I have given birth. I do not go out; his father says I should not bring him out. Before, I used to do petty trading in the house, although but I do not have a store.”(Respondent 3)

“I used to work in the private sector; with one company in Accra here. Errrm, me, when I got pregnant, I stopped the work. I wanted time to take care of myself” (Respondent 4)

Marital issues

Mothers reported that after birth, they had some challenges with their partners. Some expressed dissatisfaction with their marriage because their expectations of their partners had not been met but for others it was short-lived. This was evidenced by their quotes:

“The relationship with my husband is not okay but I am dealing with it. Hmm there are issues. It has not been easy. You see, the fact that I’m not working is one of the things that is affecting me.” (Respondent 1)

“In the hospital, we had problems. It was very difficult and this used to happen because of its effect on our finances, but it has gotten better, now that I am home” (Respondent 2)

Research question 2: What is the maternal wellbeing of women who experience premature birth?

From the transcribed data, two themes emerged physical wellbeing and psychological wellbeing.

Psychological Wellbeing

Psychological wellbeing relates to the degree to which an individual feels like he or she is in control of their life (Abbott, et al., 2006). Some of the participants expressed their concerns as being parent taking care of their preterm babies and how this was very stressful for them. Our emotions, thoughts and behaviours constitute our psychological state. The moment any of these variables are affected, we lose our balance. Many respondents expressed frequent sadness and loss of interest in even carrying out their basic motherhood roles. They said they always felt tired and helpless and would easily become upset with trivial things. They also expressed constant fear of the unknown, worry. This made them sometimes irritable and mostly distressed. The following quotes represent their responses:

“I used to blame myself a lot that it was because of me that baby is like this. I was not due, one day in my 7th month of pregnancy, I received bad news that my husband was involved in a car accident, the shock was what made me get into labour (looks away). After, I was delivered of my baby, my husband is in the hospital as I am also (starts crying.) This causes me to think a lot. If I had not heard of this news, my baby will not have come preterm and we will not be in the hostel spending money at NICU...(keeps crying)” (Respondent 1)

“I kept saying that I need a psychologist because even when my baby has come into my hands from NICU and I was taking care of him in the hostel, I’m

was not happy, I could not seem to be happy..... I think a lot, I wished he did not come preterm. I blamed myself a lot” (Respondent 3)

“I used to think too much. Will he be fine? Will he survive? Those were the things that I used to think of. Especially when he was in NICU (gets very emotional and pauses in speech).... Mmm, am not able to rest as a result because whenever I lay my head down to sleep or rest, that is when my baby will wake up or starts crying. Hence, I have been feeling anxious, that my baby would wake up and I would be asleep and I cannot take care of him because I am asleep. So I’d rather stay awake and wait for him to wake up” (Respondent 4)

Physical Wellbeing

Physical wellbeing is a state of wellbeing in which a person is physically fit to perform their daily activities without any restriction. These include living without pain, being able to engage in all activities pertaining to taking care of yourself and your baby as well as your children if there are any. Majority of the respondents reported good and normal daily functioning. They give the following quotations as:

“It is okay. Hmm, everything is fine now” (Respondent 1)

“I am very well; I am also able to rest, in the morning, when I go to the store. I close around 8pm....When am at the store, I’m relaxed unless someone want to buy something, that is when I get busy”. (Respondent 2)

“My health is fine; I eat well and sleep well, I don’t have high blood pressure or pain it is just that after birth, I had some pain in my hand and well because of that, I could not carry my baby for some time, so I come for treatment, hand

in hand with my baby's NICU clinic appointments. Now the hand is better.....On Sundays, I take those days to rest" (Respondent 5)

One mother reported she easily gets tired with the little errands she does as she experiences pain in some parts of her body and they feel they do not have the same strength as they used to have before giving birth. Her response was:

"Since, I was transferred from the ward to the mothers' hostel, my mother has been coming to the hospital mothers' hostel to help me wash and take care of myself and my baby. This has been helping me a lot as I feel very weak and easily tired and I find it difficult to sleep" (Respondent 4)

Research question 3: What coping mechanism do the mothers employ to help overcome challenges faced?

In order to better understand the responses provided in the quantitative data, the researcher asked the participants in an interview about how they have been able to cope with the challenges have faced as a result of giving birth to a preterm baby. It was confirmed in the interview data in three subthemes that, the participants generally used prayer, social support as well as education on baby's growth needs. This goes a long way to affect maternal wellbeing as mothers who were coping well had good maternal wellbeing.

Social Support

Social support was reported by the mothers as one of the most important variables that helped them in the difficult phase after preterm birth. This is evidenced by the following quotations:

".....if you are in this world and you respect everyone, help can come from everyone to you. I had a very good friend who also helped me because I didn't

know that she could do what she did for me (gets very emotional). My friends at the mothers hostel some had babies who were smaller than mine. I could take someone's child and feed hers after feeding mine. So when I was discharged home, I didn't have money so he used to take only breast milk but some of the women that I was with at the hostel surprised me. They would come and visit me with lots of gifts like pre Nan, blood tonics and lots of baby foods for him because of how I was with people in the hostel. I also kept very long at the hostel and everyone who came to meet me there liked me
(Respondent 2)

"The help from my mother and the other mothers in the hostel has been helping. You can leave your baby in their care and go and buy something and you will be back to see that your baby has been well taken care of."(Respondent 4)

"I do not have help, but my children help me especially the grown among them those around the ages of 12 and 10". (Respondent 3)

"No, I do not have any problem oo. I leave him for his grandparents in the day. They feed him, bath and take very good care of him in a day and I go and pick him up at night. But when he cries and they cannot handle it, they bring him back to me.....I would give thanks to my mother-in-law; she really supported me a lot. My friends used to come and visit me even when we were at the mothers' hostel, they call to check on me and were very supportive. I have never blamed myself. That is because, my in-law even told me that my husband was also born preterm. He came at 7 months".(Respondent 5)

“My in-law is the one helping me little by little. My mother in law helps me with the house chores in the house and this brings down the burden for me”.

(Respondent 1)

Prayer

Some mothers in this study used prayer as coping strategies to enable them care for their babies. They trusted in God as their help and a mediator in the course of caring for the preterm babies. The following statements buttress the use of prayer for coping purposes:

“I use prayer, I always pray and ask God to take care of my family and my baby” (Respondent 4)

“God has been faithful ooo. Hmmmm, I’d give all that credit to God” (Respondent 2)

Education

While the mothers were caring for their preterm babies they tried to find ways to deal with the stress they were going through, mother said that most of the education given to them by other mothers as well as the nurses and doctors has helped them to cope in this period. Education like the KMC (Kangaroo Mother Care), which enabled them closer assesses to their babies. A mother who benefitted from KMC for her preterm baby narrated how she coped:

“I had to always cover him from head to toe with socks, cape and hat inclusive and they sell a special cloth in the NICU that has been cut in a way that is easy for us to do the KMC. We put our baby on our chest and use 2 to 3 cot sheet to wrap them and then I tie the cloth in successions from front to back until you secure it under each elbow and tie and big knot. They told us that

this helps keep our babies warm as they are very small. We do not come out with them if you need to come out, you can leave your baby with another mother..... We can say this has helped us a lot. I see my baby growing everyday". (Respondent 2)

Feeding was also one of the factors.

"The nurses and the mothers I met here taught us well, initially when I came, we were told to feed them in every 2 hours interval and a top up with a spoon. Sometimes I top up just like 10mls after breastfeeding. I was very scared initially when we were told that they were too small to suckle but after being taught these and even how to balance them when feeding and burp them after feeding. I got more comfortable with the motherly role. One time his weight shot up from 1.039 to 1.250 in 2 weeks (laughs)" (Respondent 5)

However, the mothers expressed the process of feeding their babies as difficult tasks yet they were able to do a good job and this could be attested from their weight gains as seen in the growth monitoring chart. Mothers had to strive hard for their babies to reach at least 1.5kg before they could be discharged from the mothers' hostel.

Discussion of Findings

The rationale of the study was to find out the impact of psychological distress and coping mechanism that mothers use and how these tend to impact the wellbeing of preterm mothers. The main objectives/ research hypotheses were: to assess the relationship between problem-focused and maternal wellbeing of the mothers, to find out the extent to which the frail appearance of infants and sight and sounds in incubators in NICU will significantly predict psychological distress of preterm mothers, to examine the relationship

between mother's psychological distress and maternal wellbeing, to examine the moderating role of Demographics (age of mother, age of baby, gender of baby, marital status) in the relationship between psychological distress and maternal wellbeing, to determine whether there would be a significant positive relationship between post-traumatic stress reaction and psychological distress and also if there would be a significant negative relationship between post-traumatic stress reaction and maternal wellbeing of mothers with preterm babies. Lastly, to determine qualitatively, the challenges, level of maternal wellbeing and whether other coping styles have a significant influence on mothers with preterm infants. To accomplish the above objectives, several hypotheses were tested.

