EFFECT OF A TRAINING PROGRAMME ON KNOWLEDGE AND ATTITUDE OF NURSES ON MATERNAL DEPRESSION AND ITS LINKAGE WITH CHILD HEALTH IN IBADAN, NIGERIA

BY

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DECLARATION

This dissertation is submitted in partial fulfilment for the award of Master of Science degree in Child and Adolescent Mental Health, University of Ibadan.

This study has not been presented to any other University for the award of Master of Science degree or has it been submitted elsewhere for publication.

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CERTIFICATION

I certify that the study reported in this project was done by Mrs. Olufunmilayo Dorcas ADEYANJU of the Centre for Child and Adolescent Mental Health of the University of Ibadan, Oyo state, under my supervision

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DEDICATION

I dedicate this study to my Ever Faithful and Almighty God, my darling husband and loving Children.

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TABLE OF CONTENTS

Contents   **Pages**

CHAPTER ONE: INTRODUCTION

CHAPTER TWO: LITERATURE REVIEW

CHAPTER THREE: METHODOLOGY

CHAPTER FOUR: RESULTS

CHAPTER FIVE : DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

LIST OF TABLES

LIST OF FIGURES

KEY TO ABBREVIATIONS

ADHD: Attention Deficit Hyperactivity Disorder

CAMH: Child and Adolescent Mental Health

CCAMH: Centre for Child and Adolescent Mental Health

CHEW: Community Health Extension Worker

CHO: Community Health Officer

CNO: Chief Nursing Officer

EBD: Emotional and Behavioural Disorder

KMC: Kangaroo Mother Care

LAMIC: low and middle income countries

LGA: Local Government Area

MCH   Maternal and Child Health

mhGAP: Mental Health Global Action Plan

NACCHO: National Association of Country and City Health officials

NDP   Nigerian Demographic Profile

NIHCM: National Institute for Health care Management

NIMH :   National Institute of Mental Health

NO: Nursing Officer

PNO: Principal Nursing Officer

SNO: Senior Nursing Officer

UI: University of Ibadan

WHO: World Health Organization

ABSTRACT

Background: Approximately, 10-20% of women experience depression either during pregnancy or in the first 12 months after delivery, severe enough to compromise the health of their children. Depression is a major mood disorder that causes persistent feelings of sadness and loss of interest in activities that are normally pleasurable. Research has also indicated that children of depressed mothers are at an increased risk of developing depression themselves. Nurses as first line caregivers play important roles in the identification and management of this group of patients. It is not known if training of nurses in Ibadan will improve their abilities to perform these roles. This study was therefore designed to assess the effect of a training programme on knowledge and attitude of nurses about maternal depression and its linkage with child heath in Ibadan, Nigeria.

Methodology: This was a hospital-based intervention study involving 2 groups of 102 nurses each, from two purposively selected secondary health facilities in Ibadan metropolis. The study was done in four phases: baseline, intervention, immediate and one month post intervention. The instrument consisted of a pre-tested and semi-structured questionnaire adapted from Mental Health Gap Action Programme (mhGap) which was used to assess the nurses' baseline and post-intervention knowledge and attitude, using the module on depression, for the two groups. Participants in the intervention group received a two-hour training session followed by immediate post-intervention data collection and another survey of the group after one month. It was expected that after one week of training, Nurses in the intervention group would have internalized the training content.

The control group was exposed to the intervention by giving them the training manual four weeks after the last data collection, as an ethical obligation of beneficence. Data were analyzed using Chi-square test for test of association between quantitative variables and the *t*-test to compare means. The level of significance was set at 5%.

Results: Respondents' mean age was 45years; nurses in the age group 50-59 years made up the highest proportion (43.2%). Majority (98%) were females; 81% were married; and 99% were Yorubas. There was an improvement in knowledge of respondents with the mean score rising from 37.06 [SD: 5.84] at baseline to 41.41[SD: 4.07] at post intervention (p <0.001). The findings also showed that there was a statistically significant decline to 37.45 [SD: 12.34]) in the improved knowledge of the nurses four weeks after training (p = 0.003). The wide dispersion of scores one month after intervention showed that some nurses retained a lot of the new knowledge while others did not. Most importantly, the knowledge score one month after intervention in the experimental group, although higher, showed no statistically significant difference from the baseline score. The training also did not improve nurses' attitudes towards maternal depression and mothers who may have this problem, whether immediately after training or one month afterward, compared to baseline. In the experimental group, the mean attitude scores were 16.23 [SD: 2.31], 16.19 [SD: 2.56] and 15.42 [SD: 5.19] at baseline, immediately post-intervention and one month after intervention, respectively. The younger respondents (24-43 years) seemed to have better knowledge of maternal depression compared to the older respondents (44-59 years), but this did not reach the level of statistical significance.

Conclusion: Training was found to be effective in increasing the knowledge of nurses about maternal depression and its linkage with child health but this knowledge declined over time. However, attitudinal change may require more sessions of training, and coaching on the job. Continuous training and retraining of health workers is very important in order for them to retain the knowledge gained.

Key words: Depression, Maternal Depression, Nurses, Child health, Training.

CHAPTER ONE

INTRODUCTION

1.1Background of the Study

Depression is a mood disorder that causes persistent feeling of sadness and loss of interest in activities that are normally pleasurable. It is quite common in childbearing women, and when it is severe and prolonged, it can take a toll on the mother-child relationship and the young child's social, emotional and cognitive development. (Campbell 2010). More serious and chronic depression in mothers is usually associated with a range of risk factors including a family and personal history of depression, marital, financial, health or other stresses and delivery of a baby who goes on to have developmental problems (Campbell, 2010).

Research indicates that depressed mothers, especially when their depression is chronic, are less sensitive to their infants and toddlers (Bagner *et al*., 2010). They tend to play with and talk to their children less and provide less supportive and age-appropriate limit setting and discipline than non-depressed mothers (Weidmann, 2007). The children of depressed mothers are at an increased risk of developing depression themselves, presumably as a result of a combination of both genetic and environmental factors. The children also display alterations in the amygdala, a brain structure important for the regulation of emotion and stress (Nauert, 2013).

Approximately 10 – 20% of women experience depression either during pregnancy or in the first 12 months after delivery. (National Institute for Health Care Management [NIHCM], 2010). This can lead to serious health risks for both the mother and infant; it can also increase the risk for costly complications during birth and cause long-lasting or even permanent effects on child development and well-being. Despite the fact that the health risks and costly complications associated with maternal depression are well-documented, pregnant women and

1

new mothers experiencing depression often do not get the treatment they need (Sofranos *et al.*, 2011). This is due to fear of discussing mental health concerns with their health care providers or a lack of education about depression. According to the 2002 'Listening to Mothers Survey', about 60% of mothers surveyed scored 13, or higher on the Edinburgh Postnatal Depression Scale. This indicates that they were likely to be suffering from some degree of depression. This study also shows that 6 out of 10 women scoring 13 or more had not seen a professional for concerns about their mental health since giving birth (NIHCM, 2010). Furthermore, since health talks on maternal mental health and screening is not standard practice for most health care providers, especially nurses, maternal depression often goes undiagnosed and therefore untreated (NIHCM, 2010). This indicates the importance of integrating maternal mental health into the ante and post-natal care package.

1.2 Justification for the Study

Training health workers on health-related issues (health education and health promotion) usually takes the form of workshops, counselling skills, didactic teaching and service development workshops. These have proved to be helpful where they have been implemented.

Emphasis has always been on promotion of physical health/well-being especially during pregnancy and after delivery through good nutrition, adequate rest, promotion of personal and environmental hygiene, prevention of urinary tract infection and other types of infections. Promotion of mental health on the other hand, has been neglected, probably due to inadequate information on the importance of maternal health and its links to child and adolescent mental health. Several studies conducted reveal that children of depressed mothers are at increased risk for the development of psychopathology. They are found to be two to five times more likely to develop behavioural problems than children of non-depressed mothers (Nauert, 2013). Moreover, studies have shown that depressed mothers generally show less attentiveness and

2

responsiveness to their children's needs, and they are poor models for negative mood regulation and problem solving (Peterson and Albers 2001).

Maternal depression though a common emotional disorder, still has low assessment and intervention rates. Nurses being the first set of caregivers in the hospital should be trained on early identification of maternal depression and its consequence on child development. Therefore, the training programme on nurses' attitude and knowledge about maternal depression and its impact on the child will go a long way in reducing the number of cases of maternal depression thereby promoting child and adolescent mental health.

It is documented that the greatest burden of maternal depression is experienced by mothers living in low- and middle-income countries (Fisher, 2014). It is then believed that training of primary health care workers including nurses to recognize people experiencing common mental disorders is essential to reduce the burden of maternal depression. Only a few intervention studies have been carried out in this region on other areas of physical maternal health problems like obesity, tuberculosis, HIV/AIDS and sickle cell haemoglobinopathy (*Akpa and Mato 2008; Ani* et al.*, 2012*) The knowledge and attitude of nurses regarding maternal depression is yet to be explored to the best knowledge of the author. This study aims at providing training for nurses in order to determine their knowledge and attitude on maternal depression and its linkage to child development and health, and thereafter test the effectiveness of the training intervention. It was expected that training nurses would be helpful in reducing the rate of maternal depression thereby promoting child and adolescent mental health

3

1.3 Aim

To determine the knowledge and attitude of nurses about maternal depression and its linkage with child health, and assess the effect of a training programme on maternal depression on the knowledge and attitude of nurses.

1.4 Specific Objectives

1. To assess the baseline knowledge of nurses on maternal depression.

2. To assess the baseline knowledge of nurses about the linkage between maternal depression and child health and development.

3. To determine socio-demographic and other factors associated with nurses' knowledge and attitude toward maternal depression.

4. To determine the effect of a training intervention on knowledge and attitude of nurses on maternal depression and its impact on child development.

1.5 Research Hypothesis

 Null -Training intervention will have no significant effect on the knowledge and attitude of nurses on maternal depression and its linkage with child health.

1.6 Primary Outcome Measures

Increase in nurses' knowledge and attitude on maternal depression.

4

LITERATURE REVIEW

2.1 Maternal Depression

A sensitive, responsive care from parents is necessary for young children's best development (Campbell 2008). During infancy, parents provide primarily for infants' basic needs for sustenance, protection, comfort, social interaction and stimulation; by toddlerhood, as children begin to walk and talk, parents must also set age-appropriate limits on exploration while encouraging cognitive, social and language development, (Campbell 2002). The challenges of parenting young children are best met when the mother has adequate emotional support, help with child care and is emotionally stable herself. However, a relatively large proportion of young women of childbearing age also experience depressive symptoms severe enough to compromise their ability to provide optimal parenting (Campbell 2002).

Maternal depression is an all-encompassing term for a spectrum of depressive conditions that can affect mothers. These include prenatal depression, postpartum depression and postpartum psychosis that can affect mothers (NIHCM, 2010). Maternal depression is a serious condition for mothers and can lead to long-lasting complications in children if not identified and treated promptly. Nurses as primary care providers play a vital role in identifying women at risk for depression, including new mothers, and in ensuring that they receive prompt and effective care (Jerlinek *et al.*, 2002; Gaynes *et al.*, 2005; Berson 2006). If depression during pregnancy is not treated, the condition may worsen after giving birth; pre-existing depression has been associated with a 50-62% risk of an episode after delivery (Bonari, 2004).

Maternal depression is a serious but treatable illness that involves the brain. The most common types of maternal depression are: prenatal depression, the "baby blues", postpartum depression and postpartum psychosis (NIHCM 2010).

5

2.1.1 *Depressive conditions that can affect mothers*

2.1.1.1 <u>Prenatal Depression</u>- in prenatal depression, most women will experience some form of anxiety, irritability, fatigue and/or sadness during pregnancy. Symptoms that persist for more than a month may be a sign of prenatal depression. Depending on its severity, treatment for prenatal depression may include counselling or medication, such as anti-depressants (NIHCM 2010).

2.1.1.2 <u>The "Baby Blues</u>"- The "baby blues" is the mildest form of maternal depression and the most common among women after delivery. According to the American Pregnancy Association, approximately 50% to 75% of all new mothers experience some feelings of moodiness, sadness and anxiousness after their baby's arrival. However, symptoms for the "baby blues" usually go away within a couple of days or weeks and do require treatment. (Kruckman, 1998).

