

**THE EFFECTS OF COGNITIVE BEHAVIORAL THERAPY ON THE  
IMPROVEMENT OF THE HEALTH OF YOUTH MOTHERS WITH POSTPARTUM  
DEPRESSION AT THE UNIVERSITY TEACHING HOSPITAL OF LUSAKA, ZAMBIA**

**BY**

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**A Dissertation Submitted in Partial Fulfillment of the Requirement for the Degree of  
Master of Science in Clinical Neuropsychology**

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## DECLARATION

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**CERTIFICATE OF APPROVAL**

This dissertation of **Humphrey Mwenya Chungu** has been approved as fulfilling the requirements for the award of the Degree of Master of Science in Clinical Neuropsychology by The University of Zambia.

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## ABSTRACT

Postpartum Depression (PPD) is a major depressive episode during puerperium and affects 10% to 22% of mothers before the infant's first birthday. Increase in number of youthful mothers and the influence of PPD on the maternal health of mothers has not been fully explored. Treatment of PPD has concentrated on pharmacotherapy while undermining the effect of psychotherapy. This study examined the effect of cognitive behavioural therapy (CBT) on the improvement of health of youth mothers with PPD at the University Teaching Hospital, Lusaka. The main objective which guided the study was to evaluate the effect of CBT on the improvement of the health status of youth mothers with PPD, and to evaluate whether there was a significant difference in PPD levels between youth mothers on CBT and those not on CBT besides them being on pharmacological treatment. The study also investigated common symptoms and risk factors of PPD, and levels of awareness of CBT among mothers and professional staff.

The study was a randomised controlled trial among 64 youth mothers and 6 health professionals. Participants were purposively sampled and randomly put into two groups, 32 in the intervention (CBT) and 32 in the control (Non-CBT) groups. Both groups received pharmacotherapy while CBT was administered as additional therapy to the intervention group. Participants were interviewed using semi-structured interview guides for information on awareness. EPDS was administered to screen and assess mothers for PPD, which was used as a measure of the health status. Using ANOVA, results showed a statistically significant mean difference:  $F(1,51)=8.72$ ,  $p=0.004$ ) towards the intervention (CBT) group, on the improvement of health. Post-test reviewed a greater reduction difference in mean score for Intervention group than Control group, (that is 6.69 compared to 3.97). Among the specific symptoms, anxiety had the largest contribution:  $p=0.001$ , and thoughts of self-harm:  $p=0.03$ . Demographic variables had statistically insignificant influence except past history of depression:  $p=0.043$ . Health professionals were aware of simple counselling, but had limited knowledge and skills about CBT. Mothers showed insignificant awareness of CBT and other psychotherapeutic services. There is need for improved screening, treatment and sensitisation on PPD. CBT has effect on treatment of PPD and is safe compared to just norm treatment with drugs. Therefore, the study recommended CBT as an additional treatment therapy to the traditional treatment of drugs.

**Key words:** *Cognitive-Behavioural Therapy, Health, Postpartum Depression, Youth.*

## **DEDICATION**

To my son Nexus Mwape Chungu, you are my pride and joy. To my parents, dad Mr. Asford Mambwe Chungu and mum Mrs. Donnisse Mwape Chungu, I am blessed to have been raised by you. To my brothers and sisters, am humbled to be part of you.

Thank you and May the Good Lord continue blessing us.

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## ACRONYMS

<b>ADs</b>	Anti-Depressants.
<b>AT</b>	Art Therapy.
<b>BCBT</b>	Brief Cognitive Behavioral Therapy.
<b>CBT</b>	Cognitive Behavioral Therapy.
<b>CSO</b>	Central Statistics Office.
<b>DSM-5</b>	Diagnostic and Statistical Manual for mental disorders-5 <sup>th</sup> edition.
<b>ECNs</b>	Early Childhood Nurses.
<b>EPDS</b>	Edinburgh Postnatal Depression Scale.
<b>IPT</b>	Interpersonal Therapy
<b>MI</b>	Motivational Interviewing.
<b>MOH</b>	Ministry Of Health.
<b>NCHS</b>	National Centre for Health Statistics.
<b>PPD</b>	Postpartum Depression.
<b>RCT</b>	Randomised Controlled Trial.
<b>SPSS</b>	Statistical Package for Social Sciences.
<b>SSRIs</b>	Selective Serotonin Re-uptake Inhibitors.
<b>UTH</b>	University Teaching Hospital.
<b>WHO</b>	World Health Organization.

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Overview**

This chapter gives an insight to the research work, on the effects of cognitive behavioural therapy on the improvement of the health status of youth mothers with postpartum depression. It highlights the background of the main problem of the research, and its problem statement. The chapter also outlines the main objective of the research and provides a justification for the study as well as a conceptual frame work that summarises the problem at hand. It entirely gives a picture of the need to research into the effects of cognitive behavioural therapy on the improvement of the health of youth mothers with postpartum depression.

### **1.2 Background**

During their reproductive years, women are at increased risk of neuropsychiatric disorders that affect mostly the emotions. These disorders include depression, anxiety, post-traumatic stress disorder (PTSD) and anorexia (Rector, 2010). First-time mothers have a more than twofold risk of needing mental health care during the first weeks or months after delivery as compared to a year later, and the increased risk of depression usually lasts for the first five postnatal months (Moodley et al., 2013). In addition to the risk for new mental diseases, the pregnancy and postnatal period pose a challenge for pre-existing psychiatric diseases (Cyimana, 2010). For those women taking psycho-pharmacotherapy, who discovers a pregnancy, they may end up abruptly stopping their medication, and this may result in relapse of their disease. Previous depressive illness may also worsen during the pregnancy and postnatal period.

Depression in the postnatal period contributes to several problems in the individual, family and society as a whole. In severe depression, especially with psychotic symptoms, there is a risk of suicide (Rector, 2010). In addition, a depression in the mother may affect the child's cognitive, emotional and social development (Murray et al., 1999; Moore et al., 2001; Sinclair and Murray, 1998; Weinberg and Tronick, 1998). Mothers with depression are also less likely to breastfeed (Wisner et al., 2006), and thoughts of harming oneself and the infant are higher among depressed mothers (Foa et al., 2013).



All in all, the above mentioned situations compromise the health status of mothers. Such situations therefore call for multi-modal approaches to treatment of psychological conditions.

### **Depression across Cultures**

In developing countries such as Pakistan, India and Nigeria, exposure to maternal mental distress and depression have been found to be associated with poor psychological health status, low birth weight and poor infant growth (Adewuya et al., 2008; Anoop et al., 2004; Inandi et al., 2005; Patel and Prince, 2006; Rahman et al., 2004; Rahman et al., 2008b). Maternal depression is also associated with poor mental health of mothers and fewer adherences to child health promotion, including vaccinations (King, 2008). Thus, depression in the postnatal period is a major public health problem in various societies (Wisner et al., 2006). However, evidence does not support postnatal depression as a separate entity, but supports the specific triggering of mood disorders by childbirth in at least a proportion of women, thus the need for effective and collaborative approach to treatment. Giving birth to and caring for a new baby, could also act as psychosocial as well as a biological stressor among patients (Robinson et al., 2006). One of these biological stressors could well be sleep deprivation connected to infant care in the postnatal period, but very few studies have examined this (Knapp et al., 2001).

In developing countries, the physical health of mothers and children receives high priority in health programs while less emphasis has been placed upon the mental health of the mothers. Programmes for improving women's health should concentrate upon more than merely reproductive issues, and also include a woman's total well-being, both physically and mentally. Social factors such as workload, nutrition, war, migration, violence and gender inequalities need to be addressed (Van der Kwaak et al., 2017).

There is an interaction and co-morbidity between mental and physical disorders. Mental disorders increase the risk for both communicable and non-communicable diseases, as well as injuries, and may also complicate diagnosis, treatment and follow up of somatic diseases. The importance of proper attention to mental health, especially in developing countries, was therefore highlighted in the Lancet Series of Global Mental Health in 2007, with the conclusion that there is "no health without mental health" (Price et al., 2011).

Previously, some authors proposed that depression in the postnatal period was a culturally based syndrome, mainly confined to industrialized societies (Kohen et al., 2015), but recent research challenges this theory (Musau, 2013). This thesis however had no intercultural focus upon depression in the postnatal period but generally included the Zambian culture.

In 2000, neuro-psychiatric disorders accounted for approximately 13% of all disability adjusted life years and 11% in the South-East Asian region (World Health Organisation, 2011). Major depression was ranked fourth among the leading causes of global disease burden, and second among females aged 15-44 years. In 2006, depression was estimated to become among the three largest causes of both the disability and of life years lost within the next 10-15 years (Lökk and Delbari, 2011).

A multinational population survey initiated by the World Health Organization (World Health Organisation) in 2000 found that mental disorders were highly prevalent and often associated with serious role impairment, and often went undertreated or untreated. In developing countries, more than three-quarters of people with serious mental disease do not receive any treatment (Cynthia et al., 2006).

### **Definition of Depression**

The DSM-V (APA, 2013) defines depression by nine criteria, where at least five need to have been present for most of the day, nearly every day for at least two weeks. In addition, the symptoms need to cause clinically significant distress or impairment in social or occupational functioning, and should not be better explained by a general medical condition, by the physiological effects of a substance or by bereavement.

The DSM-V criteria for depression includes, at least one of the following symptoms:

1. Persistent depressed mood or feeling of sadness
2. Markedly diminished interest or pleasure in nearly all activities (anhedonia).

Additional criteria:

3. Change in weight or appetite, either decreased or increased.

4. Insomnia or hypersomnia
5. Psychomotor retardation or agitation
6. Fatigue or loss of energy
7. Difficulty concentrating or indecisiveness
8. Guilt or low self-esteem
9. Recurrent thoughts of death or suicide.

Rating of severity is based upon number and severity of the criteria symptoms, as well as the degree of functional disability and distress.

The ICD-10 (World Health Organisation, 1992) has a similar description of depression, but does not state an exact duration of symptoms. There is more emphasis upon the clinical description, and less at the exact number of symptoms. However, less numbers of symptoms (only 2-3) are required for the diagnosis of milder depression, but as for the DSM-V, the severity and number of symptoms decide the way in which classification is done which include mild, moderate and major depression, DSM-V (APA, 2013).

### **Cognitive Behavioural Therapy (CBT)**

Cognitive Behavioural Therapy is a set of “talk” psychotherapies that treat psychiatric conditions (Rector, 2010). CBT has a strong empirical support with randomised clinical trials and is recommended as a critical component of treatment, particularly when medications are contraindicated or ineffective (Rector, 2010). Individual’s emotional, behavioural and psychological reactions are influenced by the way they structure their environment. Therefore, CBT is based on modification of dysfunctional thinking which arises from both biological and psychological influences. Modifying dysfunctional thinking, behaviour and beliefs leads to improvement in symptoms hence improvement of the health of an individual. Modifying dysfunctional beliefs which underline dysfunctional thinking leads to more durable improvement on the health status of an individual. CBT has a clear treatment approach for postpartum depression since its assumptions make sense to patients and is based on patient’s experience. It encourages practice and compliance thereby creating a sense of control among patients.

## **Current Situation**

Recent evidence suggests that mental wellbeing is crucial for a mother after delivery in order for her to appreciate the joy of motherhood, for her to enjoy mother-infant relationships, cope with childcare-related stress, and function optimally and for her to prepare for the growth and development of the infants (Family Health Society-Ministry of Health, 13A, 2013). The implication to this is that the wellbeing of mothers especially after delivery is cardinal to maternal health of any given society.

New science and policy guidance for maternal care and treatment of maternal psychotic and non-psychotic conditions offers a real pathway toward a psychotic and non-psychotic free maternal generation (Thyssen et al., 2013). This pathway looks at the significance of both psychotherapy and pharmacotherapy approaches as being vital in the effective treatment of psychological conditions including Postpartum Depression. However, the application of psychotherapy in the treatment of mood disorder especially in developing countries is far from full realisation. Currently available psychotherapeutic and pharmacological regimens are so potent and well tolerated as treatment approaches to postpartum depression among not only youth mothers but also motherhood as a whole. If screening that should lead to treatment is started early in postpartum, and continues uninterrupted through breastfeeding, the risk of mothers suffering chronic depression would drastically be reduced (Moodley et al., 2013).

In most developing world settings, the promise of the new initiatives of multi-modal treatment approach is far from being fully realised. This could be attributed to the situation that health systems are over-stretched and under-resourced, and patients together with health institutions have a variety of competing issues which are not limited to postpartum depression but also to other mood disorders, HIV and AIDS, malaria, cancer, hypertension and diabetic conditions (Elizabeth et al., 2011). Beside these competing issues, there are challenges of limited mental health personnel and clinical neuropsychological human resource in the entire health systems. These have impacted adversely on the quality of treatment offered to mothers with psychological conditions. Aqapidaki et al., (2013) reported that mostly, pharmacotherapy is used compared to similar efforts on psychotherapy resulting in incomplete treatment of psychological symptoms. For instance the choice of psychotherapy used also does not clearly indicate reasons hence therapists remain unclear on the type of psychotherapy to use or recommend.

It is important here to note that Zambia's population is mostly young or composed of the youth and children, and of this population, women are the majority (Central Statistics Office, 2013). In the current constitution of Zambia, a youth is a person with the age of 15 upto 35 while a child is a person of 18 years and below (Constitution of the Republic of Zambia-GRZ, 2015). This population is critical for the nation because it harbors both reproductive and productive age group. It is therefore imperative to take special interest in issues affecting youth and the young ones who are either directly or indirectly related to population size, in this case the maternal issues of youth mothers.

Zambia has seen a dramatic increase in cases of depression among postpartum mothers (Ministry of Health, 2013). The entire situation has impacted negatively on the quality of maternal life of especially young mothers, in terms of memory, concentration, attention, perception and intuition of mothers. Stress, anxiety, chemical disturbance in the body of a young mother, cultural and religious beliefs as well as socio-economic challenges, all adds to the endless list of causal factors leading to what mothers experience during or after pregnancy (Kay and Tasman, 2006).

Prior studies have indicated that maternal mental disorders are highly prevalent across the world and are associated with serious impairment. For instance depression after child birth affects both the mother and the infant (Signe, 2009). However, the problem is prominent in developing countries and can also affect other members of the society including family members.

Additionally, postpartum depression on itself is a major public maternal problem and has been reported as the most psychiatric disorder seen after child-birth with the global prevalence of 13% to 19% (World Health Organisation, 2013). World Health Organisation (2012) further reported that more than 350,000 women die from maternal complications and that 99% of these cases occur in developing countries.

In Sub-Saharan Africa, a woman's maternal mortality risk is 1 in 30, while it is 1 in 5,600 in the developed regions (World Health Organisation, 2012). This shows that the problem is worse in developing countries than the developed ones. In Zambia, prevalence of PPD is 10-22% (Cyimana, 2010). This calls for effective use of treatment approaches to treat the condition if quality maternal health is to be attained.

World Health Organisation (2012) indicates that the burden of mental neurological health contributed 13% of the global burden of disease in 2001 as reported in the World Health Report, and this is estimated to rise to 14.6 percent in 2020; a 4th of the 10 leading causes of disability, and 28% of years of life lived with a disability. The research on postpartum depression in poor countries suggests rates of 10-36 % of new mothers (Cynthia et al., 2006). This shows that prevalence is expected to fluctuate from place to place and depending on the measures used. There is need henceforth to intensify on the quality of treatment approaches to psychological maternal conditions, both in psychotherapy and pharmacotherapy, in order to attain a free maternal health society.

Other studies from the recent past have shown that postnatal depression is the most frequent psychiatric disorder seen after childbirth (Kendra, 2010). This is supported by World Health Organisation (2014) who reported that postpartum depression is a common occurrence which is often undiagnosed when symptoms are not severe and may progress into severe or chronic state if unrecognized and untreated. Postpartum depression is the most frequent form of mental illness in the postpartum period that can begin as early as two weeks after delivery and can persist indefinitely if untreated, and may result into irreversible consequences that include death (Adewuya et al., 2008).