Some Important Demographics on preterm birth

Causes of preterm birth vary. They include previous obstetric history (having previous premature birth), mother's age, social status, multiple gestation, smoking during pregnancy, antepartum hemorrhage, infections, premature rupture of fetal membranes, intake of alcohol and conditions that develop during pregnancy such as gestational hypertension and gestational diabetes (Fraser & Cooper, 2003 ; Ling, Lian, Ho & Yeo, 2009). For this present research, most preterm mothers were in the age range of 24 to 32 (45%), followed by mothers whose ages ranged from 33 to 42 (32%) before mothers in the age range of 15 to 23 (23%). In a study by Ango (2016) to find out about preterm mothers experiences of psychological distress as they care for their babies in the Neonatal Intensive Care Unit of the Korle-Bu Teaching Hospital, and the types of coping techniques that they use it was found that the age range of 25-33 reported the highest number of preterm births with

frequency of 81 and a percentage of 54%. Similar finding was also made in a recent study by Taylor (2019) in Ghana, with preterm mothers of the age (20-34). Eight hundred and eighty-one (881) mothers with a percentage of 69% were the majority. Nonetheless, age range of 35 to 49 was a close second in both studies. This affirms that high maternal age as a cause of preterm birth is very plausible.

There was an assertion that most preterm births occur spontaneously while others happen as a result of early induction of labour or due to caesarean (Taylor, 2019). When a woman goes into preterm labour depending on the nature and progress of labour it affects the mode of delivery and the gestational age. Delivery method in this study was mostly spontaneous vaginal delivery (SVD) at 53% with caesarean at 47% this was once more consistent with study by Ango (2016) where 103 mothers (70.7 %) gave birth by SVD and 44 (29.3%) gave birth by caesarean. Although the studies by Taylor (2019), Atiah (2016) and Owusu-Ansah (2018) showed high frequency for caesarean than spontaneous vaginal delivery with a 9%, 10% and 2% difference in births for each study, respectively.

Lastly, in this study, gestational age was divided into 3. With scores from extreme at (< 28 wks) (13%), very preterm (28 wks-32 wks) (31%) and moderate (32 wks to < 37 wks) (56%). Comparing these scores to that of the study by Cheon (2012), in 3 hospitals in the United States, on psychological wellbeing of mothers with preterm infants, there are extremely similar score of 26%, 34% and 40% respectively this is consistent with findings in studies on preterm birth (Taylor, 2019; Atiah, 2016; Owusu-Ansah, 2018) in some parts of Ghana, where it is reported that moderate preterm births constitute the

majority of preterm births. It can therefore be said that the assertion made above is true as this present study has reports of different delivery methods and gestational ages peculiar to each mother and each setting and hence, depending on the nature and progress of labour the mode of delivery and the gestational age is affected.

Major challenges of preterm mothers

On research question one, the findings of this study revealed numerous challenges faced by mothers of preterm babies. These are financial constraints of respondents, fluctuating weight of baby, stay in mothers' hostel, employment marital satisfaction and care of other children. Nevertheless, the mothers expressed happiness when they noticed improvement in the growth and development of the preterm babies. Looking at the predisposing factors of preterm delivery as well as interaction with them, mothers were not prepared for preterm birth, there was the need to accept the situation and live with the challenges that come with it. In Ghana it is common knowledge that pregnant mothers prepare for the delivery of babies way ahead the birth of the baby. Pregnant mothers work hard and save money in preparation of the arrival of the new baby but when babies are delivered preterm and parents have not saved enough money, then this becomes financially constraining.

As a result, financial constraint was one of the dominant challenges that the mothers mentioned. The financial costs of caring for preterm babies were overemphasized by the mothers. They had to stop work to care for their preterm babies, others stopped to do jobs which had flexible working hours, and taking care of a preterm infant came with its own issues. Also, the cost of

medical bills and transportation to and from the hospital made mothers of preterm babies financially overburdened.

This discovery was consistent with finding by Suraju (2013) in his study in the Accra Metropolis on mothers' experiences while caring for their preterm infants at home which showed that one of the paramount challenges that the mothers mentioned was financial burden and this once again was overemphasized by the mothers.

Another challenge was the fluctuating weight of the babies. The daunting task of care of preterm babies especially feeding throughout the day and at night caused the mothers sleepless nights. There was the need for frequent feeding to enable the preterm babies to gain weight as a gain in weight especially to threshold of 1.5 kg was necessary to permit discharge. Feeding was one duty emphasized by the nursing staff during health teaching upon discharge of preterm babies from the intensive care unit. Mothers tried, although difficult to get their babies' weights to that point. In addition to the above, the babies also encountered challenges such as poor feeding and slow weight gain due to physiological problems of preterm birth. This negatively affected the mothers' psychological state of health resulting in anxiety and worries.

Again, stay in mother's hostel was another challenge for mothers. They encountered uncomfortable experiences, like, waking up at odd hours and worry were some of the issues, the respondents reported. Growth and development can be achieved in preterm babies only when they are well fed (Hockenberry & Wilson, 2009). Knowing the benefits of feeding babies there

was the need for mothers to deprive themselves of their sleep and feed the babies for optimal results.

Employment was another factor that was highlighted by mothers as some mothers had stopped working altogether and hence care burden had shifted to their husbands, others were not working at all, some mothers had stopped their corporate jobs to stay home to take care of their children and others to do petty trading so as to get time for their children thereby, increasing financial constraints.

A study by Lindberg and Ohrling (2008) indicated that families could not spend time together as a result of prolonged stay of mothers in NICU leading to a sense of loneliness among the family members since they could not stay at home to care for the rest of the family especially, older siblings. This brings us to the fifth challenge not having time for other children in the house

The last challenge was marital issues; preterm mothers reported that after birth, they had some challenges with their partners. Some mothers expressed dissatisfaction with their marriage because their expectations of their partners had not been met but for others, this period of dissatisfaction was short-lived. This mostly had to do with finances as well as decisions for the family. Financial problems were usually resolved after discharge.

The results from this findings explains the Parental NICU stress model where the environment is taken into consideration and is a major influence on the psychological distress of preterm mothers in the NICU who will inevitably be psychologically affected by factors such as their own physical health after

delivery, financial challenges, low birth weight of baby, poor social support, marital status among others.

Maternal wellbeing in women who experience premature birth

With the mothers' wellbeing which was research question two (2), all the mothers experienced some form of physical and psychological problems after delivery and during care of their preterm babies. They feared losing their babies and as a result, became anxious. Also, they were deprived of their sleep due to night feeding of the babies. Maintaining personal hygiene was a problem but not for all mothers. As the preterm mothers had a lot on their plate, some mothers needed to have external help to help them wash theirs and their baby's clothes even while in the hospital hostel. Majority of the respondents though, reported good and normal daily functioning.

The mothers cited numerous challenges during the interviews with them. They reported the difficult task of caring for preterm babies. For psychological wellbeing, some participants described the experience of caring for preterm babies as traumatizing and time consuming. Many respondents expressed frequent sadness and loss of interest in even carrying out their basic motherhood roles. They said they always felt tired and helpless and would easily become upset about trivial things. They also expressed constant fear of the unknown, worry. This made them sometimes irritable and mostly distressed especially in the early phase.

This relatively attests to the Biopsychosocial model of health where holistic care must be given to the mothers. It postulates that, as prominence is given to the physical wellbeing of the individual, psychological wellbeing

should also be given optimum attention so that one does not deteriorate in one aspect of health and then is fine on another.

The influence of coping styles on maternal wellbeing

On research question three, on coping strategies; it was found that, participants use praying, social support as well as education on baby's needs. This goes a long way to affect maternal wellbeing as mothers who were coping well had good maternal wellbeing. Participants prayed, had social support and also were educated on the growth needs of the baby, which made them cope better. The items of the Brief COPE model deal with ways in which individuals have been coping with stress caused by preterm delivery. There are various means to deal with challenges.

Clearly, individuals deal with issues differently, but this research was interested in what participants (preterm mothers) do to cope with the stress caused by preterm delivery. Through the items on the Brief COPE model, one identifies a particular way of coping. The researcher wanted to explore what individual participants do to cope (coping strategies) and what support they prefer after preterm delivery. The participants were expected to respond to a set of qualitative semi-structured questions on the basis of what they do to cope. The researcher was more interested in knowing exactly what participants do, hence using qualitative interviews suited for the data collection.