2.1.1.3 <u>Postpartum Depression</u>- Postpartum depression is a more serious form of maternal depression. Unlike the "baby blues", postpartum depression requires medical attention and could get worse if left untreated. Treatment for postpartum depression may include counselling or medication, such as anti-depressants. Some warning signs are: feelings of worthlessness, sadness, hopelessness, excessive worrying about the baby or not being concerned about the baby at all, restlessness, anger or irritability, sleeping too much or not sleeping enough, increased eating or not eating, loss of interest or pleasure in activities once enjoyed, excessive crying, loss of energy, endless thoughts of hurting themselves and/ or the baby (Moline 2001).

2.1.1.4 <u>Postpartum Psychosis</u> -Postpartum psychosis is-quite rare but is the most severe form of maternal depression. Symptoms of postpartum psychosis include confusion, hallucinations and severe mood swings. A history of bipolar disorder or any other type of mental illness must be investigated. Such illnesses are key contributors to postpartum psychosis. Treatment of

6

postpartum psychosis may require a combination of both counselling and medication. In some cases, hospitalization may be necessary (Moline 2001).

2.2 Epidemiology of Maternal Depression

The World Health Organization estimated in 2004 that more than 150 million people were living with depressive disorders, with approximately 10% of these being in Africa (WHO 2004). Depression contributes up to 4.3% of the Disability-Adjusted Life Years (DALYs). In the high and middle-income countries, depression is the leading cause of the burden of disease while in low-income countries it is the 8th leading cause. It is predicted that in 2030, depressive disorders will be the leading cause of the global burden of disease and the leading cause of the global burden of disease among women in the reproductive age-group (WHO 2004). In Nigeria, findings of a study using the Edinburgh Postnatal Depression Scale to determine the prevalence and possible risk factors for postpartum depression revealed a relatively high prevalence of screen-positive postpartum depression of 23.5% (Onwere *et al*., 2011). In another study a postpartum prevalence rate of 14.6% was also reported (Adewuya *et al.*, 2005). Various studies have also documented the prevalence of maternal depression across the globe. This prevalence varies according to the method of assessment used. In developing countries, a prevalence rate of 15–28% has been documented in Africa and Asia (Husain, Creed and, Tomenson, 2000), 50% in Bangladesh (Black *et al.*, 2007), 28–57% in Pakistan (Kazi *et al* 2006), and 35–47% in Latin America (Wolf *et al.*, 2002). In Nigeria, Abiodun, 2006, reported an 18.6% prevalence of postnatal depression and a prevalence of 5% was reported from a study in Nepal (Kazi *et al*., 2006). These studies concluded that postpartum depression is a serious problem among women in Africa

2.3 Risk Factors for Maternal Depression in Nigeria

The risk factors of mental health problems in women during pregnancy and after childbirth have been studied in developed countries, revealing that approximately 10% of pregnant women and 13% of those who have given birth experience some type of mental disorders, most commonly depression or anxiety (Fisher *et al.,* 2012).

Several studies in Nigeria have documented various determinants of common perinatal mental disorders including maternal depression. These are socioeconomic disadvantage, including insufficient food or inability to pay for essential health care (Aderibigbe *et al*., 1993; Owoeye 2006; Adewuya *et al*., 2007), low income or financial difficulties (Aderibigbe *et al.*, 1993 Adewuya 2005), psychiatric morbidity in the index pregnancy (Adewuya 2006), young age (Abiodun 2006), being unmarried (Adewuya *et al*., 2005), difficulties in intimate partner relationship including a partner who rejected paternity and being unsupportive, quarrelsome or used alcohol to excess (Abiodun 1993; Owoeye 2006), no help from, feared or argued with in-laws (Abiodun 2006), adverse reproductive outcomes including unwanted pregnancy (Abiodun *et al.*, 1993; Adewuya *et al.*, 2005; Abiodun 2006; Adewuya 2006), nulliparity or primiparity and past spontaneous or induced abortion (Abiodun *et al*., 1993, Abiodun 2006) and antenatal hospital admission (Adewuya *et al.*, 2005; Adewuya 2005). Research studies in other part of the continent have also documented a number of risk factors associated with maternal depression that are similar to those in Nigeria. Some of these factors include: a history of mood disorders, substance abuse problems or history of alcohol dependence, maternal depression from a previous pregnancy, depression or family history of depression, life stress, poor marital relationships, low social status, lack of social support or absence of a community network, and unplanned or unwanted pregnancy (Gaynes 2005). The risk of depression in women is also found to be higher than in men (Riolo *et al.*, 2005). Gale and Harlow-2003 suggest that women are particularly

8

prone in the post-partum period because of hormonal changes associated with childbirth and stressors associated with parenting.

2.4 Prevention and Treatment of Maternal Depression

Prevention of maternal depression should include measures to prevent and manage mental health problems during pregnancy and after childbirth by incorporating a mental health component as an integral part of maternal health policies, plans and activities in countries (WHO 2008). Nurses' role is crucial in the recognition of mental health problems in women during pregnancy and after childbirth within the context of primary health care utilizing simple, reliable and affordable tools as recommended by the WHO. One of the most effective community-based interventions for maternal health problems during pregnancy and after childbirth is to provide training for primary health care workers to recognize symptoms and signs suggestive of a mental health problem, provide effective psychological support and other interventions, and refer to specialist when necessary (WHO 2008). Reducing maternal mental health burden may also reduce the burden of mental health disorders in their children and adolescents (NACCHO 2006).

Depression is a treatable condition, particularly when recognized early during the pregnancy or postpartum period. Identification of mothers who are at risk for prenatal and postpartum depression enables health professionals to initiate services that can prevent later problems for both the mother and baby, and interventions can be provided by both obstetric and primary care health professionals working with the family before, during and after delivery (Jellinek *et al*.,2002). Treatment of depressed pregnant women requires skilled management by a psychiatrist, working collaboratively with the woman and her obstetric team. Drugs should be used with caution and only after careful analysis of the associated risks and benefits (Wisner et al., 2000).

2.5 Effect of Maternal Depression on Pregnancy

Depression during pregnancy frequently remains untreated and there is growing evidence that unpleasant outcomes can occur thereby. A systematic review and meta-analysis of 30 papers on the impact of maternal depression during pregnancy on perinatal outcomes revealed that premature delivery were significantly associated with maternal depression (Kinsella and Monk, 2009). Another study has shown the effect of depression on fetal activity, sleep pattern and movement. This study suggests that maternal mood may also affect central nervous system development. When observed with an ultrasound monitor for 5 continuous minutes between 18- and 36-weeks gestation in a study of the effects of maternal anxiety and depression on fetal development, fetuses of depressed mothers spent a greater percent of time active than fetuses of non-depressed mothers (Kinsella and Monk 2009).

Nauert (2013) researched how maternal depression affects infant development and confirms that depression among pregnant women may have an impact on their developing babies. He observed that children of depressed parents are at a high risk of developing depression themselves. Nauert mentioned the work of a group of researchers led by Qui at the National University of Singapore, which revealed that the amygdala's micro-structure was abnormal in infants born to depressed mothers as indicated by imaging. The study also shows that a feature of mood and anxiety disorders may be transmitted from mother to child during fetal life. Findings from this study suggest that a history of maternal depression might contribute to a lifetime increase in the susceptibility to mental illness.

Recent research has shown that prenatal depression can be linked to the silencing of a gene that controls the over-production of stress chemicals (Oberlander *et al*., 2008).

As a result, by the time of birth, the baby of a seriously depressed mother may have sustained effects on his or her stress response and immune systems that makes the child even more vulnerable than average, to irritable, intrusive, or withdrawn maternal care.

Depressed mothers are said to produce higher levels of stress chemicals during pregnancy, which reduce foetal growth and are linked with an increased risk for premature labour (Diego *et al.*, 2009). Depressive symptoms in an expectant mother have also been shown to be associated with altered immune functioning in her baby after birth (Mattes et al., 2009).

Research in low- and middle-income countries implies that maternal depression may be a risk factor for poor growth in young children (Rahman *et al*., 2008). The risk of depression in women is also found to be higher than in men (Riolo *et al.*, 2005).

2.6 Impact of Maternal Mental Disorders on Perinatal Outcome

The impact of maternal mental disorders on the newborn has been viewed by various researchers as an interaction between behaviours, hormonal changes and genetic factors (Gold and Marcus 2008). Maternal mental disorders such as depression can lead to unhealthy behavioural changes and a depressed pregnant woman has a higher risk of smoking, drinking, using illicit drugs and being overweight - all factors that can increase the risk for poor perinatal outcomes (Bonari *et al*., 2008). These women may also be at risk for seeking less antenatal care, having a decreased appetite, weight loss and poor personal hygiene (Bonari *et al.*, 2008). Maternal mental illness has been revealed to impair mother's ability to seek appropriate medical care, recognise signs, and follow-through with treatment recommendations (Gold and Marcus 2008) Auditory or visual hallucinations in pueperal psychosis could put a woman at high risk for harming herself or her baby. Changes in the woman's neuro-endocrine system may partly explain the relationship between maternal mental health and fetal outcomes. Pregnant women with post-traumatic stress disorders often have other associated psychiatric problems, such as substance use, panic disorder,

11

eating disorders and depression, which may also play a role in fetal outcomes.(Cook *et al* 2004; Rogal *et al*., 2007). Studies done by Singer *et al,* (1999), have shown greater incidence of prematurity and low birth weight babies of mothers with maternal depression.

2.7 Effect of Maternal Depression on Newborn Health

Rapid physical growth and development occur in early life, when infants are dependent on the primary caregiver for their social and nutritional needs, which makes young children vulnerable to the effects of their caregivers' mental health problems.

Babies of mothers with prenatal depression show distinct patterns of bio-behavioural "deregulation" (Field 1998; 2002) compared to those of non-depressed mothers.

These newborns consistently demonstrate poorer performances during neurobehavioral examinations, including less vigour, endurance, and activity, lower motor tone, greater irritability, abnormal reflexes, and impaired orienting abilities (Abrams *et al.*, 1995; Field 2004). Infants of depressed mothers also show social and behavioural abnormalities. During mother-baby interactions, infants of depressed mothers show lower proportions of positive facial expressions and higher proportions of negative facial expressions compared with offspring of non-depressed mothers (Field 1995). The newborn also show less exploratory play and less interest in playing with their mothers. These behavioural abnormalities are partially explained by differences in maternal behaviour during infant interactions when comparing depressed versus non-depressed mothers. Researchers have documented that depression during pregnancy and after delivery put children of depressed mother at greater risk for developing psychosocial problems compared to children of non-depressed mothers. Behavioural problems, poor social skills, low adaptive functioning, poor cognitive functioning in children and lower vocabulary scores have been associated with pre and postnatal depression (Brennan *et al*., 2000; Luoma *et al*., 2001)

12

Maternal depression in developing countries is said to have negative impact on infants/newborn including low-birth weight, high rate of malnutrition, high rate of diarrhoeal diseases, infectious illness and hospital admission and reduced completion of recommended schedules of immunizations and adversely affect the child physical, cognitive social, emotional, behavioural development of children (WHO 2008).

2.8 Relationship Between Depression in Mothers and Childhood Development

There is clear evidence showing the relationship between depression in mothers and childhood development. Maternal depression has several effects on child development. These effects vary and range from affective disorders to difficulties in interacting with people and objects, from higher cognitive problems incidence to insecure attachments towards their mothers (Teti *et al*., 1995; Tronick and Weinberg 1997). These conditions are also associated with emotional, social cognitive difficulties with psychiatric symptoms in older children (Downey and Coyne 1990; Hammen 2000). Several follow up studies have also revealed that mother-child relationship difficulties in post-partum depression can trigger less than optimal child development (Singer *et al*., 1999).

Studies by Cohn and Trinick 1989, among other studies, highlighted the developmental problems of newborns and children of depressed mothers in the first year of life such as decreased ability to calm themselves down with a reduced social response, increase irritability, lower activity level, reduction of positive facial expression and vocalization, lower frustration tolerance, tend to have more behavioural problems, such as sleeping and eating problems, temper tantrum and separation difficulties (Cicchetti *et al*., 1998). A heightened risk of physical and mental instability, pointing towards a postponed maturation in the stabilization of somatic and psychological self- regulation has been reported as the main effect of maternal depression on the child (Speranza *et al* 2006).

13

There seems to be an association between attention deficit hyperactivity disorder (ADHD) in children and maternal mental health (Bernard-Bonnin, 2001). The incidence of conduct disorder, depression and ADHD were found to be high among children born to depressed mothers (Bernard-Bonnin, 2001).

