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Topic :REVIEW OF INTERVENTIONS TO ADDRESS POSTPARTUM DEPRESSION AND THEIR FEASIBILITY FOR JOS ,PLATEAU STATE NORTHERN NIGERIAN WOMEN

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ABSTRACT

After pregnancy and birth, psychological problems are common, and with a global prevalence of 10–15 percent. It's crucial to be aware of mental health issues, particularly for mothers, this is because if they go untreated, they can cause serious problems for the mother, her child, and the entire family.Even with the primary focus being on reducing maternal and newborn mortality while promoting infant physical health,maternal mental health care is still largely neglected in low and middle-income countries. The six-week period after delivery during which the mother's reproductive organs return to their pre-pregnancy state is known as postpartum. It is a critical period in a mother's life when she undergoes numerous changes, including physiological and emotional changes, which if left untreated can lead to issues such as mother-child bonding, reckless behavior, family issues, and even infanticide if not properly assessed, identified, and treated.

Reoccurring depression, which is more symptomatic and serious than new-onset depression, is a hallmark of PPD. Hurtful experiences as a child, as well as complications during pregnancy and delivery, have all been linked to the development of new-onset depression. The use of only maternity care services to prevent depression is ineffective. It's crucial to know the symptoms, course, and risk factors of depression in order to diagnose, prevent, and treat it. In addition to supportive therapy and interventions, depressed mothers should be referred to psychiatric and social services.

Objective: The objective of this study is to review existing evidence based interventions to address postpartum depression with aim to identify those that are feasible, acceptable and could be implemented to benefit Northern Nigerian women (Jos ,gwafan region).

Specific objectives To identify evidence based interventions that have proven to increase efficacy and effectiveness in the treatment of postpartum depression in Northern Nigeria.

To make recommendations that will facilitate improved policy and practices on utilization of identified interventions by healthcare givers and practitioners for better maternal and neonatal health in Nigeria.

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Purpose of the Study

The purpose of this project to critically examine documented interventions for postpartum depression and explore their acceptability and feasibility for Northern Nigerian postpartum mums with health care givers during depression.

Project aim

This study will be guided by the following research question

Aim 1 : To review and outline updated evidence based potential interventions for policy makers and healthcare practitioners to address postpartum depression thereby preventing or decreasing adverse outcomes in Northern Nigeria

Aim 2 : To evaluate feasibility and acceptability of identified evidence based interventions in Jos, Northern Nigeria.

Introduction to the study

Problem statement

Post partum depression is frequently misdiagnosed, and treatment is often inadequate or not initiated (Miller et al., 2016). Severe consequences can occur if they are not properly addressed, maternal suicide and infanticide are the most serious of these consequences.Early identification,intervention and treatment can prevent these adverse outcomes; however, assessment and intervention for postpartum depression is often inadequate, leading to missed opportunities to initiate early and appropriate management (Beck, 2016).

Although effective treatment methods, such as antidepressants and various types of therapy, have been identified. Much of the literature on the subject focuses on the various treatment options and their potency. While much research has been done to determine obtainable interventions, treatments, and their effectiveness and efficacy, there is still much less research available that specifically examines the feasibility of these interventions, indicating the need for more research.

Antenatal depression (AND), postnatal depression (PND), and perinatal anxiety are all linked to the processes and life events that occur during the perinatal period (Stewart, Robertson, Dennis, Grace, &

Wallington, 2003; Cantwell & Smith, 2009).The American Psychiatric Association (APA), 2013 defines postpartum depression as a 'major depressive disorder with peripartum onset' as the most recent episode of major depression if the onset of mood symptoms occurs during pregnancy or in the four weeks following deliveryDepression affects about 19%–25% of women in their maternal periods and the majority of those affected are women in low and middle-income countries, which is significantly higher than women residing in high-income countries (Gelaye *et al*.,2016). In Nigeria, an estimated 20%–30% of the population suffers from mental problems (Suleiman,2016)

The global prevalence rates of Postpartum depression range between 10% and 15% (Pearlstein, Howard, Salisbury, & Zlotnick, 2009; Sawyer, Ayers, & Smith, 2010; Fisher et al., 2012).These variations could be the result of the discrepancies in screening methods, diagnostic criteria used, and timing of the evaluation (Williamson & McCutcheon, 2004; Heh, 2003). Postpartum depression continues to go undiagnosed and untreated (Stewart et al., 2003; Halbreich & Karkun, 2006; Pearlstein et al., 2009).In the developing countries of Africa, this under-diagnosis is worsened by the structure of maternity service delivery settings and prioritized concentration on life-threatening preventable complications of birth (Fisher et al., 2012). For instance, in Nigeria, an estimated 20%–30% of the population suffer mental problems (Suleiman, 2016). Hence, only one out of every five persons who suffer from mental health problems can access any care (Abdulmalik et al., 2019).

Furthermore, less than 3% of the Nigerian government's health budget is spent on mental health prevention and treatment, with the majority of the funds going toward the upkeep of dilapidated mental health facilities (Anyebe et al., 2019; World Health Organization, 2019). Maternal and mental health is a major public health concern with undesired consequences for both the mother and the child. However, in Nigeria, the existing mental healthcare treatment options are limited and costly (Anyebe et al., 2019; Madhombiro et al., 2021), and approximately 75% of Nigerians rely on out-of-pocket payments for such services (Aregbeshola and Khan, 2020).Lack of public health resources is a significant challenge to the public in Nigeria (Jidong and Sanger, 2018), however it is more challenging for women during their maternal pre-, peri- and post-natal periods.

Depression affects approximately 19%–25% of women during their pregnancy (Gelaye et al., 2016). (Gelaye et al., 2016). Women in LMC account for the majority of those affected, which is remarkably higher than women in high-income countries (Gelaye et al., 2016).Indeed, generalizing epidemiological data on the prevalence of maternal mental health problems is challenging even if low and middle - income countries contribute the least data on maternal mental health problems due to paucity of research. As a result, data on the quality of care provided to service users in low and middle-income countries is frequently overlooked and misinterpreted, resulting in significant research gaps about safety, disease prevention, and evidence-based treatment. Nigeria's health system has also

evolved over time as a result of health-care reforms aimed at addressing public-health issues. Changes to the National Health Insurance Scheme (NHIS), the National Immunization Coverage Scheme (NICS), the Midwives Service Scheme (MSS), and the Nigeria Pay for Performance scheme were among the reforms.

Despite these gains, the country's inability to effectively address the country's numerous public health issues has contributed to the health system's persistent high level of weakness. Nigerian individuals and households bear the brunt of the country's dysfunctional and inequitable health system. The Federal, State, and Local Governments in Nigeria are responsible for providing health care. The amount of budgetary allocation for health alone has quadrupled over the years, but political instability, limited capacity development, an unstable economy, and poor governance by those in charge of the health ministry are all major factors in the poor development of health services. Millions of Nigerians are without effective health care due to a lack of resources in the health sector. **But besides its strategic location in Africa, Nigeria's healthcare system has contributed to high rates of maternal death.**

Given the fact that some countries are disproportionately affected, maternal mortality is a global problem. Nigeria accounts for roughly 20% of all maternal mortality cases worldwide, implying that 145 women die every day in childbirth.According to the World Health Organization (WHO), the maternal mortality rate of Nigeria is 814 per 100,000 live births ; (Journal of Global Health Reports. 2020). Therefore ,healthcare provider's, including midwives ,nurses ,medical practitioners and community healthcare providers need to be alert to women's social circumstances and life events experienced in the perinatal period and the interplay between social ,psychological and emotional healthcare in Nigeria.

Background and significance of the Study

Postpartum depression is a public health issue, according to Kathree, Selohliwe, Bhana, and Petersen (2014). Postpartum depression (PPD) is a common mental health problem that has serious consequences for mothers and their babies.Many mothers who suffer from postpartum depression or postpartum psychosis have thoughts of hurting themselves or their infant, and the rates of suicide and infanticide among these women are very high (Miller et al., 2016).Postpartum depression is also viewed as the most onerous of all mental health illnesses.Miller et al. (2016) .

More so, infant's are usually completely dependent on their mother for health and wellbeing; postpartum depression therefore presents a threat to not just the health and wellbeing of the mother but infant too (Norhayati et al., 2015).Schiller, Meltzer-Brody, and Rubinow (2014) argued that there is an expression of sorrow, anger, and outrage in cases of infanticide committed by mothers who have experienced and are experiencing postpartum depression.Despite the indication that early recognition and management can change the course and effects of postpartum depression, many cases have gone under recognized and inadequately managed (Beck, 2012).I anticipate that this study's results will

provide information on interventions for postpartum depression as well as explore their acceptability and feasibility for Northern Nigerian postpartum mums with depression.

Contextual consideration for understanding postpartum depression in Nigeria.

Because of lack of specific knowledge, many people in Nigeria misinterpret and misunderstand depression. It's frequently misunderstood as a mood swing, a bad mood, a character flaw, or even a weakness, but it's much more.According to Suleiman (2016), between 20% and 30% of the Nigerian population suffers from mental illnesses. Only one out of every five people with mental health problems has access to any kind of help (Abdulmalik et al...2019). Less than 3% of the Nigerian government's health budget is spent on mental health prevention and treatment, with the majority of the funds going to maintain dilapidated mental health facilities (Anyebe et al,.2019; World Health Organization,2019)Currently , treatment options for mental health in Nigeria are scarce and expensive (Anyebe et al.,2019;Madhombiro et al.,2021)and for mental health services, about 75% of Nigerians rely on out of pocket payments (Aregbeshola and Khan,2020) whilst the public in Nigeria faces a significant challenge due to a lack of public health resources (Jidon and Sanger,2018).

Multiple factors may contribute to Nigerian women's higher prevalence of PPD. Despite significant improvements in maternal health service delivery in Nigeria over the last few decades, a number of challenges continue to impede the efficiency and utilization of maternal health services by Nigerian women. Poor utilization of maternal health services, for example, is a key contributor to alarming rates of maternal morbidity and mortality in Nigeria with only 51.1 percent of women having completed four or more prenatal visits and only 36 percent of births taking place in a healthy facility NPC (National Population Commission) (National Population Commission, 2014).A woman's decision to use a facility or a traditional provider is influenced by her perception of the quality of care at the facility (Idris S, Sambo M, Ibrahim M., 2013). Poor health worker attitudes also influence her decision to use a facility or a traditional provider.The challenge towards the recognition and management of postpartum depression in Nigeria and other developing African countries include stigmatization, health seeking behavior, public attitudes, religious and cultural beliefs (such as the practice of traditionalmedicine) (Msiqwa, 2010).