Cynthia et al., (2006) investigated the effects of PPD on mother's relationships with kids, family and members of the community, health and functional status, and further their ability to care for the infant. They found out that even though primary care providers have most contact with postpartum women, they may be unable or unwilling to screen, treat and or refer the women for more specialized psychological services. This calls for a collaborative approach to the problem so that the primary care providers can make the much relevant referrals.

Cyimana (2010) also reported that there was no routine screening for PPD at most of the postnatal clinics in Zambia, including the University Teaching Hospital. The report also stated that the effects of PPD are not only on the mother's health but also on the infant and the family at large. This is in agreement with Cynthia et al., (2006). It is believed that a depressed mother has difficulties in taking and following postpartum advice from a health care provider such as: recognizing postpartum danger signs, self-care and care of infant, attending scheduled hospital visits and compliance to other medications.

This compromises intra and inter-social relations of the mother, her family and people around. The impact of this would be increased maternal and perinatal morbidity and consequently mortality from direct or indirect causes of PPD (Lanes et al., 2011). Further implication of this is that women at risk need to be identified by a valid and reliable method, using a validated screening instrument, and then get exposed to effective treatment both psychotherapeutic and pharmacotherapy.

### **1.3 Statement of the Problem**

Zambia is a landlocked country in Sub-Saharan Africa with a population of 13 million (51% female and 49% male). Its average population growth rate is 2.8% (Central Statistics Office, 2013). Total fertility rate is high at an average rate of 6.2 children per woman. Zambia further is reported to be among the countries with the highest maternal and child health mortality levels in the world. Although infant and maternal mortality rate have been declining over the years from 95 per 1000 live births in 2002 to 70 in 2007 and 729 per 100,000 live births in 2002 to 591 per 100,000 live births in 2007 respectively, the mortality rates are still among the highest in the world (Central Statistics Office-Zambia Demographic Health Survey, 2007).

Zambia has also recently experienced an increase in cases of mood disorders including postpartum depression (Ministry of Health, 2013). Between 10% and 22% of new mothers at the University Teaching Hospital (UTH), experience postpartum depression (PPD) and that this might extend to even a higher prevalence (Cyimana, 2010). Despite an increasing awareness of PPD on maternal health among health practitioners, physicians lack adequate information and skills on psychotherapy, they opt for pharmacotherapy regardless of its side effects on mothers and infants. Health professionals also undermine the significance and effects of psychotherapy such as Cognitive Behavioral Therapy among others (Cynthia et al., 2006).

This implies that psychotherapy has not been fully utilised hence patients remain undetected and if detected, it is either they are undertreated or untreated. CBT could impart a skill to the youth mothers with PPD. This skill can be used in various other situations in life and could strengthen mother's ability to fight against common psychological conditions.

Additionally, postpartum depression has allocated a high prevalence of mental disorders among mothers, but it has not been studied highly enough in terms of cognitive-behavioral interventions (Beck, 2006).

#### **1.4 Purpose of the Study**

The purpose of this study is to investigate the effect of cognitive behavioral therapy on the improvement of the psychological well-being of youth mothers with postpartum depression, at the University Teaching Hospital.

#### **1.5 Research Question**

To what extent is cognitive behavioral therapy has the effect on the improvement of the health of youth mothers with PPD at the University Teaching Hospital (UTH) maternity clinic, in Lusaka-Zambia?

#### **1.6 Specific Objectives**

This study is intended to:

- i. Evaluate whether there is a significant difference in postpartum depression levels between youth mothers on cognitive behavioral therapy and those not on psychotherapy, at the University Teaching Hospital.
- ii. Evaluate the contribution of specific symptoms of postpartum depression as a measure of the health status of youth mothers with PPD, between those on intervention (CBT) treatment and those not on CBT, at the University Teaching Hospital.
- iii. Establish the influence of demographic variables and depression history on the health of youth mothers with postpartum depression at the University Teaching Hospital.
- iv. Determine the level of awareness of psychotherapy (cognitive behavioral therapy) services among the professional staff, and youth mothers with postpartum depression at the maternity clinic of the University Teaching Hospital.



### **1.7 Null Hypothesis (H<sub>0</sub>)**

There is no statistically significant difference in the depression scores between patients on intervention (CBT) group and those on control (Non-CBT) group.

### **1.8 Alternative Hypothesis (H<sub>1</sub>)**

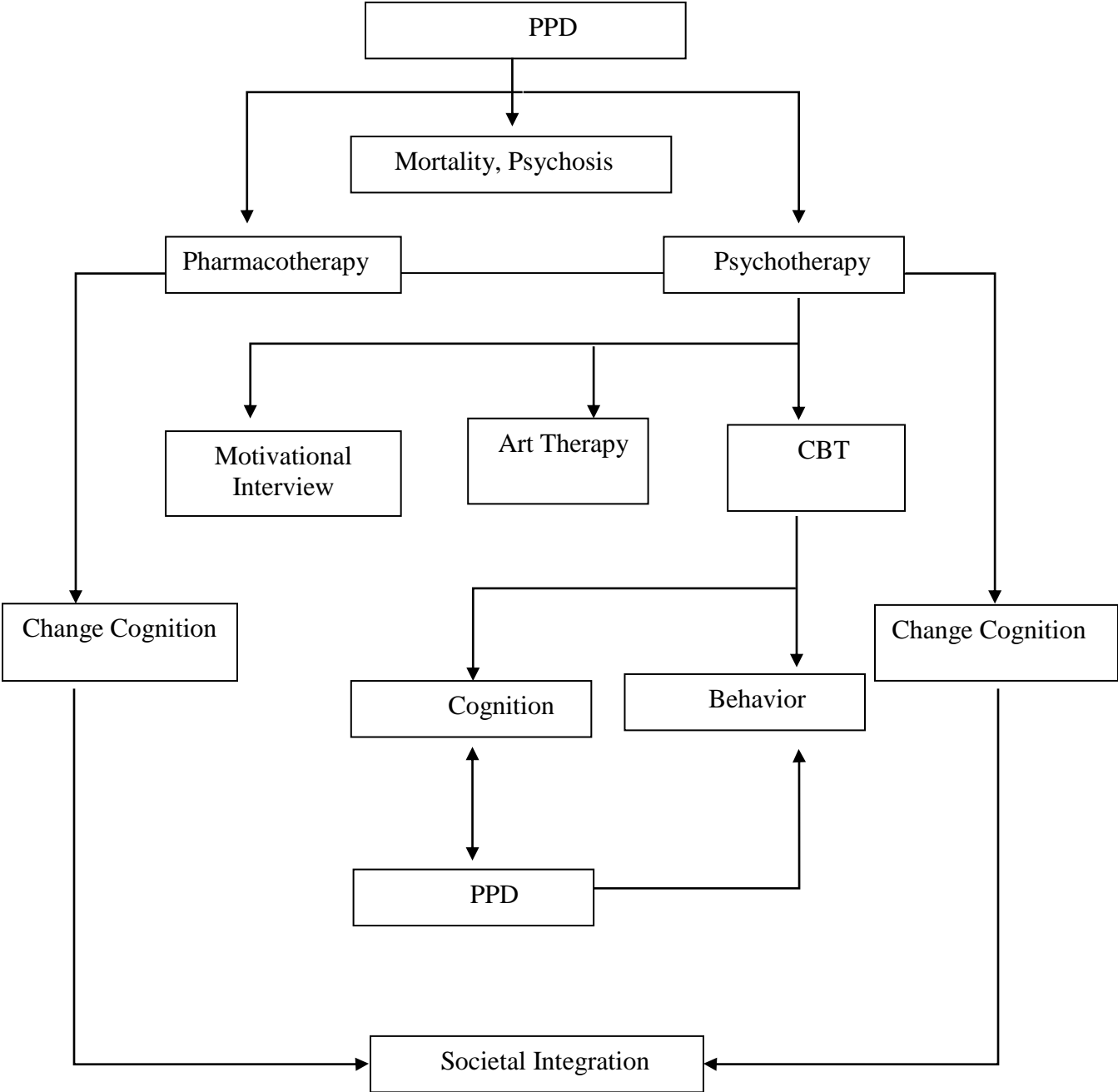
There is a statistically significant mean difference in the depression scores between patients on intervention (CBT) group and those on control (non-CBT).

### **1.9 Conceptual Framework: diagrammatic and narrative**

This conceptual frame work gives a clear view of the problem of postpartum depression and the optional treatments that are aimed at integrating the patient to the society. It summarises the problem at hand and gives an insight for the need to carry out the research.

Figure 1 below show diagrammatic concepts that summarises the research work: The concepts shows postpartum depression (PPD) being at the centre of the research work as the main problem. PPD can result into mental distress and even death (mortality). PPD can be treated using pharmacotherapy, psychotherapy and or, both in order to bring change in the patient that would result into society integration of an individual.

This study focuses on the evaluation of the effects of cognitive behavioural therapy (CBT) on the improvement of the health of youth mothers with PPD. Treatment of PPD improve health while failure to treat it reduces health status. Despite having many forms of psychotherapy such as art therapy and motivational interviewing, CBT was used as the intervention approach in addition to the use of drugs in order to evaluate its effect. The idea is that CBT works on negative thoughts that lead to negative behaviour, and negative thoughts also lead to PPD. PPD also lead to negative behaviour hence reconstructing the negative thoughts results into reconstructed behaviour thereby counteracting the effects of PPD.



**Figure 1: Conceptual Framework of the Association of PPD and CBT, Leading to Societal Integration**

## **Narrative Part of the Conceptual Framework:**

### **a). Postpartum Depression (PPD).**

Mothers go through emotional disturbances during pregnancy as well as after child delivery. Emotional health is just as important as physical health and can promote or disrupt postpartum depression recovery (Knapp et al., 2001). This implies that emotional wellbeing is vital to the maternal health of mothers and need to be given adequate attention if we have to safeguard life of mothers.

Postpartum depression (PPD) is typically defined simply as depression that develops after delivery (Fournier et al., 2010). Between 0.5% and 61 % of postpartum mothers in different parts of the world experience PPD with different Prevalences. It is frequently described as a feeling of hopelessness that interferes with functioning and quality of life (Robinson et al., 2006). It is a neurotic reaction with a number of socio-emotional products after a mother has given birth. However, the condition can even start before delivery. PPD if not treated can cause death or psychosis (mental disorder) among mothers (Beck, 2006).

PPD can set in days, weeks, and months after or before delivery, though symptoms are at pick after four weeks and can stop ones progress of recovery and rehabilitation, hence impacting ones quality of life (DSM-5 criteria), and can be diagnosed during or within four weeks after delivery. A combination of factors can lead to postpartum depression resulting in a life-changing impact, starting from pregnancy to after delivery.

### **b). Treatment of Postpartum Depression (PPD).**

There is a variety of treatment options for postpartum depression. Its management includes pharmacotherapy and psychotherapy. The majority of PPD cases can be handled on an outpatient basis, but if suicidality or infant safety is a concern, hospitalization is automatically warranted (Mwanza, 2015). Outpatient treatments include two major studies of thought: psychotherapy, which has proven effective for mild to moderate depression, and pharmacotherapy, which has proven effective for moderate to severe PPD. Combined psychotherapy and pharmacotherapy, is considered first-line treatment for non-psychotic, mild to severe PPD (Moses-Kolko et al., 2004).

### **c). Pharmacotherapy.**

Medications known as antidepressants (ADs) are common treatments for postpartum depression and might be prescribed by a psychiatrist, primary care doctor, or other physician. Antidepressant medications interact with chemicals in the brain called neurotransmitters to improve mood (Dennis, 2004).

Despite more than 100 years of studies of psychological conditions including mood disorders, there are still several challenges regarding the treatment of PPD both using pharmacotherapy and psychotherapy such as CBT, including determining its effects (King, 2008). Pharmacotherapy may be particularly complicated in various ages of individuals, who often have high rates of medical co-morbidity and more vulnerability to the adverse effects of ADs. ADs can be effective in most moderate and severe depressive disorders but are generally not indicated in mild forms because the balance of benefit and risk is not satisfactory in patients. Hackett et al., (2011) reported that although ADs are able to reduce mood disorder symptoms, they have no clear effect on prevention or remission of depressive illness as well as prevention of relapse.

### **d). Psychotherapy.**

Psychotherapy is the treatment of mental illness by discussing somebody's problems with them rather than by giving them drugs (Rector, 2010). This implies that this treatment is a talking therapy. Psychological interventions are the preferred method of treatment for mood disorders and are reserved for those in whom anti-depressants (ADs) are either inappropriate or not tolerated (Lyvia et al., 2008). Psychological treatments include behavioural therapy, cognitive behavioural therapy, problem-solving therapy, Art therapy and motivational interviewing. Medical treatment for postpartum depression is often a combination of pharmacotherapy and mental health therapy provided by a psychologist, psychiatrist, social worker, or counsellor. However, psychotherapy has been termed to be a good approach as its outcomes tend to be permanent as compared to pharmacotherapy (Hackett and Anderson, 2010). Unfortunately, there are some drawbacks for these interventions, including their costs in terms of staff time and expertise and their slow and delayed response, which requires several weeks (Lökk and Delbari, 2011).

Psychotherapy should be combined with Anti-Depressants (ADs) to reduce residual symptoms and the risk of relapse in patients with severe depression and in those with moderate depression who refuse to take ADs (Kohen et al., 2015).

**e). Motivational interviewing (MI).**

Motivational interviewing is a specific talk-based therapy originally developed to help people with addictions (Musau, 2013). More recently, it has been used successfully with a wide range of health problems characterized by poor motivation and the necessity to make some form of health behavior change. Its aim is to intervene at an early stage of a psychological condition, by using motivational techniques to support and build patients' motivation to adjust and adapt to having had a mood disorder (Christie and Weigall, 2012). Through the use of motivational interviewing techniques, patients will be helped to recognize the importance of making psychological adjustments and practical adaptations (Friedland and McColl, 2012). Subsequently, they will be able to develop confidence in their ability to adjust and adapt and to identify realistic personal goals for their recovery. This consequently would address low expectations and provide the psychological impetus to engage in rehabilitation and improve recovery (Chemerinski, 2014).

**f). Art therapy.**

Art therapy is a type of therapeutic technique rooted in the idea that creative expression can foster healing and mental well-being. Art can be an effective tool in mental health treatment. In psychology, it refers to the use of artistic methods to treat psychological disorders and enhance mental health. As an expressive medium, art can be used to help clients communicate, overcome stress, and explore different aspects of their own personalities (Hackett and Anderson, 2010). Art therapy integrates psychotherapeutic techniques with the creative process to improve mental health and well-being. The American Art Therapy Association (2009) describes art therapy as a mental health profession that uses the creative process of art making to improve and enhance the physical, mental and emotional well-being of individuals of all ages. It is based on the belief that the creative process involved in artistic self-expression helps people to resolve conflicts and problems, develop interpersonal skills, manage behavior, reduce stress, increase self-esteem and self-awareness, and achieve insight (Kendra, 2010).

Art therapy can be used to treat a wide range of mental disorders and psychological distress. In many cases, art might be used in conjunction with other psychotherapy techniques such as group therapy or cognitive behavioural therapy.

Some situations in which art therapy might be utilized include: children with learning disabilities, adults experiencing severe stress, children suffering from behavioural or social problems at school or at home, people experiencing mental health problems, individuals suffering from a brain injury, children or adults who have experienced a traumatic event (Kendra, 2010). An art therapist may use a variety of art methods including drawing, painting, sculpture, and collage with clients ranging from young children to the elderly (Beck, 2006). Clients who have experienced emotional trauma, physical violence, domestic abuse, anxiety, depression, and other psychological issues can benefit from expressing themselves creatively. Hospitals, private mental health offices, schools, and community organizations are all possible settings where art therapy services may be available.