2.9 Depression in Mothers Affects the General and Mental Health of the Child

Infants and toddlers spend most of their time with their mothers. The mental health of the mother has greater impact on the general and mental health of infants and toddlers. Research has shown that children of depressed mothers have insecure attachment. Attachment is the emotional bond that develops between mother, or other caregiver, and baby during the first year of life; the mother helps the infant to regulate his or her physical and emotional state, anticipates what the child needs, reads a baby's signals and responds appropriately (Bowlby 1982). If the attachment is secure, the young child is able to successfully negotiate developmental tasks. Children of depressed mothers have been found to have difficulty in establishing secure relationships, which may put them at risk for later difficulties (Teti *et al* 1992). Results of other researchers have identified other areas in which developmental problems may arise. Young children of depressed mothers have been rated as drowsier, passive, more temperamentally difficult, and less able to tolerate separation, more afraid or more anxious, than children of non-depressed mothers. Studies have shown that depressed mothers are less involved with their children; they are inconsistent, sometimes nurturing and sometimes withdrawn (Field 1992).

2.10 Links between Maternal Depression and Health of the Offspring in Adolescence and Beyond

One of the most important risk factors for childhood psychopathology among maternal mental illness is maternal depression (Downey and Coyne 1990). Several studies have reported two-to threefold increases in risk of emotional disorder in children of maternal depressive mothers (Williamson *et al* 2004; Kovacs *et al* 1997). Offspring of depressed mothers are at least three times more likely to develop psychiatric disorders such as anxiety disorders-major depression and substance misuse twenty years later (Weissman 2006). The fundamental mechanism underlying the links between maternal depression and health of the offspring can be grouped into genetic vulnerability, intra-uterine effects on neuroregulation, adverse parenting behaviours and stressful environment (Goodman and Gotlib 1999).

In a cohort study in London, (Pearson *et al.*, 2013) researchers looked at whether antenatal depression and postnatal depression in mothers was associated with a higher risk of depression in their children in late adolescence. They found that, at the age of 18, adolescents had a small increased risk of having depression if their mother had antenatal depression. However, the link between postnatal depression and later depression in the offspring was only present in cases where the mother had a lower level of education. The main limitation is that it is still difficult to say for certain that maternal depression during pregnancy or after birth directly influences risk of depression in offspring later. Verbeek and colleagues (2011) in their study of postpartum depression as a predictor of offspring mental health problems in adolescence concluded that the association between post-partum depression and psychopathology in the offspring extends into adolescence, but is limited to internalizing problems and is only partially explained by parental lifetime psychopathology.

2.11 Nurses Knowledge and Attitudes toward Maternal Depression

Literature on nurse's knowledge and attitudes towards maternal depression is hard to find, especially for low- and middle-income countries. However, a few communities and public health settings studies in some part of the region reveal low level of and negative attitudes towards mothers with maternal depression. Mistaken beliefs regarding maternal depression are barriers to the incorporation of mental health plans in maternal and child health (MCH) programmes (Rahman *et al.*, 2013). Some traditions about maternal mental health include the beliefs that maternal depression is rare, not relevant to MCH programmes can only be treated by specialists, and its incorporation into MCH programmes is difficult (Rahman *et al.*, 2013). Studies have also shown that positive attitudes, perceived level of competence, and knowledge about depression screening among certified nurse midwives will more likely enable them to integrate depression screening into their practice (NACCHO 2006). In Tanzania, Mbatia *et al*, 2009 assessed health worker's knowledge and attitude towards the causes, consequences and treatment of depression. Majority of respondents felt that becoming depressed is a way that people with poor stamina deal with life difficulties. The findings suggest a need to strengthen the training of primary health care workers in Tanzania about the detection of depression, pharmacological and psychological treatments, and psychosocial interventions.

2.12 The Role of Nurses in Identifying Maternal Depression

Human resources devoted to health systems particularly mental health, in sub-Saharan Africa are scarce.-Primary care of maternal mental disorders is critical in all parts of the world because of the absolute level of psychiatric morbidity, and especially in low- and middle-income countries where specialist expertise is very inadequate (Mbatia *et al*., 2009). Nigeria has less than one psychiatrist per million people. Nurses have a major role in promoting the psychological and emotional well-being of mothers and in preventing the development of mental health problems

16

with increased knowledge on the causative factors or risk of mental disorders (Royal College of Nursing, 2004). Nurses and midwives are the largest group of health-care professional known to work across a wide range of settings in Nigeria. If potential problems such as maternal depression are identified early and dealt with appropriately, or referred for appropriate treatment and support, long term complications can be prevented.

2.13 Effect of Short-Term training on the Knowledge and Attitudes of Nurses about Health Problems

Adequate knowledge and positive attitudes about maternal health problems could inform interventions aimed at improving positive outcomes in women of child bearing age. With adequate training, nurses and midwives would develop the capacity to recognise maternal health problems, manage or refer for appropriate specialist care. Few studies have looked at the effectiveness of short-term training for nurses and primary care workers.

In South Africa Byrne *et al.*, (2004) conducted a training to equip nurses with basic assessment and intervention skills for the most common problems in child and adolescent psychiatric nursing. 144 and 68 primary care nurses who attended Study Days 1 and 2 respectively completed confidential questionnaires after each day. The nurses were able to apply what they had learned between the study days.

Another study documented the effect of a training intervention for hospital-based health-care providers including doctors, nurses and midwives, on essential newborn care. A pre-intervention assessment was conducted, the results of which informed the objectives for the intervention and was then followed by a post-intervention assessment. The interventions covered infection, thermal protection, resuscitation of the newborn with asphyxia as well as early and exclusive breastfeeding. This study found that there were significant improvements in new born care within the hospital following the training intervention (Upul *et al.,* 2011)

17

Among the Māori in New Zealand, pilot training was given to primary healthcare workers to provide early recognition and intervention in mental illnesses (Tupara and Ihimaera 2004). The key objectives were to increase the capacity of Māori midwives and paediatric nurses to identify and recognize mental illness present in Māori women in primary care settings, increase the capacity for timely and appropriate consultation or liaison, and/or referral to specialist mental health services. Nurses comprised the highest number of respondents (15 respondents or 53.6%) participating in the training. From both the qualitative and quantitative information contained in the data sets it was evident that the training achieved the project objectives. Almost 82% of the respondents were able to identify and recognize mental illness present in Māori women in their workplace as an outcome of the training 85% of the respondents were able to apply timely and appropriate referral processes while 82% of the respondents had gained a better understanding of Māori mental health concepts from both a personal and practice perspective. The training intervention generally improved the effectiveness of the healthcare workers.

CHAPTER THREE

METHODOLOGY

3.1 Study Area

The study was carried out in Ibadan Oyo State. Ibadan is located in south-west Nigeria, and is the capital city of Oyo State, one of the 36 states in Nigeria. Ibadan is the third largest city in Nigeria, with a population of about 2.949 million (NDP, 2014). It is the third largest metropolitan area in Nigeria, and the largest by geographical area (3,080 km^2). It comprises of 11 local government areas (LGAs). The people are mainly Yoruba speaking people. Their job ranges from civil servant, to self-employment. The study setting was purposively selected, because they receive a higher percentage of pregnant women in the metropolis.

3.1.1 *Study Setting*

The study was carried out at the Adeoyo Maternity Hospital, Yemetu and Ring Road State Hospital, both in Ibadan city. The Adeoyo Maternity Hospital was established in 1927. It was named Adeoyo State Hospital in 1968 which was later changed to Adeoyo Maternity Teaching Hospital in 2010. The hospital is mainly for maternity and child health care and it has 205 beds. It is located in the Ibadan North Local Government Area of the Ibadan metropolis. It catered initially for indigenes of the city as a Native Authority hospital, but later metamorphosed into the state hospital catering to all comers, with a full complement of various healthcare professionals. The state hospital was later converted to a Maternity Hospital in 1992. It has the following departments; obstetrics and gynaecology, paediatrics, nursing, physiotherapy, accident and emergency, records, laundry, accounts, administration among so many others. The hospital has a total of 211 nurses currently on its staff list as at March, 2015.

The Ring Road State Hospital, Ibadan is a secondary healthcare facility in the Ibadan South-West Local Government Area of the Ibadan metropolis. This institution was established in March, 1991. This hospital was established to reduce the number of patients being attended to at the University College Hospital, Ibadan and Adeoyo Maternity Hospital, and to make healthcare

19

available to more individuals and families within the metropolis. As at 2015, the hospital has 21 units, 11 lying-in wards equipped with 250 beds in all. The hospital currently has 147 nurses on its payroll.

In each of the hospitals, services available and offered for women and children include antenatal care, post-natal care, infant welfare clinic, family planning clinic, PEPFAR clinic (for HIV/AIDS patients) and immunization clinic running on different days within the week. Attendance at each clinic day ranges between 100 to 150 both for mothers and children, while monthly delivery in each of the hospitals ranges between 500 to 600 births.

3.2 Study Design

This was a hospital-based intervention study with a control arm carried out to ascertain the knowledge and attitude of nurses on maternal depression and its linkage with child health. The intervention was a guideline and training on maternal depression and its impact on the child. Two hospitals were included, one served as the experimental site and the other served as control.

3.3 Study Population

The study population of this study was nurses working at the Adeoyo Maternity Hospital, Yemetu and the Ring Road State Hospital, Ibadan.

3.3.1 *Inclusion Criteria*

All trained and certified nurses and midwives, with at least three years of working experience with mothers were included.

3.3.2 *Exclusion Criteria*

1. Nurses with previous basic, post basic or university training in mental health.

2. Nurses who refused to give consent for the study

20

3.4 Sample Size Determination

The minimum sample size was determined using the sample size formula for comparing two means. There are no previous intervention studies on knowledge and attitude of nurses on maternal depression and its linkage with child health in Nigeria to give an estimate of knowledge scores. However the sample size was calculated assuming that the difference in means $(\mu_1 - \mu_2)$ to be detected between the two groups is a fraction of the standard deviation. With this approach, there was no need to specify the actual standard deviation from previous studies. Assuming this difference is 0.3 standard deviation of knowledge of maternal depression scores among nurses in the intervention and control group, and using the formula below.

$$n = \frac{(Z\alpha + Z_{1-\beta})^2 \, \sigma^2}{\mu_1 - \mu_2}$$

Where:

$Z\alpha$ = standard normal deviate corresponding to 5% level of significance =1.96

$Z_{1-\beta}$ = standard deviate corresponding to power of 80%= 0.84.

σ standard deviation of the knowledge scores for maternal depression

$\mu_1 - \mu_2$ difference in the mean knowledge scores between the intervention and the control groups assumed to be 0.3 units of the standard deviation.

n=minimum sample size in the two groups.

This gives a minimum of 87 in each group. However to allow for a non-response rate of 10% and a loss to follow up rate of 5%, the sample size is increased to 102 in each group.

Hence, a minimum of 102 nurses each were studied in the intervention and the control groups.

21

3.5 Sampling Techniques
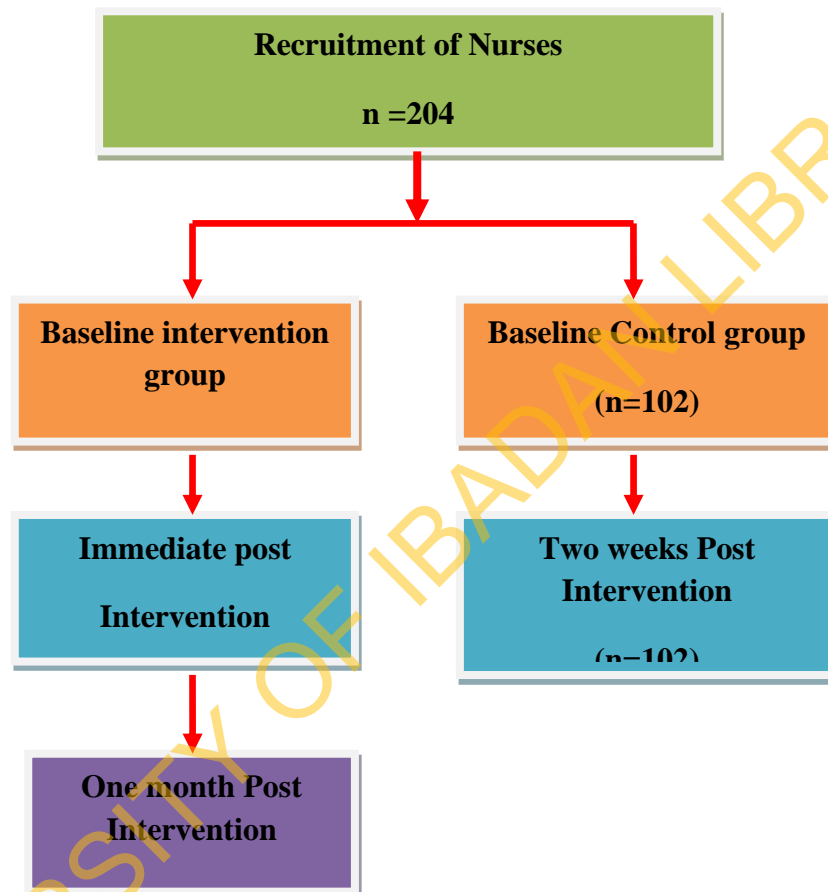
Figure 3.1: Flow chart showing number of nurses at each point of the study

A multistage sampling technique was used in this study.