Below are the coping strategies, expressed by participants who delivered preterm babies and participated in this research. They include praying, social support as well as education on baby's growth needs as discussed below.

Some mothers in this study mentioned that they were praying to God and believed they received help and strength, which helped them to cope better with the stress caused by preterm delivery. Participants expressed their thanks to God for blessing them with a baby, and also for seeing them through this phase.

According, Daly, Jennings, Beckett and Leashore (1995), in Africa group-relied ego strengths like one's family, community, social support and religious belief systems are often used to overcome stressful life situations. This makes Ghana no exception. The current study identified that, mothers in the NICU turned to be anxious when their infants are admitted in the unit. To cope with this situation, they turned to use spirituality to cope with the anxiety being experienced. It was also found out in the current findings that, the more spiritual a mother is, the less the level of anxiety a mother will experience. Mothers here turned to use their belief which is connected to their faith to cope with their anxiety. Being religious is part of an individual's self-identity, hence being religious would reflect better health and decrease anxiety.

This finding is similar to the results of a study by Arzani et al. (2015), who reported that prayer was revealed to be the most significant strategy that preterm mothers used to cope. Prayer is usually carried out for various reasons, such as to praise and worship God, give thanks to God for something one has achieved, apologise and try to find forgiveness from God for what one has done wrong, and at times to ask for assistance from God (Davison, 2017). People usually pray when they find themselves in difficult situations, some pray as a daily routine in the family, and some pray because others do. Prayer

can occur anywhere and in any style, hence people pray in churches, homes, workplaces and while travelling, to name a few (Perriam, 2015).

Praying as a means of expressing spirituality could also either be when people ask from God for themselves, or when they ask from God on behalf of others (Carvalho, Chaves, Iunes, Simão Marciano Grasselli & Braga, 2014). In this study, praying was mostly carried out by participants for thanksgiving and to ask God to intervene and to proffer good health on their preterm infants and their families, as seen in results above. Apart from participants who use praying for reasons mentioned above, Sharp (2010) mentioned that praying as a God-seeking method is utilised by people for different reasons. Patients who experience chronic pain use praying to cope with their emotions, as described by Peres and Lucchetti (2010). Findings of a study by Bryant-Davis and Wong (2013) identified that the approaches used by spiritual people to deal with stress include endorsement of beliefs, enrolment in activities, and access to support from faith communities.

On the subtheme, social support, participants received support from their relatives, friends, in-laws and group support. Participants verbalised that the support they received from their relatives included the frequent visits by relatives. They mentioned that the relatives gave them comforting and reassuring words.

Some relatives also provide basic needs to the participants such as helping them to wash their clothes, food and money. The participants also mentioned that other preterm mothers in the hostels helped in caring for their preterm babies in their absence such that they were able to carry out certain activities such as hygiene needs, elimination needs, nutrition needs without

having a helping hand. Mothers also supported participants by listening to their frustrations which created calmness in anxious participants. This current study results revealed that the majority of the participants were able to cope with the preterm stress by receiving support from, relatives like mothers, fathers, siblings and husbands. Research confirmed that parents of preterm babies need special support to ensure better coping and hence survival of their babies (WHO, 2012). From the interviews that were conducted it was understood that all mothers who participated in this research received some form of support and were not left alone with their babies in the hospital. Most of the participants in this study appreciated the support their relatives gave to them, as well as group support especially from their fellow mothers.

Lastly, one coping mechanism that was employed by most mothers was education on baby's growth needs. Participants acknowledged support received from Health Care Practitioners on information on care of preterm baby at home after discharge. All the mothers in the study needed information to enable them care for their babies. Care of preterm babies is different from care of term infants. Care of preterm babies requires special skills and knowledge received from medical and nursing professionals by mothers before discharge. To provide optimal care for preterm babies, mothers with such babies require pertinent, adequate and useful information to enable them carry out the daunting task efficiently. From the data gathered during the interviews mothers were given enough health teaching to enable them care for the preterm babies.

The findings from this present study are similar to the results of a study carried out by Broedsgaard and Wagner (2005). The study by

Broedsgaard and Wagner sought to know the educational programmes given to preterm mothers, how frequent family's health visitors visited the neonatal intensive care unit and to encourage the publication of related booklets for parents and health care workers. The findings showed that 73% of the families were satisfied with the information given to them by the health visitors on care of premature infants.

About 95% of the families in the study by Broedsgaard and Wagner (2005) stated that their coordinators gave them adequate support and coaching, 94% of the families felt that the intervention put in place was beneficial and were pleased with the continuity of care they had for their premature babies especially when they were discharged home.

Mothers were allowed to stay long enough at the unit to enable them learn more skills. With effective measures put in place the mothers were able to acquire enough skills and knowledge on the care of babies before discharge.

The qualitative findings are proven by the Biopsychosocial Model, every disease has a multi-dimensional aetiology and that in treating it the biological, psychological and social (spiritual) aspects must be addressed. As such coping that encompasses all the aspects of the Biopsychosocial model allows for holistic wellbeing at the end of the day hence, mothers who used a combination of coping mechanisms, coped better than mothers who relied on only one coping mechanism.

The influence of emotion-focused coping and problem-focused coping on maternal wellbeing of mothers

It was hypothesised in the current study that mothers who use problem-focused coping mechanisms will report higher level of maternal wellbeing.

The result showed that, there was no significant change between the two groups (mothers with high maternal wellbeing and mothers with low maternal wellbeing) in their use of problem-focused coping.

Shaw, Bernard, Wren, Storfer-Isser, Rhine and Horwitz (2013) in their study which focused on parental coping strategies used while in the environment of the neonatal intensive care unit discovered that individuals, who had been given more empowerment training, used problem-focused strategies more often than emotion-focused coping. This is consistent with a study by Karbandi, Momennizadeh, Heidarzadeh, Mazlom, Hassanzadeh and Zeraati (2018) showed that, preterm mothers increased the use of problem-focused coping to empower themselves. Findings hence revealed that problem-focused strategies were commonly associated with having better mental health. Another study conducted by Momennizadeh, Zeraati, Shahinfar and Ghorbanzadeh (2017) on how preterm mothers whose babies have been hospitalised in the Neonatal Intensive care unit, coped with stress, highlighted the benefits of emotion-focused coping. They found out that the use of emotion-focused coping for the mothers was very important. These preterm mothers specifically used religion, psychological support and acceptance.

In totality, the use of problem-focused coping contributed to more positive psychological health outcomes than the use of emotion-focused coping. A study by Chang et al. (2007) hypothesised a connection between problem-focused coping and better health and for emotion-focused coping, an association with poor health and frequent workplace stress was associated with poor health. The study population consisted of 328 Australian and New Zealand nurses focusing on their workplace stress, coping and physical health

status. The study results showed that emotion-focused coping was associated with poor mental health. While problem-focused coping on the other hand was associated with positive mental health. (Chang et al., 2007; Myaskovsky Dew, Switzer, McNulty, DiMartini, & McCurry, 2005; Barbosa, Figueiredo, Sousa & Demain, 2011).

A study conducted by Cheon (2012) on the topic psychological wellbeing of mothers with preterm infants aimed at examining the influence of maternal stress and coping strategies on the maternal psychological wellbeing of preterm mothers the NICU from the period of admission to two weeks post birth was in congruence with our current study's findings.

The result of the study indicated that, mothers of preterm babies increased their use of emotion-focused coping strategies at admission and began to use more problem-focused coping strategies upon reaching 2 weeks of birth. Infant characteristics like infant morbidity score, gestational age, hospital discharge and maternal characteristics like their language, race and or ethnicity, educational level, income, marital status, pregnancy complications employment status and 2 weeks of breastfeeding were found to be the predictors of maternal psychological wellbeing. This indicates that the usage of both problem-focused coping and emotion-focused coping were both beneficial to mothers at different stages of admission and as such that the search to find out if mothers who use problem-focused coping mechanisms are will report higher level of maternal wellbeing compared to mothers who use emotion-focused coping mechanism did not highlight much of a difference.

The Transactional Model of Stress and Coping states that at the different stages of caregiving, various coping strategies are used (Nolan, Grant

& Keady, 1996) and Folkman and Lazarus (1980) also suggest that the best stress-management strategy is probably an amalgamation of both problem-focused and emotion-focused coping. Nevertheless, irrespective of the coping mechanism that is chosen, an event outcome occurs that is either favourable, unfavourable or it is unresolved. Event outcomes would therefore lead to either positive or negative emotional responses.

The qualitative findings further indicated that most of the mothers used a blend or combination of emotion-focused and problem-focused coping mechanism and these were identified as prayer, education and social support.