#### **g). Cognitive Behavioural Therapy.**

**Cognitive behavioral therapy** deals with ones **cognition** (thoughts) and **behaviour**. The two, that is thoughts and behaviour, do interact (Beck, 2006). The thoughts and grievances about the life and the identity that the patients loose so suddenly and unexpectedly may trigger PPD which would consequently also trigger negative thoughts. CBT therefore focuses on helping one identify and deal with such negative thoughts and feelings that lead to undesirable behaviour (Laidlaw et al., 2010). Major goals of such a treatment include reducing depressive symptoms, improving mood and quality of life, using health care resources appropriately, and reducing the risks of medical complications (Gallagher et al., 2009). CBT may have very strong and positive effects on patients because it does not only improve and build confidence but also enhances the daily lifestyle of the patients through a range of activities (Rector, 2010). By this method, CBT is designed to challenge dysfunctional thoughts or beliefs that are associated with low mood and to collaboratively establish more functional thoughts or beliefs (Joosten et al., 2012).

CBT is based on giving insights towards psycho education, collaborative empiricism, active problem solving, assessing the nature and quality of supports, and improvement of the adaptation to the new lifestyle after a mood disorder. In this therapy, patients find their thoughts contributing to affective symptoms and feelings and how they can transform those (Kootker et al., 2012).

In all circumstances, it is recommended that the treating clinician supervise a person presenting with depression at least weekly for the first 4-6 weeks to evaluate mood changes, suicidal thinking, physical safety, the person's social life, and adverse effects of any drugs that have been prescribed (Hackett and Anderson, 2010). In general, approximately 6–12 regular sessions should be provided to patients over a period of 10–16 weeks. Response to therapy should be reviewed after 4 sessions (Scott and Freeman, 2010) and a therapy extension period is considered necessary for a person who has multiple issues or severe co morbidity (Hackett and Anderson, 2010).

### **1.10 Operation Definitions**

**Awareness:** Having Knowledge or Perception of CBT and other Psychotherapeutic Services.

**Demographic Variables:** Variables including age, education level, employment status, marital status, past history of depression, family history of depression and residential status.

**Education Level:** Status of having been to school, having attained primary education, secondary education and tertiary education.

**Employment status:** Being in formal employment or not.

**Health Status:** Having depression or not, with the degree of severity.

**History of Depression:** Having had experienced depression before or having a family member who had experienced depression.

**Marital Status:** State of being single, married, divorced or widowed.

**Pre-Test:** Assessment done before treatment.

**Post-Test:** Assessment done after treatment or intervention.

**Residential Status:** Place where a person lives as being low cost with thousands of people, medium cost with hundreds of people and high cost with tens or few people.

**Specific Symptoms:** Symptoms involving anxiety, overall depression and thought of harming oneself as reflected on EPDS.

**Youth:** A person aged 15 to 35 years.



## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter looks at the literature review that highlights the research works done by other scholars. The reviewed literature focused on the effects of cognitive behavioural therapy on the health of mothers with postpartum depression, the symptoms of postpartum depression, demographic variables as risk factors or predictors of PPD (health status) and levels of awareness on psychotherapy treatment among health professionals and mothers. The literature reviewed also brought forth various pieces of literature work that is associated to the conditions of postpartum depression among youth mothers. Text books were used; Electronic literature search databases were also used and these included PsycINFO, MEDLINE, PubMed, HINARY and Cochrane. Both theoretical and empirical literatures were reviewed. Theoretical literature provided explanatory framework relevant to the problem at hand while empirical literature provided information on research conducted so far that is relevant to the current study.

### **2.2 Effect of CBT on the Improvement of Health among Mothers with Postpartum Depression**

CBT is highly recommended as critical component of treatment, particularly when medications are contraindicated or ineffective (Driessen et al., 2013). But it's not clearly reported when contraindication and effectiveness are reported in most treatments. There seem to be an oversight to the fact that PPD if untreated has multiple potential negative effects on maternal infant attachment, child development and mothers' wellbeing (Elizabeth et al., 2011). And most mothers are discharged early after delivery without adequate follow-ups on their wellbeing.

Cognitive behavioral therapy is used in different regions especially the developed countries to treat mood disorders such as PPD, but its effects as well as effectiveness has not been clearly documented. If used, most therapists use brief cognitive behavioral therapy (BCBT) aside other psychotherapy options such as art therapy and motivational interviewing. The reason for such an option has not clearly been unveiled.

There seem to be a general lack of research in the effects of cognitive behavioral therapy and why it is preferred on the improvement of the health of mothers with postpartum depression (Beck, 2006). If research has been done on the effects of CBT on the improvement of the health of youth mothers with postpartum depression, limited evidence in publication does exist.

There seems to be a gap of knowledge and resource base, and the needed services in matters of PPD (World Health Organisation, 2012). Although PPD is amenable to treatment, evidence shows that more than 50% of cases are undetected, untreated or undertreated in primary care settings (Driessen et al., 2013). Untreated and undertreated PPD has multiple potential negative effects on maternal-infant attachment and child development, as well as the mother's maternal life (Elizabeth et al., 2011). The effects may either be psychotic in nature or even morbidity.

Therefore, there is need for more research and implementation of interventions, aimed at improving the intensity and quality of the psychotherapeutic treatment approach used, in order to achieve effective treatment of postpartum depression. CBT has a clear treatment approach for patients, and its assumptions make sense to patients. It is based on patient's experience, hence it encourages practice and compliance among patients (World Health Organisation, 2015). Patients have a sense of control and the assumptions of CBT make sense to patients. Hence the need to check on its effects, and then put up intervention measures to improve the health status of mothers with postpartum depression, and the need to protect the would be mothers, cannot be overemphasised.

In a randomized controlled psychotherapy-pharmacotherapy study, Appleby et al., (2007) assigned 87 women with PPD to one of four conditions in a factorial design, varying based on treatment with either one or six sessions of CBT-based counseling, and treatment with fluoxetine or placebo. All four treatment groups had significant improvement in depressive symptoms. Women who received six CBT sessions versus one had greater decrease in depressive symptoms. Six sessions of CBT plus placebo pill was as effective as treatment with fluoxetine plus one session of CBT, but there was no added benefit in the group receiving 6 counseling sessions in combination with fluoxetine. However, it should be noted that the counseling sessions were delivered by briefly trained non-specialists, and of different personalities, and six sessions of CBT may not be a sufficient representation of a standard course of treatment.

In another combination medication-CBT study, Misri et al randomized 35 women with PPD and comorbid anxiety either to paroxetine monotherapy or paroxetine and 12 weekly manualized CBT sessions with a psychologist (Misri et al., 2004). While both groups had significant decreases in depressive symptoms, there were no significant differences between the two groups in response rates, time to remission or dose of medication required, suggesting no measurable added benefit to the CBT treatment in combination with an SSRI over the 12 week study period, as consistent with Appleby's findings.

In a randomized controlled trial looking at the effects of CBT versus a control condition, Prendergast and Austin assigned 37 women with PPD but on pharmacotherapy, either to six weekly one-hour home-based CBT sessions delivered by early childhood nurses (ECNs) or to "ideal standard care", which consisted of six weekly visits to ECNs in a clinic setting (Prendergast and Austin, 2001). Both groups with PPD had significant mood improvement, though there was a non-significant trend towards CBT being more effects at six-month follow-up. Among study limitations, ECNs administering CBT were not experienced therapists, though they received CBT training prior to the study and supervision throughout. Additionally, the control group more closely resembled a supportive psychotherapy rather than no-treatment. These studies support CBT interventions as helpful in the treatment of PPD, though they do not support an additional benefit to CBT in combination with pharmacotherapy and do not clarify a specific benefit of CBT for this population in comparison with other treatments. Two of these studies also suggest a role for the training of non-mental-health professionals in this modality.

Comparing three distinct psychotherapy approaches; interpersonal therapy (IPT), cognitive behavioral therapy and non-directive counseling showed similar efficacy among the three (Cuijpers et al., 2008). This gives mixed evidence on the effects of CBT on the improvement of the health of youth mothers with PPD. CBT is a therapeutic intervention based on the premise that one's thoughts and feeling play a fundamental role in behavior. It usually incorporates behavioral activation and cognitive restructuring according to a protocol with homework assignments (Beck, 2006).

It provides supportive and insight-facilitating techniques to address the emotional background of the depressive symptoms by discussing current relationships, internalized past relationships, and intrapersonal patterns (Dekker et al., 2008). These different treatment modalities are severely limited in low resource countries like Zambia.

Combining medications with psychotherapy has become widespread. The evidence for modification, if not cure, of major debilitating symptoms is substantial and yet patients will be left with emotional responses and unexplored meaning of their illness if psychotherapy is not effectively cooperated. Moreover, discontinuation of medication is highly correlated with recurrence of symptoms (Dekker et al., 2008). This highlights the need for identification of an effective psychotherapy to add to the potentialities of pharmacotherapy used in the treatment of PPD.

It is important to realize that clinicians' and patients' objections to the combined treatment approach can be sensitively addressed and inclusion of patients receiving medications in groups offers opportunities effectively to treat a wider patient population. Postpartum depression does respond well to treatment. Treatment is determined based on patient's history, medical condition, current symptoms and patient's treatment preference (Dennis, 2004). However, a number of psychological symptoms need psychological treatment for the effective management of patients.

It is customary common to define psychotherapy in a broad fashion as being composed of three distinct components with a healing agent, a sufferer and a healing or therapeutic relationship (Chao et al., 2008). Hence the CBT treatment approach is a relationship therapy. Misri et al., (2004) specified that psychotherapy is the systematic use of a human relationship for therapeutic purposes of alleviating emotional distress by effecting enduring changes in a patient's thinking, feelings and behavior. The mutual engagement of the patient and the psychotherapist, both cognitively and emotionally, is the foundation for effective psychotherapeutic work (Kay and Tasman, 2006).

Therefore, treatment of postpartum depression using psychotherapy such as cognitive behavioral therapy is a psychologically-based program, incorporating education and advice, to target individuals' emotional adjustment to the impact of depression, and to increase their sense of control over their recovery (Elizabeth et al., 2011).

### **2.3 Common Symptoms of Postpartum Depression (PPD) Among Youth Mothers**

Symptoms of PPD have a varied range. While Musau (2013) lists tearfulness, despondency, feeling of hopelessness, inadequacy, poor infant care, mood swings, and extreme anxiety, guilty or hopeless, irritability, fatigue, loss of interests, and sleep disturbances,

Beck (2006) itemizes change in appetite, feeling angry or nervous, not enjoying life as much as in the past, lack of interest in friends or family, low or no sex drive, crying uncontrollably, feeling of being a bad mother, trouble of concentrating, low energy and thoughts of harming the baby or oneself. However, this does not clearly state the symptoms common in different age groups especially among mothers. There is therefore need for identifying common symptoms among youth mothers with PPD, and evaluate the contribution of the specific symptoms to the health status of the youth mothers.

At present, postpartum depression is not classified as a separate disease in its own right: it is diagnosed as part of affective or mood disorders (DSM-V, APA, 2013; ICD- 10, World Health Organisation, 1992). Within DSM 5 criteria, there is a specifier ‘with postpartum onset’ to identify affective or brief psychotic episodes that occur during the postpartum period: an episode is specified as having a postpartum onset if it occurs within the first 4 weeks after delivery (DSM –V, APA, 2013). Similarly in ICD-10, the episode must be diagnosed within a main diagnostic category with the specifier to indicate the association with the puerperium (World Health Organisation, 1992).

The symptoms required to meet DSM-V, APA criteria for a major depressive episode which include: Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure. It should be noted that symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations, should not be included in the diagnosis (Foa et al., 2013).

The patient has a depressed mood most of the day, or nearly every day, as indicated by either subjective report such as feeling sad or empty, or observation made by others such as appearing tearful, has markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others), significant weight loss when not dieting or weight gain, that is a change of more than 5% of body weight in a month.

The patient also has a decrease or increase in appetite nearly every day as part of the symptoms of depression. The patient has either insomnia or hypersomnia nearly every day. Psychomotor agitation or retardation nearly every day, and which are observable by others, not merely subjective feelings of restlessness or being slowed down are also symptoms of depression.

The patient feels fatigue or loss of energy nearly every day, experiences feelings of worthlessness or excessive or inappropriate guilt and may be delusional, nearly every day (not merely self-reproach or guilt about being sick). Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others) adds to the list of symptoms (Rector, 2010).

Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide are among symptoms and need urgent intervention. The symptoms do not meet criteria for a Mixed Episode. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning. The symptoms are not due to the direct physiological effects of a substance that include a drug of abuse, a medication or a general medical condition such as hypothyroidism.

The symptoms are not better accounted for by bereavement, that is, after the loss of a loved one and the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms or psychomotor retardation. Postpartum onset specifier: Onset of episode within 4 weeks postpartum. Despite having the long list of symptoms, the DSM-V, APA criteria do not specify which symptoms affect different age groups differently.

According to Chao et al., (2008), women with PPD complain of depressive mood, insomnia, frequent crying, lack of appetite and motivation, fatigue, and multiple somatic symptoms, inability to cope, low self-esteem, and suicidal ideation. However, what is listed are just general symptoms which do not clearly outline the influence of these symptoms to the health status of mothers postpartum, nor neither does it predict the contribution of specific symptoms to the health status of mothers (Stewart, 2003).

Postpartum depression has deleterious effects on the woman's relationships, her functional status, and her ability to care for her infant. Symptoms of PPD can be successfully and easily treated, but remains under-recognized and under-treated. There is lack of interventions to improve awareness, detection and management of maternal depression (Aqapidaki et al., 2013). This does not clearly outline the common symptoms among age groups of mothers which can easily or successfully be treated and those that pose resistance to treatment.

Both young and youth mothers are a special concern in a developing country like Zambia, because they have a big role to play in the future generation of the country hence their maternal issues need to be squarely handled. Depression is a serious public health problem (Langan and Goodbred, 2016) and, apart from anxiety disorders, depressive disorders are the most prevalent mental disorders (World Health Organisation, 2014). Despite the considerable disability associated with depressive symptoms (Murray et al., 2012), a high proportion of affected individuals remain untreated, even in well-developed health care systems, such as the one established in Germany (Foa et al., 2013). The reasons underlying this treatment gap include the limited access to mental health professionals who are qualified in diagnosis and treatment of depression, but also fear of social stigma, which results in reduced readiness to seek professional help for those concerned (Thurgood et al., 2009).

Many other barriers that keep depressed persons from accessing psychological therapies have been identified, including time constraints, lack of motivation, and the perception that therapy might not fit personal needs or might be ineffective (Van et al., 2017).

## **2.4 Common risk factors of postpartum depression among youth mothers.**

Research studies have consistently shown that the following risk factors are strong predictors of

Postpartum depression: depression or anxiety during pregnancy, stressful recent life events, poor social support and a previous history of depression are among risk factors of depression (Robertson et al., 2004).

Moderate predictors of postpartum depression are childcare stress, low self-esteem, maternal neuroticism and difficult infant temperament. Small predictors include obstetric and pregnancy complications, negative cognitive attributions, single marital status, poor relationship with partner, and lower socioeconomic status including income (Chao et al., 2008). No relationship was found for ethnicity, maternal age, level of education, parity, or gender of child, in Western societies (Milgrom et al., 2008).

There is much discrepancy over which risk factors for PPD are better indicators or predictors than others. Socioeconomic status, race or ethnicity, education levels, the mother's level of self-esteem, her age, whether or not the pregnancy was planned, circumstances surrounding labor and delivery, problems with breastfeeding, and infant temperament all seem to be possible triggers, but much debate remains over how strongly they contribute (Lincoln and Flannaghan, 2010).

The most consistent risk factors include any prior history of depression, inadequate social support, and poor quality of the mother's relationship with her partner, and life and child care stress (Moses-Kolko et al., 2004). If a mother has a lower socioeconomic status, less education, or is especially young, she probably has less access to monetary resources. While her individual circumstances alone might not be considered strong risk factors, added up, her global situation could contribute to the life and child-care stress that is a major risk factor for PPD. This concept applies to all women potentially at risk for PPD, so it is vital that physicians assess their patients as individuals and not just symptomatic checklists.