At the first stage, secondary health facilities were purposively selected among the primary, secondary and tertiary health institutions because there are more nurses working with pregnant and nursing mothers in the secondary healthcare centres than in the primary centres (majorly because of referrals and the structure of the health system in the state).

At the second stage, two secondary health facilities were also selected purposively from the eight secondary health facilities in Ibadan metropolis. The selected facilities are the facilities that offer maternal healthcare services to pregnant women and nursing mothers; they are Adeoyo Maternity Teaching Hospital, Yemetu, and Ring Road State Hospital, Ibadan.

At the third stage, simple random sampling technique (tossing of the coin) was used to allocate the facility to one experimental and one control secondary health care facility for the study. The head of the coin was pre-determined to represent the experimental group while the tail represented the control group.

At the fourth stage, all nurses from these secondary health care facilities who met the inclusion criteria stated were recruited for the study. Adeoyo Maternity Hospital Yemetu (211 nurses), Ring Road State Hospital (147 nurses)

3.6 Data Collection Instruments

The following instruments were utilized to collect data.

The socio-demographic questionnaire, this was used to obtain information on age, sex, marital status, ethnicity, religion, work duration as nurse in hospital and duration at present rank.

The questionnaire on general knowledge and attitudes towards maternal depression and the mhGap training module on depression. The general knowledge and attitude towards maternal depression scale was developed by the author based on what was taught on mental health Global Action training module on depression for all ages, while questionnaire on general knowledge and attitude was adapted for this study from a qualitative needs assessment for school mental health research project carried out on school administrators, head teachers and primary school teachers in rural and urban south-west Nigeria (Ibeziako, Omigbodun, Bella Belfer,, 2008.) It

23

was modified to suit the purpose of this study which is to measure knowledge and attitude of nurses towards maternal depression.

A researcher's designed questionnaire on maternal depression and its linkage with child health was also developed from existing literature to assess nurses knowledge on prevalence of maternal depression, risk factors, signs and symptoms of maternal depression, and its effect on pregnancy, childhood development and health and in adolescence period.   Questions on knowledge were rated in a Likert Scale of agree, disagree, and not sure, and were scored as follows: correct=1, incorrect & not sure=0 such that when summed, higher scores indicate good knowledge (scores from 0 – 25 were regarded as poor knowledge; while scores from 25 – 51 were regarded as good knowledge).

Questions on attitude, on the other hand, were rated agree, disagree, and not sure. Negative attitude ranged between 0-10, while positive attitude was between 11-21. Minimum and maximum scores range between 0 and 21.

The contents of the instrument were presented to researcher's supervisors who are experts in the field of maternal mental health and paediatrics for review, and modifications were made where necessary. These instruments were pretested using a group of twenty nurses (10% of the estimated sample size) at the Jericho specialist hospital, another secondary level health care facility in Ibadan metropolis. The results were used to modify the research instruments before the final study was carried out.

24

3.7 Study procedure

The study was carried out in four phases; at baseline, intervention, immediate post intervention and one month post intervention at baseline. Each participant in the control and intervention group was administered the self-report socio-demographic questionnaire. This was followed by the administration of a modified knowledge and attitude questionnaire, which was designed based on the mhGap depression module. The training session was delivered once to nurses in the intervention group within the space of three days (32, 40 and 30 nurses for each of the days). The time of the intervention was during the overlap period, after taking over the shift from morning nurses by the afternoon nurses; therefore, it did not interfere with the general daily routine of any of the participant. Participant in the control group did not receive any training but they completed all questionnaires at baseline and after two weeks. The nurses in the control group received educational materials of the training four weeks after the final data collection.

3.7.1. *Educational Intervention*

The training session was based on the mhGap training module and relevant facts from the literature on depression and maternal depression. The two hours training was given once to nurses in the intervention group. The time for the training was fixed based on the routines of the intervention group. The following topics were taught: depression, signs of depression, maternal depression, and its effects on child and adolescent. The lecture was given by the author and a guest lecturer. The guest lecturer is a graduate nurse, a trainee in M.Sc. in Child and Adolescent Mental Health in the University of Ibadan Centre for Child and Adolescent Mental health who had also gone through the mhGap training. Teaching methods adopted were: power point presentation, video clips, and lecture, interactive session followed by questions and answers session.

3.8 Data Management and Analysis.

Data was entered using statistical package for Social Science (SPSS) version 20 after editing the questionnaires, data cleaning was done. Descriptive statistic was utilized to present result of the characteristics of the study participants using frequencies and percentages.

Inferential statistics such as Chi-square test was used to analyze the relationship between the knowledge, attitudes and the socio demographic variables. Where appropriate, the Fisher's exact probability test was used. The *t*-test was used to compare differences between the control and intervention groups, while the paired *t*-test was used to determine the effectiveness of the training at 5% level of significance (that is the difference between the mean baseline and post intervention scores).

3.9 Ethical Considerations

Ethical approval for the study was obtained from the Oyo State Ministry of Health Research Ethical Review Committee. A letter of introduction was presented to the Management of the two hospitals from the Centre for Child and Adolescent Mental Health, University of Ibadan and permission to carry out study was given by the Chief Consultants of both hospitals. Consent was obtained from the participants before questionnaire was administered. Responses were coded and anonymized.

Beneficence to Participants

In the course of the study, participants' knowledge of maternal depression and its linkage with child health was enhanced in the intervention group through training, while the training manual was also given to the participants in the control group at the completion of the study.

Non-Maleficence

The procedure or protocol did not involve any major risk of physical, psychological or any other form of harm to the participants. However, there was-some inconvenience involved in-that time was taken by participants to answer questions and attend the training. This was taken care of by giving the participants some refreshments during the period of their participations.

Right of Decline/Withdrawal from Participation

Participants were informed of their right to withdraw from the project prior to and at any time during the study. Potential participants were informed that their participation was strictly voluntary and if they choose to withdraw, they deserve the right to do so without adverse effect on them or their job.

RESULTS

4.1 Socio-demographic Characteristics of Respondents

The result below shows the socio demographic characteristics and work-related factors of the respondents. The result showed that 46.0% of the respondents in the control group fell between the age 40 - 49 years as compared to 54.0% of the experimental group. Respondents in the age group 50 – 59 years made up the highest proportion (43.2%) in this study. Majority of the respondents were females (98.0%); 49.0% in the control group and 51.0% in experimental group. Majority of the respondents (85.1%) in the control and experimental groups were married. Similarly, a large proportion (99.0%) belonged to Yoruba ethnic group. Twenty eight percent of the respondents have been in the nursing profession for 30 or more years and 45.7% respondents have been in their current ranks for 10 or more years. See Tables 4.1A and 4.1B for more details.

Table 4.1A: Socio Demographic Characteristics of the respondent by group- General

Variables	Control Group	Experimental Group	Total	χ2 value	p-value
Age (years)	N=102	N=102	N=204		
Less than 30	11(42.3)	15(57.7)	11	1.097	0.778
30-39	26(51.0)	25(49.0)	48		
40-49	29(46.0)	34(54.0)	46		
50-59	24(53.3)	21(46.7)	80		
Not Stated	12	7	19		
Sex					
Male	4(100)	0(0.0)	4(100)	4.081	0.043*
Female	97(49.0)	101(51.0)	198(100)		
Not Stated	1	1	2		
Marital Status					
Married	86(50.0)	86(50.0)	172(100)	1.333	0.856
Never married	11(50.0)	11(50.0)	22(100)		
Separated	1(33.3)	2(66.7)	3(100)		
Widowed	2(50.0)	2(50.0)	4(100)		
Cohabiting	1(100)	0(0.0)	1(100)		
Not Stated	1	1	2		
Ethnicity					
Yoruba	99(49.5)	101(50.5)	200(100)	2.020	0.155
Others	2(100)	0(0.0	2(100)		
Not Stated	1	1	2		
Religion					
Muslim	26(61.9)	16(38.1)	42(100)	3.006	0.083
Christian	75(46.9)	85(53.1)	160(100)		
Not Stated	1	1	2		

*Significant at p<0.05

29

Table 4.1B: Work experience of the respondents by group

Variables	Control Group	Experimental Group	Total	χ2 value	p-value
Work Duration as Nurse (years)	N=102	N=102	N=204		
Less than 10	14(48.3)	15(51.7)	29(14.4)		
10-19	37(54.4)	31(45.6)	68(33.7)	0.895	0.827
20-29	22(45.8)	26(54.2)	48(23.5)		
30 and above	29(50.9)	28(49.1)	57(28.2)		
Not Stated	-	2	2		
Work Duration in the hospital (years)					
Less than 10	57(44.5)	71(55.5)	128(63.1)		
10-19	41(61.2)	26(38.8)	67(33.0)		
20-29	3(42.9)	4(57.1)	7(3.4)	6.028	0.110
30 and above	1(100)	0(0.0)	1(0.5)		
Not Stated	-	1	1		
Rank					
CNO	47(55.3)	38(44.7)	85(42.1)		
PNO	27(41.5)	38(58.5)	65(32.2)		
SNO	8(72.7)	3(27.3)	11(20.3)	5.307	0.151
NO	19(46.3)	22(53.7)	41(20.3)		
Not Stated	1	1	2		
Duration on Present Rank (years)					
Less than 1	4(66.7)	2(33.3)	6(100)		
1-4	21(58.3)	15(41.7)	36(100)	4.064	0.255
5-9	36(54.5)	30(45.5)	66(100)		
10 and above	39(42.9)	52(57.1)	91(100)		
Not Stated	2	3	5		

Significant at p<0.05

4.2 Baseline Knowledge of Maternal Depression

Overall, there was no statistically significant difference in most of the variables measuring knowledge of maternal depression between the control and experimental groups at baseline; however, a few of the knowledge variables showed statistical significance. Tables 4.2A-G show the baseline knowledge of the respondents; it compared the knowledge of maternal depression between the experimental and control groups. More respondents (68.6%) in the control group incorrectly agreed that "mental illness is rare in pregnant women and lactating mothers" compared to respondents in the experimental group (53.9%), this was statistically significant (p=0.031). A higher proportion of respondents in the experimental group correctly disagreed that "The root cause of mental illness in mothers is a curse on the family" compared to those in the control group, (89.0% vs. 96.1%), however this was not statistically significant (p = 0.055). More respondents in the control group than the experimental group correctly agreed that "Reduced self-esteem and self-confidence" is a sign of maternal depression, (99.0% vs. 90.0%) and this was statistically significant (p=0.006).