In addition, women in Nigeria who suffer from PPD may be stigmatized and made to feel unloved. This could be due to social and cultural norms in Nigeria regarding seeking help and discussing depression. Also when people seek help, they are met with rejection, mockery, and ridicule, especially from t those who consider it a a joke rather than providing These factors contribute to a lack of public awareness of PPD in turn leading to a high level of stigma ,fear, and a low level of care seeking among women who are affected.Dako-Gyeke and Asumang (2013) conducted a qualitative study using of persons with mental health conditions.The study was aimed at finding out how individuals with mental healthconditions are stigmatized and discriminated against by their family member's , to determine how individuals with mental health conditions are stigmatized and discriminated against by their employers and work colleagues as well as the public.The result showed that majority of people with mental conditions lost their friends and jobs when their conditions became publicly known which made people likely to conceal their condition. (Dako-Gyeke & Asumang, 2013). According to WHO (2009b), the social stigma fastened to the expression of mental health problems and emotional distress makes women to accept them as part of being female and to fear being labeled as abnormal if they are unable to function. According to (Durand-Zaleski, Scott, Rouillon & Leboyer, 2012), the core elements ofdiscrimination are shame, ignorance (knowledge), prejudice (attitude) and discrimination (behavior).

Religious and cultural believes of the people in Nigeria and it's impact on postpartum depression

The desirable version of the social norm of motherhood (the great mother identity) may make diagnosable mothers feel guilty and embarrassed about their illness, leading to underestimation of symptoms when they are evaluated for ppd.Depression in mothers has been linked to a variety of negative outcomes in previous studies conducted in the West, including poorer psychological health, disruptions in neurocognitive and physical development for both the mother and the child of the depressed mother (Gelaye et al., 2016). Other symptoms of postpartum depression include thoughts of suicide or suicidal attempts, trouble falling and staying asleep or sleeping too much, overeating, or complete loss of appetite.Consequently, a mother who suffers from a mental health problem may be less responsive to her child's cries, as partly explained in attachment theory. The attachment theory proposes a psychological system that is motivated by an innate desire to seek help from others, especially when they are in distress (Ainsworth, 1979; Bowlby, 1969; Yip et al., 2018).Many a times, when people seek help, they are subjected to rejection, mockery, made an object of laughter instead of rendering the required medical help and support.This very act leaves the victim ashamed , filled with stigma and fear which causes the victim not to speak up.

CHAPTER 1 : 1.1 Literature review

The literature review chosen for this study is grounded on a broad context

Postpartum depression is considered a form of non-psychotic maternal depression which occurs after childbirth. The Royal College of Psychiatrists (RCPSYCH) defined postpartum depression as a depressive illness that affects between 10-15 in every 100 women having a baby. Depending on the severity, a woman may struggle to look after herself and her baby.They may also find it difficult to manage simple task(Rcpsych.ac.uk, 2014).

The effects of PPD distinctly goes beyond affecting just the mother to affecting her baby and partner too and the emerging picture is that the incidence of PPD may just be higher in reality than current estimated report.This is because not all women are assessed for the condition and not all women assessed are effectively treated.These challenges combined with the risk of infanticide, succide, poor breastfeeding and its complications can make PPD both a social and public health problem.Postpartum depression has symptoms that are similar to depression in other situations. Being sociallyexcluded, emptiness, loss of pleasure in activities, unhappiness, hopelessness, lack of energy, low self-esteem, guilt, feeling frustrated, changes in sleep and appetite, inability to be comforted, exhaustion, becoming easily irritated, feeling inadequate in taking care of the baby, impaired speech and writing, angry outbursts toward others, increased anxiety or panic attacks, and a decrease in libido are all symptoms of postpartum depression (Rcpsych.ac.uk, 2014; NHS.uk, 2012; Willacy 2014).

1.2 The postpartum period

The World Health Organization (WHO) defines the postpartum period as the first six weeks after birth, and it is critical to a mother's and her newborn's health and survival. Women, newborns, and children are most vulnerable in the hours and days following birth, and a lack of care during this time can result in death, disability, and lost opportunities to promote healthy behaviors in women, newborns. Whether a woman is having her first child or not, the postpartum period is marked by major transitions that include emotional, social, psychological, and physical changes.

The National Institute Care excellence,NICE (2012) state that a woman who has experienced a normal vaginal delivery is likely to stay on the postpartum ward for an average of 1-2 days. Moreover , in practice women may be sent home as early as 6-24 hours after delivery unless there are health or birth-related complications (uclh.nhs.uk, n.d.; Dufficy, 2014). On the other hand , with a Caesarean section , NICE guidelines (2012) state that the hospital stay might extend to 3-4 days (Dufficy,2014). In Nigeria ,religion and culture plays huge roles on postpartum period. Eberhard-Gran et al., (2010) suggest that across cultures, the various practices of postpartum care may be influenced by early religious thinking in Christianity, Islam and Judaism. The postpartum woman is considered polluted and unclean in Islam. For 40 days after childbirth or while experiencing menstruation, she abstains from normal household tasks, food preparation, religious practices such as formal prayers or skipping meals, and sexual activity (Schott and Henley, 1996; Fonte and Horton-Deutsch, 2005).

Generally,during this period the mother is encouraged to rest. The baby, and all other household chores are taken care of by female relatives. The 40-day rule is based on the idea that the mother needs to rest after giving birth. Other female relatives help her recover physical strength through massage treatments and take care of her day-to-day needs during this period. (Horton-Deutsch and Fonte, 2005). Other non-Western cultures, such as China, Japan, and India, have similar practices (Eberhard-Gran et al., 2010;Yoshida et al., 2001; Kendall-Tackett, 2010).

1.3Forms of postpartum disorders

It's critical to understand the differences between the three most common types of postpartum mental health issues. Table 1-1 summarizes the various postpartum mental health conditions. They include the following:

1. Postpartum depression (PPD)
2. Baby Blues or maternity blues (BB)
3. Postpartum Psychosis (PPP)

It is important to bear in mind that the above listed forms of postpartum mental health conditions vary in symptoms , and frequency of occurrences . A detailed explanation of all three forms of postpartum ailments is presented further in the next paragraph

Table 1-1. Forms of postpartum disorders: Summary of Onset, Duration & Treatment (The Royal College of Psychiatrists 2015)

DISORDER	PREVALENCE	ONSET	DURATION	TREATMENT

Postpartum Blues	60-80%	Day 3-5	Hours - days	No treatment required other than reassurance
Postpartum Depression	10 %	Within 12 months	Weeks -months	Treatment usually required
Postpartum Psychosis	<0.5%	Within 2 weeks	Weeks - months	Treatment and hospitalization required

1.3 Postpartum Blues

Postpartum blues is the mildest form of mood disturbances seen in the puerperium and it is self limiting. It normally occurs within the first 10 days of puerperium, peaking at 3-5 days (Ntaouti et al., 2018). It is not considered a serious clinical problem because it is benign and brief (Kennerly and Gath, 1989). According to (Adewuya 2005) prevalence rate is 31.3% in Ilesa, Nigeria.

Postpartum blues can generally be referred to as a mood disorder that affects many people and usually strikes within the first three to four days after a baby is born, last for a few hours or days, and recur within one or two weeks (Manjunath, Venkatesh & Rajanna, 2011). Around 60 - 80 %of reproductive-aged women experience postpartum blues. In the first year following delivery, almost 20% of women with postpartum blue may experience serious depression (Manjunath et al., 2011). Emotional fluctuations, such as mood swings ,irritability, impaired concentration's ,lack of confidence, tearfulness, and generalized anxiety, as well as sleep and eating disorders (lack of appetite) ,irritability are all indications of postpartum blues. Also ,postpartum blues appear to be unrelated to psychiatric history, environmental stress, or personal traits such as parity and considered not to have psychiatric importance (Manjunath et al., 2011).The prevalence of postpartum blue varies from 15% to 85% to a lack of consistency in the techniques employed for assessment and varied study approaches. (Edmonds, 2012; Ntaouti et al., 2018) Domestic violence, a lack of social and emotional support from a partner, marital discord, financial instability, and inadequate mother care during childhood are all risk factors for postnatal blues. (Ntaouti et al., 2018).

1.4 Postpartum depression

The Royal College of Psychiatrists (RCPSYCH) defined postpartum depression as a depressive illness that affects between 10-15% of women having a baby. Depending on the severity, a person may struggle to look after themselves and the baby. For a person it may also be difficult to manage simple task (Rcpsych.ac.uk, 2014).

Postpartum depression is classified as a subtype of major depression by the American Psychiatric Association (APA). It is also characterized by a depressed mood that lasts for at least two weeks and is

associated with other symptoms such as crying spells, fatigue, lack of appetite, insomnia, depressed mood, anxiety, as well as poor concentration.

It usually starts four weeks after the baby is born (APA, 2013). Postpartum depression manifests itself in the inability to feel pleasure, decreased libido, decreased energy, depressed mood, and suicidal thoughts. The Diagnostic and Statistical Manual of Mental Health Disorders fifth edition (DSM-V) published by the American Psychiatric Association and the 10th edition of the International Classification of Diseases (ICD-10) published by the World Health Organization are the two most well-known and widely accepted standard definitions of ppd.

The ICD-10 classifies Postpartum depression as a depressive episode with three different stages:

1. mild (four symptoms)
2. moderate (five symptoms)
3. severe (at least five symptoms ,with agitation, feelings of worthlessness or guilt or suicidal thoughts or acts) (WHO,2010).

The WHO (2010) stipulates that Postpartum depression must be diagnosed within a primarydiagnostic category with a specifier to indicate an association with childbirth.Other definitions of postpartum include a non psychotic depressive episode beginning in or extending into the postpartum period (Cox, Murray & Chapman, 1993; O'Hara, 1994; Waston et al.,1984). Postpartum depression can also be described as a clinical and research construct used to describe an episode of minor or major depression arising after childbirth (Cox, 1994; Epperson,1999; Paykel et al., 2002).