Pregnancy itself appears to be a time of decreased risk for new-onset mood disorders (perhaps because of a potentially protective effect of increased levels of thyroid hormone); but it is not necessarily protective against previously diagnosed depression, which is probably the biggest risk factor for later developing PPD.



Those women who do develop depression during pregnancy are also at high risk for developing PPD after the birth of their children (Cox et al., 2009). Indeed, any history-individual or family-of depression is one of the greatest risk factors, with anywhere from 25-55% of mothers suffering from PPD reporting that their symptoms began during pregnancy. Chao et al., (2008) cited depressed mood during pregnancy, lack of partner support such as being single, divorced and widowed, as the common risk factors of PPD. Currently, 50-70% of depressed pregnant women reported that they had experienced marital problems and conflicts (Chao et al., 2008). This shows that marital status as well as partner support is well built risk factors for PPD.

Despite all the mentioned factors, no single one has been associated to specific age groups or specific cultural groups, but they are stated as general risk factors.

Stewart et al., (2003) in their findings categorised risk factors as social factors that include life events and social support with moderate effect, marital status with no association, marital relationship and income with small effect. Psychological factors include cognitive attributions with small effect, neuroticism (easily experience negative emotions) with moderate effect. Obstetrics and infant related factors include obstetric and pregnancy complication with small effect. Clinical factors include depression during pregnancy with moderate or strong effect, prenatal anxiety with moderate effect, previous history of depression with moderate and family history of depression with no association (Scott and Freeman, 2010). This categorization failed to take account of risk factors associated to different age groups.

## **2.5 Level of Awareness of Psychotherapy Services among Mothers with Postpartum Depression**

Most postpartum mothers have limited information about psychotherapy but pharmacotherapy (Dekker, 2010). There is no single study that shows clear levels of awareness or the group that can be said to be responsible for awareness of psychotherapy services in maternal health centres.

Primary care providers have the most contact with postpartum women, but may be unable or unwilling to screen, treat, and or refer the women to the relevant specialties. Thus, many women with postpartum depression are not receiving the much needed mental health services (Cynthia et al., 2006). However, there is no clear indication that postpartum mothers lack treatment option as they entirely depend on the drugs prescribed to them by physicians.

PPD has effects on the woman's relationships, her functional status, and her ability to care for her infant. PPD can be successfully and easily treated, but remains unadvocated, under-recognized and under-treated. Aqapidaki et al., (2013) states that there are lack of interventions to improve awareness, detection and management of maternal depression. This lack of interventions may vary from place to place, and among different socio-economic groupings.

## **2.6 Conclusion**

Women living in various resource settings especially low resource settings, are vulnerable to PPD during the first few weeks or months after delivery, potentially making it more difficult for them to adhere to prescribed medicines, keep appointments, and adequately meet the needs of an infant (Stringer, et al., 2010).

It can therefore be suggested that studies incorporating the identification of PPD and its treatment could result in huge improvements in maternal health and child outcomes. It is time that screening and treatment for mental health conditions, especially postpartum depression, is incorporated into primary health settings in low-income countries (Stringer, et al., 2010).

## CHAPTER THREE: METHODOLOGY

### 3.1 Introduction

This chapter gives an account of the methodology that was used in fulfilling the objectives of the research.

### 3.2 Research Design

The current study utilised a randomized controlled trial (RCT). This design is a type of scientific and often medical experiment in nature. The research was conducted using both quantitative and qualitative approaches. The study design was guided by *positivism* paradigm by August Comte. Comte suggests that observation and reason are the best means of understanding human behaviour, and that true knowledge is based on experience of senses and can be obtained by observation and experiment. Positivism therefore is concerned with uncovering truth and presenting it by empirical means.

EPDS was administered by the trainee psychiatrists and clinical neuropsychologists, as a screening tool as well as the principle tool to assess depression. An overall cut-off score of 10 and above on the EPDS was used as clinical baseline for recruitment. The patients that scored 10 and above on the EPDS, and were within four weeks and above of postpartum period during the initial screening, were recruited as participants. The participants were then interviewed to determine their level of awareness on psychotherapy services in the hospital. The people participating in the trial were then randomly allocated to either the group receiving the intervention treatment under the investigation, which was CBT and pharmacotherapy, or to the group that was receiving the standard or norm treatment, which was pharmacotherapy only and was called the control. Recruited participants were then assigned a specific day for being attended to in the treatment period of three months. Investigator together with four research assistants who are well trained in CBT administered the CBT programme. Weekly CBT sessions were administered to the participants in the intervention group and this ran up to a maximum of 12 sessions with each session lasting 45-60 minutes, targeting and modifying negative patterns of thinking and behaviour occurring in the context of postpartum period.

Comparisons on EPDS scores as a measure of health status were then made using pre-test and post-test both within and between the groups.

### **3.3 Study Setting**

The study was conducted at the University Teaching Hospital (UTH), maternity clinic.

### **3.4 Study Population**

The University Teaching Hospital on average, records between 50 and 60 live births per day and an average of 540 youth mothers delivering at the maternity clinic per month. This population represents 30% of the youth mothers delivering at UTH. The number of youth mothers who exhibit symptoms of depression ranges 39-50 per month. Taking into account the period of study of three months, the expected study population ranged from 117-150 youth mothers with PPD. The population comprised all youth postpartum mothers with age of 15-35 years old, who scored 10 or more on the Edinburgh postnatal depression scale (EPDS), who met the inclusion criteria. The EPDS scale was chosen because it is validated and has been used for the study of postpartum depression locally, regionally and internationally. A cut off point of 12 on the EPDS has been used in some studies and is stated to have 86% sensitivity and 78% specificity, but this study used a score of 10 which identifies more than 90% of women with PPD as suggested by (Thurgood, Avery and Williamson, 2009).

### **3.5 Inclusion Criteria**

The study included youth mothers who were diagnosed with PPD at UTH, and were in the period of 4- 24 weeks postpartum. The age range comprised all youth mothers with 15 years and not above the age of 35 years. Referrals were made for mothers outside this age group. The additional consideration was that mothers should have had live baby or babies during the time of study. Participants were those who accepted and consented to participate in the study. Postpartum mothers were screened using EPDS, and those who scored 10 and above on EPDS were recruited.

### 3.6 Exclusion Criteria

Exclusion criteria included those postpartum youth mothers with psychotic conditions and youth mothers with disabling medical illnesses. Mothers who were found to be on substance abuse and those with traumatic life events within the period of child birth were excluded too. Also youth mothers who scored below 10 on the EPDS overall were excluded.

### 3.7 Study Sample

To determine the actual study sample the following formulae were used

$$n = \frac{z^2 \times p \times (1-p)}{d^2}$$

And;  $N_{\text{final}} = n/1 + n/N$

Where;

n = sample size calculated.

z = 1.96 = standard normal variate.

d = 0.05 = confidence limit.

p = 0.10 = prevalence = expected proportion in a population.

N = expected population during period of study based on the average number of patients with PPD recorded per month = 3 x 39 = 117.

$N_{\text{final}}$  = the actual sample size that was used in the actual study based on expected number of participants during the period.

This translates into;  $n = \frac{1.96^2 \times 0.1(1-0.1)}{0.05 \times 0.05}$

$$n = 138 \text{ patients with PPD.}$$

Taking into account the average number of expected patients during the period of data collection, the actual sample size was;

$N_{\text{final}} = 138/1 + 138/117 = 63.59447004608$ , hence the study constituted **64** participants.

### **3.8 Sampling Method**

Participants were recruited from maternity clinic at UTH, using the set inclusion criteria. Youth mothers were approached and given information. The mothers were then screened using EPDS and eligible participants were requested to consent voluntarily to participate in the study. Upon consenting, participants were assigned a code each for identification. Through the screening process, the number 64 of eligible participants was attained consecutively based on the prevalence calculated in the sample. Relevant help and support such as accessibility to files and calling out names of patients were obtained from the professional staff within the maternity wards.

### **3.9 Selection of Study Participants**

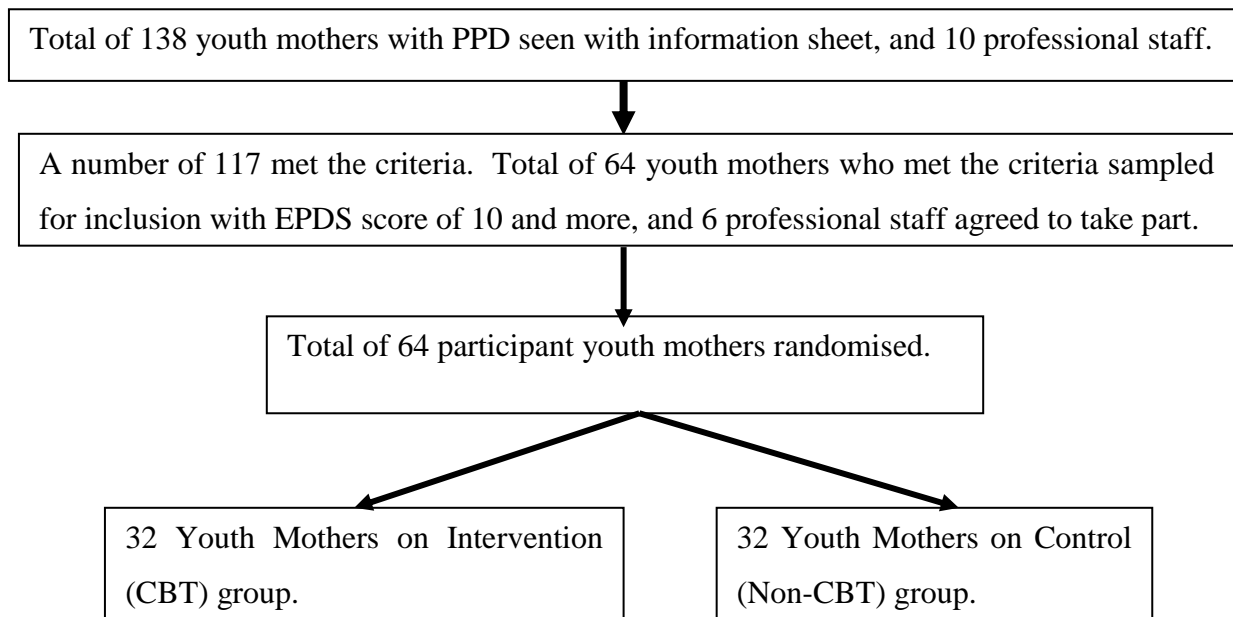
In selecting participants, the researcher used multi-stage sampling procedure: Stage one, involved the use of convenience and purposive sampling procedure. Stage two, involved the use of simple random sampling procedure through rotary method of the in-out technique.

Convenience sampling involved the targeted sample being picked based on availability and easy to reach. Purposive sampling allowed the researcher to pick on youth mothers who upon screening, had the characteristics of PPD and met the inclusion criteria. This qualified the maternity clinic of UTH as a convenient site. Purposive sampling is based on the assumption that the researcher wishes to discover, understand, and gain insight, and therefore must select a sample from which the most can be learnt. The research used purposive sampling procedure to allow those having PPD and interested in participating, with adequate cognitive functioning to possibly benefit from the CBT.

To come up with the study groups, 117 youth mothers were screened and 64 met the inclusion criteria. Simple random sampling procedure was used to determine which participants would go either to intervention (CBT) treatment group or control (Non-CBT) treatment group.

The In-out rotary technique was used. 64 pieces of paper were cut and letters ‘T’ and ‘C’ were written on them. 32 pieces of paper were written with ‘T’ and the other 32 were written with ‘C’. The 64 pieces of papers were then folded and put in a box for participants to select.

The participants who selected a paper written with ‘T’ were put on the intervention or treatment group while those with the ‘C’ were put in the control group. The figure below shows a flow chat of the participants’ screening, recruitment, treatment and assessment completion.



**Figure 2: flow chat of the participants’ screening, recruitment, treatment and assessment completion.**

### 3.10 Data Collection Tools

Edinburgh postnatal depression scale (EPDS) is a validated tool and was used in this study as a principle tool for screening and assessing postpartum depression. The tool was modified to capture demographic variables. The EPDS scale has 10 items, each with a maximum score of 3. Questions 1,2,6,7,8,9 measures general depression, questions 3,4,5 measures anxiety with scores of 0-5 showing non-anxiety while 6-9 indicates the presence of anxiety.

Question 10 has maximum score of 3 measuring the thought of harming oneself (suicidal ideation), with level of thought increasing with increase in score.

To simplify analysis of the presence of PPD, EPDS scores were categorised in none (0-9), mild (10-14), moderate (15-18) and severe (19 and above). Cognitive behavioral therapy was the intervention treatment approach. Pharmacotherapy was the norm treatment approach. EPDS scores were recorded for each participant either in the intervention or control groups both pre-test and post-test.

One structured interview guide was used on maternal mothers, and another one on the professional staff in the maternity clinic, to collect demographic information and to determine the level of awareness of psychotherapy services such as CBT and other psychotherapeutic services among mothers at the maternity clinic of the University Teaching Hospital.

The interview guide for mother participants had items on awareness about PPD, awareness about services provided a by psychologist in the hospital, and choice of treatment approach, being psychotherapy or pharmacotherapy. The interview guide for professional staff consisted of items on awareness about PPD, on services provided by psychologist in the hospital, making of referrals on psychological conditions such as PPD to clinic 6, and choice of treatment approach being psychotherapy or pharmacotherapy. (For the full versions of the research data collection tools, refer to the appendices).

### **3.11 Data Collection Procedure**

Patients were availed with the information sheet for them to read about the study. Interested patients were then asked to sign the consent/assent form. EPDS was administered by the trainee psychiatrists and the clinical neuropsychologists, who were research assistants from the department of psychiatry, as a screening tool as well as the principle tool to assess depression. The patients that scored 10 and above on the EPDS, and were within four weeks and more after delivery during the initial screening, were recruited as participants. Participants were then randomised to form the intervention group and the control group. Recruited participants were then assigned a specific day each for being attended to in the treatment process, preferably a postnatal clinic day.



CBT was used as the principle Psychotherapeutic intervention approach while pharmacological treatment was used on both the intervention and control groups as the norm treatment. The principle investigator and four research assistants, that is, the trainee psychiatrists and clinical neuropsychologists, who are well trained in psychiatry and clinical neuropsychology administered the CBT to the patients.

The CBT sessions were administered to the participants in the intervention group on a weekly basis, and ran up to a maximum of 12 sessions. Pharmacological treatment was also done on the intervention group. The CBT sessions lasted 45-60 minutes and targeted modification of negative patterns of thinking and behaviour occurring in the context of postpartum period.

Participants in the control group received pharmacotherapy treatment only as a norm treatment. EPDS was administered to the participants at the beginning and at the end of the treatment for screening and assessment of PPD and specific symptoms among the participants in both groups.

Discharge of the patients was based on observation and confirmed by EPDS test scores, regardless of the number of sessions attended. The principal investigator, health professionals at clinic 6 and the four research assistants made the relevant observations. Patients with severe or complicated conditions were referred to specialists within clinic six for further intervention.

Two structured interview guides were used. One was used to collect information from the participants on demographic characteristics and their awareness of CBT and other psychotherapeutic services at UTH. The collection of information was done throughout the period of data collection, and was based on appointments made with the participants. The other interview guide was used for collecting information from the professional staff on CBT and other psychotherapeutic services, being offered at UTH and whether the professional staff have been facilitating CBT and other psychotherapeutic services for mothers with PPD or not. Both interviews for mothers and the professional staff lasted between 20-30 minutes. Responses from the participants were recorded. Data on assessments and interviews was then compiled for analysis.

### **3.12 Data Analysis**

Data analysis involves the cleaning and organizing data, describing the data and testing of the models in the relationships and associations. In this study, both quantitative and qualitative analyses were used. To ensure accuracy in data entry, data was firstly checked, cleaned and organised. Checking and cleaning of data was done by cross checking to identify and correct the errors. The variables on the EPDS and the demographic on the interview guide were coded to create a data set. The data set was used in SPSS version 23 to analyse both descriptive and inferential statistics (IBM SPSS V20, 2011). Results are represented in tables to show the associations, relationships and variances.