31

Table 4.2A: Comparison of baseline Knowledge of Maternal Depression between experimental and control group

Variables	Control group	Experimental group	Total	c^2 value	p-value
Mental illness is rare in pregnant women and lactating mothers					
Incorrect	70(68.6)	55(53.9)	125(61.3)	4.648	0.031*
Correct	32(31.4)	47(46.1)	79(38.7)		
Total	102(100)	102(100)	204(100)		
Psycho is a type of mental disorders found in women					
Incorrect	40(39.6)	49(48.5)	89(44.1)	1.627	0.202
Correct	61(60.4)	52(51.5)	113(55.9)		
Total	101(100)	101(100)	202(100)		
Mothers with mental illness are likely to be violent					
Incorrect	24(23.5)	27(26.5)	51(26.5)	0.235	0.628
Correct	78(76.5)	75(73.5)	75(73.5)		
Total	102(100)	102(100)	102(100)		
Mental illness in mothers can be caused by traumatic event					
Incorrect	21(21.2)	29(29.0)	50(25.1)	1.604	0.205
Correct	78(78.8)	71(71.0)	149(74.9)		
Total	99(100)	100(100)	199(100)		
Women who live in poverty are not any more likely to have mental illness than women who do not live in poverty					
Incorrect					
Correct	28(27.5)	18(18.0)	46(22.8)	2.565	0.109
Total	74(72.5)	82(82.0)	156(77.2)		
	102(100)	100(100)	202(100)		
The root cause of mental illness in mothers is a curse on the family					
Incorrect	11(11.0)	4(3.9)	15(7.4)	3.680	0.055
Correct	89(89.0)	98(96.1)	187(98)		
Total	100(100)	102(100)	202(100)		

Table 4.2B: Comparison of baseline Knowledge of Maternal Depression between experimental and control group

Variables	Control group	Experimental group	Total	c^2 value	p-value
Mothers with mental disorders can recover					
Incorrect	7(6.9)	2(2.0)	9(4.4)	2.906	0.088
Correct	95(93.1)	100(98.0)	195(95.6)		
Total	102(100)	102(100)	204(100)		
Mothers with mental illness have inherited weak genes from their parents					
Incorrect	81(81.0)	77(76.2)	158(78.6)	0.678	0.410
Correct	19(19.0)	24(23.8)	43(21.4)		
Total	100(100)	101(100)	201(100)		
One in three women will develop mental illness over the course of their lifetime					
Incorrect	14(13.9)	24(24.0)	38(18.9)	3.369	0.066
Correct	87(86.1)	76(76.0)	163(81.1)		
Total	101(100)	100(100)	201(100)		
Pregnant and lactating mothers with mental illness always transmit these disorders to their children					
Incorrect	15(15.0)	21(20.8)	36(17.9)	1.147	0.284
Correct	85(85.0)	80(79.2)	165(82.1)		
Total	100(100)	101(100)	201(100)		
Pregnant mothers do not have depression					
Incorrect	11(11.0)	14(13.7)	25(12.4)	0.346	0.556
Correct	89(89.0)	88(86.3)	177(87.6)		
Total	100(100)	100(100)	202(100)		
A mother that has just delivered does not have mental illness, just behaviour problem					
Incorrect	25(24.8)	28(28.0)	53(26.4)	0.273	0.601
Correct	76(75.2)	72(72.0)	148(73.6)		
Total	101(100)	100(100)	201(100)		

Table 4.2C: Comparison of baseline Knowledge of Maternal Depression between experimental and control group

Variables	Control group	Experimental group	Total	c^2 value	p-value
Mental illness in women during pregnancy and after child birth cannot be treated					
Incorrect	8(7.9)	8(7.8)	16(7.9)	0.000	0.984
Correct	93(92.1)	94(92.2)	187(92.1)		
Total	101(100)	102(100)	203(100)		
Treating mental illness in pregnant women and breast feeding mothers is always very expensive	36(36.0)	29(29.3)	65(32.7)	1.018	0.313
Incorrect	64(64.)	70(70.7)	134(67.3)		
Correct	100(100)	99(100)	199(100)		
Total					
Maternal mental health problems can be prevented					
Incorrect	3(3.0)	2(2.0)	5(2.5)	0.216	0.642
Correct	96(97.0)	98(98.0)	194(97.5)		
Total	99(100)	100(100)	199(100)		
Women are at greatest risk for depression after menopause					
Incorrect	39(39.4)	38(37.3)	77(38.3)	0.097	0.755
Correct	60(60.6)	64(62.7)	124(61.7)		
Total	99(100)	102(100)	201 (100)		
Maternal depression is a risk for suicide and self-harm					
Incorrect	7(6.9)	5(4.9)	12(5.9)	0.376	0.540
Correct	94(93.1)	97(95.1)	191(94.1)		
Total	101(100)	102(100)	203(100)		

Table 4.2D: Comparison of baseline Knowledge of Maternal Depression between experimental and control group

Variables	Control group	Experimental group	Total	c^2 value	p-value
Women should be screened for depression during antenatal and postnatal care					
Incorrect	21(21.0)	13(12.9)	34(16.9)	2.362	0.124
Correct	79(79.0)	88(87.1)	167(83.1)		
Total	100(100)	101(100)	201(100)		
Up to 4% of pregnant and breast feeding mothers have depression in Nigeria					
Incorrect	60(59)	68(67.3)	128(63.4)	1.365	0.243
Correct	41(40.6)	33(32.7)	74(36.6)		
Total	101(100)	101(100)	202(100)		
Depression occur more in men than women					
Incorrect	75(75.8)	86(86.0)	161(80.9)	3.378	0.066
Correct	24(24.2)	14(14.0)	38(19.1)		
Total	99(100)	100(100)	199(100)		
Depression in woman is more common in pregnancy than during breastfeeding					
Incorrect	54(53.5)	60(60.6)	114(57.0)	1.040	0.308
Correct	47(46.5)	39(39.4)	86(43.0)		
Total	101(100)	99(100)	\200(100)		

35

Table 4.2E: Baseline knowledge of Respondents on causes of Maternal Depression between experimental and control group

Variables	Control group	Experimental group	Total	c^2 value	p-value
Inability to pay for essential health care					
Incorrect	18(18.8)	10(10.2)	28(14.4)	2.868	0.090
Correct	78(81.2)	88(89.8)	166(85.6)		
Total	96(100)	98(100)	194(100)		
Young age					
Incorrect	47(49.5)	27(27.3)	74(38.1)	10.127	0.001
Correct	48(50.5)	72(72.7)	120(61.9)		
Total	95(100)	99(100)	194(100)		
Intimate partner violence.					
Incorrect	18(18.4)	10(9.9)	28(14.1)	2.949	0.086
Correct	80(81.6)	91(90.1)	171(85.9)		
Total	98(100)	101(100)	199(100)		
Nulliparity/multiparity					
Incorrect	45(46.9)	33(33.3)	78(40.0)	3.724	0.054
Correct	51(53.1)	66(66.7)	117(60.0)		
Total	96(100)	99(100)	195(100)		
History of spontaneous or induced abortion					
Incorrect	33(34.7)	23(23.7)	56(29.2)	2.824	0.093
Correct	62(65.3)	74(76.3)	136(70.8)		
Total	95(100)	97(100)	192(100)		
Insufficient food/financial difficulties					
Incorrect	10(10.5)	9(9.5)	19(10.0)	0.0558	0.809
Correct	85(89.5)	86(90.5)	171(90.0)		
Total	95(100)	95(100)	95(100)		
Psychiatric history.					
Incorrect	7(7.3)	5(5.0)	12(6.1)	0.472	0.492
Correct	89(92.7)	96(95.0)	185(93.9)		
Total	96(100)	101(100)	197(100)		
Substance abuse					
Incorrect	12(12.5)	12(12.2)	24(12.4)	0.003	0.957
Correct	84(87.5)	86(87.8)	170(87.6)		
Total	96(100)	98(100)	194(100)		
Lack of social support					
Incorrect	15(15.3)	10(10.1)	25(12.7)	1.204	0.272
Correct	83(84.7)	89(89.9)	172(87.3)		
Total	98(100)	99(100)	197(100)		

Table 4.2F: Comparison of baseline Knowledge on signs and symptoms of Maternal Depression between experimental and control group

Variables	Control group	Experimental group	Total	c^2 value	p-value
Poor appetite is a sign of mental disorder in pregnancy					
Incorrect	84(82.4)	73(71.6)	157(77.0)	3.345	0.067
Correct	18(17.6)	29(28.4)	47(23.0)		
Total	102(100)	102(100)	204(100)		
Untidy appearance in a pregnant woman is a sign of mental disorder	73(71.6)	62(60.8)	135(66.2)	2.650	0.104
Incorrect	29(28.4)	40(39.2)	69(33.8)		
Correct	102(100)	102(100)	204(100)		
Total					
Reduced concentration and attention					
Incorrect	4(4.1)	5(5.1)	9(4.6)	0.106	0.745
Correct	93(95.9)	93(94.9)	186(95.4)		
Total	97(100)	98(100)	195(100)		
Disturbed sleep					
Incorrect	4(4.1)	5(5.0)	9(4.6)	0.087	0.768
Correct	93(95.9)	95(95.0)	188(95.4)		
Total	97(100)	100(100)	197(100)		
Diminished Appetite					
Incorrect	10(10.2)	7(7.3)	17(8.8)	0.514	0.473
Correct	88(89.8)	89(92.7)	177(91.2)		
Total	98(100)	96(100)	194(100)		
Reduced self-esteem and self confidence					
Incorrect	1(1.0)	10(10.0)	11(5.6)	7.513	0.006
Correct	96(99.0)	90(90.0)	186(94.4)		
Total	97(100)	100(100)	197(100)		

Table 4.2G: Comparison of baseline Knowledge on management of Maternal Depression between experimental and control group

Variables	Control group	Experimental group	Total	c^2 value	p-value
Maternal depression is preventable	6(6.0)	6(6.0)	12(6.0)	0.000	1.000
Incorrect	94(94.0)	94(94.0)	188(94.0)		
Correct	100(100)	100(100)	200(100)		
Total					
Perinatal depression is best managed by medication					
Incorrect	71(71.7)	64(62.7)	135(67.2)	1.834	0.176
Correct	28(28.3)	38(37.3)	66(32.8)		
Total	99(100)	102(100)	201(100)		
Addressing current psychosocial stressors is part of the treatment of depression					
Incorrect	5(5.4)	8(8.1)	13(6.8)		
Correct	88(94.6)	91(91.9)	179(93.2)	0.556	0.456
Total	93(100)	99(100)	192(100)		
Psycho education is more preferable to antidepressants					
Incorrect	26(26.8)	20(20.2)	46(23.5)	1.189	0.276
Correct	71(73.2)	79(79.8)	150(76.5)		
Total	97(100)	99(100)	196(100)		
Do you feel women with maternal mental health disorder can be successfully treated in hospital					
Incorrect	3(3.0)	2(2.0)	5(2.5)	0.237	0.626
Correct	96(97.0)	100(98.0)	196(97.5)		
Total	99(100)	102(100)	201(100)		

38

4.3: Baseline Knowledge of Nurses about Linkage between Maternal Depression and Child Health

Table 3 below shows the pre-existing knowledge of the nurses about the linkage between maternal depression and child health. More respondents in the experimental group compared to the control group correctly agree that "Maternal depression has effect on newborn" (61.8% vs. 47.0%) (p= 0.035). About half (52.5%) of the respondents in the control group responded correctly that "Maternal depression could be harmful to the unborn child both now and in future" this proportion was less than those in the experimental group (79.2%) and was statistically significant (p<0.001). Respondents who correctly agreed that "A child born to a depressed mother can exhibit behavioural disorder in adolescence" were fewer in the control group compared to those in the experimental group (44.0% vs. 70.6%) with a significance of (p<0.001).

39

Table 4.3A: Baseline Knowledge of Nurses about Linkage between Maternal Depression and Child Health by Study Group

Variables	Control group	Experimental group	Total	c^2 value	p-value
Maternal depression has effect on new born					
Incorrect	84(82.4)	73(71.6)	157(77.0)	3.345	0.067
Correct	18(17.6)	29(28.4)	47(23.0)		
Total	102(100)	102(100)	204(100)		
A pregnant woman with depression is at risk of premature labour	44(45.4)	27(27.6)	71(36.4)	6.678	0.10
Incorrect	53(54.6)	71(72.4)	124(63.6)		
Correct	97(100)	98(100)	195(100)		
Total					
Maternal depression can cause low birth weight and prematurity					
Incorrect	17(16.8)	10(10.0)	27(13.4)	1.017	0.156
Correct	84(83.2)	90(90.0)	174(86.6)		
Total	101(100)	100(100)	201(100)		
Maternal depression can expose the newborn to behavioural disorders	57(56.4)	40(39.6)	97(48.0)	5.732	0.017
Incorrect	44(43.6)	61(60.4)	105(52.0)		
Correct	101(100)	101(100)	202(100)		
Total					
Maternal depression increases the rate of malnutrition and diarrhoea in infants					
Incorrect	40(39.6)	32(31.7)	72(35.6)	1.381	0.240
Correct	61(60.4)	69(68.3)	130(64.4)		
Total	101(100)	101(100)	202(100)		
Maternal depression could be harmful to the unborn child both now and in future					
Incorrect	48(47.5)	20(20.8)	68(34.5)	15.513	<0.001
Correct	53(52.5)	76(79.2)	129(65.5)		
Total	101(100)	96(100)	197(100)		

40

Table 4.3B: Baseline Knowledge of Nurses about Linkage between Maternal Depression and Child Health by Study Group

Variables	Control group	Experimental group	Total	c^2 value	p-value
Children of depressed mothers are at greater risk of developing depression					
Incorrect	44(44.0)	42(41.6)	86(42.8)	0.120	0.729
Correct	56(56.0)	59(58.4)	115(57.2)		
Total	100(100)	101(100)	201(100)		
Maternal depression has an effect on pregnancy					
Incorrect	20(19.8)	15(15.5)	35(17.7)	0.640	0.424
Correct	81(80.2)	82(84.5)	163(82.3)		
Total	101(100)	97(100)	198(100)		
Children of depressive mothers have insecure attachment and inability to achieve developmental milestones					
Incorrect	56(56.0)	29(28.4)	85(42.1)	15.746	<0.001
Correct	44(44.0)	73(71.6)	117(57.9)		
Total	100(100)	102(100)	202(100)		
A child born to a depressed mother can exhibit behavioural disorder in adolescence					
Incorrect	56(56.0)	30(29.4)	86(42.6)	14.601	<0.001
Correct	44(44.0)	72(70.6)	116(57.4)		
Total	100(100)	102(100)	202(100)		
Pregnant and lactating mothers with mental illness always transmit these disorders to their children	15(15.0)	21(20.8)	36(17.9)	1.147	0.284
Incorrect	85(85.0)	80(79.2)	165(82.1)		
Correct	100(100)	101(100)	201(100)		
Total					

4.4: Associations of Socio-demographic Characteristics and Knowledge of Nurses on Maternal depression

The different socio demographics were categorized into two for analysis to account for the too few respondents in the different categories. The statistical test used here for analysis was the Fisher's exact test. Knowledge was categorized into poor (0-25) and good knowledge (25-51), the maximum score attainable was 51 while minimum was 0.