1.5 Postpartum psychosis

Postpartum psychosis is the most severe and uncommon form of postpartum affective illness. The symptoms of postpartum psychosis can manifest within 48 to 72 hours after childbirth, most episodes develop within the first two weeks after delivery (Stewart et al., 2003).

It is not only the most severe form of maternal psychiatric disorder, but it also has a low incidence of 0.3 to 0.6 per 1000 births (Bergink et al. 2011,2015a; Kapfhammer et al. 2014; Meltzer-Brody et al. 2018).Women with postpartum psychosis may initially present with mood fluctuations, insomnia andobsessive concerns about the baby, followed by severe mood symptoms, and sometimes disorganized behavior, delusions and hallucinations (Bergink et al. 2011; Kamperman et al. 2017; Brockington et al. 1981; Boyce and Barriball 2010; Sit et al. 2006). Postpartum psychosis is distinguished from psychosis that occurs outside the postpartum period by the presence of severe mood symptoms (Bergink et al. 2016). The disorder is classified as a bipolar-related mood disorder rather than a primary psychotic disorder because psychotic symptoms in the postpartum period mostly occur in the context of affective lability.(Meltzer-Brody et al. 2018; Bergink et al. 2015a).

Women suffering from postpartum psychosis may experience mood swings, sleeplessness, and excessive worries about the baby at first, followed by severe mood symptoms, psychomotor agitation, delusions, and hallucinations (Bergink et al. 2011; Kamperman et al. 2017; Brockington et al. 1981; Boyce and Barriball 2010; Sit et al. 2006). Postpartum psychosis is distinguished from psychosis that

occurs outside of the postpartum period by the case of serious mood symptoms (Bergink et al. 2016).Because psychotic symptoms in the postpartum period typically arise in the context of emotional dysregulation, the disorder is classified as a bipolar-related mood disorder rather than a primary psychotic disorder (Meltzer-Brody et al. 2018; Bergink et al. 2015a). The etiology, symptoms, severity, treatment, and outcome are all different from postpartum depression.

Bergink et al. 2011; Wisner et al. 1994) found that there is a high relative risk of suicide and infanticide. However, with appropriate treatment, almost all women with postpartum psychosis achieve full remission, and a large proportion of patients achieve good functional recovery over time (Bergink et al. 2015b) (Burgerhout et al. 2017). In most cases, postnatal psychosis necessitates hospitalization (Nonacs & Cohen, 1998). However, despite the fact that the prognosis is generally good and women recover completely, they are at risk of developing new bipolar affective disorder episodes, both puerperal and nonpuerperal (Reich & Winokur, 1970; Schopf et al., 1984).

1.6 Post partum depression and public health burden

When a mother becomes depressed, the birth of a child, which is usually a happy time for her and her family, can have negative consequences. Postpartum depression is a complex and difficult disorder that often catches women and their families off guard, and it can have devastating personal and familial consequences (Clay & Seehusen ,2004; Miller ,2002) Postpartum depression is a non-psychotic depressive disorder that affects 20% of women and is a major public health issue.It is a major public health burden that occurs in women of child bearing age within 6 weeks of child birth, a critical time where both mild and severe mood disorders can occur but often goes unnoticed and unrecognized as well as continues to be-one of the major maternal health challenges across the globe.

In 2005, a group of researchers (Gavin et al. 2005) conducted a systematic evaluation of the literature on the incidence and prevalence of postpartum depression, with the goal of comparing the findings to depression in women who were not pregnant.

They combined data from a variety of online sources (including CINAHL, MEDLINE, PsycINFO, and Sociofile with hand-searched bibliographies and expert consultations to cover a 24-year period (1980–2004). They merged the strength of evidence from several cross-sectional, cohort, and case-control studies with structured clinical interviews through a meta-analysis. Their goal was to see if their hypothesis that postpartum depression rates differed during childbearing and non-childbearing phases was correct, and only 28 articles out of 109 met the criteria for inclusion.

The results showed **6.5% - 12.9%** combined point prevalence of postpartum depression in different trimesters and months in the first postpartum year. However, the Period prevalence for the study was put at **19.2%**. Whilst the data sources from this study was a representative of women in developed countries, little or no attempt was made to incorporate studies from countries with low socioeconomic status.On the other hand ,another set of researchers (Shittu et al. 2019) carried out a research using single-staged cluster sample to recruit about 596 postpartum mothers from a rural area in Ethiopia to examine the prevalence and related variables of postpartum depression among women who had given birth in the previous twelve months in areas with low socioeconomic status..Postpartum depression was diagnosed using established measures and data obtained via an interviewer administered questionnaire and the Postpartum depression prevalence rate was **23.7** percent, based on a **97.4** percent response rate (95 percent CI: 20.3 - 27.2).In addition ,marital status, undesired pregnancy, unwanted newborn sex, infant illness, and limited social support were also identified as predisposing factors of postpartum

depression in the study. PPD's link to perinatal problems, such as hospitalization during pregnancy and baby admission to the hospital, provides one clue to its public health implications. Perinatal problems may raise the chance of postpartum depression , but this however remains unclear.

A recent study carried out by (Blom EA, et al .2010) looked to see if certain pregnancy and delivery complications increased the risk of postpartum depression.The researchers recruited 4941 women for a prospective longitudinal study and obtained data on perinatal complications from midwife/hospital registries and questionnaires, and then assessed psychiatric symptoms 2 months after delivery using the standard EDPS scale. Risk was calculated using logistic regression analysis. However,the study concluded that during pregnancy, baby admission to the hospital, unplanned pregnancy, medical delivery, and cesarean sections were all linked to an increased risk of PPD in the study.

In Africa, a study (Dadi AF,et al 2020) researched on the epidemiology of Postpartum depression and its associated factors using meta-analysis of observational study and systematic reviews, Postpartum depression was found to be prevalent in 16.8% of women in the study, which pooled data from over 40,000 women. Low socioeconomic status and intimate partner violence were also identified as factors that contribute to PPD. While the study's population and methodology were well-suited to its goals, it was limited by publication bias, as have other previous studies, because it only included articles published in English and only publications from 10 African countries. Its findings point to a scarcity of well-designed studies in Africa that can be used to generate generalizable evidence. The under-diagnosis of postpartum depression is exacerbated in Africa's developing countries as a result of the structure of maternity service delivery settings and a focus on life-threatening preventable birth complications (Fisher et al., 2012).

The global prevalence rates of Postpartum depression ranges between 10% and 15% (Pearlstein, Howard, Salisbury, & Zlotnick, 2009; Sawyer, Ayers, & Smith, 2010; Fisher et al., 2012). Inconsistencies in screening methods, diagnostic criteria used, and assessment timing could all be to blame for such glaring inconsistencies. All of these suggests, at the very least that PPD is a global problem and that leaving it underdiagnosed and undertreated will poses a significant public health risks. Postpartum depression is still a significant issue for women of childbearing age. Sadly, this burden has not been assessed with generalizable validity in the decades since it was first recognized. In fact, researchers are still unsure whether it is a differentiated disease entity, and no universally accepted diagnostic tool exists. To gain a better understanding of the magnitude of the problem and develop strategies to address it, well-structured, large-scale multi-center studies and meta-analyses of current evidence are required.

1.7 Post partum depression and it’s prevalence in Nigeria

In Nigeria, postpartum depression is a rarely discussed and publicly addressed aspect of mental health.

Available data and estimates of PPD vary widely in terms of data quality as well as socio-demographic or geographical representations (Annet, 2004). Based on statistics provided by WHO (2009), about 10-15% of women in industrialized countries, andbetween 20-40 % of women in developing countries experience depression duringpregnancy or after delivery. It was reported that the prevalence of postpartum depression is three times higher in developing countries compared to developed countries,previous study found a Postpartum depression prevalence that varied between 0.5% and 60% among countries, as estimated by the self-reported 10-item EPDS questionnaire.with various risk factors accounting for the high burden of the illness (Halbreich U, karkun S,..2006).The prevalence of

postpartum depression varies from 1.9% to 82.1% in developed countries, with the lowest prevalence reported in Germany and the highest prevalence in the United States.(Halbreich U, karkun S,..2006).

In developing countries, the prevalence varies from 5.2% to 74.0%, with the lowest prevalence reported in Pakistan and the highest prevalence in Turkey.(Norhayati *et..al* 2014).The estimated prevalence of Postpartum depression in Africa is 18.4%. In Nigeria, various studies have been conducted to determine the prevalence of postpartum depression using the Edinburgh Postnatal Depression Scale (EPDS). In (2006) Abiodun carried out a two stage screening procedure in a developing society in Nigeria using the 10-item self-reporting Edinburgh Postnatal Depression Scale (EPDS) and the Present State Examination Schedule. The goal of the study was to find out the prevalence of postpartum depression , what factors contribute to it ,associated factors of postpartum depression in primary health care centers and the incidence of postpartum depression in primary care populations studied was 18.6%.

Ebeigbe and Akhigbe (2008) also found a higher prevalence of 27% in western part of Nigeria.Two separate studies conducted in South-eastern Nigeria reported a low prevalence of 10.7% and prevalence of 30.0% in another. (Abasiubong F, Bassey EA, Ekott JU. 2008) In Northern Nigeria,Jos (Obindo TJ, 2014) recorded a high prevalence rate of 44.5% whilst (Tungchama F,*et al*..2018)recorded a prevalence rate of 21.8% .In 2005 (Adewuya et al., 2005) carried out a study to compare the prevalence of postpartum depression amongst reproductive age women in Nigeria at six weeks after delivery.Participant included in the study consisted of 876 postpartum women and a comparison group of 900 non-postpartum women (Adewuya et al., 2005).

Instruments used in carrying out the study included Beck's Depressive Inventory (BDI), modified non patient version of Structured Clinical Interview for DSM-III-R(SCID-NP) and a translated version of translated versions of the Edinburgh Postnatal Depression Scale (EPDS) .The results revealed a significant difference between the two groups, with the postpartum women having higher scores for both EPDS and BDI respectively

In summary, we have to bear in mind that the prevalence of postpartum depression worldwide and in Nigeria varies significantly and this could be attributed to the different types of methodologies implemented in the study designs, the differences in geographical location, threshold of discrimination chosen for screening measure differences. socioeconomic status, as well as the various risk and predictive factors associated with developing postpartum depression in these studies.