Improvement of health during CBT process and after treatment was checked by observing both the patients and changes to the 10 symptomatic items on the EPDS. A score of less than 10 on the scale indicated improvement for both intervention and control groups. Score of 10 and more on the EPDS indicated the presence of postpartum depression. Improvement was also observed in terms of moving from a high severity level to a lower severity level. Severity of depression was categorised as: normal 0-9, mild 10-14, moderate 15-14 and severe 19-30. Therefore, symptoms of PPD on the EPDS were used as a measure of the health status of youth mothers.

Analysis of variance (2 x 2 ANOVA) was used to evaluate the effect of CBT on the improvement of the symptoms of PPD as a measure of the health status of youth mothers with postpartum depression, between the intervention (CBT) treatment group and the control (Non-CBT). Analyses were done between the two groups and within each of the groups. This was analysed in SPSS version 23, by testing the two groups to see if there was a statistically significant mean difference between them and within them, following pre-intervention and post-intervention.

The symptoms of anxiety, suicidal ideation and general depression were evaluated to specifically check how they affected the health status of youth mothers in both groups. This also allowed for an evaluation of which symptoms were well treated between intervention (CBT) group and control (Non-CBT) group. Evaluation was done through Chi-square analyses.

This allowed for checking on the association of specific symptoms and their contributions to either improvement or worsening of the condition of depression among mothers and how each of the three categories contributed to the health status of the mothers.

To confirm the predicting effect of the symptoms on the health status of the mothers, regression analyses were conducted on the symptoms on the EPDS. To establish the influence of demographic variables on the health of youth mothers with PPD, a multiple regression analysis was done in order to statistically predict the level of influence of each of the involved variable. The influence acted as a predictor of PPD.

Thematic and descriptive approach was used to analyse qualitative data that emanated from the structured interviews for both the participants and the professional staff. The responses were used to determine the level of awareness of CBT and other psychotherapeutic services among mother participants and the professional staff.

### **3.13 Ethical Considerations**

The study was approved by ERES CONVERGE IRB ethical committee and permission was sought from the UTH senior medical superintendent after the endorsement by the HOD of psychiatry.

Voluntary participation was sought from the participants through a written informed consent and assent. Participants were assured of their right to freely withdraw from participation at any time and without necessarily giving the reason.

Respect and justice were upheld through giving the participants empathy and freedom of choice on the language to use and how far the responses would be given. Anonymity and confidentiality were upheld. This was done by use of codes instead of names of participants and securing data through locking it up. After the period of data collection period, patients who did not fully recover after the period of study were referred to clinic 6 for continued or follow-up treatment.

## CHAPTER FOUR: PRESENTATION OF THE FINDINGS

### 4.1 Introduction

Sixty four youth postnatal women and six professional staff consented/ assented to participate in the study.

### 4.2 Effects of CBT on Postpartum Depression

The main objective of the study was to determine whether there was a statistically significant difference in overall depression scores between youth mothers with PPD who were on intervention group (CBT) treatment and those on the control (non-CBT) treatment. A 2×2 ANOVA was run to statistically evaluate the magnitude of group mean differences in the pre-test and post-test depression scores simultaneously.

The analyses yielded both descriptive and inferential statistics for the intervention (CBT) and Control (Non-CBT) data sets. Table 1 shows descriptive statistics inform of means and standard deviations for the pre-test and post-test postpartum depression score results between the two groups. While pre-test results statistically revealed approximately equivalent mean depression scores between the two groups, post-test results revealed a lower depression mean score for patients on the intervention (CBT) treatment than those on control (Non-CBT) treatment.

The mean difference in pre-test depression scores between the two groups was 0.99 whereas in post-test it was 1.78. The mean difference between pretest and post-test depression scores within the group on intervention (CBT) treatment was 6.69 and within the group on control (Non-CBT) treatment it was 3.97. Both groups had 32 (N) participants. The table below shows the results.

**Table 1: ANOVA: Descriptive Statistics on Treatment Type and Depression**

Test	Treatment type	Mean	Std. Deviation	N
Pre-test	Intervention	16.35	3.44	32
	Control	15.41	3.53	32
	Average	15.89	3.49	64
Post-test	Intervention	9.66	2.16	32
	Control	11.44	2.64	32
	Average	10.55	2.56	64

The table indicates a larger mean difference in the intervention group than the control group, in the post treatment scores. The mean difference between the groups in pre-test was 0.99 while in the post-test nearly doubled to 1.78. Table 2 below displays inferential statistics for tests of statistical significance in the observed mean differences in the pre-test and post-test depression scores between the groups. A 2×2 ANOVA was used to determine mean difference in depression scores between the groups was not statistically significant between group means in the pre-test data,  $F(1,51) = 1.24, p > 0.05=0.27, n_p^2 = 0.73$ , but was statistically significant between group means in the post-test data,  $F(1,51) = 8.72, p < 0.05=0.004, n_p^2 = 0.996$ .

The results implied that the alternative hypothesis that there was a statistically significant difference in depression scores between patients on Intervention (CBT) treatment and those on Control (Non-CBT) treatment was not supported by pre-test results, but was supported by post-test results. Therefore, both descriptive and inferential statistics illustrated that Intervention (CBT) treatment had more reduction effect on Postpartum Depression than the Control (Non-CBT) treatment. The table below shows the results.

**Table 2: ANOVA: Inferential Statistics for Treatment Type and Depression**

Source	Dependent variable	Df	MS	F	P	$n_p^2$
Treatment	Pre-test	1,51	15.02	1.24	0.27	0.73
	Post-test	1,51	50.766	8.72	0.004	0.996

Note: Df= degree of freedom, MS= mean of squares, P= p-value.

The mean differences between treatment of symptoms of depression and PPD, as a measure of the health status of mothers was also analysed through using a one-way ANOVA and the descriptive as well as inferential statistical results are shown in table 3 and 4 below.

**Table 3: ANOVA: Descriptive Statistic for Specific Symptoms and Treatment Type**

Treatment type	N	Pre-test			Post-test		
		Mean	Std. Deviation	SE	Mean	Std. Deviation	SE
Intervention	32	1.94	0.76	1.34	0.56	0.50	0.09
Control	32	1.84	0.77	1.36	0.91	0.69	0.12
Difference		0.10	-0.01	-0.02	-0.35	0.19	-0.03

Note: N= sample size, SE= standard deviation error.

The results show that the mean difference among the specific symptoms, as a measure of the health status, within the intervention group is 1.38 while in the control group is 0.94.

**Table 4: ANOVA: Inferential Statistics on Specific Symptoms and Treatment Type**

	Pre-test					Post-test				
	Sum of squares	Df	Mean square	F	Sig.	Sum of squares	Df	Mean of squares	F	Sig.
Between the groups	0.14	1	0.14	0.24	0.625	1.89	1	1.89	5.19	0.026
Within the groups	36.09	62	0.58			22.59	62	0.36		

Note: Df= degree of freedom, F=Test of variability.

The results indicate that the pre-test did not show a statistical significant mean difference ( $p=0.625$ ) while the post-intervention analysis shows a statistical significant mean difference with the *p-value* of 0.026. The results therefore show reduction in the symptoms of PPD, as a measure of the health status among mothers, on the intervention group than the control group.

#### **4.3 Specific Symptoms of Postpartum Depression (PPD) as a measure of the Health of Mothers with PPD who were on cognitive behavioural therapy (CBT) and those not on CBT.**

The second objective of the study was to evaluate the contribution of specific symptoms of PPD to the health status of youth mothers with PPD, between those on Intervention (CBT) and those who were on Control (Non-CBT) treatment.

Ten specific depressive variables based on the Edinburg Postnatal Depression Scale (EPDS) were used to evaluate the association in depression variance. The symptoms were grouped into three main categories: anxiety levels (questions 3, 4 and 5), thoughts of harming oneself (question-10) and overall depression levels of the ten symptoms.

Table 5 below indicates frequencies of participants with anxiety at the beginning of the treatment (pre-intervention). The table shows that among the participants on the control group, 63 % had symptoms of anxiety in them while there were 66 % of the participants in the Intervention group with anxiety. Generally, there were more people with anxiety than those without. Those that did not show presence of anxiety could be that they did not score a clinical borderline and above.

The difference in the presence of anxiety has no statistical reason because the two groups were made randomly without basing on specific symptoms of depression. The table below shows the results.

**Table 5: Anxiety and Treatment Type, Pre-test**

Treatment type/ Group	No Anxiety	Anxiety present	Total
Control (Non-CBT)	12	20	32
Intervention (CBT)	11	21	32
Total	23	41	64

Table 6 below indicates frequencies of participants with anxiety in relation to treatment type after intervention (post-test). The table shows a reduction in the number of participants with anxiety in the intervention group, with 91 % recording no anxiety while in the control group, the results show 72 % of patients with anxiety. The table below shows the results:

**Table 6: Anxiety and Treatment Type, Post-test**

Presence of anxiety	Treatment type		Total
	Intervention	Control	
No anxiety	29	23	52
Anxiety present	3	9	12
Total	32	32	64

Table 7 below indicates overall depression levels and anxiety after treatment (post-test). The table shows numbers of participants with anxiety post-test in different levels of severity of depression. From the 64 % of the overall participants who had anxiety in the pre-test, the figure reduced to 19 % in the post-test. The table below shows the results.

**Table 7: Anxiety and Depression Level, Post-test.**

<i>Table 7:</i> Level of depression	Presence of anxiety		Total
	No anxiety	Anxiety present	
Normal	20	3	23
Mild	30	5	35
Moderate	2	4	6
Total	52	12	64

Table 8 below indicates frequencies of overall thoughts of harming oneself among the participants. The table shows a reduction in numbers of participants with thoughts of harming oneself after post-test. In the intervention group, the percentage of those with no thoughts of harming themselves rose by 50 % whereas in the control group the percentage also rose but less than it was in the intervention, which increased by 31%. The “thoughts of harming myself have occurred to me”, among the participants both in the intervention group and the control group indicated a significant difference. The table below shows the results.

**Table 8: Thought of Harming Oneself and Treatment Type, Pre-test and Post-test**

Thoughts (suicidal Ideation)	Treatment type			
	Intervention		Control	
	Pre-test	Post-test	Pre-test	Post-test
Never	13	29	17	27
Hardly ever	12	3	9	5
Sometimes	7	0	6	0
Total	32	32	32	32

Table 9 below indicates scores of symptomatic overall pre-test of EPDS depression levels and the treatment type. The table shows that there were more moderately depressed mothers in both the intervention and control groups than those with mild and severe depression levels. The distribution of severity of postpartum depression was approximately equal within the depression levels between both groups. There were few differences but those differences were a +2 or -2.



**Table 9: Symptomatic Overall Depression and Treatment Type, Pre-test**

Depression level	Treatment type		Total
	Intervention	Control	
Mild	12	10	22
Moderate	13	14	27
Severe	7	8	15
Total	32	32	64

Table 10 below shows the effect of treatment on the levels of depression among all the participants in both groups. Number of mild depression levels increased from 34.4 % to 54.7 %, moderate levels reduced from 42.2 % to 9.4 %, severe depression levels was completely eliminated in Control group but for the intervention group both severe and moderate level were eliminated.

There was an overall complete treatment of 28 % in the control group while in the intervention groups it was 43.8 % complete treatment of postpartum depression among the participants. The table below shows the results.

**Table 10: Symptomatic Overall Depression and Treatment Type, Post-test**

Depression level	Treatment type		Total
	Control	Intervention	
Normal	9	14	23
Mild	17	18	35
Moderate	6	0	6
Total	32	32	64

Table 11 below indicates the analyses of the association of the specific symptoms and the health status of youth mothers with PPD. In order to analyse the contribution of specific symptoms of postpartum depression to the health of youth mothers between those in the intervention group and those in the control group, Pearson Chi-square analysis was used.

A 2 x 3 Pearson Chi-square analyses were used to evaluate the degree of association of depressive variables (symptoms: anxiety, thoughts of harming oneself & overall depression) as a measure of the health status of youth mothers with postpartum depression, that is, analyses on the intervention (CBT) group and also on the control (Non-CBT) groups' data sets.

The test was done to examine if there were relationships between the specific symptoms and postpartum depression. From the table below, we see that the number of categories of specific symptoms (anxiety, thoughts of harming myself have occurred to me & overall depression) on the EPDS, as a function of influence on the health of youth mothers with postpartum depression. In *test of independence*, the pre-test showed that there were no statistical significant associations between specific symptoms and postpartum depression. The differences were: Anxiety- Chi-square = (1, N=64) = 1.04<sup>a</sup>,  $p > 0.05=0.31$ ; Thoughts of self-harm; Chi-square = (2, N=64) = 1.04<sup>a</sup>,  $p > 0.05=0.60$ , and overall depression; Chi-square = (2, N=64) = 0.29<sup>a</sup>,  $p > 0.05=0.87$ . However, post-test results indicated that there were statistical significance associations between depression levels and the three categories of the specific symptoms of postpartum depression on the EPDS.

The differences were: Anxiety- Chi-square = (1, N=64) = 10.26<sup>a</sup>,  $p < 0.05=0.001$ , Thoughts of self-harm- Chi-square = (1, N=64) = 11.10<sup>a</sup>,  $p < 0.05=0.04$ , overall depression- Chi-square = (2, N=64) = 7.12<sup>a</sup>,  $p < 0.05=0.03$ . From the treatment models, all the three categories of symptoms were associated with PPD, with the strongest being that of anxiety (99 %).

Before the psychotherapy treatment on the intervention group, there were weak associations between the symptoms and the health of the postnatal mothers in both groups. The weak association made it difficult to evaluate the contribution of the specific symptoms of PPD to the health of youth mothers. However, in the post-test scores, the association in all the three categories of symptoms and the health of postnatal mother could be well evaluated as observed through Phi-Cramers' values. More association was indicated in anxiety. The table below shows the results.

**Table 11: Chi-square; Association of Specific Symptoms and Health Status of Mothers**

Test	Specific symptom	Value & strength for pre-test and post-test	
		Pre-test	Post-test
Chi-square	Anxiety	1.036 <sup>a</sup>	10.256 <sup>a</sup>
	Thought of self harm	1.039 <sup>a</sup>	11.102 <sup>a</sup>
	Overall depression	0.286 <sup>a</sup>	7.116 <sup>a</sup>
Phi-Cramers' value	Anxiety	0.127	0.400
	Thought of self harm	0.127	0.366
	Overall depression	0.067	0.333
<i>p</i> -value	Anxiety	0.309	0.001
	Thought of self harm	0.001	0.04
	Overall depression	0.867	0.029
Degree of freedom	Anxiety	1	1
	Thought of self harm	2	1
	Overall depression	2	2

Regression analyses of symptoms and scores of PPD were conducted to predict the relationship of symptoms with health status using depression levels (PPD). Multiple regression analysis produced for anxiety: Intervention (CBT) group: pre-test;  $F(1,25) = 0.98$ ,  $p = 0.27$ ,  $SE = 0.16$ . Post-test;  $F(1,25) = 56$ ,  $p = 0.02$ ,  $SE = 0.13$ . Control (Non-CBT) group: pre-test;  $F(2,15) = 0.56$ ,  $p = 0.25$ ,  $SE = 0.11$ . Post-test;  $F(2,15) = 0.66$ ,  $p = 0.15$ ,  $SE = 0.10$ . CBT group showed significant relationship between PPD and anxiety.

A Chi-square test was further ran to show whether the intervention group and control group significantly differed on anxiety as the most contributor to the health status of youth mothers with postpartum depression. The results show a statistically significant difference after the treatment process with the *p*-value of 0.007 towards the intervention group. The results are shown in the table below:

**Table 12: Chi-square; Differences in Anxiety between the Groups**

Chi-Square of anxiety of study groups	Value	Df	Sig.
Pre-test	4.559 <sup>a</sup>	2	1.02
Post-test	9.992 <sup>a</sup>	2	0.007

Df= degree of freedom.