Table 4.4A & 4B; shows the socio demographics and work-related factors that are associated with knowledge of maternal depression in the control group. Overall, at baseline, there were no statistical significant socio demographic factors that affect the knowledge of maternal depression among the respondents. Younger respondents (24 – 43 years) had good knowledge (91.9%) compared to 88.7% of older respondents.

42

Table 4.4A: Association between Knowledge of Maternal Depression and Socio-Demographic Characteristics of Respondents in the Control Group at Baseline

Variables	Poor knowledge	Good knowledge	Total	p-value
Age (years)				0.732
24-43	3(8.1)	34(91.9)	37(100)	
44-59	6(11.3)	47(88.7)	53(100)	
Total	9(10.0)	81(90.0)	90(100)	
Sex				
Male	0(0.0)	4(100)	4(100)	1.000
Female	9(9.3)	88(90.7)	97(100)	
Total	9(8.9)	92(91.1)	101(100)	
Marital Status				0.254
Married	7(7.8)	83(92.2)	90(100)	
Never married	2(18.2)	9(81.8)	11(100)	
Total	9(8.9)	92(91.1)	101(100)	
Ethnicity				0.171
Yoruba	8(8.1)	91(91.9)	99(100)	
Others	1(50.0)	1(50.0)	2(100)	
Total	9(8.9)	92(91.1)	101(100)	
Religion				0.230
Muslim	4(15.4)	22(84.6)	26(100)	
Christian	5(6.7)	70(93.3)	75(100)	
Total	9(8.9)	92(91.1)	101(100)	

Table 4.4B: Association between Knowledge of Maternal Depression and Work-Related Factors of Respondents in the Control Group

Variables	Poor knowledge	Good knowledge	Total	p-value
Work Duration as nurse				
1-19	5(9.8)	46(90.2)	51(100)	1.000
20-38	4(7.8)	47(92.2)	51(100)	
Total	9(8.8)	93(91.2)	102(100)	
Work Duration in the hospital (years)				
Less than 20	9(9.2)	89(90.8)	98(100)	1.000
20 and above	0(0.0)	4(100)	4(100)	
Total	9(8.8)	93(91.2)	102(100)	
Rank				
CNO/PNO	7(9.5)	67(90.5)	74(100)	1.000
SNO/NO	2(7.4)	25(92.6)	27(100)	
Total	9(8.9)	92(91.1)	101(100)	
Duration on Present Rank (years)				
1-9	9(11.4)	70(88.6)	79(100)	0.198
10 and above	0(0.0)	21(100)	21(100)	
Total	9(9.0)	91(91.0)	100(100)	

Socio-demographic and work-related factors of the Experimental Group

Table 4.4 C & D: shows the socio demographic and work-related factors of the experimental group that affect knowledge about maternal depression. Overall, at baseline, there were no statistically significant socio demographic factors that affect the knowledge of maternal depression among the respondents. A higher proportion of younger respondents (24-43 years) had good knowledge than older respondents (44-65 years), (100% vs. 94.5%; p=0.261). A large proportion of respondents who have worked as nurses for less than 20 years had good knowledge about maternal depression, however this proportion was similar to those who have worked for less than 20 years (97.8% vs. 96.3%; p = 1.000).

Table 4.4C: Association between Knowledge of Maternal Depression and Socio-Demographic Characteristics of Respondents in the Experimental Group at Baseline.

Variables	Poor knowledge	Good knowledge	Total	p-value
Age (years)				
24-43	0(0.0)	40(100)	40(100)	0.261
44-59	3(5.5)	52(94.5)	55(100)	
Total	3(3.2)	92(96.8)	95(100)	
Sex				
Male	-	-	-	-
Female	3(3.0)	98(97.0)	101(100)	
Total	3(3.0)	98(97.0)	101(100)	
Marital Status				
Married	3(3.3)	87(96.7)	90(100)	1.000
Never married	0(0.0)	11(100.0)	11(100)	
Total	3(3.0)	98(97.0)	101(100)	
Ethnicity				
Yoruba	3(3.0)	98(97.0)	101(100)	-
Others	-	-	-	
Total	3(3.0)	98(97.0)	101(100)	
Religion				
Muslim	1(6.2)	15(93.8)	16(100)	0.407
Christian	2(2.4)	83(97.6)	85(100)	
Total	3(3.0)	98(97.0)	101(100)	

46

Table 4.4D: Association between Knowledge of Maternal Depression and Work-Related Factors of Respondents in the Experimental Group

Variables	Poor knowledge	Good knowledge	Total	p-value
Work Duration as nurse				
1-19	1(2.2)	45(97.8)	46(100)	1.000
20-38	2(3.7)	52(96.3)	54(100)	
Total	3(3.0)	97(97.0)	101(100)	
Work Duration in the hospital (years)				
Less than 20	3(3.1)	94(96.9)	97(100)	1.000
20 and above	0(0.0)	4(100)	4(100)	
Total	3(3.0)	98(97.0)	101(100)	
Rank				
CNO/PNO	3(3.9)	73(96.1)	76(100)	0.572
SNO/NO	0(0.0)	25(100)	25(100)	
Total	3(3.9)	98(97.0)	101(100)	
Duration on Present Rank (years)				
1-9	2(2.4)	83(97.6)	46(100)	1.000
10 and above	1(6.7)	14(93.3)	54(100)	
Total	3(3.0)	97(97.0)	100(100)	

47

4.5: Effect of Respondents characteristics and their Attitude about Maternal Depression

Table 4. 5A & B: shows the socio demographic characteristics and work-related factors which affect attitude towards maternal depression. Attitude towards maternal depression was categorized into negative attitude (0-10) and positive attitude (11-21), the range of score 0-21.

Although no statistically significant relationship was found between socio-demographic factors and the attitude of nurses towards maternal depression, respondents aged 44years and above had a higher proportion (96.3% vs. 94.8%; p=0.721) of those with positive attitude compared to those aged less 24-43 years.

However, a statistically significant relationship was found as due to respondents' work-related factors. Respondents who have worked for 20 or more years showed more (99.0% vs. 92.8%; p= 0.030) positive attitude towards maternal depression compared to those with work duration of less than 20 years.

Table 4.5A: Relationship between Socio-Demographic Characteristics and the Attitude of Nurses about Maternal Depression

Variables	Negative Attitude	Positive Attitude	Total	p-value
Age (years)				0.721
24-43	4(5.2)	73(94.8)	73(100)	
44-59	4(3.7)	104(96.3)	108(100)	
Total	8(4.3)	177(95.7)	185(100)	
Sex				1.000
Male	0(0.0)	4(100)	4(100)	
Female	8(4.0)	190(96.0)	198(100)	
Total	8(4.0)	190(96.0)	202(100)	
Marital Status				1.000
Married	7(3.9)	173(96.1)	180(100)	
Never married	4(4.5)	21(95.5)	22(100)	
Total	8(4.0)	190(96.0)	202(100)	
Ethnicity				0.078
Yoruba	7(3.5)	193(96.5)	200(100)	
Others	1(50.0)	1(50.0)	2(100)	
Total	8(4.0)	140(96.0)	202(100)	
Religion				0.672
Muslim	2(4.9)	40(95.2)	42(100)	
Christian	6(3.8)	154(96.2)	160(100)	
Total	8(4.0)	194(96.0)	202(100)	

49

Table 4.5B: Relationship between Work Related Factors and the Attitude of Nurses about Maternal Depression

Variables	Negative Attitude	Positive Attitude	Total	p-value
Work Duration as nurse				
1-19	2(4.9)	90(92.8)	97(100)	0.030*
20-38	6(1.0)	104(99.0)	105(100)	
Total	8(4.0)	194(96.0)	202(100)	
Work Duration in the hospital (years)				
Less than 20	8(4.1)	187(95.9)	195(100)	1.000
20 and above	0(0.0)	8(100)	8(100)	
Total	8(3.9)	195(96.1)	203(100)	
Rank				
CNO/PNO	5(3.3)	145(96.7)	150(100)	1.000
SNO/NO	3(5.8)	64(94.2)	52(100)	
Total	8(4.0)	194(96.0)	202(100)	
Duration on Present Rank (years)				
1-9	7(4.3)	157(95.7)	164(100)	1.000
10 and above	1(2.8)	35(97.2)	36(100)	
Total	8(4.0)	192(96.0)	200(100)	

4.6 Comparison of Knowledge and Attitude to Maternal Depression at Baseline and Post-Intervention in the Two Groups

Table 4.6 shows the pre-existing knowledge and attitude of the respondents about maternal depression. There was a statistically significant difference in baseline and post intervention knowledge of maternal depression between the control and experimental groups. At baseline, the value of t (101) = -3.46, p = 0.001 indicates a statistical difference in the mean scores of the two groups; the experimental group had a higher mean knowledge score. Post intervention, the disparity between the two groups was even wider: $t(101)$ = -9.36, p < 0.001, showing a significant difference in the mean scores between the two groups, with the experimental group having a much higher score and also showing a significant improvement in the mean knowledge score from baseline.

At baseline, there was no statistical difference for attitude towards maternal depression. The value of t (101) = -1.79, p = 0.075 indicates the mean scores were not significantly different. After intervention, however, there was a significant difference in attitude with a value of t (101) = -4.36, p<0.001. There was a decline in the attitude score of the nurses in the control group as the mean attitude score of those the experimental drop remained at about the same level between baseline and after intervention.

51

Table 4.6: Comparison of Knowledge and Attitude to Maternal Depression at Baseline and Post-Intervention in the Two Groups

Variables	Frequency	Mean (SD)	*t*	df	p-value	95% CI	
Knowledge						Lower	Upper
Baseline							
Control	102	34.23(5.87)	-3.46	101	0.001	-4.45	-1.22
Experimental	102	37.06(5.84)					
Post							
Intervention	102	32.05(11.2)	-9.36	101	<0.001	-11.69	-7.03
Control	102	41.41(4.07)					
Experimental							
Attitude							
Baseline							
Control	102	15.56(2.96)	-1.79	101	0.075	-1.40	0.67
Experimental	102	16.23(2.30)					
Post							
Intervention	102	13.74(5.06)	-4.36	101	<0.001	-3.56	-1.34
Control	102	16.19(2.56)					
Experimental							

52

4.7 Knowledge and Attitude of the Control and Experimental Groups Before and After Intervention

Table 4.7 shows paired *t* test for both control and experimental groups, comparing their mean score for both knowledge and attitude at baseline and post-intervention. Mean score comparison was also done for the experimental group on knowledge and attitude about maternal depression between immediate post-intervention and one month later.

The respondents in the control group showed no difference on knowledge of maternal depression, t (101) = 1.716, p = 0.089. This means there was no difference in their mean score between baseline and post intervention. However, the attitude score was significantly less post-intervention, t (101) = 3.124, p = 0.002.

The respondents in the experimental group showed improvement in their mean knowledge score immediately post intervention compared to the baseline – 37.06 [SD: 5.84] vs. 41.41 [SD: 4.07], *t* (101) = -7.594, p < 0.001} but there was a significant decline between immediate post-intervention score vs. one month later, *t* (91) = 3.018, p = 0.003. Most importantly, the scores one month after intervention was not significantly different from what it was at the baseline – t (91) = -1.227, p = 0.223.

The mean score for attitude towards maternal depression in the experimental group indicates that there was no significant change between baseline and immediate post-intervention {*t* (101) = 0.162, p = 0.871}. Between immediate post-intervention and one month afterward, the value showed a worse score (16.19 and 15.42 respectively) but this did not reach the level of statistical significance - *t* (91) = 1.214, p = 0.228.

Table 4.7: Knowledge and Attitude of the Control and Experimental Groups Before and After Intervention.