1.8 Risk factors of postpartum depression

The cause of postpartum depression is unknown (Patel et al., 2012) but several risk factors have been identified. According to Klainin and Arthur(2009) risk factors of PPD are classified into physical and biological, psychological, socio -demographic,obstetric, pediatric and cultural groups.

Psychological factors ,significant risk factors of postpartum depression in developed countries are anxiety (Lanes et al., 2011, Gaillard et al., 2014),previous psychiatric illness (Davey et al., 2011, Abbasi et al., 2013, Raisanen et al., 2013),poor marital relationship, and stressful life events (Escriba-Aguir and Artazcoz, 2011),. The psychological factors for postpartum depression that was documented only in developed countries are poor mental health (Sword et al., 2011),An associations between postpartum

depression and sexual, physical and psychological abuse (Tiwari et al., 2008, Silverman and Loudon, 2010) were also significantly reported in developed countries.

On the other hand , in developing countries, antenatal depression, antenatal anxiety, previous psychiatric illness,(Ahmed et al., 2012, Goker et al., 2012, Demirchyan et al., 2014), poor marital relationship (Kirpinar et al., 2010, Yagmur and Ulukoca, 2010), stressful life events (Demirchyan et al., 2014), negative attitude towards pregnancy (Ali et al., 2009, Kheirabadi et al., 2009). were reported to be significant risk factors for PPD. On the contrary, no link between postpartum depression and physical abuse has been discovered or reported (Savarimuthu et al., 2010). However, the findings on the connection between family history of psychiatric illness and postpartum depression were mixed (Ayvaz et al., 2006, Ahmed et al., 2012).

Biological and physical factors Several biological and physical factors have been found related to postpartum depression in developed countries, these factors include negative body image (Green et al., 2006),poor physical health in both developing and developed countries (Cheng et al., 2013, Gaillard et al., 2014,Barbadoro et al., 2012).

Sociodemographic factors The evidence on the link between demographic characteristics and postpartum depression is contradictory. (Quelopana et al., 2011, Sword et al., 2011) reported young maternal age as an associating risk factor for postpartum depression but on the contrary, but Glavin et al. (2009) found contradicting results. However, many studies found no association between postpartum depression and maternal age (Green et al., 2006),studies like , 2010, Goker et al., 2012, Ozdemir et al., 2014) found no association whilst few studies found younger maternal age as a risk factor with association for PPD (Gausia et al., 2009, Bottino et al., 2012).

Furthermore,(Kozinszky et al., 2011, Eastwood et al., 2012) reported an association of PPD with low socio-economic status. Studies in both developed , (Sword et al., 2011, Eastwood et al., 2012) and developing countries (Gausia et al., 2009, Yagmur and Ulukoca, 2010) reported that a lack of social support is an independent predictor of postpartum depression whilst domestic abuse (Ahmed et al., 2012) and poor living conditions (Demirchyan et al., 2014) were reported as additional risk factors for postpartum depression.**Personal problems such** as a lack of education have also been linked to risk factors for PPD (Do et al., 2018; Wesselhoeft et al., 2020)

Other factors, such as the infant's gender (Murray et al., 2015), have been linked to an increased risk of PPD. Partner violence violence (Tho Nhi et al., 2019), as well as stressful life events (SLEs) such as a loss of employment, a loved one's death and even economic shock (Qobadi et al., 2016; Gausman et al., 2020), can aggravate PPD.

Cultural factors Cultural influences on postpartum depression have received less attention, which is understandable given that different cultures have different rituals and beliefs that may influence the severity of postpartum depression. Cultural factors have been shown to play a significant role in postpartum depression in studies; they may both trigger and contribute to depressive symptomatology alleviation. According to a study, a husband's preference for a son is also a common and cultural contributing risk factor for PPD (Tho Tran et al., 2018; Tho Nhi et al., 2019).

Traditional practices include confinement, forced rest, lying over heat, not bathing for a specific period of time, and following specific he rrecipes, particularly in Eastern countries.As mentioned in qualitative interviews about postnatal depressive symptoms among women in central Vietnam, these practices, which began immediately after birth and lasted for a culturally variable length of time, were risk factors for PPD. (Murray et al., 2015).

Obstetric and pediatric factors The evidence for obstetric and pediatric risk factors for postpartum depression is mixed. Unintended pregnancies are common in developed countries

(Kozinszky et al., 2011, Goker et al., 2012, Gaillard et al., 2014) and mode of delivery for instance ,women that gave birth through Caesarean section had mixed findings. (Davey et al., 2011, Lee et al., 2011, Goker et al., 2012, Koutra et al., 2014, Raisanen et al., 2013, Gaillard et al., 2014). More-so ,another study by (Kozinszky et al., 2011, Sword et al., 2011, Raisanen et al., 2013, Gaillard et al., 2014) reported mixed findings in the association of PPD with parity (twins).Also ,sex of the baby (Kim et al., 2008, Koutra et al., 2014) reported mixed findings. Women whose babies had medical problems or are born prematurely (Raisanen et al., 2013) are likely to experience postpartum depression.

However ,it was Only for mode of delivery that conflicting findings were been reported for in developing countries for obstetric and pediatric factors, parity (Yagmur and Ulukoca, 2010, Goker et al., 2012, Ozdemir et al., 2014) and sex of baby (Ali et al., 2009, Yagmur and Ulukoca, 2010, Xie et al., 2011). The preferred option for the baby's sex varies depending on the culture. In China, for example, there was a significant increase in postpartum depression in female babies, but mixed results in Turkey. previous miscarriage or infant loss (Gausia et al., 2009, Yagmur and Ulukoca, 2010), women whose infants had medical conditions (Yagmur and Ulukoca, 2010, Demirchyan et al., 2014 and women aphorism are unable or unwilling to start breastfeeding (Ali et al., 2009, Zubaran and Foresti, 2013) are all at risk of developing postpartum depression.

Furthermore, in an evidence-based systematic review of systematic reviews and meta-analyses, (Zhao, X. H., & Zhang, Z. H. (2020) concluded that violence and abuse, cesarean section, depressive history, vitamin D deficiency, overweight and overweight, peripartum sleep disruption and poor postpartum sleep, lack of welfare support, traditional dietary pattern (Japanese, Indian, United Kingdom, and Brazilian dietary pattern), multiple births, preterm and low Controversial factors include cortisol levels in the blood, thyroid peroxidase autoantibodies, acculturation, and traditional confinement practices. Skin-to-skin care, increased seafood consumption, healthy dietary patterns, multivitamin supplementation, fish and PUFA intake, calcium, Vitamin D, zinc, and possibly selenium intake are all protective factors.

Research has shown us that psychosocial factors such as high life stress, a lack of social support, current or previous abuse, prenatal depression, and marital or partner dissatisfaction all contribute to mental health issues in a variety of populations. and the influence of these psycho-social factors in developing peripartum depression has been given little or no research attention in Nigeria. Some other factors include lack of social support, history of depression ,obesity ,caesarean-section, unsupportive hospital staff, nature of pregnancy , pregnancy complications , mode of delivery ,having female child when male child is of preference and marital conflict this should be addressed by researchers and healthcare providers.

1.9 Signs and symptoms of postpartum depression

Poor concentration, sleep and appetite disturbances, low mood, and loss of interest are all common depression symptoms that can have a significant impact on a mother's ability to meet her child's physical and emotional needs. According to attachment theory, a mother suffering from a mental health problem may be less responsive to her child's cues. Attachment theory describes a psychological system that is driven by an innate desire to seek help from someone else, especially in times of need (Ainsworth, 1979; Bowlby, 1969; Yip et al., 2018).Children of depressed mothers or caregivers, for instance, are more likely to have avoidant or disorganized attachment styles than children of non-depressed mothers (Martins and Gaffan, 2000; Toth et al., 2009).

Despite the fact that these associations appear to produce modest results that could be due to other interconnected factors such as marital conflicts and a lack of social support, the theory suggests that maternal care received during early childhood influences the child's later emotions, behaviors, and wellbeing.(Rosmalen et al., 2015; Yip et al., 2018)

Miller et al. (2013, 2015) discovered that postpartum patients had far more obsessive-compulsive symptoms than the general population (11 percent vs. 2–3%), and that these symptoms were frequently comorbid with depression. Miller et al. (2015) also discovered that anxiety and obsessive-compulsive symptoms were comorbid with depression in the first few weeks after birth. Anxiety symptoms improved slightly for up to six months, but obsessive-compulsive symptoms remained persistent (Miller et al. 2015). Some obsessive and compulsive symptoms, such as thoughts of avoiding harm and accidents or compulsion manifesting in avoidance of dangerous situations (for example, double checking and cleaning), may be beneficial in the care of an infant (Miller et al. 2013). Those with PPD may have a destructive maladaptive form. Postpartum anxiety symptoms, such as somatic and social anxiety, are relatively common, affecting up to 10%–50% of new mothers (Farr et al. 2014, Wenzel et al. 2005, Miller et al. 2015). Psychomotor symptoms (restlessness/agitation) and impeded concentration/decision-making were common in major PPD, according to Bernstein et al. (2008), whereas women with major depression from outside postpartum period reported more sad mood, suicidal ideation, and diminished interest.

Suicidal ideation and thoughts of self-harm range from 3% to 14% in the postpartum period (Lindahl et al. 2005, Howard et al. 2011), and according to Howard et al. (2011), postpartum women with more depressive symptoms are more likely to experience suicidal ideation. According to Wisner et al. (2013), 19.3 percent of depressed mothers with an EPDS score of 10 and 30 percent of depressed mothers with an EPDS score of 13 had self-harm ideation. According to Pope et al. (2013), women with a diagnosed

mood disorder (MDD or bipolar II disorder) had thoughts of self-harm (17%) and suicidal ideation (6.2%) one year after giving birth.

Several studies have found non-psychotic or psychotic depression in mothers prior to infanticide, but non-psychotic depressed mothers are unlikely to kill their children (Spinelli 2004, Friedman et al. 2005, Kauppi et al. 2008). If they do so, their motivation is almost always altruistic. Non-psychotic depressed mothers may feel guilty, believe that they are bad mothers, and have obsessive thoughts about harming their children (Spinelli 2004). Depressed mothers, according to Kauppi et al. (2008), have depressed moods, anxiety, insomnia, suicidal thoughts, and concerns about the baby's well-being as well as their own ability to be a mother.