#### **4.4 The Influence of Demographic and Depression History variables on the health of postpartum mothers with PPD who are on CBT and those not on CBT**

The second objective of the study was to establish demographic variables' prediction of the reduction of depression levels between patients on CBT treatment and those on non-CBT treatment. Two parallel multiple linear regression analyses were carried out to assess the degree of predictive influence of demographic variables and history of depression, as risk factors for severity of postpartum depression among youth mothers, that is, one analysis on CBT treatment data and another on non-CBT treatment data.

Multiple regression analyses demonstrated that there was no statistical significance variance between the groups in the demographic characteristics and PPD, that is, in the pre-test.

Predicting variables included age, marital status, education level, employment status, past history of depression and family history of depression were used to predict depression variance in the regression equation.

Table 8 below displays both unstandardized and standardized regression coefficients of the predictors of occurrence as well as reduction in depression levels. Non-significant regression equations were found for both the intervention (CBT) treatment,  $F(6, 25) = 1.08, p > 0.05 = 0.40, SE = 2.15$ , and the control (Non-CBT) treatment data,  $F(6, 25) = 0.87, p > 0.05 = 0.53, SE = 2.67$ , explaining the mean variances respectively. This implies that together all the six variables did not have predictive influence on the occurrence of postpartum depression among youth mothers.

The results also indicate that each individual demographic variable and the two forms of history of depression had some predictive influence on the occurrence as well as levels of postpartum depression in both the intervention (CBT) treatment group and the Control (Non-CBT) treatment group. The influence for each variable however, was not statistically significant at the  $p$ -value of 0.05.

The implication of this is that, demographic factors such as age, marital status, education level, employment status and history of depression among the participants in both groups did not influence or act as risk factors for postpartum depression in the pre-test. The table below shows the results:

**Table 13: Multiple Linear Regression Results Summary - Unstandardized Coefficients and Standardized Coefficients for Demographic Variables and History of Depression, Predicting Influence on the Health of Youth Mothers with Postpartum Depression, Pre-test**

Predictor variable	Intervention (CBT) model			Control (Non-CBT) model		
	B	SE	Beta	B	SE	Beta
Age	-0.02	0.09	-0.05	0.16	0.11	0.35
Marital status	-0.24	0.54	-0.10	-0.20	-0.70	-0.07
Education level	0.05	0.54	0.02	0.34	0.66	0.13
Employment status	-0.57	1.00	-0.13	0.61	1.38	0.12
Past history of depression	2.00	0.94	0.41	1.12	1.31	-0.18
Family history of depression	-0.35	0.93	-0.07	0.42	1.18	-0.07

Note:  $SE$ = standard error.

The analyses were further done post-intervention. The results show that all the variables except past history of depression ( $p$ -Value = 0.043), could not be used to predict the health status nor the occurrence of PPD. The results are summarised in the table below:

**Table 14: Multiple Linear Regression Results Summary - Unstandardized Coefficients and Standardized Coefficients for Demographic Variables and History of Depression, Predicting Influence on the Health of Youth Mothers with Postpartum Depression**

Predictor variable	Unstandardised		Standardised	t	Sig.
	coefficients		coefficient		
	B	Std.Error	<i>Beta</i>		
Age	-0.02	0.09	-0.05	-0.23	0.817
Marital status	-0.24	0.54	-0.10	-0.45	0.655
Education level	0.05	0.54	0.02	0.10	0.922
Employment status	-0.57	1.00	-0.13	-0.57	0.577
Past History of depression	2.00	0.94	0.41	2.13	0.043
Family history of depression	-0.35	0.93	-0.07	-0.38	0.710

#### **4.5 Awareness of PPD, CBT and other Psychotherapy Services among the Youth Postpartum Mothers and the Staff**

This objective was intended to identify the levels awareness of postpartum depression, cognitive behavioural therapy and other psychotherapy services among postpartum mothers and the members of staff in the maternity clinic of the University Teaching Hospital (UTH). A structured interview guide for mothers as well as for members of staff designed separately was used to obtain the information. The information obtained was categorised into two subsections, awareness among the youth postpartum mothers and also among the members of staff at the maternity clinic.

##### **4.5.1. Awareness among the Youth Postpartum Mothers**

Thirty one percent of the participants stated that they have heard about PPD before while eleven percent have had experienced it and had been treated before. When asked about their awareness of CBT and other psychotherapeutic services provided at UTH, only six percent mentioned having heard of CBT while twenty five percent said that they have had heard about other psychotherapy services even though they have never accessed them.

The rest of the participants showed ignorance. However, all the participants felt that both the psychologist and other medical practitioners like the physicians should provide medical services to the mothers with PPD. The participants clearly stated that drugs are important in the treatment of any medical conditions but that some conditions require psychological interventions.

Sixteen percent of the participants mentioned that they have had received only pharmacotherapy treatment on general postnatal clinic services and not specifically on postpartum depression. These medical services were provided at six days and at six weeks postpartum respectively.

#### **4.4.2. Awareness among the Members of Staff at the Maternity Clinic**

Members of staff from three maternity ward blocks were recruited into the study. Each ward contributed two participants. When asked if there was routine screening of postpartum mothers for PPD, 67 % of the participants stated that there were no routine or protocol followed in the screening for depression among postpartum mothers.

Thirty three percent of the participants however said both *yes* and *no* to the question. They said *yes* in the sense that attention is given whenever the health professionals suspect the condition of depression *no* in the sense that it was not done as a routine. All participants who were interviewed agreed to having heard and practiced simple counselling services by nurses, midwives and doctors in the maternity wards. The members of staff however felt the service was not fully exploited.

On the aspect of making referrals of mothers with PPD to clinic 6 which is the psychiatry department of UTH, seventeen percent of the participants said sometimes they do make referrals although the response was either slow or not good.

Thirty three percent said treatment of PPD is done in the wards while the rest said no routine referrals were made to clinic 6 for more specialized attention.

Just like the postpartum mothers, the medical staff at the maternity clinic felt that the provision of medical services to mothers with PPD should be provided as both pharmacotherapy and the psychotherapy. However, one participant further observed that the treatment mode may not be singled out as this depends on the severity of the condition at hand.

*“It depends on the seriousness of the problem at hand. The fact is that there is no enough time to start psychological intervention when the patient is critically ill. I would rather go by drugs until the patient shows signs of recovery. And when this happens, due to increased pressure of bigger number of patients to handle, officers usually end up discharging the patients without referral for further attention such as psychological treatment”*, said one Matron.

This implies that there is no routine or protocol in dealing with psychological conditions of postpartum mothers in the hospital. Patients with psychological conditions are mostly attended to when the condition becomes clearly visible.



## **CHAPTER FIVE: DISCUSSION OF THE FINDINGS**

### **5.1 Introduction**

This chapter presents an interpretation and the implication of the results of the study with respect to the study objectives. The section provides a concise review of the results.

### **5.2 Effects of CBT on Postpartum Depression**

The main objective of the study was to determine whether there was a statistically significant difference in overall depression scores between youth mothers with PPD who were on intervention group (CBT) treatment and those on the control (non-CBT) treatment.

The analyses to statistically evaluate the magnitude of group mean differences in the pre-test and post-test depression scores simultaneously yielded both descriptive and inferential statistics for the intervention and Control data sets. While pre-intervention results statistically revealed approximately equivalent mean depression scores between the two groups, post-intervention results revealed a lower depression mean score for patients on the intervention treatment than those on control treatment.

The mean difference in pre-test depression scores between the two groups was smaller than that in the post-test. The mean difference between pretest and post-test depression scores within the group on intervention treatment was far large than in the control treatment group. This is an indication of the added effect of CBT on the improvement of the depression scores on the EPDS, as a measure of the health status of mothers with PPD. The results further suggest the need to combine CBT and pharmacotherapy in the treatment of PPD. However, what might not be clear in this study is how much effect has other psychotherapies when compared to CBT.

The results for determining statistical significance in the observed mean differences in the pre-test and post-test depression scores between the groups, and also to determine mean difference in depression scores between the groups, were not statistically significant in the pre-test data, but was statistically significant in the post-test data.

The results implied that that there was a statistically significant difference in depression scores between patients on Intervention treatment and those on Control treatment was not supported by pre-test results, but was supported by post-test results.

Therefore, both descriptive and inferential statistics illustrated that Intervention treatment had more reduction effect on Postpartum Depression than the Control treatment.

Although current guidelines identify CBT as a first line treatment only for individuals with mild or moderate forms of depression there are data to support its efficacy with more severe depression (Rector, 2010). Several clinical trials have recently demonstrated cognitive and behavioral therapies to be as effective as medication for adults with moderate to severe depression (DeRubeis et al., 2005; Dimidjian et al., 2006). This is evident in the current study where there were less cases of moderate depression after all severe cases were eliminated in the intervention group than in the control group. In a meta-analysis of 67 clinical trials with nearly 6,000 patients, Cuijpers, Huibers and colleagues (2013) found that while number of weekly sessions predicted the efficacy of psychotherapy for depression, baseline severity of symptoms had no significant effect. However, this study noted that more sessions were noted in the control group than the intervention group. This could be attributed to a quicker treatment in the intervention group than the control, or lack of adherence of patients in the intervention group. From the results however, patients in the intervention group recorded faster improvement of their PPD scores than those in the control group.

In the current study, CBT had proved reduction in depression scores. CBT is a psychotherapeutic treatment approach, as pioneered by Beck (1970) and Ellis (1962), who holds that maladaptive cognitions contribute to the maintenance of emotional distress and behavioural problems. According to Beck's model, these maladaptive cognitions include general beliefs, or schemas, about the world, the self, and the future, giving rise to specific and automatic thoughts in particular situations. The basic model posits that therapeutic strategies to change these maladaptive cognitions lead to changes in emotional distress and problematic behaviours (Polit and Beck, 2013). CBT in the current study helped to change maladaptive cognitions among the patients. Consistent with the medical model of psychiatry, the overall goal of treatment is symptom reduction, improvement in functioning, and remission of the disorder.

In order to achieve this goal, the patients in the intervention group became active participants in a collaborative problem-solving process to test and challenge the validity of maladaptive cognitions and to modify maladaptive behavioural patterns.

Although literature on the effect of CBT in the treatment process of PPD is mixed (Henning et al., 2004) , with most moderators and mediators showing a relationship in some studies and not others, this study provided further support for the contention that CBT is has effect on the treatment of PPD within publicly-funded health settings. Participants in the Intervention group showed a more rapid reduction in depressive symptoms over time than a control group of individuals receiving pharmacological treatment as usual. Significantly more CBT participants had clinically meaningful reductions in symptoms and reached symptom remission with a  $P=0.004$  in the  $2 \times 2$  ANOVA analysis.

This study adds to a growing literature supporting the effect of CBT on the improvement of the health status of youth mothers with PPD within real-world settings and illustrates some of the complexity of implementing evidence-based practices within public health clinics. In resource-limited settings, psychotherapy is likely to be reserved for individuals who are insufficiently treated with medication, resulting in a sample that varies significantly from the populations generally reported in efficacy trials (Merrill et al., 2003; Thase et al., 2007).

Given the accessibility of pharmacotherapy in public health settings, it is not unreasonable that questions have been raised regarding the added effect of CBT compared to medication alone (Cuijpers et al., 2009). Some reviews of the literature have suggested that combination treatment (psychotherapy together with drugs) may have some advantage over medication (or pharmacotherapy) alone (Butler et al., 2006; Feldman, 2007). Based on nine randomized controlled trials comparing pharmacotherapy with combined psychotherapy/pharmacotherapy (Cuijpers et al., 2010) found an average standardized effect size of .23 (CI:  $-.01$  to  $.47$ ) favoring combined treatment over medication alone.

Combination treatment has also been found to yield a more rapid response than pharmacotherapy alone (Malhi et al., 2009; Manber et al., 2008), which can be critical when individuals are at risk of negative outcomes such as job loss, hospitalization, suicide, and may enhance retention in treatment (Pampallona et al., 2004).

Although combination treatment is more costly than monotherapy, the superior relapse prevention effects of CBT supports its cost-effectiveness over time when considering reduced direct such as physical and behavioural health costs, and indirect costs such as productivity (Antonuccio et al., 2009).

Psychotherapy has proved effective for mild to moderate depression, and pharmacotherapy has proved effective for moderate to severe PPD. However, combined psychotherapy and pharmacotherapy is considered first-line treatment for non-psychotic, mild to severe PPD (Moses-Kolko et al., 2004).

State leaders may assume that existing mental health provides are already providing manualized treatments such as CBT when psychotherapy is recommended. However, there is little evidence to support this assumption. While exposure to manualized treatments has become more common in clinical training programs (Weissman et al., 2006), several studies have shown that the majority of practicing clinicians report infrequent use psychotherapy or evidence-based interventions (Addis and Krasnow, 2000; Becker et al., 2004; Mussell et al., 2000).

Public health settings, in particular, pose many unique challenges to the implementation of CBT, including the complex needs of consumers, the multiple demands on the workforce and the varied organizational understanding and support for implementation (Foa, Gillihan and Bryant, 2013). In addition, patients often present with complex psychosocial needs and psychiatric co-morbidities and non-adherence with treatment is common (Stewart et al., 2003). Due to these factors, policy makers may question the feasibility of implementing CBT with comparable outcomes (Addis, 2002).

### **5.3 Specific Symptoms of Postpartum Depression (PPD) as a measure of the Health Status of Mothers with PPD who were on cognitive behavioural therapy (CBT) and those not on CBT.**

In the second objective, symptoms were grouped into three main categories: anxiety levels (questions 3, 4 & 5), thoughts of harming oneself (question-10) and overall depression levels of the ten symptoms. The results indicated a clear reduction in the number of participants with anxiety in the intervention group than in the control group.

CBT is seen to contribute more to the reduction of anxiety levels among patients with PPD than those who were just on pharmacological treatment alone. The effect of CBT on anxiety disorders was consistently strong, despite some notable inadequacy in the specific anxiety pathology, comparison conditions, follow-up data, and severity level. A statistically significant treatment effect was reported for the treatment of general anxiety, and at least medium treatment effect for social anxiety disorder and panic disorder (Cuijpers et al., 2010). However, more studies using larger trials and greater sample sizes may draw more conclusive findings with regard to the combination of CBT and antidepressants' relative efficacy in comparison to pharmacological treatment when used alone.

For the treatment of changes in eating patterns, CBT combined with antidepressants was considerably more effective than pharmacological treatment alone. Similarly, CBT in the intervention group demonstrated superior effect as compared to the control group, for treating insomnia when examining sleep quality and total sleep time. However, although there were small effects of CBT for sleep problems among participants older than 30 years, these effects may not be long lasting (Montgomery and Dennis, 2009). This information was obtained through CBT and pharmacotherapy treatment sessions, as participants were asked to report on their sleeping patterns. The findings may also not be conclusively useful to the current study because the study did not laterally find out effects of CBT on sleep patterns in specific age groups within the youth mothers.

There was also a reduction in numbers of participants with thoughts of harming oneself after post-test. The "thoughts of harming myself have occurred to me" among the participants both in the intervention group and the control group indicated a significant difference.

This shows an effect of both CBT and drugs on the reduction of thought of harming oneself. The current study findings indicates that although suicidal ideation maybe present in patients with PPD, treatment using CBT together with antidepressants had insignificant difference with that of using antidepressants only. However, it is important that patients with suicidal ideation should be handled with the emergency deserved. Both the drugs and psychotherapy are necessary in this situation.

Results of the effect of treatment on the levels of depression among all the participants in both groups show that, the number of participants overall increased in mild depression levels, reduced in moderate depression levels for the control group but completely eliminated in the intervention group. For severe depression levels, it was completely eliminated in both groups.

Patients who were completely treated of postpartum depression were more in the intervention group than in the control group. This indicates an effect of CBT on overall depression symptoms. The implication is that when drugs are used together with CBT, effects of symptoms on the health of mothers are much reduced than when drugs are used alone.