Variables	N	Mean (SD)	t^*	df	p-value	95% CI Lower	Upper
KNOWLEDGE							
Control							
Baseline	102	34.23(5.871)	1.716	101	0.089	-0.34	4.69
Post Intervention	102	32.05(11.22)					
Experimental							
Baseline	102	37.06(5.84)	-7.594	101	<0.001**	-5.49	-3.22
Post Intervention	102	41.41(4.07)					
Experimental							
Post Intervention	92	41.40(4.10)	3.018	91	0.003**	1.32	6.42
One Month After	92	37.45(12.34)					
Experimental							
Baseline	92	36.88(5.88)	-1.227	91	0.223	-3.928	0.928
One Month After	92	37.45(12.34)					
ATTITUDE							
Control							
Baseline	102	15.56(2.96)	3.124	101	0.002**	0.67	2.98
Post Intervention	102	13.74(5.06)					
Experimental							
Baseline	92	16.23(2.31)	0.162	91	0.871	-0.44	0.52
Post Intervention	92	16.19(2.56)					
Experimental							
Post Intervention	92	16.19(2.48)	1.214	91	0.228	-0.44	1.81
One Month After	92	15.42(5.19)					
Experimental							
Baseline	92	16.17(2.32)	0.744	91	0.459	-0.581	1.278
One Month After	92	15.42(5.10)					

Paired t-test Analysis

**Significant at 5%*
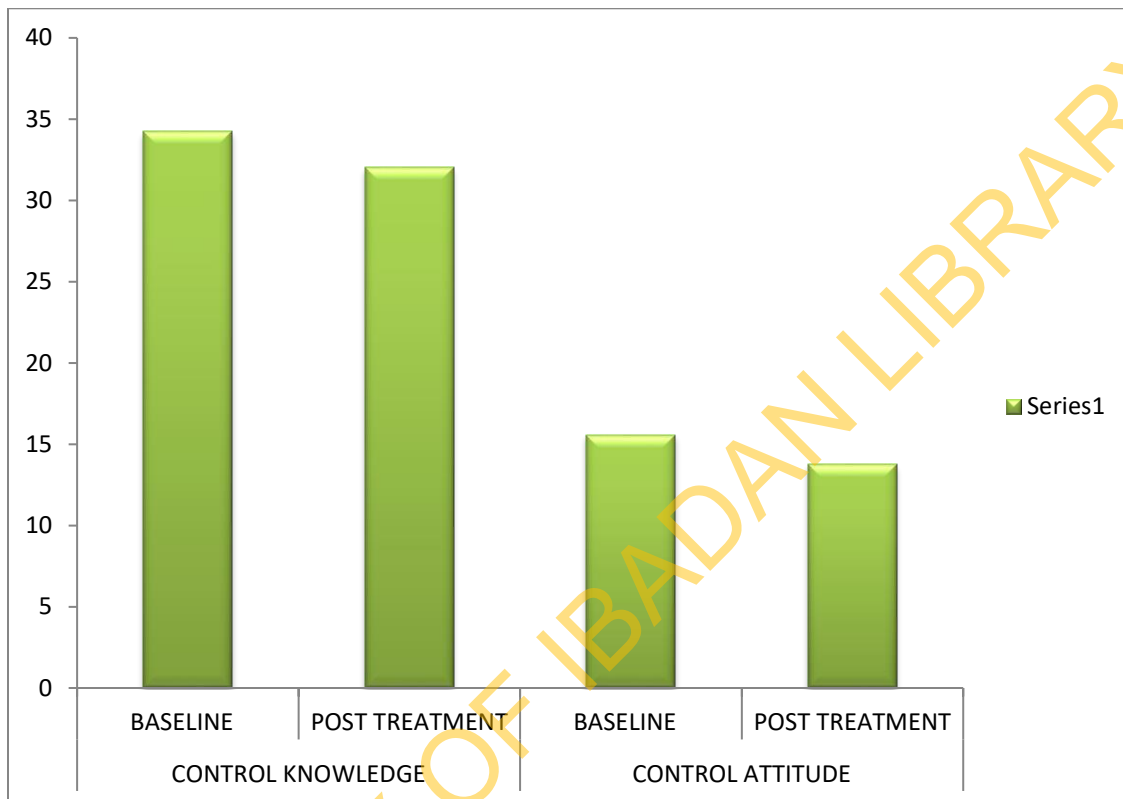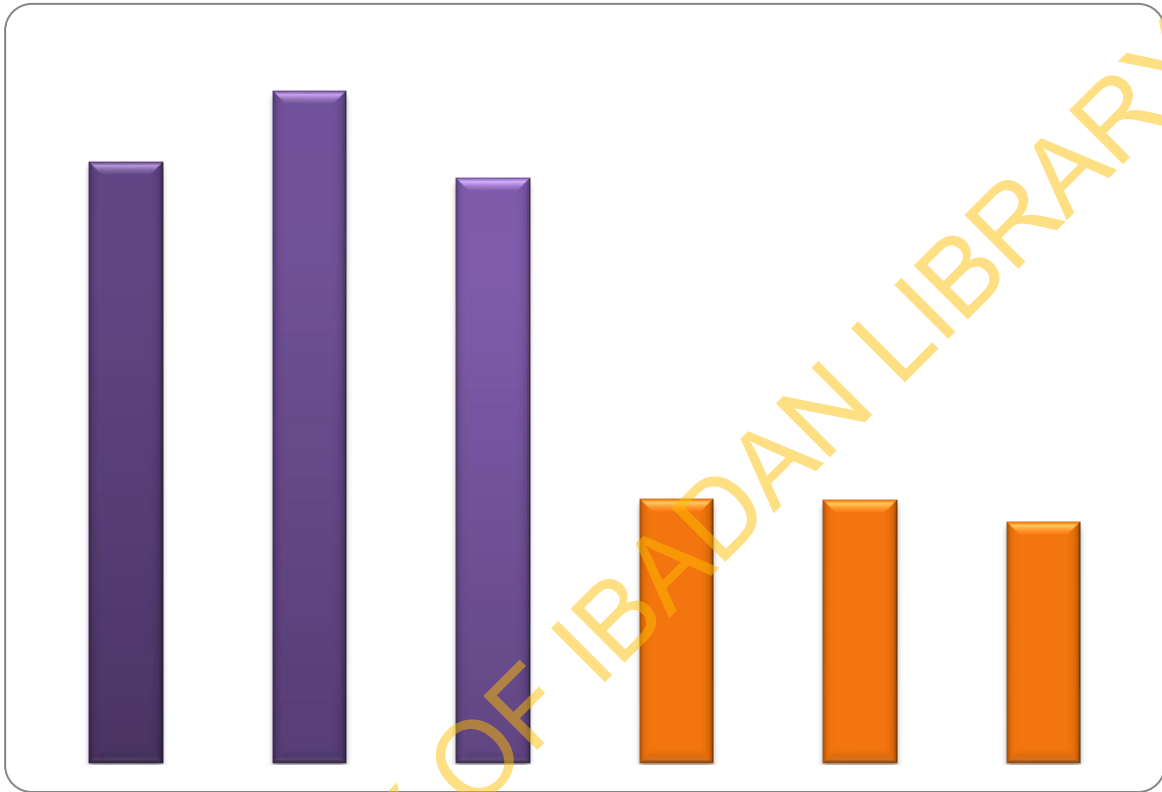
Figure 4.2: Mean score of control group pre and post treatment

Figure 4.3: Mean score of experimental group pre, post and third treatment

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 DISCUSSION

This study was on the effect of a training programme on knowledge and attitude of nurses on maternal depression and its linkage with child health in Ibadan, Nigeria. The training intervention had a significant effect on the knowledge of the participants on maternal depression and its linkage with child health but did not show any changes in their attitudes towards mothers with mental health problems.

5.1.1 Socio-Demographic Characteristics of Respondents

Two hundred and four (204) nurses were recruited for the study. Majority (98%) were females. Female respondents in the age group 50 – 59years made up the highest proportion (43.2%). The gender distribution in this study is similar to the result of a study carried out among nursing students at the University of Ibadan, Nigeria. Omigbodun *et al*., 2004, found that 75% of students studying nursing were females. The predominance of female nurses in this sample is also in support of the well-established feminization of the nursing profession (Okunade, 2001). Higher cadres of nurses were noticed to be more in number than the junior cadres, suggesting that there is a larger proportion of higher rank nurses in the service of the hospitals, in keeping with findings in a similar study by Lasebikan and Oyetunde (2012). These may probably be due to mass movement of younger nurses to Federal institutions where remuneration is better. Both intervention and control groups in this study have homogenous characteristics; hence no obvious effect could be noticed on the knowledge and attitude by their socio-demographic characteristics. Comparing the socio-demographic characteristics with the knowledge scores in this study also revealed that younger

57

respondents (24 – 43 years) tended to have better knowledge of maternal depression than older respondents (96.1% vs 91.7%), even though, this did not reach significant level. This may imply the ability of the younger individuals to retain knowledge compared to older people as documented by Kausler (1994). There were loss to follow up during one month post intervention in the intervention group. There were no losses to follow up in the control group.

5.1.2 Baseline Knowledge of all Respondents about Maternal Depression

Results from this study show similarities and significant differences in most of the variables measuring knowledge of maternal depression between the control and experimental groups at baseline; however, a few of the knowledge variables showed statistical significance.

Questions where there are significant differences in responses are "Mental illness is rare in pregnant women and lactating mothers", "The root cause of mental illness in mother is a curse on the family", "Maternal depression has effect on newborn", "Reduced self-esteem and self-confidence is a risk factor of maternal depression, "Maternal depression could be harmful to the unborn child both now and in future", "Children of depressive mothers have insecure attachment and inability to achieve development milestones", and "A child born to a depressed mother can exhibit behavioural disorder in adolescence". Overall, respondents from the intervention group had higher scores, although respondents from the control group had higher scores in some questions. This may likely indicate differences in the knowledge of maternal depression among nurses based on the institution of practice. The nurses in the institution selected as the experimental group may have a lot more contact with maternal care than those in the institution used for control and this may have influenced their baseline knowledge.

Other questions that show similarities in responses between the two groups include; "mental illness in mothers can be caused by traumatic event"," mothers who live in poverty are not any more likely to have mental illness than women who do not live in poverty", "mothers with mental illness have inherited weak genes from their parents", "one in three women will develop mental illness over the course of their lifetime", "pregnant mothers do not have depression", "maternal mental health problems can be prevented", "women should be screened for depression during antenatal and postnatal care", to mention just a few responses.

5.1.3 Knowledge of all Respondents about Linkage between Maternal Depression and Child Health.

Results from this study revealed both similarities and significant differences in baseline knowledge of nurses in the control and the intervention group in some areas. However, baseline result showed that the knowledge mean score of experimental groups was higher than the control group. This implied that the control group needed the training more that the intervention group. But based on the sampling technique adopted at the onset of the study, the intervention group had already been determined. Questions that show significant differences in responses were answered correctly by the intervention group, these are: "Maternal depression has effect on newborn", "Maternal depression could be harmful to the unborn child both now and in future", "Children of depressed mothers have insecure attachment and inability to achieve developmental milestones", "A child born to a depressed mother can exhibit behavioural disorders in adolescence", and maternal depression can expose the newborn to behavioural disorders". This suggests that amongst nurses, knowledge about maternal depression and its linkage with child health differ. Other questions with similar responses between the two groups include: "Pregnant and lactating mothers with mental illness always transmit these disorders to their children", "Maternal depression has an effect on

pregnancy", "Maternal depression can cause low birth weight and prematurity", "Children of depressed mothers are at greater risk of developing depression" and "maternal depression increases the rate of malnutrition and diarrhoea in infants". This also suggests that nurses may likely be exposed to same basic knowledge of maternal depression either during training or work experience.

Out of the 31 statements assessing knowledge on maternal depression more than half (52%) of the respondents in both groups got 8 statements wrong. For example, 86% of the respondents incorrectly agreed that depression occur more in men than women. This is contrary to Riolo *et al.*, 2005; study which documented that depression in women is found to be higher than in men. This signifies the importance of training to improve knowledge of maternal depression. More than half (63.4%) of the respondents wrongly agreed to the statement: "Up to 4% of pregnant and lactating mothers have depression in Nigeria". This shows that nurses do not know the prevalence of depression which may affect their nursing care in practice. Majority of the participants wrongly agreed to the statement: "Depression in women is more common in pregnancy than during breastfeeding". This has a major implication in the area of antenatal care. Sixty seven percent (67%) of the respondents responded wrongly to the statement: "Perinatal depression is best managed by medication" this implies the need to train nurses on non-pharmacological management of maternal depression. Training nurses on maternal depression which is the focus of this study will help to reduce maternal mental health. Reducing maternal mental health burden may also reduce the burden of mental health disorders in their children and adolescents (NACCHO 2006).