The influence of components of the parental stress scale on psychological distress

It was found in this study that, parental stress had a significant influence on psychological distress. The hypothesis stated that the frail appearance of infant in incubators in NICU and sight and sounds would significantly predict psychological distress of preterm mothers. Parental stress was found to partially predict psychological distress among mothers with preterm infants with neither sight and sound nor appearance of infant in the unit predicting psychological distress. Therefore, the hypothesis that the frail appearance of infant in incubators in NICU and sight and sounds would significantly predict psychological distress of preterm mothers could not be supported. Results however indicated that, the interaction between parental role and especially staff behaviour was moderately significant in predicting psychological distress.

A study by Shaw, Deblois, Ikuta, Ginzburg, Fleisher and Koopman (2009) using quantitative approach with a sample size of forty parents

(mothers and fathers) to find out if there is severe stress disorder on parents whose infants were in the neonatal intensive care unit. Respondents included 24 couples, mothers only 13 and 3 fathers. The respondents were administered self-report questionnaires 2 to 4 weeks after their infants were admitted in the neonatal intensive care nursery. The Stanford Acute Stress Reaction Questionnaire was used to assess for acute stress disorder. Additionally, the Neonatal Index of Parental Satisfaction was used to assess parent's contentment with the medical care that their infants received in the neonatal intensive care nursery. The Family Environment Scale measured the respondents' perceptions about their present family environment and lastly, the Weinberger Adjustment Inventory measured denial of distress, restraint as well as repressive defensiveness.

The results of the study by Shaw indicated that, 28% of parents met all indicators used to diagnose Acute Stress Reaction from the stress in having an infant hospitalised in the Neonatal Intensive Care Unit and also, 44% of mothers were classified as having met the symptom criteria for Acute Stress Reaction.

Additionally, severity of Acute Stress Reaction was neither linked with the parents' sociodemographic features nor their assessments of the babies' medical condition. The parental stressor scale showed that greater Acute Stress Reaction symptom severity had a strong relationship with concerns with regards to parental role alterations and a moderate relationship with stress relating to the infant behaviour and appearance and sights and sounds of the NICU. Alkozei, McMahon and Lahav (2014) additionally, found parental role alteration to also predict depression among mothers with preterm infants. This

could be as a result of the environment equipped with lights, monitors and also the continue sounds of the unit which is new to the mothers, these devices and the sounds could exacerbate the stress level leading to depression.

Similarly, Miles, Holditch-Davis, Schwartz and Scher (2007) in their study aimed at describing the level of depressive symptoms among preterm mothers and also examined factors associated with depressive symptoms and Woodward, Bora, Clark and Montgomery-Honger (2014) in their study with mothers of very preterm babies wanted to find out about the mothers' experiences in the neonatal intensive care environment. The study by Miles et al (2007) revealed parental role alteration to be stressful and also the greatest predictor of depression. The study by Woodward et al (2014) also found parental role alteration most stressful Ratings of staff behaviour and communication, was significantly related to severity of psychological distress. This is in line with findings by Holditch-Davis (2011) that professional support from NICU staff perceived to be satisfactory, promotes better maternal psychological wellbeing but in contrast to study by Woodward, Bora, Clark and Montgomery-Honger (2014) where findings showed that staff communications was the least stressful.

These findings were in tandem with the Parental Neonatal Intensive Care Unit stress model which holds that, environmental factors impact psychological distress, mothers whose infants are in NICU are likely to be psychologically affected by factors in the NICU environment, poor behaviour of healthcare practitioners, the frail appearances of their babies and parental role alteration (parent-infant relationship). Two of these factors were proven.

The parent-infant relationship as well as the staff behaviour affected the mothers' psychological wellbeing.

Relationship between psychological distress and maternal wellbeing

Again, it was speculated that there would be a significant negative relationship between the mother's psychological distress and maternal wellbeing. This hypothesis sought to establish a significant negative relationship between psychological distress and maternal wellbeing, there was a significant negative relationship between psychological distress and maternal wellbeing. This is in line with findings by Herman and Tetrick, (2009) that conversely psychological wellbeing is impaired in people with psychological distress.

It was found that psychological distress strongly predicted psychological wellbeing in a study by Treharne, Lyons, Booth and Kitas, (2008). This finding is in congruence with findings by Woodward, Bora, Clark and Montgomery-Honger (2014) who tried to find out the maternal experiences of mothers of very preterm births in the neonatal intensive care environment their findings showed that the preterm mothers tend to experience rather severe psychological distress than mothers who have given birth to healthy full term babies.

This is in line with the Biopsychosocial model suggested by Engel that, every disease has a multi-dimensional aetiology and that in treating it the biological, psychological and social (spiritual) aspects must be addressed (Engel, 1977). This theory seeks to explain diseases or health as integration of biological, psychological and social (spiritual) factors. Hence, it was found that psychological distress influence maternal wellbeing (emotional,

psychological and social wellbeing). Similar findings were reported in the study by Treharne et al (2008) that psychological distress strongly predicted psychological wellbeing.

Relationship between post-traumatic stress reaction and psychological distress

Hypothesis four which hypothesized a significant positive relationship between post-traumatic stress reaction and psychological distress showed that indeed, a significant positive relationship existed between post-traumatic stress reaction and psychological distress. This indicates that the higher the level of post-traumatic stress reaction, the higher psychological distress.

Similarly, Shaw, Bernard, Deblois, Ikuta, Ginzburg and Koopman (2009) in their study to find out the incidence of post-traumatic stress disorder in parents, four months after the birth of their preterm or sick infants and the relationship of post-traumatic-stress and indicators of acute stress disorder immediately after the birth of infants, found a significant relationship between post-traumatic-stress symptoms and of acute stress disorder symptoms. Maternal stress that goes untreated is associated with psychological disorders, like acute stress disorder, anxiety, post-traumatic stress disorder and depression (Miles, Holditch-Davis, Schwartz & Scher, 2007; Shaw, Bernard, Deblois, Ikuta, Ginzburg & Koopman, 2009)

Relationship between post-traumatic stress reaction and maternal wellbeing

Again, hypothesis five stated a significant negative relationship between post-traumatic stress reaction and maternal wellbeing. The results showed a negative relationship between post-traumatic stress reaction and

maternal wellbeing. This shows that as the level of post-traumatic stress reaction goes higher, the lower one's maternal wellbeing. Here, quantitatively, maternal wellbeing was the totality of psychological, emotional and social wellbeing and from the qualitative results; the themes physical wellbeing and psychological wellbeing were generated.

Some of the participants expressed their concerns in taking care of their preterm babies and how this was very stressful for them. Their emotions, thoughts and behaviours which constitute a person's psychological state were affected. Many respondents expressed frequent sadness and loss of interest in even carrying out their basic motherhood roles. They said they always felt tired and helpless and would easily become upset with trivial things.

As stated in the study conducted by Treharne, Lyons, Booth and Kitas (2008), psychological distress strongly predicted psychological wellbeing. Psychological wellbeing is a component of maternal wellbeing and post-traumatic stress reaction is a component of psychological distress. Hence, there was a possibility of a negative correlation between post-traumatic stress reaction and maternal wellbeing, as there was a negative correlation between psychological distress and maternal wellbeing as well.

These results were in agreement with Pierrehumbert, Nicole, Muller-Nix, Forcada-Guex and Ansermet (2003) whose study tried to find out about parental post-traumatic reactions after giving birth to a premature baby and its implications on the sleeping and eating problems the infants may face. The study by Pierrehumbert et al. (2003) revealed an effect of maternal post-traumatic reactions on the infants' sleeping problems. There was also a relatively strong, linear relationship between the infants' problems and

maternal posttraumatic reactions of the mother. Interview content was clinically examined and it was found that parents were eager to forget everything about the experience. However, it was found that, parents who expressed traumatic memories of their baby's birth, whether the problems were real or exaggerated, seemed to be far more anxious about their baby's wellbeing than other parents, when it especially comes to issues pertaining to their biological rhythms such as sleeping and eating. When the preterm baby has sleeping and eating problems, it can affect the parents' own wellbeing.

Again, in a study by Forcada-Guex, Borghini, Pierrehumbert, Ansermet and Muller-Nix (2011) to find out the consequences of prematurity and maternal posttraumatic stress on the mother-infant relationship, it appeared that there was a high correlation with the anxious-depressive state and the traumatic reaction of the mothers at every stage of assessment. This result is similar to findings from several studies, indicating that possible parents' post-traumatic stress disorder was linked to persistent doubt, disruptions in their meaning systems and parental role alterations (Liotti, 2004). This ultimately has to do with the maternal wellbeing of the mother. Results also showed that the mother-infant relationship at 12 months correlates with the anxious and depressive state that the mother goes through 6 months after birth and also, 12 months after birth.