Previous research has found that mothers suffering from postpartum depression exhibit visible symptoms such as anxiety, insomnia, and confusion. More so ,uncontrollable crying spells (crying more often than usual) and fear are two other obvious symptoms (Fitelson et al., 2010). Because parents learn to mask symptoms, early detection of symptoms is difficult. Remorse, guilt,inferiority or inadequacy, changes in appetite, feeling of anger, withdrawal from loved ones feeling numb and disconnected from baby ,feeling inability to care for the baby and fatigue are among the other symptoms of postpartum depression and all of these can have significant impact on a mother's ability to meet the emotional and physical needs of her child.Postpartum depression, on the other hand, can persist if mothers or doctors fail to recognize symptoms.

1.10 Consequences of post partum depression

Postpartum depression can have especially severe long-term effect and consequences, not only for the mother but also for the child. Postpartum depression has been shown to have negative effects on maternal–infant interaction during the first year of life, as well as long-term effects on children over the age of one year and mothers themselves (Beck, 2002). This depressive episode could be a precursor to recurrent depression for the mother. Generally,the effects of postpartum depression can be divided into two categories: infant-related effects and maternal-related effects.

Infant related negative effects

This negative effect can range from reduced mother-child bonding to a complete lack of mother-infant bonding, as well as infant abuse. Depressive symptoms cause detachment, making the mother emotionally unavailable for her infant, and reducing the mother's potential to meet to her infant's needs are some of the underlying processes. These factors may lead to infant neglect and a complete lack of responsiveness and accountability.PPD can also have negative effect on cognitive development and motor development of the infant. (WHO,2003 ,2019) reported that Postpartum depression has a

significant impact on the mother and longterm consequences on the cognitive and emotional development of most children whose mothers are affected

A mother's ongoing depression can have a significant impact on her children's emotional, behavioral, cognitive, and interpersonal problems later in life (Miller 2002). PPD has been linked to a distorted emotional and social interaction between the infant and the mother, as well as a negative impact on the child's health and social, emotional, cognitive, and physical development (Weinberg & Tronick 1998, Brand & Brennan 2009, Field 2010, Goodman et al. 2011, Murray et al. 2011, Korhonen et al. 2012).Related to this, PPD can lead to poor infant feeding practices, which might result in baby malnutrition and reduced infant growth (Anoop S,..2004) whilst (Kerstis *et al*.,2016)found that maternal depression at 6-week postpartum had a significant impact on mother-infant bonding 6 months after delivery.

One study investigated the maternal and child outcomes in a community-based health programm (Findley *et al..,*)The research showed that at 6-months postnatal stage, the children of the depressed mothers had poor growth compared to the non-depressed mothers (Adewuya et al .,2008) Also, depressed mothers were more likely to engage in maladaptive caregiving behaviours such as disruptive breastfeeding. Goodman et al. (2011) conducted an extensive meta-analysis ,the mean age of the children in these studies ranged from nine days to 20 years, with an overall mean of 7.1 years.

The goal of the study was to determine the mechanism and strength of the link between a mother's depression and child's behavioral or emotional challenges and according to the findings, maternal depression was associated with higher levels of internalizing, externalizing, and general psychopathology, as well as negative affect and behavior, and lower levels of positive affect and behavior (Goodman et al. 2011). In addition ,consequences of postpartum depression on mother includes suicidal or homicidal ideation with a desire ,plan or intent to harm oneself or anyone else, including the infant, (infanticide)in such cases ,it is a psychiatric emergency, and an evaluation by a mental health professional should be conducted immediately. (Tsivov et al,2011) reported suicidal thoughts and physical illnesses like nausea and headaches amongst many women with untreated PPD (Tsivos et al, 2011).Also, Women with PPD are also more likely than non-depressed women to abuse tobacco, alcohol, and illegal drugs, as well as to be physically, emotionally, and sexually abused by others (Fitelson et al, 2011). Other consequences of postpartum depression on mother , include substance use and abuse : smoking and alcohol social relation problems. (Herba et al., 2016; Gressier et al., 2017; Haddad et al., 2017; Tungchama et al., 2017) reported that PPD is linked to poor cognitive and social development in children, relatively low life quality, and even suicidal or self-harming behaviors in mothers.

More so , the meta-analysis emphasized the significance of numerous other factors that are relevant to child developmental problems . PPD, in particular, predicts poorer intellectual ability development throughout childhood and adolescence, with a stronger effect in boys compared to girls (Brand & Brennan 2009, O'Hara & McCabe 2013).(O'Hara & McCabe 2013) also reported that a mothers postnatal depression chronicity and severity and may have a significant impact on a child's output.

PPD also has a number of adverse effects for the entire family system, particularly in terms of marital satisfaction and parenting responsibilities (Barnes 2006). Depressed fathers can range from 2% to 25% of the time, according to literature reviews, with an increase of up to 50% when mothers are suffering from postpartum depression (Yogman & Garfield 2016). According to Goodman (2004), the primary determinant of paternal depression is maternal depression during the postpartum period. He also discovered that one partner's depression was linked to the other's depression, and that fathers were more likely to be depressed if their partners had PPD. Others found a moderately positive correlation, but the causality remained unknown (Paulson & Bazemore 2010).

In summary, postpartum depression can create an environment that is not conducive to the personal development of mothers or the optimal development of a child. If left untreated and unattended , postpartum depression can progress to altering the mental and physical relationship between a child and mother.Therefore ,it is crucial to detect and treat depression during the postnatal period as early as possible to avoid harmful consequence's.

1.11 Screening for postpartum depression

Medical screening for postnatal mood disturbance can be difficult especially in diagnosis given the number of somatic symptoms typically associated with having a new baby which are also symptoms of major depression, for example, sleep and appetite disturbance, diminished libido, and low energy (Nonacs & Cohen, 1998). Because symptoms that are present in major depressive symptoms may also be regarded "somatic symptoms" that are commonly associated with having a new baby, screening for postpartum depression can be mostly difficult and challenging .Differentiating between PPD symptoms and standard symptoms associated with childbirth, such as changes in energy, weight, and sleep, can be difficult.(Stewart et al., 2003).

PPD may go unnoticed and undiagnosed due to the difficulty of establishing a diagnosis. Depression can be diagnosed using a number of different methods. The Beck Depression Inventory (BDI), a self-reported scale with a cut-off point, is a rating scale with a cut-off point where higher scores do not always indicate depression. These high scores could indicate symptoms like fatigue or sleep disturbance that are common during normal pregnancies. These elements could make diagnosis more difficult.

(Stewart et al., 2003). Self-report is useful in research and general medical practice because of the large sample size that can be reached and the ease with which the test can be administered without the need for a professional, but it does not effectively address how long the individual has been experiencing these symptoms.

The Edinburgh Depression Scale has been found to be the most reliable for screening depression, despite the fact that there are a variety of tools available because of its sensitivity and specificity (Breedlove & Fryzelka, 2011).The EDS is used to see if a woman is depressed or not The EDPS has a sensitivity of 67.7% to 100% and specificity of 78-95.7 percent in detecting depression in women with a cut-off point greater than 12. (Murrary & Carothers, 1990). However, the score does not serve as a diagnosis, and additional clinical evaluations are required to make the diagnosis (Breedlove & Fryzelka, 2011). Because PPD usually develops within the first month of childbearing, and the best time to screen new mothers for it is during their first postnatal visit to the doctor (Sit & Wisner, 2009).

Furthermore, it is estimated that up to 50% of all PND cases go undiagnosed due to a lack of proper screening or shame and loneliness, which causes a woman to hide her depressed state from those around her (Cuijpers et al., 2009; Wood, Middleton, & Leonard, 2010). It is well known that in routine clinical practice, primary health care providers miss less than half of the cases of PND (Hewitt et al., 2009). Besides that, 50 percent of women with PND go undiagnosed, possibly because their depressive symptoms are not adequately assessed by health professionals (Sit et al., 2006). As a result, there is a heated debate in the literature about the accuracy of PND screening tools (Thombs et al., 2016).

1.12 Diagnostic Criterion for the classification of postpartum depression

However ,the standard methods for diagnosing Postpartum depression are the American PsychiatricAssociation's Diagnostic & Statistical Manual of Mental Disorders fifth edition (DSM-V,2010); and the 10th edition of the International Classification of Diseases, (ICD-10), published by the World Health Organization (2010).

Postpartum depression can be assessed clinically or through the use of screening instruments such as

1. The Edinburgh PostnatalDepression Scale (EPDS) (Cox & Holden, 1996; Holden, and Sagovsky, 1987) The EPDS is a self-report scale with a high level of validity and reliability for detecting PND (Wood et al., 2010). EPDS have been widely utilised and have been shown to be a reliable and efficient method of identifying women at risk of PND (Green, 2005). EPDS is by far the most well-known and evaluated PND identification strategy, according to recent evidence (Hewitt et al., 2009; Zubaran et al., 2010). This tool consists of ten self-report statements with four rating scales ranging from 0 (almost never) to 3 (almost always) (no, not at all). Anxiety, unhappiness, decreased pleasure of activities, self-blame, sleeping problems, and thoughts of self-harm are among the topics discussed (Wood et al., 2010).

2 The scale is short and simple to use, and research backs its accuracy in terms of identification, specificity , sensitivity to change over time, and predictive power (Highet & Drummond, 2004).

Existing studies on EPDS accuracy used a sample size that was too small to accurately estimate accuracy (Thombs et al., 2014). Furthermore, EPDS is thought to have some drawbacks (Murray et al., 2003; NICE, 2006; Shakespeare, Blake, & Garcia, 2003). One of the drawbacks is that it isn't a replacement for a full psychiatric evaluation because it doesn't predict PND or provide a measure of severity; it only indicates the likelihood of depression. (Hanna, Jarman, & Savage, 2004).The Beck Depression Inventory (BDI-11) (Beck et al., 1996)

In PND research, the Beck Depression Inventory (BDI) is one of the most commonly used depression instruments (Beck & Gable, 2001). The BDI has been continuously revised to align the symptoms content with the diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association (DSM-IV). The BDI-II tool, a 21-item self-report rating inventory that measures depression's characteristic attitudes and symptoms, has recently been updated (Beck, 1996). The BDI–II is aligned with the DSM–IV criteria by using a 4-point scale with scores ranging from 0 to 3, which is arranged in increasing severity about a specific symptom of depression. More severe depressive symptoms are associated with higher total scores. The BDI-high II's consistency and reliability have been demonstrated in a number of studies. (Beck & Gable 2001)

In African countries, the EPDS can concretely measure the severity of maternal depression symptoms or screen for likely postnatal depression. Further studies and results on other instruments, are however required to confirm this (Tsai et al., 2013).