5. 1.4 Socio-demographics Factors and Knowledge of Respondents.

Another major finding from this study is that there were no association between socio-demographic attributes and knowledge about maternal depression in both the control and intervention groups. Although, it was observed that younger (24 – 43 years) respondents had better knowledge than older respondents (44 – 59 years), this difference was not statistically significant. This lack of differences could be due to homogeneity of the group. All the respondents were nurses, within a similar health care setting; nearly all are female and married; their ethnicity and religion were also similar. This may explain why the socio-demographic factors did not seem to have any relationship with the knowledge of respondents. This is in keeping with the findings of Gureje *et al.*, (2005), where no socio-demographic variables were found to play a role in shaping knowledge or attitude.

5.1.5 Socio-Demographic / Work related Factors and Attitude of Respondents to Maternal Depression

A result of this study reveals that there were no statistically significant socio-demographic factors that affect attitude of the respondents towards maternal depression, except the duration of work as a nurse which significantly affects the attitude towards maternal depression. Respondents who have worked for duration of 20 years and above had a higher proportion of those who had positive attitude towards maternal depression compared to those with work duration of less than 20 years. Though not statistically significant, more respondents aged 44years and above had a positive attitude towards maternal depression.

It was found in this study, that participants' knowledge about maternal depression improved significantly after training. This was illustrated by the significant increase in experimental group participants mean score after receiving training. This is in agreement with the study on effect of short-term training on the knowledge and attitudes of nurses about health problems (Bryne *et al*., 2004). This result also supports the findings from the study by Tupara &Ihimaera, (2004) which found that almost 86% of the respondents said they had gained a better understanding of appropriate mental health detection and referral processes for Maori mental health team, while 79% of the respondents said they had gained a better understanding of the role of the health workers within a Maori mental health team. Moreover, the training outcome is consistent with previous research findings, which shows that training improves knowledge (McKenzie *et al*., 2000).

In the control group, where no intervention was done, there was a reduction in their mean score post intervention. This indicates that training was an effective, way to improve knowledge of nurses about maternal depression. For the intervention group, there was no obvious significant increase in post attitude score both at baseline and post intervention, while reduction was noticed in the mean score for attitude in the control group. This is in keeping with the findings of Odejide and Olatawura (1979) that attitudinal change in respondents may be quite difficult to achieve with just a session of training or through training alone. It was not clear why there was a decline in attitude of the control group or why there was no change in the intervention group. But this may be attributed to some factors such as strike actions and the resentment of the participants observed during the post intervention data collection, at a period when salaries had not been paid, which might have perhaps led to 10% loss to follow up in the intervention group. In relation to the control group it may be that there was no training for them.

5. 1.6 One Month Post Intervention for the Experimental Group.

Participants' knowledge at one month follow-up had dropped significantly compared to mean score found immediately after training. Most importantly, the scores one month after intervention was not significantly different from what it was at the baseline. This showed that whatever knowledge was gained by training had been largely lost one month afterwards

A similar finding was obtained by Cullen et al (Cullen, 2000). There was a loss of knowledge over time (knowledge decay), suggesting that increase in knowledge due to training may only be temporary. It could also be because it was a short-term training. These may necessitate continuous training and retraining of health workers in order to retain knowledge gained. Secondly, it was observed that both groups, especially the control group had a decline in the attitude score at the collection of post intervention data. This may have been due to socio-economic reasons, possibly the non-payment of their salaries for the preceding two months.

5.1.7 Limitations

The findings of this study were limited to only two secondary health care facilities. Hence, the extent to which the findings can be generalized may not be representative of the entire health care system which includes other health care workers from the primary and tertiary levels.

Another limitation of this study is that the study population was limited only to nurses/midwives, rather than health workers e.g. doctors, pharmacists, laboratory scientists, CHEWs and CHOs. Also, because of the self-report design of the survey, some respondents may also have adopted more professionally acceptable responses than what might reflect their actual attitudes and practice.

63

This study is limited by a dearth of literature on the training of nurses on the issue of maternal depression.

5.2 CONCLUSION

Overall, there was limited knowledge of maternal depression and its linkage with child health among nurses. Educational intervention was found to be effective in increasing the knowledge of nurses about maternal depression; although a substantial impact could not be made on some variables. There was significant knowledge decay one month after training. The educational intervention did not improve the attitude of the nurses toward pregnant women and mothers with depression or other mental health challenges. To the knowledge of the author this is the first study on the effect of an interventional training programme on the knowledge and attitude of nurses about maternal depression and its linkage with child health in Ibadan.

Periodic education may be required to maintain any level of improvement in knowledge that training may bring, and to enhance attitudinal change. A single session of training might not be adequate to effect a permanent change. No socio-demographic factors appear to affect nurses' knowledge of and attitude toward maternal depression and its linkage with child health in this study.

5.3 RECOMMENDATIONS

1. Professional gathering/meetings, where views are exchanged with the aim of improving knowledge and developing positive attitude toward women with mental health challenges, should be intensified to bring about a greater level of knowledge and a positive change in attitude towards maternal depression.

2. There is a need for ongoing input to ensure that knowledge gained due to training are not lost over-time. Booster training sessions should be held to remind the participants about what they had learnt and discussion sessions are needed with all cadres of healthcare workers to improve attitude to maternal depression and to emphasize its linkage with child health.

3. Child and Adolescent mental health should be included in both nursing and midwifery curricula.

4. Further research should be done at various levels of healthcare from primary to tertiary.

5. Maternal mental health should be integrated into ante natal care.

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EFFECT OF A TRAINING PROGRAMME ON KNOWLEDGE AND ATTITUDE OF NURSES ON MATERNAL DEPRESSION AND ITS LINKAGE WITH CHILD HEALTH

INFORMED CONSENT

My name is Olufunmilayo Adeyanju, I am a postgraduate student of the Centre for Child and Adolescent Mental Health, University of Ibadan. I am interviewing nurses in Ibadan in order to find out about their knowledge and feelings towards maternal mental illness. I will need to ask you some questions, which you may find difficult to answer. Please note that the confidentiality of your answers will be maintained. You will be given a number and your name will not be written on the questionnaire so that your name will not be linked with any information you give. The information you and other people give will be used to make recommendations to health policy makers and government to find a solution to maternal mental health problems.

A questionnaire will be given to you which has some questions. Your honest answers to the questions will help to better understand what people think about maternal mental health problems.

Note that you have a right to withdraw at any given time if you choose to. I will greatly appreciate your help in responding to the survey and taking part in the study

Consent: Now that the study has been well explained to me and I fully understand the content of the process, I will be willing to take part in the study.

……………………… ....   ……………………

Signature of Participant   **Interview Date**

EFFECT OF A TRAINING PROGRAMME ON KNOWLEDGE AND ATTITUDE OF NURSES ON MATERNAL DEPRESSION AND ITS LINKAGE WITH CHILD HEALTH

QUESTIONNAIRE

INSTRUCTION

Thank you for agreeing to participate in this survey. Please answer all questions to the best of your ability and where relevant tick the box that applies to you.

SERIAL NUMBER --------------   DATE OF INTERVIEW----------------

SECTION A

SOCIO-DEMOGRAPHIC CHARACTERISTICS

1. Age at last birthday................................

2. Sex

{ } Male   { } Female

3. Marital Status

{ } Married { } Never Married { } separated { }Divorced { }Widowed **Co**habiting { }

4. Religion

{ }Muslim   { } Christian   { }others please specify …………………….

5. Please write down all your qualifications in full

...

6. Ethnic group……………………………………………………………

7. How many years have you worked as a nurse?...

8. How long have you been working in this hospital?..

79

9. Where are you currently working?..

10. Please write down your present rank at work

11. How long have you been in your present rank?...

General knowledge and attitude towards maternal mental disorders

`SN	The following statements are commonly held beliefs about Maternal mental health and disorders. Can you tell us whether you personally agree, disagree or not sure about each statement? Please feel free to express your views	Agree	Disagree	Not sure
1	Mental illness is rare in pregnant women and lactating mothers			
2	Mothers with mental disorders are difficult to interact with			
3	Psycho is a type of mental disorders found in women			
4	Mothers with mental illness are likely to be violent			
5	Mental illness in mothers can be caused by traumatic event			
6	Women who live in poverty are not any more likely to have mental illness than women who do not live in poverty			
7	For mothers with mental illness their families are to blame for this			
8	The root cause of mental illness in mothers is a curse on the family.			
9	Mothers with mental health disorders are possessed by demons			
10	Mothers with mental disorders can recover.			
11	Mothers with mental illness have inherited weak genes from their parents.			
12	Mothers with mental illness are unpredictable			
13	One in three women will develop mental illness over the course of their lifetime.			
14	Supernatural power can be used to inflict mental illness on a woman			
15	Mental illness in women is caused by spiritual attack			
16	Pregnant and lactating mothers with mental illness always transmit these disorders to their children			
17	Pregnant mothers do not have depression.			
18	A mother that has just delivered does not have mental illness, just behaviour problem			
19	Mental illness in women during pregnancy and after child birth cannot be treated			
20	Poor appetite is a sign of mental disorder in pregnancy			

80

		Agree	Disagree	Not sure
21	Untidy appearance in a pregnant woman is a sign of mental disorder			
22	Using a cane to beat or threaten a lactating mother is a way to manage their behaviour when they want to harm the baby.			
23	Chaining is a good way to manage mothers with mental disorder			
24	Mothers with mental disorders should be taken to the mosque for treatment			
25	Mothers with mental illness should be taken to the church for treatment			
26	Mothers with mental illness should be taken to the traditional healers for treatment			
27	Maternal depression has effect on newborn			
28	Treating mental illness in pregnant women and breast feeding mothers is always very expensive			
29	I would feel afraid to talk to mothers with mental disorder			
30	I would be upset or disturbed if my relative are in the same house or in the midst of mothers with mental disorder			
31	Depressed pregnant/ breast feeding mothers should not be allowed to attend antenatal clinic with normal mothers			
32	Would you allow your relative to maintain a friendly relationship with a pregnant /breast feeding mother with mental illness			
33	Would you be embarrassed if your friend knew that someone in your family has a wife with mental illness			
34	Would you be comfortable to have pregnant/breast feeding women with mental disorder as patient under your care			
35	Do you feel pregnant and breast feeding mothers who are mentally ill should be in hospital with other mothers with physical illness			
36	Maternal mental health problems can be prevented			
37	Do you feel women with maternal mental health disorder can be successfully treated in hospital?			
38	The following are signs and symptoms of depression			
A	Reduced concentration and attention			
B	Disturbed sleep			
C	Diminished Appetite			
D	Reduced self-esteem and self confidence			

81

		Agree	Disagree	Not sure
39	Addressing current psychosocial stressors is part of the treatment of depression			
40	Perinatal depression is best managed by medication			
41	Maternal depression is preventable			
42	Women are at greatest risk for depression after menopause			
43	Maternal depression is a risk for suicide and self-harm			
44	Women should be screened for depression during antenatal and postnatal care			
45	Up to 4% of pregnant and breast-feeding mothers have depression in Nigeria			
46	Depression occur more in men than women			
47	A pregnant woman with depression is at risk of premature labour			
48	Psycho education is more preferable to antidepressants			
49	Pregnant and breast-feeding mothers with mental health problems should go to mental hospital not general hospital			
50	I would not be disturbed if I discover a pregnant or breast-feeding mother with a mental health problem in my ward			
51	Maternal depression could be harmful to the unborn child both now and in future			
52	Depression in women is more common in pregnancy than during breastfeeding			
53	Risk factors for maternal depression include the following:			
A	Insufficient food/financial difficulties			
B	Inability to pay for essential health care			
C	Young age			
D	Intimate partner violence			
E	Nulliparity/multiparity			
F	History of spontaneous or induced abortion			
G	Psychiatric history			
H	Substance abuse			
I	Lack of social support			
54	Maternal depression has an effect on pregnancy			
55	Maternal depression can cause low birth weight and prematurity			
56	Maternal depression increases the rate of malnutrition and diarrhoea in infants			
57	Children of depressive mothers are at greater risk of developing depression			
58	Maternal depression can expose the newborn to behavioural disorders			
59	Children of depressive mothers have insecure attachment and inability to achieve developmental milestones			
60	A child born to a depressed mother can exhibit behavioural disorder in adolescence.			

82

61	What word or phrase would you use to describe a pregnant or breast feeding mother with mental disorder ....