Relating the findings from this study to the Biopsychosocial model which talks about holistic care of the preterm mother, it is important to note that post-traumatic reactions can take place after the birth of the preterm baby and in this study, post-traumatic stress reaction negatively affected maternal wellbeing. Supportive care and psychological assistance may be necessary in

order to prevent post-traumatic reactions from affecting the overall maternal wellbeing of the preterm mother this encompasses, physical, psychological and social (spiritual) care and as such good coping mechanisms which the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) emphasises to promote holistic and optimum wellbeing.

The influence of demographic variables on psychological distress

It was hypothesised in the current study that, demographics (age of mother, days in NICU, marital status) would moderate the relationship between psychological distress and maternal wellbeing. The hypothesis was not supported by the data. The results indicated that, demographics (age of mother, days in NICU, marital status) did not have any influence on the relationship between psychological distress and maternal wellbeing. At most, that the mothers in the NICU know the situational factors. That is, the prematurity of the infants and also what the babies are experiencing in the environment. The mothers age was hypothesised that the higher it is, the higher risk of preterm birth or not but that was not proven. Also the stay of babies in NICU for few or longer days could not show whether mother would be distressed or not. Their distress according to the findings stems from the situational and physical environment not from personal characteristics.

This finding is consistent with the findings by Alkozei, et al. (2014) which indicated that, age of mother, gestational age of infants and number of days spent in NICU by the mothers were not significantly correlated with psychological distress (depression and anxiety) of mothers. Similarly, Holditch-Davis, Hudson, Levy and White-Traut (2015) in their study aimed at estimating the patterns of psychological distress among preterm mothers in a

multi-ethnic sample of mothers of preterm infant spanning the first year of the baby's life at 2 months, 6 months, and 12 months of age of prematurity. Findings also showed that there was no difference in psychological distress statistically as a result of age, marital status and first time motherhood (Holditch-Davis, Hudson, Levy & White-Traut, 2015).

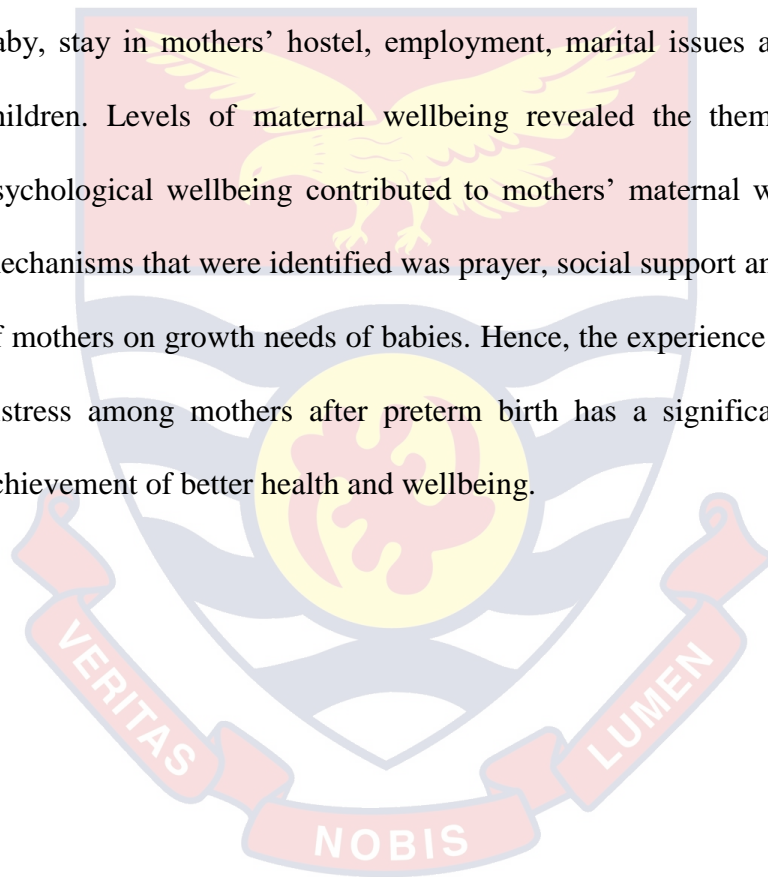
The findings from this study, proves the parental NICU stress model which explains that, the environment of the infant would influence mothers' psychological distress and that mothers in NICU are bound to be psychologically affected by factors such as high temperature, communication problems and bad attitudes of healthcare practitioners, overcrowding of NICU, travelling to and from home to NICU, physical wellness after the delivery of their baby, poor social support system, financial problems, marital status of mother, low birth weight of newborns and many more factors.

Chapter Summary

This chapter reported the findings of impact of the psychological distress of having a preterm neonate and explored the coping mechanisms mothers used and its effect on maternal wellbeing of preterm mothers. Emotion-focused and problem-focused coping did not point to any significant difference when compared to levels of maternal wellbeing. The frail appearance of infant in incubators in NICU and the sight and sounds did not significantly predict psychological distress of preterm mothers, however, parental role alteration and staff behaviour and communication predicted psychological distress. There was a weak negative relationship between mother's psychological distress and maternal wellbeing and also between post-traumatic stress reaction and maternal wellbeing. There was also a

significant positive relationship between post-traumatic stress reaction and psychological distress. Demographics (age of mother, days in NICU, marital status) could not moderate the relationship between psychological distress and maternal wellbeing.

For the qualitative aspect of this study, Interpretative Phenomenological Analysis was used to analyse the data. Challenges that were identified were financial constraints of respondents, fluctuating weight of baby, stay in mothers' hostel, employment, marital issues and care of other children. Levels of maternal wellbeing revealed the themes physical and psychological wellbeing contributed to mothers' maternal wellbeing, coping mechanisms that were identified was prayer, social support and then education of mothers on growth needs of babies. Hence, the experience of psychological distress among mothers after preterm birth has a significant effect on the achievement of better health and wellbeing.



CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Introduction

This chapter provides a detailed summary of the key findings of the study as well as the conclusion and recommendation. The chapter also focuses on suggestions for further research. The recommendations are based on the key findings and the major conclusions drawn from the current study.

Summary of the Study

The study examined impact of psychological distress and coping mechanisms on the maternal wellbeing of mothers with preterm babies. One hundred (100) participants from the Tema General Hospital, Police Hospital and SSNIT (Trust) Hospital were used in this study. They comprised preterm mothers staying in the hostels and visiting the hospital on out-patient basis. The study was conducted after receiving ethical clearance from UCCIRB formal permission granted by the Hospitals in the form of an introductory letter, an ethical clearance and a supervisor's note. The Tema General Hospital, Trust Hospital and the Police Hospital granted permission to the researcher to conduct the study in their facilities. The research design used was a sequential explanatory mixed study design and the instruments for the quantitative section were the Kessler 10, the Impact of Event Scale, Brief COPE, Parental Stressor Scale and the Mental Health Continuum Scale Short Form. With regards to the qualitative aspects Interpretative Phenomenological Analysis was used to analyse the qualitative data. Levels of maternal

wellbeing revealed the themes physical and psychological wellbeing, The Biopsychosocial Theory, The Transactional Model of Stress and Coping as well as the Parental NICU stress model are some of the theories used to explain some of the findings of the study. Information gathered in the local dialect was translated into the English language. The audio recordings of interviews were played along while going through the transcribed data of the interviews to correct any inconsistency in data. Field notes and transcribed data were then read repeatedly to check for homogeneity and resolve any discrepancies that may have been present. The analysis of the qualitative data helped the researcher to identify the emerging themes and supported them with quotations as illustrated by the participants.

Key findings

With regard to research hypothesis one, the result showed that, no significant difference existed between the two groups (preterm mothers with high maternal wellbeing and preterm mothers with low maternal wellbeing) in their use of problem-focused coping. This result through further findings qualitatively proved that preterm mothers used a combination of emotion-focused coping and problem-focused coping when they were psychologically distressed.

Relating to research hypothesis two, the study indicates that the frail appearance of infant in incubators in NICU and sight and sounds did not significantly predict psychological distress of preterm mothers. However, results showed that the interaction between parental role and especially staff behaviour which are also components of the Parental Stressor Scale was moderately significant in predicting psychological distress. This showed that

parental NICU stress had an influence on psychological distress of preterm mothers.

With reference to research hypothesis three, a negative relationship existed between psychological distress and maternal wellbeing. However, this negative relationship was a weak one.

The Hypothesis four revealed a significantly positive relationship between post-traumatic stress reaction and psychological distress. This points to the fact that the higher the level of post-traumatic stress reaction in a preterm mother, the higher her psychological distress.