However ,in as much as many severe postnatal depressions are easily detected,less severe forms of depression can be dismissed as normal or natural side effects of childbirth.

In addition, the American Psychiatric Association's (APA) Practice Guidelines for the assessment and treatment of psychiatric disorders have provided evidence-based recommendations. These guidelines are intended to assist health-care decision-making by presenting patient-care strategies that have been explicitly developed in a structured manner.To make a diagnosis of depression, the DSM-5 outlines the following criteria. During the same 2-week period, the person must have five or more symptoms, with at least one of them being either (1) depressed mood or (2) loss of interest or pleasure.

Depressed mood most of the day, nearly every day.

- Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day.

- Significant weight loss when not dieting or weight gain, or decrease or increase in appetite nearly every day.
- A slowing down of thought and a reduction of physical movement (observable by others, not merely subjective feelings of restlessness or being slowed down).
- Fatigue or loss of energy nearly every day.
- Feelings of worthlessness or excessive or inappropriate guilt nearly every day.
- Diminished ability to think or concentrate, or indecisiveness, nearly every day.
- Recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

In order to be diagnosed with depression ,these symptoms must cause the individual clinically significant distress or impairment in social, occupational, or other important areas of functioning.The symptoms must not be caused by drug or alcohol abuse or another underlying medical condition.

New Specifications for Depression in DSM-5

The DSM-5, the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM), added two new specifiers to help diagnoses be further classified:

With Mixed Features -This specifier allows patients who do not meet the full criteria for a manic episode to have manic symptoms as part of their depression diagnosis.

With Anxious Distress - Anxiety in patients can affect prognosis, treatment options, and the patient's reaction to them. Clinicians must determine whether the person suffering from depression is also experiencing anxiety distress.

1.13 Managements of postpartum depression in Nigeria

In Nigeria, postnatal women have a poor understanding of PPD, and health professionals are unable to recognize its symptoms. As a result, PPD diagnosis and treatment have been missed, necessitating research into the disease's prevalence and associated risk factors in order to provide evidence of the disease's burden. Despite improvements in maternal health service delivery in Nigeria over the last few decades, many challenges continue to limit the quality and uptake of maternal health services by Nigerian women.For instance, poor use of maternal health services in Nigeria is a key factor contributing to high levels of maternal morbidity and mortality, as only 51.1% of women completed

four or more antenatal care visits and only 36% of births took place in a health facility in 2013 (NPC) National population commission Nigeria,(2013).

Poor perceived quality of care at facilities is a critical barrier (Idris S, Sambo M, Ibrahim M. B 2013,Osubor KM, Fatusi AO, Chiwuzie JC. M(2006)and poor health worker attitudes contribute to a woman's choice of using a facility or traditional provider Uzochukwu B, et al.,(2004).These apparent inadequacies of health facilities, maternal health service delivery and healthcare manpower in Nigeria may suggest that many cases of PND are undetected in women or when detected may be poorly treated.

In terms of awareness and help-seeking behavior, mental health is a serious issue. It is frequently stigmatized, especially in developing countries like Nigeria (Nnaka, 2018). According to a study conducted in Nigeria, postpartum mothers were interviewed about their actual experiences of postpartum depression ,they mentioned that their feelings of unhappiness and sadness increased after their babies were delivered, which were misinterpreted by family and friends.(The mothers also stated that they sought recovery through **prayer** and **herbs**, and were unable to seek appropriate care because of a lack of knowledge about what they were experiencing.(Nnaka, 2018).According to Akwa (2015) if a woman is not educated on postpartum depression before giving birth, she may confuse her continuing depressive symptoms for 'baby blues' and remain untreated for her depression.

However,educating women before birth allows them to recognise symptoms of postpartum depression and seek appropriate help, instead of feeling ashamed or seeking solutions through unorthodox means (Akwa, 2015). The inability to recognize postpartum depression symptoms and the resulting lack of treatment can lead to serious issues like marital strife, recurrent psychiatric illness, and, in some cases, suicide. (Akwa, 2015).Furthermore, one of the challenging factors in the prevention and treat ment of mental health problems is the lack of empirical data in low middle income countries (LMICs) like Nigeria.Cohen eg al.,(2011).

Also,In 2008, the World Health Organization (WHO ,2008) reported significantly less access to treatment for severe mental health, neurological and substance misuse disorders in lower middle income countries (LMICs)compared to higher income countries (HICs)(76%–85% in LMICs versus 35%–50% in HICs). Since this report was made over a decade ago, the situation has remained largely unchanged. According to a WHO report from 2018, there are fewer than 0.1 psychiatrists per 100,000 people in LMICs compared to a typical of 11.9 psychiatrists in HICs; similarly, there are 1.4 nurses providing mental health care per 100,000 people in LMICs compared to 23.5 nurses in HICs. (World Health Organization, 2018) .There is also an estimated 20%–30% of the Nigerian population suffering from a variety of mental health problems, Suleiman D (2016) with only one out of five potential health care service-users accessing care.

According to Ayinde O O et Al.,,(2018) there are major inadequacies in the organizational and administrative profile of these primary maternal care facilities that militate against the provision of quality chronic care. These shortcomings result in a significant treatment gap for women suffering from post partum depression. User-driven demand for quality improvement may also be hampered by a lack of awareness among service users of what constitutes good quality care, which is indicative of low service expectations.It however appears that there is little or no data on the current treatment statistics of maternal mental health (MMH) care in Nigeria as well as paucity of recent data on current treatment ,managements and intervention of postpartum depression in Nigeria Abdulmalik et Al.,,(2019) and understanding maternal mental health (MMH) as a case-specific concern is essential to the developing evidence based interventions to manage postpartum depression in Nigeria .

2.1 LITERATURE REVIEW ON EXISTING INTERVENTIONS OF PPD

When a mother's first event of depression occurs, it can be unusual and difficult for her and the maternity care professionals to recognize . Additionally, midwifery care providers may be unaware of the antenatal risks of postpartum depression, and clinically useful screening tools may be lacking.It could also be that mothers are not given opportunities and encouragement to talk about their mental health (Mohammad et al. 2011).

Reduced maternal functioning, maternal-infant bonding difficulties, lactation failure, and impaired cognitive, behavioral, and emotional development of the child are just a few of the short- and long-term consequences of untreated PPD for mother and offspring. Untreated PPD is, unfortunately, the greatest risk factor for maternal suicide, which is the leading cause of direct maternal mortality in the first year after childbirth (Knight MBK, et al.2021).Pharmacotherapy, psychotherapy, neuromodulation, and hormonal therapy are among the therapeutic interventions for postpartum depression, the majority of which have been adapted from the treatment of major depressive disorder outside of the peripartum period. The current evidence of antidepressant treatment for postpartum depression is limited by a lack of long-term follow-up and a small number of randomized clinical trials.

This section includes reviews of evidence-based interventions and best practices in the treatment of postpartum depression in women, as well as the safeness of infant exposure to these medications during breastfeeding. the methods used in the literature review, the literature review summary (table), the discussions, and the literature review summary.The review is divided into two. I.e. studies conducted on pharmacological interventions and the studies conducted on non-pharmacological interventions.Non pharmacological interventions include ,Psychological support :cognitive behavioral therapy (CBT), Interpersonal Therapy (IPT) and Problem Solving Therapy (PST) Another subclass of non

pharmacological intervention includes the multi component support interventions, a variety of techniques that include peer support, listening visits and educational programs..

Literature review approach

A well and thorough search strategy was implemented. The searches were conducted using Google Scholar, African Bibliography, Medline, EMBASE, Scopus, CINAHL, PsycINFO, and Web of Science. The articles were chosen from reviewed English-language articles published between 1995 and 2022 that met the criteria . We conducted a systematic search to find articles published in English between 1995and 2022 that reported studies that met (1) used a randomized controlled trial design; (2) compared psychological interventions for postnatal depression to no treatment (3) enrolled mothers with a diagnosed depressive episode and had a child younger than 12 months (4) enrolled patients in primary care

2.2 Search terms

Several sources of information were consulted in the collection of material for this literature review. Online bibliographic databases searched for the review includes Cochranelibary ,CINAHL ,PubMed, Medline, Medscape, World Health Organization,Google scholar and PsychInfo using search words such as postnatal ,postpartum, postnatal, postpartum depression, prenatal mood disorders, postpartum psychosis ,diagnosis, managements,interventions, treatment, and screening. Some articles were also retrieved from other online sources that offered free full-text articles and only peer reviewed, primary source research articles were used.

2.3 Inclusion Criteria

The primary inclusion criterion for this literature review was to findingresearch that focused primarily on managements ,treatments and evidence based interventions for women with postpartum depression.

- Literature on various treatment/intervention options, their efficacy, and treatment, as well as studies involving interventions focusing on maternal mental wellbeing.
- o included some form of maternal mental health assessment
- o Identified cases of PPD and tracked changes in symptom severity using a reliable and valid measurement tool.
- o were primary studies, peer-reviewed, and written in English; o described the social support provided; o were primary studies, peer-reviewed, and written in English.
- o treatment or intervention outcomes were described

- **Exclusion criteria**
- studies that were not in English, studies that only measured child development or wellbeing outcomes, and studies that did not focus on maternal mental health, postpartum depression, or interventions.
- Articles that were published but whose full editions could not be found were not included.
- Book chapters o Studies with single-case designs were excluded
- Not subjected to peer review
- Papers for discussion and book chapters

Pharmacological Interventions

Antidepressants are one type of pharmacological intervention. Wisner & Wheeler's (1995) studies on the prevention of recurrent postpartum major depression was the first study that the researcher looked at. A Quasi-experimental design was used in this study. The study included 23 pregnant women from the United States who had at least one previous episode of PPD1 I = 15 mothers C = 8 mothers. Postpartum monitoring was used in the study, as well as post-birth treatment with either previously used antidepressant medication or nortriptyline.