The evaluation on the contribution of specific symptoms as a measure of the health status (PPD) of mothers with PPD included depressive variables such as symptoms of anxiety, thoughts of harming oneself and overall depression. The analyses on the intervention (CBT) group and also on the control (Non-CBT) groups' data sets indicated that all the three categories of specific symptoms (anxiety, thoughts of harming myself have occurred to me and overall depression) on the EPDS, are a function of influence on the health status of youth mothers with postpartum depression. In the test of independence, the pre-test showed that there were no statistical significant associations between specific symptoms and postpartum depression. Lack of observable association could be attributed to the assessment having been conducted prior to treatment. Such an association could only be evaluated when the patient is treated and observed for some time, that is, in the post-test. Since patients in both groups were recruited under same conditions, it is assumed that pre-test might not be the best basis to evaluate the association of the symptoms with PPD.

This could be assumed as the reason why before the psychotherapy treatment on the intervention group, there were weak associations between the symptoms and the health of the postnatal mothers in both groups.

The weak association made it difficult to evaluate the contribution of the specific symptoms of PPD to the health of youth mothers. However, in the post-test scores, the association in all the three categories of symptoms and the health of postnatal mother could be well evaluated as observed through Phi-Cramers' values. More association was indicated in anxiety. In general,

CBT is a reliable first-line approach for treatment of anxiety disorders for significant positive effects on secondary symptoms such as sleep dysfunction and anxiety sensitivity.

Post-test results indicated that there were statistical significance associations between depression levels and the three categories of the specific symptoms of postpartum depression on the EPDS.

The differences in statistical significance would be due to how much reduction was observed in PPD scores as measured by EPDS, and with more reduction on anxiety scores, one might conclude which specific symptoms contributed more to the health status of the mothers.

In a study by Van et al., (2017), EPDS scores indicated the prevalence of PPD symptoms was 19.3% (95% CI: 16.16-22.50). Among women with PPD symptoms, 37.9% had suicidal thoughts in the previous seven days. Multivariate logistic regression indicated that the following key factors were significantly associated with PPD symptoms: Not being able to rely on their husband for help, having a husband who does not spend time to discuss problems, having anxiety about matters other than the birth, not exercising after giving birth, and having an ill baby.

The current study findings is consistent with Thurgood et al., (2009) who reported that 66% of depressed mothers have a co-morbid of anxiety disorder and should be evaluated carefully by their physicians, and treatment option should cover symptoms of depression and anxiety. Therefore, anxiety is among the common symptoms of PPD. The current study agrees with Thurgood et al., (2009), who reported that the most important developments in the study of PPD include its association with symptoms of anxiety and bipolar disorders in addition to those of depression. The findings of this study therefore suggest a closer attention towards anxiety symptoms in the treatment of postpartum depression. The results in table 7 show that anxiety has statistical significant influence on the PPD scores as a measure of the health status of mothers with postpartum depression.

Cognitive behavioural therapy therefore, plays a vital role in the improvement of the symptoms of PPD as a measure of the health status of mothers with postpartum depression through treatment of anxiety. The result is also confirmed by the analysis of the contribution of anxiety to the depression levels in both the intervention and the control groups.

The results show that when anxiety is treated, the levels of depression are drastically reduced. CBT also allows a quicker recovery of depression than when only pharmacology is used. This implies that mothers with thoughts of harming themselves or suicidal ideation should receive same day psychological intervention to reconstruct the negative thoughts, as elucidated by Langan and Goodbred (2016).

#### **5.4 The Influence of Demographic and Depression History variables on the health of mothers with PPD who are on CBT and those not on CBT**

This section brings forth the findings on demographic variables as predicting variables of the occurrence of depression between patients on CBT treatment and those on non-CBT treatment. Two parallel multiple linear regression analyses were carried out to assess the degree of predictive influence of demographic variables and history of depression, as risk factors for severity of postpartum depression among youth mothers, that is, one analysis on CBT treatment data and another on non-CBT treatment data.

Although some prior research has found age, marital status, education level, residential status, employment status and history of depression to influence PPD and the health of postpartum mothers, this study found no statistically significant variances based on these demographic variables except for past history. Age, marital status, education level, employment status, past history of depression and family history of depression were used to predict depression variance in the regression equation.

Using both unstandardized and standardized regression coefficients of the predictors of reduction in depression levels, non-significant regression equations were found for both the intervention (CBT) treatment with  $p=0.40$ , and the control (Non-CBT) treatment data with the  $p= 0.53$ , except for past history of depression ( $p=0.043$ ). This implies that together all the six variables reviewed small differences but did not have statistical significant and predictive influence on the occurrence of postpartum depression among youth mothers. The results also indicate that each individual demographic variable and the two forms of history of depression had no statistically significant and predictive influence on the occurrence and severity of postpartum depression in both the intervention (CBT) treatment group and the Control (Non-CBT) treatment group.



Further implication of this is that, demographic factors such as age, marital status, education level, employment status and family history of depression among the participants in both groups did not influence or act as risk factors for postpartum depression in this study.

Although these findings differ from some published studies that found family history of depression, socio-economic status, age, marital status and education level, (Chao et al., 2008), they are consistent with those of Robertson et al., (2000), who found no significant relationship between partner support and occurrence of PPD.

Stewart (2003) reported that research which has examined the rates of PPD in mothers age 14-18 years (n=128) showed a much higher rates of illness, approximately 26%. However, within this younger population, there may be risk factors which predispose not only to PPD but also to pregnancy during adolescence and therefore are not independent risk factors for PPD. This shows that age is not always a risk factor for PPD.

The findings are also in agreement with that done by Milgrom et al., (2008) which showed that while poor partner support has been identified as an important risk factor for PPD few studies have investigated the role of the partner or other family support in recovery from PPD. The findings are also in line with Milgrom et al., (2008) who reported that no relationship was found for ethnicity, maternal age, level of education, parity, or gender of child, among mothers with PPD in Western societies (Milgrom et al., 2008).

However, the findings of the current study on past history is in support the previous research by Chao et al., (2008) which cited depressed mood during pregnancy, but in contrast with, lack of partner support such as being single, divorced and widowed, as the common risk factors of PPD. Currently, 50-70% of depressed pregnant women reported that they had experienced marital problems and conflicts (Chao et al., 2008).

This shows that marital status as well as partner support happens to be risk factors for PPD, but this was not the case with the findings of this study. The findings are also not in agreement with those by Moses-Kolko et al., (2004) who reported that the most common risk factors of PPD apart from prior history of depression, include and that, women who do develop depression during pregnancy are at high risk for developing PPD after giving birth. Therefore, intervention seems to be desperately needed for improving marital relationships.

For buffering negative events related to marital discord and alleviating depression, 5 types of positive and supportive behaviors of the partner are potentially important: spending quality time together, listening positively, acquiring support and boosting self-esteem and building intimacy. Once depressed women perceive the positive and supportive behavior from their spouse, the level of depression seems to decrease over time.

The study findings are in agreement with past history of depression but in contrast to previous findings which stated that significant risk factors for PPD include a family history of depression prior to or during pregnancy, anxiety during pregnancy, experiencing stressful life events during pregnancy or the early puerperium, low levels of social support (Robertson et al., 2004) or partner support (Milgrom et al., 2008), low socioeconomic status, and obstetric complications (O'Hara and Swain, 1996). Although mental health often is not prioritized as a problem in poorer countries where access to basic nutrition and health care are not consistent, the evidence suggests that postnatal depression may be both more common and graver for women and their children in low-income countries.

The variances could be explained by a number of different factors that include cultural diversity of the previous work, geographical positions of the previous study sites and the small sample size that was used in the current study compared to the previous studies. One would argue that it is not always that age or marital status brings about mood disorders as there are women who develop dislike for their partners during pregnancy and after delivery.

For instance, psychiatric disorders such as PPD are heavily stigmatized within many cultures, and women and their families may be reluctant to seek help from health professionals, preferring to try and manage the illness with no outside help. Health professionals may only be consulted or sought when the woman is so severely ill that the family can no longer cope (Stewart et al., 2003).

The use of standardised assessment tools such as EPDS may not be culturally easy to use within certain ethnic groupings; some women were reluctant to discuss issues of libido or feelings of self-harm (Suicidal ideation or thought of harming oneself). Such women could have deemed such issues as inappropriate to be discussed outside of the family.

## **5.5 Awareness of PPD, CBT and other Psychotherapy Services among the Youth Postpartum Mothers and the Staff**

This part highlights the findings on the levels of awareness of postpartum depression, cognitive behavioural therapy and other psychotherapy services among postpartum mothers and the members of staff in the maternity clinic of the University Teaching Hospital (UTH).

A structured interview guide for mothers as well as for members of staff designed separately was used to obtain the information. The information obtained was categorised into two subsections, awareness among the youth postpartum mothers and also among the members of staff at the maternity clinic:

### **5.5.1. Awareness among the Youth Postpartum Mothers**

Thirty one percent of the participants stated that they have heard about postpartum depression (PPD) before and that eleven percent have had experienced it and been treated before. This level of awareness is low and demands for more advocacy on matters of psychological conditions among the mothers.

When asked about their awareness of cognitive behavioural therapy (CBT) and other psychotherapy services provided at UTH, only six percent mentioned having heard of CBT while twenty five percent said that they have had heard about other psychotherapy services even though they have never accessed them. This is in line with the findings of Dekker (2010) who found that most postpartum mothers have limited information about psychotherapy but pharmacotherapy. The rest of the participants showed ignorance. The lack of knowledge about psychological services among the patients is a hindering factor to the improvement of the health status of mothers. This is because mothers remain undertreated or untreated. The findings are also in line with Cynthia et al., (2006) who reported there is no single study that shows clear levels of awareness or the group that can be said to be responsible for awareness of psychotherapy services in maternal health centres. Primary care providers have the most contact with postpartum women, but may be unable or unwilling to screen, treat, and or refer the women to the relevant specialties. Thus, as indicated by the findings, many women with postpartum depression are not receiving the much needed mental health services.

Therefore, it could also be said that there is no clear indication that postpartum mothers lack treatment option as they entirely depend on the drugs prescribed to them by physicians.

PPD has effects on the woman's relationships, her functional status, and her ability to care for her infant. However, PPD can be successfully and easily treated, but remains unadvocated, under-recognized and under-treated. Aqapidaki et al., (2013) states that there are lack of interventions to improve awareness, detection and management of maternal depression. There is therefore need to have a collaborative approach to the treatment of psychological conditions among mothers. All stake holders should be on board to help improve maternal health among youth mothers.

As reported in the findings on preferred mode of treatment, all the participants felt that both the psychologist and other medical practitioners like the physicians should provide medical services to the mothers with PPD. The participants clearly stated that drugs are important in the treatment of any medical conditions but that some conditions require psychological interventions. This is a clear indication that the treatment of psychological maternal conditions should not only centre on pharmacotherapy but also on psychotherapy.

Participants stated that they have had received Pharmacotherapy treatment on general postnatal clinic services before, and not just specifically on postpartum depression. These medical services were provided at six days and at six weeks postpartum respectively. Such services however may not categorically address psychological problems hence the need to address the aspect of early screening and early treatment of mental health conditions among not only youth mothers but maternal health as a whole.

### **5.5.2. Awareness among the professional Staff at the Maternity Clinic**

As stated earlier, members of staff from three maternity ward blocks were encooperated into the study. Each ward contributed two participants.

When asked if there was routine screening of postpartum mothers for PPD, sixty seven of the participants stated that there were no routine or protocol followed in the screening for depression among postpartum mothers. Thirty three percent of the participants however said both *yes* and *no* to the question.

They said yes in the sense that attention is given whenever the health professionals suspect the condition of depression no in the sense that it was not done as a routine. Such mixed position on issues that involves life should be avoided through putting up of direct measures. Furthermore, such should not be the case because if treatment is delayed, it proves costly and may lead to loss of life.

All participants who were interviewed agreed to having heard and practiced simple counselling services by nurses, mid-wives and doctors in the maternity wards. The members of staff however felt the service was not fully utilised. This is an indication that although professional members of staff are aware of psychological conditions and the need for psychotherapy to the patients, there is no effective intervention for treatment of such conditions. What is known is also simple counseling and not cognitive behavioural therapy in full.

The presence of a clinical psychologist in the maternity clinic would therefore be a positive factor to the call to improving maternal health among youth mothers. On the other hand, the professional staff may be fully aware of the need to provide psychological treatment to patients of PPD, however, the long period needed for psychotherapy as compared to pharmacotherapy coupled with overburden of work due to high staff-patient ratio, may be the hindering factor for the effective implementation of psychotherapeutic services in the maternity clinic.

On the aspect of making referrals of mothers with PPD to clinic 6 which is the psychiatry department of UTH, only seventeen percent of the participants said sometimes they do make referrals and that the response they get was either slow or not good. Thirty three percent said treatment of PPD is done in the wards while the rest said no routine referrals were made to clinic 6. This is an indication that the collaborative role of the professional staff among different departments may not be fully explored.

It can also be viewed that one end may be overburdened with more work than the other such that responding to referrals becomes either slow or not as expected.

Just like the postpartum mothers, the medical staff at the maternity clinic felt that the provision of medical services to mothers with PPD should be provided as both Pharmacotherapy and the psychotherapy. However, one participant further observed that the treatment mode may not be singled out as this depends on the severity of the condition at hand. One matron stated that:

*“It depends on the seriousness of the problem at hand. The fact is that there is no enough time to start psychological intervention when the patient is critically ill. I would rather go by drugs until the patient shows signs of recovery. And when this happens, due to increased pressure of bigger number of patients to handle, officers usually end up discharging the patients without referral for further attention such as psychological treatment”.*

The impression created from such a response was that there is limited attention to the provision of mental health services to postpartum mothers. This is worsened by the fact that there is no protocol and routine screening of PPD among the mothers, making cases to remain undetected and untreated. This is in line with Cyimana (2010) who reported that there was no routine screening of PPD at most of the postnatal clinics in Zambia, including the university teaching hospital. This impression is also supported by World Health Organisation-WHO (2014) who reported that postpartum depression is a common occurrence which is often undiagnosed when symptoms are not severe and may progress into severe or chronic state if unrecognized and untreated.

This finding further is in line with what was reported by Elizabeth *et al.*, (2011) who stated that poor approach to treatment of psychological conditions could be attributed to the situation that health systems are over-stretched and under-resourced, and patients together with health institutions have a variety of competing issues which are not limited to postpartum depression but also to other mood disorders, HIV and AIDS, malaria, cancer, hypertension and diabetic conditions.

## **5.6 Limitation of the Study**

The limitations of this study are as follows: It is not very clear if CBT alone has more effect when used in combination with pharmacotherapy than other psychotherapies. It is also not clear if CBT alone could be more effective than pharmacotherapy if not used in combination with pharmacotherapy. The other limitation is that EPDS seem to be more predictive of anxiety among other symptoms of depression; this might make someone to have an impression that the internal validity of the instrument needs to be revisited. The small number of participants in this study especially those with severe postpartum depression, limits the generalization of the positive outcome of CBT intervention. Lastly, we could not administer post-treatment assessment to some participants the in both groups in order to maximize the response rate of postpartum assessment, and therefore, post-treatment differences might have been influenced the findings.

Despite these limitations, our results demonstrated the effect of CBT intervention in the improvement of the health status of youth mothers with PPD. Although PPD poses serious mental health problems to mothers and infants, no well structured attempts have been made to develop an effective preventive approach in Zambia (Cyimana et al., 2010). A shorter duration of preventive approach through screening can be more effective than treatment that is administered after the onset of depression, and this may in turn exert a positive carry-on effect on households or social economy. Moreover, effective treatment as well as preventing depression for nursing youth mothers helps not only the psychological well-being of the mothers but also the entire family. If the findings of this study would be replicated in a larger trial, it would greatly contribute to promotion of women's public health.

## **CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS**

### **6.1 Introduction**

This section presents the conclusion of the study and the proposed recommendations based on the findings of the study.