The fifth hypothesis stated that there was a negative relationship between post-traumatic stress reaction and maternal wellbeing. This revealed that an increase in the level of post-traumatic stress reaction, led to lower level of maternal wellbeing.

The results for the sixth hypothesis detailed that, demographics (age of mother, days in NICU, marital status) did not have any influence on the relationship between psychological distress and maternal wellbeing.

The first research question sought to determine the major challenges that preterm mothers experienced right after delivery. The results revealed that these were financial constraints of respondents, fluctuating weight of baby, and stay in mothers' hostel, employment marital satisfaction and care of other children.

The second research question aimed at finding out the maternal wellbeing of women who experience premature birth. It was brought to fore that with regards to preterm mothers' wellbeing, all the mothers experienced some form of psychological challenges after delivery and during care of their

preterm babies. They feared losing their babies and as a result, became anxious coupled with deprivation of their sleep due to night feeding of the babies. Physical wellbeing was optimum with daily functioning among most of the mothers.

The third research question revealed that, on the coping mothers the preterm mothers used, a combination of problem-focused coping strategies and emotion-focused coping strategies these were praying, social support as well as education on baby's needs.

Conclusion

This study proves consistent with findings and adds to the discovery of other researches. Post-traumatic stress reaction affects Psychological Distress. Psychological distress is affected by the challenges that preterm mothers go through which in turn determines what coping mechanisms that preterm mothers would employ ultimately influence maternal wellbeing.

In addition, new findings indicate that parental role alteration and staff behaviour and communication predicted psychological distress. Also, psychological distress correlated negatively with all domains of wellbeing, Emotional, Social and Psychological. This study revealed that preterm mothers in the Accra metropolis are at risk of developing psychological distress. There is therefore the need for intensive efforts to be made to channel resources to improve upon maternal and child health care in the country.

Recommendations

Based on the findings of the study and preceding conclusions, the following are recommended

The study found out that, the NICU environment was a predictor in both depression and anxiety (psychological distress). It is recommended that, psychological services should be directly made available for the parents. Clinical psychologists could be attached to the work force at the NICU to provide immediate and supportive therapy and counselling. Again stress management is also needed for the mothers to help reduce the level of distress.

The study also recommends the necessity for preterm mothers to see a psychologist as they come for postnatal clinics or NICU clinic. In Police Hospital, there is a system where new born mothers come in to see the matron or the doctor for their own health care (preterm mothers), and it is imperative that as one's physical wellbeing is being attended to the psychological health also needs to be attended to as well so as to help detect and diagnose psychological distress, as early as possible in mothers. Stakeholders in their respective health care departments must provide pregnant and newly delivered mothers the encouragement and opportunity to talk in-depth about their feelings and experiences, including stressful life events. Referrals must be made to Clinical Health Psychologists where necessary for additional assessment of mother's psychological states and psychotherapy. For some hospitals, there was no clinical psychologist, it is necessary to attach Clinical Health Psychologists to such facilities to help make referrals where needed.

There is the need for a mother support group to be formed in every hospital where mothers with similar concerns can deliberate on issue and share ideas to enable them cope with the challenges associated with care of preterm babies at home. As a matter of importance, support groups should be organized in the hospital and mothers should be encouraged to join. In this

study, support from other mothers during the period mothers were in the hostel further proves that support groups are very essential

Suggestions for Further Research

This study has contributed to understanding the role of coping styles and psychological distress on the maternal wellbeing health in Ghanaian preterm mothers. However, there is still the need for further research to expand on the existing knowledge about the variables studied.

A longitudinal study should be conducted among preterm mothers to examine the role of coping styles and psychological distress on maternal wellbeing. A larger study sample will be much appreciated.

This current study ought to be replicated in other regions of Ghana, preferably remote areas to determine if results are consistent with that of urban areas.

Future studies should also concentrate on investigating the experiences of parents (fathers and mothers) of preterm babies in the intensive care unit and at home. This is invaluable data which needs to be studied qualitatively, since this area of study has been scarcely researched into.

It is also important to note that some mothers had forgotten some of the experiences they had, especially those whose babies were about 5 months old. One limitation of the study by Garel, Dardenness and Blondel (2006) with preterm mothers was that, the inclusion criterion of the study was one year after delivery of preterm babies which was too long as some mothers had forgotten some of the experiences. Hence, future studies should use mothers whose infants are from about 1 week to 3 months old.

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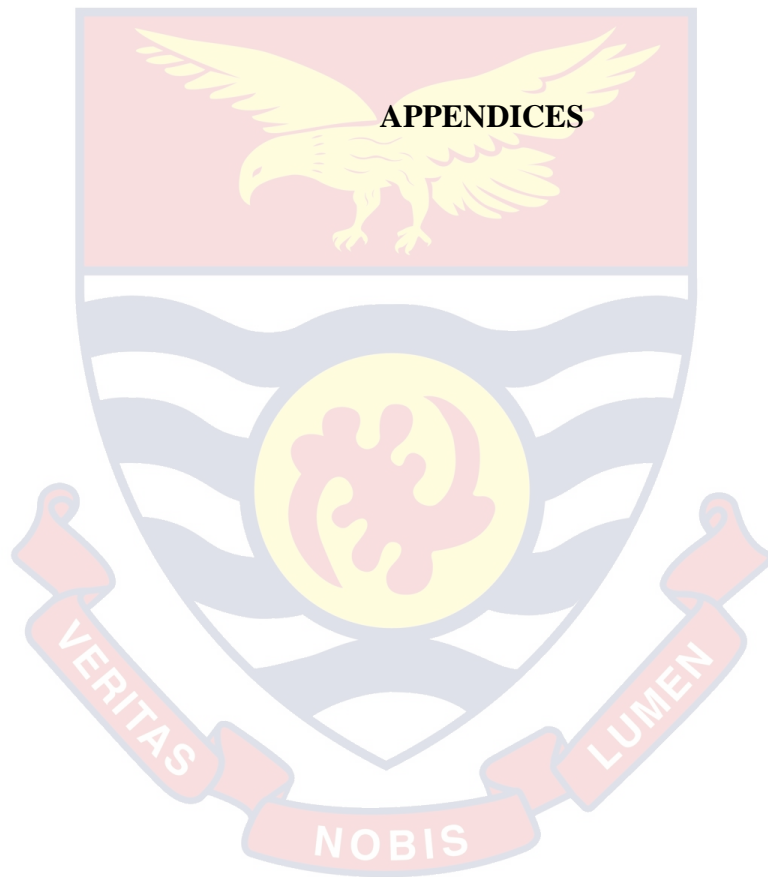
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APPENDIX A

INFORMED CONSENT

UNIVERSITY OF CAPE COAST

DEPARTMENT OF PSYCHOLOGY AND EDUCATION

Title: Effect of Psychological Distress and Coping Mechanisms on Maternal Wellbeing of Preterm Mothers in the Accra and Tema Metropolis of Ghana.

Principal Investigator: Akpene Ocloo

Address: Department of Psychology and Education, College of Education Studies, University of Cape Coast, Cape Coast.

Email: oclooadzo@gmail.com

Contact: 0551472699/0501191983

General Information about the Research

The main purpose of this study is to gain insight into the psychological distress in having a preterm baby and to explore the coping mechanisms preterm mothers use and its effect on maternal wellbeing of preterm mothers. The study will concentrate on preterm mothers accessing postnatal care at the Tema General Hospital, Police Hospital, and SSNIT Hospital in the Greater Accra region of Ghana. The Impact of Events Scale- IES-r Weiss (2007), The Kessler Psychological Distress Scale (K10) Kessler et al. (2003), Brief COPE (PTLDS) (Carver, 1997), Parental Stressor Scale: Neonatal Intensive Care Unit (PSS: NICU; Miles, Funk, & Carlson, 1993) and the Mental Health Continuum Short Form (MHC-SF) Keyes (2005) will be used to examine the psychological distress and coping mechanisms on the maternal wellbeing of mothers with preterm babies. You were selected as a possible participant in this study because, I am interested in knowing the state of your wellbeing after the

birth of your child, preterm. This will help health professionals in managing postnatal preterm women make informed decision towards maximizing your general wellbeing.

Study Procedures

I will first invite to take part in the study. If you agree to participate in this research study, you will be required to complete some questionnaires which will be supervised by Miss Akpene Ocloo. Translation of questions into local languages of participants will be provided as well for participants who may not be able to communicate in English. On the occasion that you rate high on psychological distress, a follow-up in-depth interview with mothers who ranked high on will be conducted and hence with your permission, a digital voice recorder will be used to record all interviews and notes will be written during the interview. This interview will be done in one sitting per person.