The outcome measure of the study revealed that reoccurrence of PPD within 12 weeks Psychiatric examination. The study findings showed that significantly, more women who elected monitoring alone (62.5%) suffered the recurrence of PPD compared to women who also received antidepressant medication (6.7%).

Another study is the one conducted by Wisner and Perel et al. (1995) on Prevention of recurrent postpartum depression: a randomized clinical trial. In the study, 51 US women with a previous episode of PPD I = 26 mothers C = 25 mother were used for the study. The intervention used in the study was immediate post-birth treatment of **nortriptyline**. PPD recurrence was discovered in the first 20 weeks postpartum ,according to the findings. The study's findings revealed that there were no significant group differences. Six of the 26 women who took nortriptyline as a preventative had a recurrence of postpartum depression, compared to six of the 25 women who took placebo.

Also, Prophylactic estrogen in recurrent postpartum affective disorder was the subject of a study. The study was conducted using an open-label single group design. The study (Sichel, et al ,..1995) included seven US women with a history of postpartum psychosis and four women with a history of PPD. A 4-week course of high dose oral Premarin in decreasing dosages was used as the study's intervention.

According to the study's findings, all but one participant remained depressed during the one-year follow-up period and didn't require psychotropic medication treatment.

Verification of the Edinburgh Postnatal Depression Scale on a cohort of South African women was studied by Lawrie, Hofmeyr, De Jager et al. in 1998. Using a random numbers table, the study used RCT Block randomization. Blinding on both sides Analyze the strength of the evidence Intent-to-treat. The study included 180 South African postpartum women who used a non-hormonal method of contraception. The study's intervention was a single intramuscular injection of norethisterone enanthate 200mg (1 ml) at 48 hours postpartum. The study findings revealed that in comparison to the placebo group, women receiving the progestogen injection were at a significantly greater risk of developing depressive symptomatology by 6 weeks postpartum.The study findings revealed that in comparison to the placebo group, women receiving the progestogen injection were at a significantly greater risk of developing depressive symptomatology by 6 weeks postpartum.

Furthermore,a study of Harris, et al., (2002) on Randomised trial of thyroxine to prevent postnatal depression in thyroid-antibody-positive women was also reviewed by the researcher. RCT Random allocation by computer generated numbers double blinding was used for the study. 446 UK thyroid antibody-positive women were studied. 100 microg of thyroxine given daily from 6 to 24 weeks postpartum interventions was used for the study.

2.4 Evidence of SSRI for standard care in postpartum depression

Antidepressants are commonly used to treat moderate to severe PPD, with selective serotonin reuptake inhibitors (SSRIs) being the first line treatment due to their perceived tolerability. Unfortunately, a lack of long-term follow-up and a small number and sample size of RCTs limit the current evidence on antidepressant efficacy for PPD management. Further to that, the studies that are currently available have a variety of designs, with few comparing a placebo control to an active comparator such as a complementary antidepressant or psychotherapy. In ten randomized controlled trials (RCTs), antidepressants (mostly fluoxetine, paroxetine, sertraline, and citalopram)w ere studied for the treatment of PPD. (O'Hara et al., 2019, Milgrom J, G et al., 2015, Broch M, et al., Meiboom H, et al., 2012). All of these RCTs used a single antidepressant, with the exception of one that used a combination of antidepressants (mostly SSRIs). Antidepressants are effective in the treatment of PPD, according to several RCTs, but the results are mixed and limited by a lack of long-term follow-up and a small number of RCTs.

Also ,according to a meta-analysis of three studies comparing SSRIs to placebo (Hantsoo L, Bloch M, et al 2012)women who received SSRIs were more likely to show symptom response (52.2 percent versus 36.5 percent) or remission (46.0 percent versus 25.7 percent) (Molyneaux E, et al). Also,SSRIs,

nortriptyline, and psychotherapy are all effective for short-term PPD treatment, according to a systematic review of six RCTs .(Bloch M ,et al 2012 , Sharp DJ, et al 2010 , Wisner KL, et al 2006 , Yonkers KA, et al 2008) but there is inadequate evidence to show that one is superior or preferable to the other.(De Crescenzo F, et al 2014)

2.5 Evidence of progestin and estradiol as treatment for post partum depression

The prevailing body of evidence on **estradiol** use is restricted to a limited size and the number of RCTs, as well as mixed results. A comparatively tiny double-blind RCT of **transdermal estradiol** (TE) in women with severe PPD found that those who received it experienced greater and faster symptom improvement than those who received placebo, though the results may be skewed by the inclusion of women who were also taking antidepressants. (Gregoire AJP,et al 1996)

Despite the fact that this study was limited by low enrollment and follow-up, another small double-blind RCT found that women who received TE had non-significantly higher response and remission rates than those who received the placebo patch (Li HJ, Martinez PE, Li X, et al 2020). Though the study was underpowered because estradiol serum concentrations did not meet the required standards, another large trial comparing TE to placebo reported no difference differences in response or remission rates between the two groups.

There are fewer studies on synthetic progesterone. According to two RCTs, women with PPD who received synthetic progestogens such as norethisterone enanthate intramuscular injections (Lawrie TA, Hofmeyr GJ, et al.1998) and depot medroxyprogesterone acetate (Singata-Madliki M, Hofmeyr GJ, et al.2016) had more depressive symptoms than those who received placebo. Synthetic progestogens, on the other hand, are not recommended for the treatment of PPD, according to a Cochrane systematic review. Dennis CL, Ross LE, Herxheimer A, et al., 2008.

2.6 Evidence of Brexanolone (Zulresso) in the treatment of postpartum depression

The first FDA-approved medication for PPD was **brexanolone** (ZULRESSO). Brexanolone is a potent, selective positive allosteric modulators (**PAM**)of extrasynaptic and synaptic GABAARs that is a soluble, intravenous preparation of synthetic allopregnanolone.Brexanolone has been shown to reduce PPD symptoms quickly in open-label studies.(Kanes SJ, Colquhoun H, Doherty J, et al 2017) and placebo-controlled RCTs. (Meltzer-Brody S, Colquhoun H, Riesenberg R, et al.2018), (Kanes S, Colquhoun H, G et al, 2017). The placebo-controlled trials involved healthy women aged 18–45 who were less than 6 months postpartum and had a major depressive episode that started no earlier than the third trimester and ended no later than 4 weeks after delivery .

Also, those who had a total score of 26 or 20–25 on the 17-item Hamilton Rating Scale for Depression (HAM-D17) at the start of the study had moderate to severe depression (Shear MK, Vander Bilt J, et al 2001). When the study began, the women were either antidepressant-free or taking a stable dose of a traditional antidepressant. Brexanolone is only available through a restricted risk evaluation and mitigation strategy program (REMS) to reduce the risk of serious adverse events. The system ensures that brexanolone is administered in a medically supervised context with continuous pulse oximetry and sedation assessment during awake intervals and throughout the Intravenous infusion.

Patients should be informed of the risk for increased sedation and unexpected disorientation, as well as the importance of monitoring for such symptoms, and health care settings and pharmacies involved in providing infusions should be certified. However, with an incidence of less than 5% and at least twice that of placebo, sedation drowsiness, dry mouth, loss of consciousness, and flushing/hot flush were the most frequent adverse events reported in clinical trials of brexanolone.

Brexanolone is officially listed as a Schedule IV drug with a black box warning for excessive sedation and unconsciousness based on these adverse event reports. As a result, if any signs or symptoms of excessive sedation appear, the infusion should be stopped and restarted as clinically appropriate once the symptoms have subsided. (Meltzer-Brody S, Colquhoun H, Riesenberg R, et al.2018). Brexanolone should also be avoided in patients with hypersensitivity to allopregnanolone or other nueroactive steroids (NAS), as well as those with end-stage renal disease and an eGFR of less than 15 mL/minute/1.73 m2. In placebo-controlled studies, patients who took brexanolone with antidepressants had a higher rate of sedation-related events. (Meltzer-Brody S, Colquhoun H, eg al..2018)

2.7 Evidence of Zuranolone

Zuranolone is also a GABAAR PAM (positive allosteric modulator) that is currently being studied in clinical trials on both extrasynaptic and synaptic levels. 153 people were randomly assigned to a 14-day course of zuranolone 30 mg or a placebo in a recent phase 3 trial. Then, for the next four weeks, 34 participants were supervised. The least squares mean of those who received zuranolone was significantly lower than that of those who received placebo.(Hamilton Depression Scale) HAM-D17 total score (-17.8 vs -13.6, $p = 0.003$). Significant differences in zuranolone efficacy were observed at Day 3 ($p = 0.026$) and were sustained through Day 45 ($p = 0.003$), in addition to efficacy for the primary endpoint of total score. At Day 15, the zuranolone group had significantly higher HAM-D17 response (72 percent versus 48 percent, $p = 0.005$) and remission rates (45 percent versus 23 percent, $p = 0.012$), and these discrepancy were retained through Day 45 (response $p = 0.022$; remission $p = 0.010$), 4 weeks after ceasing zuranolone use (response $p = 0.022$; remission $p = 0.010$.
https://clinicaltrials.gov/ct2/show/NCT04442503

Table 2 (2.8)

Randomized clinical trials showing pharmacological intervention (antidepressants) for postpartum depression.

TYPE OF STUDY	SAMPLE SIZE	INTERVENTION	TRIAL STRENGTH	RESULTS
Wisner & Wheeler (1995 Quasi-experimental design.	23	postpartum monitoring plus post-birth treatment (nortryptiline)		Thestudy findings showed that significantly, more women who elected monitoring alone (62.5%) suffered the recurrence of PPD compared to women who also received antidepressant medication (6.7%).
Wisner and Perel et al. (1995 randomized clinical trial	51 US women	immediate post-birth treatment of Nortryptiline		The study revealed that no significant group differences were found.
Sichel, et al, (1995) open-label single group	11	High-dose oral Premarin	I year	the study revealed that all but one participant remained non-depressive and

				required no treatment with psychotropic medications during the 1year follow-up period.
Lawrie, Hofmeyr, De Jager et al., (1998 Randomized control trial	180 South African women	norethisterone enanthate 200mg (1 ml		The study findings revealed that in comparison to the placebo group, women receiving the progestogen injection were at a significantly greater risk of developing depressive symptomatology by 6 weeks postpartum.
Harris, et al., (2002 Randomized Control trial	446 of which 342 of whom were compliant)	Thyroxine to prevent postnatal depression in thyroid-antibody-positive women	6 weeks -6 months	There was no evidence that thyroxine had any effect on the occurrence of depression. The 6-month period prevalence of depression was similar to that reported previously.