### **6.2 Conclusion**

The study found significant reduction in postpartum depression among patients treated with CBT in combination with Pharmacotherapy compared to those treated with pharmacotherapy only. When adequately implemented, CBT can be an important partner to pharmacotherapy aimed at improving the efficiency of treating postpartum depression among women. CBT may also be of use as an adjunct to medications in the treatment of PPD and other psychological conditions. Other studies have shown that this psychotherapeutic approach reduces relapse or recurrence rates, with a magnitude of effect that might be comparable to keeping patients on medications, which is particularly noteworthy in a chronic recurrent disorder (Langan and Goodbred, 2016). CBT also reduces the risks of side effects posed by use of antidepressants on both the mother and the infant.

The study also illustrates some of the challenges of implementing an evidence-based psychotherapy within public health settings. The professional staff initially approached in the maternity clinic about participation in the research was small, primarily due to what seemingly appeared to be a lack of readiness to implement CBT and other psychotherapeutic services. In conclusion, the present study demonstrates that CBT for depression, when delivered in routine care settings, has good results in terms of both improvement of the health status of youth mothers with PPD and also has a clinical significance at the individual level. However, there are still many patients who drop out of treatment or who do not benefit from treatment, and such need more sensitisation.



### 6.3 Recommendations

The following are the recommendations that emanated from the study:

- The Ministry of Health should intensify on therapist training efforts through deliberately creating technical positions for clinical psychologists. Maternal clinics and wards should have professional well-equipped clinical psychologists to carry out protocol services. This also indicates the need for imparting training in CBT to the health staff dealing with pregnant and postpartum women, so that they can intervene early in the course of the illness with the view to control it.
- To sustain implementation through staff turnover, medical institutions will likely need to develop internal expertise to provide on-going supervision. In this study, all the six professional staff consenting to participation did not provide CBT to study participants but admitted having provided simple counselling when the condition among patients is deemed severe. Several factors contribute to this challenge, including selection of appropriate staff for implementation, retention of staff, and effective support. In fact, health institutions may increase staff turnover by providing therapists with skills that are in high demand within the community.
- To improve wide-scale dissemination, research should continue to identify cost-effective ways to develop therapist competencies, such as through blended training models or computer simulations, as well as identify key characteristics of staff most likely to develop adequate competence.
- Research on the significant impact of CBT on the improvement of the health status of women with PPD suggests the need for an effective public health approach. Public mental health systems, which serve as the primary health home for many mothers with chronic or severe depression, would seem an important setting for ensuring access to the most effective available interventions.
- Along with previous research, the current study suggests that many of the reasons why state health systems have been slow to embrace the value of CBT or recognize the need for structured implementation efforts are not valid.

State systems could support implementation through partnerships with academic institutions with experience in CBT models and implementation science, and through financial incentives supporting workforce development, high-fidelity implementation, and patient outcomes.

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## APPENDICES

### Appendix A: Information Sheet

(To be read to each respondent in her chosen language).

This is an important form giving you information about this study that we are conducting. Please read it or someone will read it for you, carefully, and ask questions where it is not clear for you. If you decide to participate in this study, you will confirm by signing or putting your thumb print at the indicated space. You are free to refuse the participation in this study without any risk of change or influence on your treatment and care that you will be receiving in this hospital.

#### **Invitation**

You are invited to take part in the research in titled **The Effect of CBT on the Improvement of the Health of Youth Mothers with Postpartum Depression**. Postpartum depression is depression that comes during pregnancy or after delivery. Cognitive behavioral therapy (CBT) on the other hand is a psychosocial intervention for individuals with depression.

#### **Purpose of Research and Procedures.**

The aim of this study is to find out whether CBT has an effect treatment therapy for mothers with postpartum depression or not. Thereafter the findings will be given to health planners to consider this therapy in their effort to deliver quality services to patients with depression.

#### **Do I have to take part?**

It's up to you whether or not to be involved. If you decide to take part, you will be given this information sheet to keep and will be asked to sign a consent form. You are also free to withdraw from this study at any time you wish to do so without giving reason.

#### **What will happen if I agree to take part?**

You will be put on CBT and /or medicine in order to reduce the depressive symptoms from you and improve your mood by working on changing the thoughts that are leading to depression.

## **Risks and benefits**

To be a participant to this study has no risk at all. Instead, you will benefit by having the much needed health care as well as monitoring your recovery after delivery.

## **Confidentiality**

All the information including your name and all your personal and medical details will be kept confidential. No individual will be identifiable in any reports or publications. All information collected and the counseling sessions will be destroyed after transferring the data to the computer where initials of your names will be replaced by computer number.

Your approval will be confirmed by a tick in each of the boxes on the consent form. You will also be required to indicate your name, signature, or your thumb print on this form and the consent form. **I invite you to voluntarily take part in the study.** If you agree to take part in the study we may now proceed:

Respondent signature: ..... / Thumb ..... Date: .....

For any queries on this study, you are free to contact me physically or on the following address:

Humphrey Mwenya Chungu.

University Teaching Hospital (UTH), Department of Psychiatry, Lusaka.

E.MAIL: humphreychungu@gmail.com mobile: 0966362802 or 0978422686.

Professor Dabie Nabuzoka. (Principal supervisor), Department of Psychology, University of Zambia. Mobile 0963644796.

Dr.Ravi Paul. HOD, (Co-supervisor), Psychiatry department, UTH. Mobile; 0976744654.

Ncheka Joyce. (Co-supervisor), University teaching Hospital, Psychiatry Department. Mobile; 0964760460.

Feel free to contact:

THE CHAIRPERSON

**ERES CONVERGE IRB**

**33 Joseph Mwilwa Road**

**Rhodes Park, LUSAKA.**

**Tel: 0955 155633/ E-mail: eresconverge@yahoo.co.uk**

## Appendix B: Consent Form

(To be filled in or read to each participant in her chosen language).

This is an important form giving you information about this study that we are conducting. Please read it or someone will read it for you, carefully, and ask questions where it is not clear for you.

### **Purpose of research and procedures:**

The aim of this study is to evaluate the effect of cognitive behavioral therapy on the improvement of the health of youth mothers with postpartum depression at UTH. In the same line we would like to identify the common symptoms of postpartum depression among youth mothers, as well as exploring the level of awareness among youth mothers on psychotherapy services within UTH. Thereafter, the information will give health planners to consider this problem in their quest to deliver quality services. This is why your contribution by giving appropriate information will be very much appreciated. Therapy will be repeated every week interval with each session lasting 30-45 minutes.

### **Consent:**

1. I confirm that I have read/heard the information sheet dated....., for the study above [ ].
2. I confirm that I have had the opportunity to ask questions and had them answered satisfactorily [ ].
3. I understand that my participation is voluntary and iam free to withdraw consent at any time, without giving a reason. [ ].
4. I agree to my written notes from the treatment approach being used by the researcher [ ].

Print name of the participant .....

Signature ...../ Thumb .....

Witness ..... Signature ...../ Thumb .....

## Appendix C: Assent Form

(For guardians of participants below 18 years).

I confirm that I have read and understood the information on the information sheet. I confirm that my relative and i have had the opportunity to ask questions and have them answered satisfactorily. I understand that my relative's participation in this study is voluntary and she is free to withdraw from the study without necessarily giving reasons. I agree to written notes from the treatment approach being used by the researcher.

I therefore allow my relative to take part in the study involving the investigation of the effect of cognitive behavioural therapy (CBT) on the improvement of the health of youth mothers with postpartum depression at the University Teaching Hospital.

Name of guardian: ..... Signature: ...../ Thumb Print .....

Name of participant: ..... Signature: ...../ Thumb Print .....

Date: .....

Thank you for your time.



## **Appendix D: Edinburgh Postnatal Depression Scale (EPDS)**

Adapted from Cox J.M. Holden R. Sagovsky (British Journal of Psychiatry June, 1987, Vol, 150)

The Edinburgh Postnatal Depression Scale has been developed to assist primary care health professionals to detect mothers suffering from postnatal depression; a distressing disorder more prolonged than the “blues” (which occur in the first week after delivery) but less severe than puerperal psychosis. Previous studies have shown that postnatal depression affects at least 10 percent of women and that many depressed mothers remain untreated. These mothers may cope with their baby and with household tasks, but their enjoyment of life is seriously affected and it is possible that there are long-term effects on the person and family. The EPDS was developed at health centers in Livingstone and Edinburgh. It consists of ten short statements. The respondent ticks which of the four possible responses is closest to how she has been feeling during past week. Most mothers complete the scale without difficulty in less than 5 minutes. The validation study showed that mothers who scored above threshold, 92.3 percent were likely to be suffering from a depressive illness of varying severity. Nevertheless the EPDS score should not override clinical judgment. A careful clinical assessment should be carried out to confirm the diagnosis. The scale indicates how the mother has felt during the previous week and in doubt cases it may be usefully repeated after 2 weeks. The scale will not detect mothers with anxiety neuroses, phobias or personality disorder

### **Instructions for users:**

The mother is asked to underline the response, which comes closest to how she has been feeling in the previous 7 days. All ten items must be completed. Care should be taken to avoid the possibility of the mother discussing her answers with others. The mother should complete the scale herself, unless she has limited English or has difficulty with reading. As you have recently had a baby, we would like to know how you are feeling. Please **CIRCLE** the answer which comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today.

**1. I have been able to laugh and see the funny side of things.**

1. As much as I always could
2. Not quite so much now
3. Definitely not so much now
4. Not at all.

**2. I have looked forward with enjoyment to things.**

1. As much as I ever did
2. Rather less than I used to
3. Definitely less than I used to
4. Hardly at all.

**\*3. I have blamed myself unnecessarily when things went wrong.**

1. Yes, most of the time
2. Yes, some of the time
3. Not very often
4. No, never.

**4. I have been anxious or worried for no good reason.**

1. No, not all
2. Hardly ever
3. Yes, sometimes
4. Yes, very often

**\*5. I have felt scared or panicky for not very good reason.**

1. Yes, quite a lot
2. Yes, sometimes
3. No, not much
4. No, not at all

**\*6. Things have been getting on top of me.**

1. Yes, most of the time I haven't been able to cope at all.
2. Yes, sometimes I haven't been coping as well as usual,
3. No, most of the time I have coped quite well
4. No, I have been coping as well as ever.

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

1. Yes, most of the time
2. Yes, sometimes
3. Not very often
4. No, not at all.

**\*8. I have felt sad or miserable.**

1. Yes, most of the time
2. Yes, quite often
3. Not very often
4. No, not at al

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

1. Yes, most of the time
2. Yes, quite often
3. Only occasionally
4. No, never.

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

1. Yes, quite often
2. Sometimes
3. Hardly ever
4. Never

**Interpretation:** Response categories are scored 0, 1, 2, and 3 according to increased severity of the symptoms. Items marked with an asterisk are reverse scored (i.e. 3, 2, 1, and 0). The total score is calculated by adding together the scores for each of the ten items. Users may reproduce the scale without further permission providing they respect copyright by quoting the names of the authors, the title and the source of the paper. Questions 3,4,5 are for anxiety, 10 is for suicidal ideation.

**Demographics:**

1. Age [     ]
2. Marital status: Single [ ], Married [ ], Divorced [ ], Widowed [ ].
3. Education level: Not been to school [ ], Primary [ ], Secondary [ ], Tertiary [ ].
4. Employment status: Not [ ], Self [ ], Formal [ ].
5. Past history of depression: No [ ], Yes [ ].
6. Family history of depression: No [ ], Yes [ ].

## **Appendix E: Structured Interview Guide for Mother Participants**

Study title: “the effect of cognitive behavioral therapy on the improvement of the health of youth mothers with postpartum depression at the University Teaching Hospital”, Lusaka-Zambia.

To remind you, this study which you are being asked to participate in, is being undertaken in order to evaluate the effect of cognitive behavioral therapy on the improvement of the health of youth mothers with postpartum depression following childbirth. The interview is aimed at targeted women at the age of 15 up to 35 years, in order to get a range of views about postpartum depression. This research will contribute to the generation of knowledge, which will be used to influence policy-makers as they develop policies that deal with women and their maternal health. It will also assist in developing and advocating for interventions that are responsive to the needs of women postpartum (after delivery).

### **Choice**

Take note that you have the right to choose to participate in this study and you can withdraw from the process of the interview anytime or whenever you wish to do so without any prejudice. You will be given the opportunity to ask questions before, during and after the discussion. You can also choose to, or not to answer any question.

### **Procedure**

I will be leading the interview in which you will be asked to share your experiences and your views about the topic with me. You can answer and also ask questions whenever you wish to do so. I will not be looking for any wrong or right answers, but your views on the topic. The interview will last between 20 to 30 minutes.

Postpartum depression (PPD) is a type of depression or mood disorders that may start during pregnancy and usually manifest after child delivery. PPD can be treated using pharmacotherapy and psychotherapy. Psychotherapy is provided by psychologists and generally deals with working on the negative thoughts and the related behavior.

**Questions**

- 1. Have you ever heard about Depression among mothers after delivery (PPD)?
- 2. Have you ever heard of services provided to mothers by psychologist after childbirth at UTH?
- 3. Who do you think should provide medical services to mothers with PPD?  
A) Pharmacologist    B) Psychologist    C) Both pharmacologist and psychologist.
- 4. What mode of treatment would you prefer for treatment of PPD?  
A) Pharmacotherapy    B) Psychotherapy    C) Both pharmacotherapy and psychotherapy.
- 5. What type of medical services are you aware of provided by UTH to postpartum mothers?

**Debrief**

Do you have any questions after this discussion?

Thank you very much for participating in this discussion. If you happen to have more questions after this interview, do not hesitate to contact me through the department of psychiatry, UTH.

Researcher: .....

Signature: ..... Date: .....

Phones: 0966362802/ 0978422686.

## **Appendix F: Structured Interview Guide for professional Staff**

Study title: “the effect of cognitive behavioral therapy on the improvement of the health of youth mothers with postpartum depression at the University Teaching Hospital”, Lusaka-Zambia.

This study which you are being asked to participate in is being undertaken in order to evaluate the effect of cognitive behavioral therapy on the improvement of the health of youth mothers with postpartum depression following childbirth. The interview is aimed at targeted women at the age of 15 up to 35 years, in order to get a range of views about postpartum depression. This research will contribute to the generation of knowledge, which will be used to influence policy-makers as they develop policies that deal with women and their maternal health. It will also assist in developing and advocating for interventions that are responsive to the needs of women postpartum (after delivery).

### **Choice**

Take note that you have the right to choose to participate in this study and you can withdraw from the process of the interview anytime or whenever you wish to do so without any prejudice. You will be given the opportunity to ask questions before, during and after the discussion. You can also choose to, or not to answer any question.

### **Procedure**

I will be leading the interview in which you will be asked to share your experiences and your views about the topic with me. You can answer and also ask questions whenever you wish to do so. I will not be looking for any wrong or right answers, but your views on the topic. The interview will last between 20 to 30 minutes.

Postpartum depression (PPD) is a type of depression or mood disorders that may start during pregnancy and usually manifest after child delivery. PPD can be treated using pharmacotherapy and psychotherapy. Psychotherapy is provided by psychologists and generally deals with working on the negative thoughts and the related behavior.

**Questions**

1. Do you screen mothers for PPD after delivery? Tick YES [ ] or NO [ ].
2. Have you ever heard of services provided to mothers by psychologist after childbirth at UTH?
3. Do you make referrals of postpartum mothers to clinic 6 for any psychotherapy attention?
4. Who do you think should provide medical services to mothers with PPD?  
A) Pharmacologist    B) Psychologist    C) Both pharmacologist and psychologist.
5. What mode of treatment would you prefer for treatment of PPD?  
A) Pharmacotherapy    B) Psychotherapy    C) Both Pharmacotherapy and Psychotherapy.
6. What type of medical services are you aware of being provided by UTH to postpartum mothers?

**Debrief**

Do you have any questions after this discussion?

Thank you very much for participating in this discussion. If you happen to have more questions after this interview, do not hesitate to contact me through the department of psychiatry, UTH.

Researcher: .....

Signature: ..... Date: .....

Phones: 0954744721 /0966362802/ 0978422686.