Risks

During your participation, the discomforts and harm or dangers to you are no greater than those you experience in your day to day interactions with others. None of the questions are meant to make you feel uncomfortable. Due to individual differences, on the occasion you feel uncomfortable, embarrassed and/or inconvenienced, it is deeply regretted and you are free to leave the interview at any time if you want to as a result.

Benefits of Participation

All participants will be refreshed after the exercise. The anticipated benefit of your participation in this study is that it will help improve upon the antenatal and postnatal care services provided in Hospitals in Ghana, by equipping

healthcare providers with more knowledge on psychological issues that affect women during pregnancy and after a preterm birth.

Confidentiality

The records from this study will be kept as confidential by law. No individual identities will be used in any reports or publications resulting from the study. All questionnaires, interviews and tapes will be given codes and stored separately from any names or other direct identification of participants. Your initials will appear only on this consent form. Research information will be kept in locked files at all times. Only researcher will have access to the files and interviews no one will have access to the information without your consent.

Voluntary Participation and Right to Leave the Research

Your decision to participate in this study is voluntary. You may choose not to take part at all. If you choose to participate in this study, you can withdraw your consent and discontinue participation at any time without prejudice.

Leaving the study will not result in any penalty or loss of any benefits you would otherwise receive.

Termination of Participation by the Researcher

The researcher may take you out of this study if she believes that you are upset in some way due to your participation in completing the study survey.

Contacts for Additional Information

Contact the principal investigator, Miss Akpene Ocloo (055-147-2699) or by mail oclooadzo@gmail.com if you have any enquires.

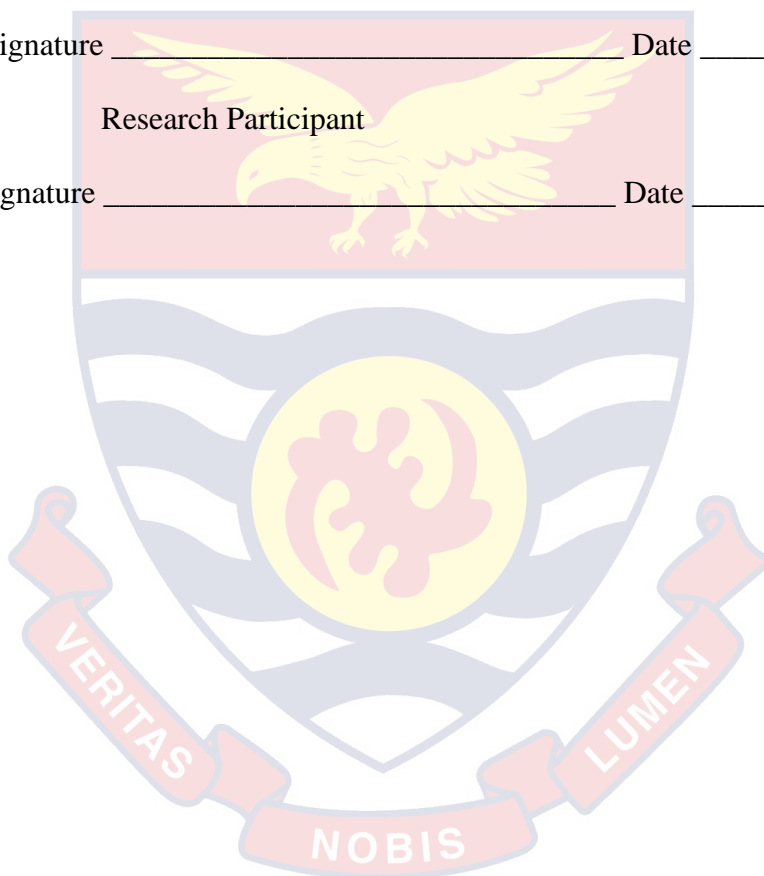
CONSENT

The above document describing the benefits, risks and procedures for the research “effect of Psychological Distress and Coping Mechanisms on Maternal Wellbeing of Preterm Mothers in the Accra and Tema Metropolis of Ghana” has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

Signature _____ Date _____

Research Participant

Signature _____ Date _____



APPENDIX B
QUESTIONNAIRE

UNIVERSITY OF CAPE COAST

The purpose of this questionnaire is to help the researcher analyze the effect of Psychological Distress and Coping Mechanisms on Maternal Wellbeing of Preterm Mothers in the Accra and Tema Metropolis of Ghana. It is a purely academic work. The information you therefore provide would be treated with maximum confidentiality. Please offer your cooperation for the success of this study

SECTION A

DEMOGRAPHIC INFORMATION

1. Age: a. 15-23 [] b. 24-32 [] c. 33-42 []
2. Marital status: a. Single b. Married c. Divorced d. Widowed e. cohabiting
3. Religion: a. Christian b. Muslim c. Other
4. Educational level: a. Primary b. Secondary d. Vocational g. Tertiary h. No formal education
5. Occupation: a. Self-employed b. Private sector c. Government worker d. Unemployed
7. Birth Delivery Method: a. Vagina b. Caesarian
8. Gestational age of baby:
 - a. Extreme (< 28 weeks)
 - b. Very preterm (28 – < 32 weeks)
 - c. moderate preterm (32 – <37 weeks).
9. Birth weight: a. Very low birth weight (≤ 1.5 kg) b. Low birth weight (1.6-2.4kg)
10. Is this your first child a. Yes b. No
11. Days in NICU

- a. Less than a week
- b. Less than 2 weeks
- c. 2 weeks or more
- d. More than 4 weeks

IMPACT OF EVENTS SCALE-Revised (IES-R)

INSTRUCTIONS: Please read each item, and then indicate how distressing each difficulty has been for you DURING THE PAST SEVEN DAYS with respect to giving birth to a preterm child. How much have you been distressed or bothered by these difficulties?

	Not at all (0)	A little bit (1)	Moderate (2)	Quite a bit (3)	Extreme (4)
1. Any reminder brought back feelings about it					
2. I had trouble staying asleep					
3. Other things kept making me think about it.					
4. I felt irritable and angry					
5. I avoided letting myself get upset when I thought about it or was reminded of it					
6. I thought about it when I didn't mean to					
7. I felt as if it hadn't happened or wasn't real					
8. I stayed away from reminders					

about it					
9. Pictures about it popped into my mind					
10. I was jumpy and easily startled					
11. I tried not to think about it					
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them					
13. My feelings about it were kind of numb					
14. I found myself acting or feeling like I was back at that time					
15. I had trouble falling asleep					
16. I had waves of strong feelings about it					
17. I tried to remove it from my memory					
18. I had trouble concentrating					
19. Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart.					
20. I had dreams about it					
21. I felt watchful and on guard					
22. I tried not to talk about it					

Kessler Psychological Distress Scale (K10)

These questions concern how you have been feeling over the past 30 days.

Tick a box below each question that best represents how you have been.

In the past 4 weeks.....

Please tick the answer that is correct for you:	All of the time	Most of the time	Some of the time	A little of the time	None of the time
1. How often did you feel tired out for no good reason?					
2. About how often did you feel nervous?					
3. About how often did you feel so nervous that nothing could calm you down?					
4. About how often did you feel hopeless?					
5. About how often did you feel restless or fidgety?					
6. About how often did you feel so restless you could not sit still?					
7. About how often did you feel depressed?					
8. About how often did you feel that everything was an effort?					
9. About how often did you feel so sad that nothing could cheer you up?					
10. About how often did you feel worthless?					

Brief COPE

These items deal with *ways you've been coping with stress in your life, or with your overall health in the past several months.*

Pick the answer that is true for you	I haven't been doing this at all (1)	I've been doing this a little bit (2)	I've been doing this a medium amount (3)	I've been doing this a lot (4)
1. I've been turning to work or other activities to take my mind off things				
2. I've been concentrating my efforts on doing something about the situation I'm in				
3. I've been saying to myself "this isn't real."				
4. I've been using alcohol or other drugs to make myself feel better				
5. I've been getting emotional support from others				
6. I've been giving up trying to deal with it.				
7. I've been taking action to try to make the situation better.				
8. I've been refusing to believe that it has happened.				
9. I've been saying things to let my unpleasant feelings escape.				
10. I've been getting help and advice from other people.				
11. I've been using alcohol or other drugs to help me get through it.				

12. I've been trying to see it in a different light, to make it seem more positive.				
13. I've been criticizing myself				
14. I've been trying to come up with a strategy about what to do.				
15. I've been getting comfort and understanding from someone.				
16. I've been giving up the attempt to cope				
17. I've been looking for something good in what is happening				
18. I've been making jokes about it				
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.				
20. I've been accepting the reality of the fact that it has happened.				
21. I've been expressing my negative feelings.				
22. I've been trying to find comfort in my religion or spiritual beliefs.				
23. I've been trying to get advice or help from other people about what to do.				
24. I've been learning to live with it.				
25. I've been thinking hard about what steps to take				
26. I've been blaming myself for things that happened.				
27. I've been praying or meditating.				
28. I've been making fun of the situation.				

PARENTAL STRESSOR SCALE

Mothers are to rate the overall stressfulness of the experience of having a baby in NICU.

Please tick as applicable to you	Not applicable (0)	Not at all stressful (1)	A little stressful (2)	Modera te stress (3)	Very stressf ul (4)	Extre me stress (5)
1. The sights and sounds of the unit						
(a) The presence of monitors and equipment						
(b) The constant noise of monitors and alarms						
(c) The sudden noise of monitors and alarms						
(d) The other sick babies in the room						
(e) The large number of people working in the unit						
(f) Having a machine breathe for my baby						
2. Appearance and behaviour of infant						
(a) Tubes and equipment on or near my baby						
(b) Bruises, cuts or incisions on my baby						
(c) The unusual colour of my baby						
(d) My baby's unusual or abnormal breathing pattern						
(e) The small size of my						

baby						
(f) The wrinkled appearance of my baby						
(g) Seeing needles and tubes put in my baby						
(h) My baby being fed by an intravenous drip						
(i) When my baby looked to be in pain						
(j) When my baby looked sad						
(k) The limp and weak appearance of my baby						
(l) Jerky or restless movements of my baby						
m) My baby not being able to cry like other babies						
3. Relationship with infant and parental role						
(a) Being separated from my baby						
(b) Not feeding my baby myself						
(c) Not being able to care for my baby myself						
(d) Not being able to hold my baby when I want						
(e) Feeling helpless and unable to protect my baby from pain						
(f) Feeling helpless about						

how to help my baby during this time						
(g) Not being able to be alone with my baby						
4. Staff behaviour and communication						
(a) Staff explaining things too fast						
(b) Staff using words I don't understand						
(c) Telling me different (conflicting) things about my baby's condition						
(d) Not telling me enough about tests and treatments being done to my baby						
(e) Not talking to me enough						
(f) Too many different people talking to me						
(g) Difficulty in getting information or help when I visit or telephone						
(h) Not feeling sure that I will be called about changes in my baby's condition						
(i) Staff looking worried about my baby						
(j) Staff acting as if they didn't want parent around						
(k) Staff acting as if they did not understand my baby's behaviour or special needs						

MENTAL HEALTH CONTINUUM SHORT FORM (MHC-SF)

Please answer the following questions are about how you have been feeling during the past month. Place a check mark in the box that best represents how often you have experienced or felt the following:

During the past month, how often did you feel ...	Never	Once Or Twice	About Once A Week	About 2 Or 3 Times A Week	Almost Every Day	Every Day
1. happy						
2. interested in life						
3. satisfied with life						
4. that you had something important to contribute to society						
5. that you belonged to a community (like a social group, or your neighborhood)						
6. that our society is a good place, or is becoming a better place, for all people						
7. that people are basically good						

8. that the way our society works makes sense to you						
9. that you liked most parts of your personality						
10. good at managing the responsibilities of your daily life						
11. that you had warm and trusting relationships with others						
12. that you had experiences that challenged you to grow and become a better person						
13. confident to think or express your own ideas and opinions						
14. that your life has a sense of direction or meaning to it						

APPENDIX C

INTERVIEW GUIDE

SEMI-STRUCTURED INTERVIEW GUIDE

Section A: Challenges of preterm mothers

1. Can you share with me some of the problems you faced in caring for your baby in relation to;

- Cost of Hospital visiting and admission?
- Caring for the baby
- Changes in work and level of work productivity? (Lost employment, reduce working hours, loss of opportunity to progress).
- Help with housework?
- Perception of family and friends? (husband, friends, in laws)
- Caring for your other children, if any?



Section B: Maternal wellbeing of mothers

2. Have you experienced any changes in your health status?

- Anxiety, grief, worry, and stress after the birth?
- Physical changes in health? (tiredness, pains, increase in blood pressure)

Section C: Coping mechanisms of preterm mothers


1. What coping mechanisms do you employ to help overcome challenges faced with birth of your preterm/premature baby till date? (prayer, social support)

APPENDIX D

INTRODUCTORY LETTER

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF EDUCATIONAL FOUNDATIONS
DEPARTMENT OF EDUCATION AND PSYCHOLOGY

Telephone: 233-3321-32440/4 & 32480/3
Direct: 033 20 91697
Fax: 03321-30184
Telex: 2552, UCC, GH.
Telegram & Cable: University, Cape Coast
Email: edufound@ucc.edu.gh



UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref: _____
Your Ref: _____

20th March, 2019

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

**THESIS WORK
LETTER OF INTRODUCTION
OCLOO AKPENE**

We introduce to you Ms. Ocloo Akpene, a student from the University of Cape Coast, Department of Education and Psychology. She is pursuing Master of Philosophy degree in Clinical Health Psychology and is currently at the thesis stage.


Ms. Ocloo Akpene is researching on the topic:

“Effect of psychological distress and coping mechanisms on maternal well-being of mothers with preterm babies”.

She has opted to collect data at your institution/establishment for the Thesis work. We would be most grateful if you could provide her the opportunity for the study. Any information provided would be treated as strictly confidential.

Thank you.

Yours faithfully,


Gloria Sagoe
Chief Administrative Assistant
For: HEAD

APPENDIX E

UNIVERSITY OF CAPE COAST ETHICAL CLEARANCE

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
ETHICAL REVIEW BOARD

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref: CES/ERB/UCC.edu/13/19-21



Date: March 4, 2019

Your Ref:

Dear Sir/Madam,

ETHICAL REQUIREMENTS CLEARANCE FOR RESEARCH STUDY

Chairman, CES-ERB
Prof. J. A. Omotosho
jomotosho@ucc.edu.gh
0243784739

Vice-Chairman, CES-ERB
Prof. K. Edjah
kedjah@ucc.edu.gh
0244742357

Secretary, CES-ERB
Prof. Linda Dzama Forde
lforde@ucc.edu.gh
0244786680

The bearer, Akpene Ocloo....., Reg. No. EF/CHP/17/0002 is an M.Phil. / ~~Ph.D.~~ student in the Department of Education and Psychology..... in the College of Education Studies, University of Cape Coast, Cape Coast, Ghana. ~~He~~/ She wishes to undertake a research study on the topic:

Effect of psychological distress and coping mechanisms on the maternal well-being of mothers with preterm babies......

The Ethical Review Board (ERB) of the College of Education Studies (CES) has assessed ~~his~~her proposal and confirm that the proposal satisfies the College's ethical requirements for the conduct of the study.

In view of the above, the researcher has been cleared and given approval to commence ~~his~~her study. The ERB would be grateful if you would give ~~him~~her the necessary assistance to facilitate the conduct of the said research.

Thank you.
Yours faithfully,

Prof. Linda Dzama Forde
(Secretary, CES-ERB)

APPENDIX F

TH (SSNIT) APPROVED LETTER

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF EDUCATIONAL FOUNDATIONS

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

Telephone: 233-3321-22440/4 & 32480/9
Direct: 033 20 91697
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Telex: 2552/UCC, GH.
Telegram & Cable: University, Cape Coast
Email: edu@ucc.edu.gh



UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref:

20th March, 2019

Your Ref:

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Thank you.

Yours faithfully,


Gloria Sagoe
Chief Administrative Assistant
For: HEAD

② Ag. Govt/meal.
pls, for ops after any dine times
[Signature]
17/04/19

③ Mr. Howson - Dr. Demiso
FTR comments.
[Signature]
4/4/19

④ HR
We can support student in her research.
[Signature]
02/04/19
0501191983

20 MAR 2019

APPENDIX G

TGH APPROVED LETTER

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF EDUCATIONAL FOUNDATIONS

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

Telephone: 233-3321-32440/4 & 32480/3
Direct: 033 20 91697
Fax: 03321-30184
Telex: 2552, UCC, GH.
Telegram & Cables: University, Cape Coast
Email: edufound@ucc.edu.gh



UNIVERSITY POST OFFICE
CAPE COAST, GHANA



10th March, 2019

Our Ref:

Your Ref:

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

THESIS WORK
LETTER OF INTRODUCTION
OCLOO AKPENE

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Thank you.

Yours faithfully,

Gloria Sagoe
Chief Administrative Assistant
For: HEAD

cc / Hrm. / Head P
Approved
Let student see me
For Approved
To Submit to
22/7/19
24/7/19

M'
FYI
O & G incharges
Kindly give her the
Jhale
Jane Aveler. for DNS O & G 24/7/19