Appleby et al.(1997) Randomized control trial	87	fluoxetine and cognitive-behavioural counselling	12 weeks	Both fluoxetine and cognitive-behavioural counselling given as a course of therapy are effective treatments for non-psychotic depression in postnatal women.
Wisner et al. (2006) Randomized control trial	109 women aged 18 to 45 year	Sertraline, Nortriptylin	8 weeks compared with 16 week continuation phase	The proportion of women who responded and remitted did not differ between drugs at 4, 8, or 24 weeks. Times to response and remission also did not differ. Psychosocial functioning improved similarly in both drug-treated groups of mothers.
Misri et al.	35	Paroxetine alone, paroxetine plus cognitive behavioral therapy	22 week	Both treatment groups showed a highly significant improvement ($p < .01$) in mood and anxiety symptoms. Antidepressant mono-therapy and combination therapy with antidepressants and CBT were both efficacious in reducing depression and anxiety symptoms.

AUTHOR ,TYPE AND YEAR OF STUDY	SAMPLE SIZE	INTERVENTION	TRIAL STRENGTH	RESULTS
Sharp et al. 2010 Randomized control trial	254	Various antidepressants (mostly selective serotonin reuptake inhibitors), supportive counseling	18 weeks	antidepressants were significantly superior to general supportive care. The study also revealed that women found both antidepressants and listening visits effective depending on their circumstances and preferences. The trial indicates that early treatment with antidepressants leads to clinical benefit for women with PND.
Hantsoo et al.2014 Randomized control trial	38	Sertraline, placebo	6 weeks	Results of the study showed Sertraline produced a significantly greater response rate (59%) than placebo (26%) and a more than 2-fold increased remission rate (53% vs. 21%).
Bloch et al.2012 Randomized control trial Double blind	40	Sertraline, placebo, with each group added to brief psychodynamic therapy	8 weeks	the results of the study did not demonstrate a significant benefit for sertraline over placebo as an add-on treatment to f mild-to-moderate postpartum depression. sample,

				the results cannot be definitive.
O'Hara et al, 2019 Randomized control trial	162	Sertraline-case management, interpersonal psychotherapy, placebo-case management	12 weeks	There was no significant effect for treatment condition associated with the primary outcome measure, the HamD-17, but there was a significant effect for sertraline-CM relative to the IPT and placebo conditions over the duration of the trial based on the General Depression scale of the Inventory of Depression and Anxiety Symptoms.
Milgrom et al,2015 Randomized control trial	45	Sertraline, specialized cognitive behavioral therapy program	12 weeks	Symptoms of depression and anxiety were reduced to a significant degree following all three treatments. CBT mono-therapy was found to be superior to both sertraline mono-therapy and combination therapy after 12 weeks.

Randomized clinical trials of hormonal-based therapeutics for the treatment of postpartum depression.

Wisner et al.2015	85	Transdermal estradiol, sertraline, placebo	8weeks	the study showed no significant differences in either

Randomized control study				rates of response (58.6%, 42.3% and 63.3% for PL, E2 and SERT, respectively; p=.26) or remission (31%, 26.9%, and 30%; respectively, p=.94) across the three groups (T
Gregoire et al. (1996) Randomized control study	61	Transdermal estradiol, placebo	6 months	The study showed that transdermal oestrogen is an effective treatment for postnatal depression. Further studies are required to establish the minimum effective dose
Randomized clinical trials of GABAergic antidepressants for the treatment of postpartum depression.				
Kanes et al.(2017) Randomized control study	21	Brexanolone, placebo	60 hours, plus observational follow-up	The results of the study showed that In women with severe post-partum depression, infusion of brexanolone resulted in a significant and clinically meaningful reduction in HAM-D total score, compared with placebo.
Meltzer-Brody et al.2018 Randomized Control study	246	Brexanolone, placebo	60 hours, plus observational follow-up	The study showed Administration of brexanolone injection for post-partum depression resulted in

				significant and clinically meaningful reductions in HAM-D total score at 60 h compared with placebo, with rapid onset of action and durable treatment response during the study period.

Non-Pharmacological Interventions For post partum depression

A brief, one-to-one supported self-help approach using the principles of cognitive behavioural therapy (CBT) known as low-intensity CBT, problem solving therapy, interpersonal therapy, and multi complex therapy is currently recommended for mild to moderate depression, including depression that occurs after pregnancy.

2.9 Cognitive Behavioural Therapy

CBT (Cognitive Behavioural Therapy) is a type of psychotherapy that focuses on coping with negative thoughts and behaviors in people who are depressed (Kaltenthaler et al., 2002; Morrell et al., 2009). Cognitive behavioral therapy is based on the idea that depressed people have dysfunctional thoughts and beliefs and, as a result, see the world through a negative perspective. Routine care, online CBT, and group CBT have all been shown to be effective in the treatment of PND. CBT is by far the most generally recognized and effective treatment for women with PND, according to several studies. (Milgrom et al., 2011; Milgrom, Negri, Gemmill, McNeil, & Martin, 2005a; Murray et al., 2003).

However, it is unclear whether this intervention has content specific to the postnatal period and demanding schedules (O'Mahen et al., 2014). There is a growing need to know which CBT treatment variations and aspects will be most effective for women with PND.This is because in previous findings women expressed concerns about treatment lacking content specific to the postnatal period, thus leading to poor compliance (O'Mahen et al., 2014). CBT programs cannot always be smoothly individually tailored for specific treatment conditions, which reduces the program's acceptability to an individual with specific needs (O'Mahen et al., 2014). According to Honey, Bennett, and Morgan (2002), a group-

based psycho-education, which included cognitive-behavioral techniques, outperformed routine care. For women who developed major depression, Chabrol et al. (2002) used 'preventative CBT, followed by both CBT and psychodynamic therapy and both prevention and intervention were found to be effective and successful. Milgrom et al. (2011) investigated the effectiveness of counselling based on CBT principles delivered by a trained GP alone or by a trained nurse or psychologist. Their findings suggest that healthcare nurses are by far the most effective providers of CBT counseling. Although most CBT is delivered by mental health professionals, it appears that there is a lack of efficient delivery of this intervention. Due to price, having to wait o n waiting list and practitioner availability, CBT intervention delivery may be limited (Jones et al., 2013; Stevenson et al., 2010).

Problem Solving Therapy

The problem solving therapy assumes that depression is often caused by practical everyday issues and aims to teach people better ways to cope with such problems and this is achieved by setting goals and minimizing feelings of incompetence and distress (Mynors-Wallis, 2001; van't Hof et al., 2011). In a RCT, group problem-solving therapy delivered by peer counsellor was compared with pharmacotherapy for the treatment of PND among women found to be depressed 6 to 8 weeks after childbirth (Chibanda et al., 2014). Their study demonstrated that group PST appeared acceptable and more efficient compared to pharmacotherapy in the treatment of PND but will require regular and reliable training and supervision. is is further supported by Van't Hof et al., (2011), they carried out five weeks PST in a booklet format delivered individually or in a group. Their research indicated that group delivery of PST had lower dropout rate than individual delivery. In these studies, there is substantial evidence to show that PST is effective the treatment of PND.

However,the Problem Solving Therapy (PST) has shown to be effective for PND and common mental health problems (Chibanda et al., 2011; van't Hof, Stein, Marks, Tomlinson, & Cuijpers, 2011).

2.10 Interpersonal therapy

IPT aims to improve interpersonal conflicts, role transitions, and grief, all of which are important for women with PND (Boath & Henshaw, 2001; NHMRC, 2000). IPT can be seen as indirectly addressing problems and issues faced by women within the therapeutic frame, as it is primarily based on Sullivan's Interpersonal Theory and Bowlby's Attachment Theory (Klier et al., 2001; Miniati et al., 2014).

Also, because Interpersonal Therapy (IPT) is problem-focused and can be easily incorporated into family practices, it has been confirmed that many interpersonal impairments associated with the postnatal period can be relieved with it (Grigoriadis & Ravitz, 2007). Although IPT helps women with PND develop a more balanced view of each role, such as restructuring time obligations to adapt to new time, emotional Constance while balancing needs and wishes in her multiple roles, However, research has shown that procedures for ensuring consistency of support, particularly in the absence of healthcare workers, are lacking.

Furthermore, van hees et al. (2013) found that IPT was as efficacious as cognitive behavioral therapy for the management of depression and could be recommended as a first-line treatment for the condition. Interpersonal therapy has also been shown in some studies to help prevent the onset of major depression as well as depression relapses when used on a regular basis. P. Cuijpers, T. Donker, and others (2016). Couples who participate in IPT have been found to be less depressed and have fewer relationship problems. M. Whisman, S. Beach, et al (2012). IPT has some significant disadvantages, such as the need for healthcare workers to be trained and the time commitment required of both physicians and patients.

2.11 Multicomponent support interventions

Support and guidance, listening visits, and educational programs are just a few of the techniques available to help people with PND. For starters, women who have had similar problems frequently form peer support groups that have the potential to prevent PND. As a result, Dennis et al. (2014) conducted a study to assess the effectiveness of telephone-based support in preventing PND. In this trial, 701 mothers were recruited and randomised to control and intervention groups. Results indicated that support provided by peers might be an effective intervention that reduces the risks of PND at 12 weeks after childbirth. However, these techniques need to be evaluated by extensive research. Osman and colleagues (2014) also assessed the impact of postnatal support film and a 24-hour telephone hotline service to reduce postnatal perceived stress among first-time mothers. Results show that these interventions can be easily implemented and could have a significant impact on the mental wellbeing of new mothers.

2.12 FUTHER REVIEW

Anokye, et al., (2018) conducted research on the prevalence of postpartum depression and the intervention strategies used to treat it. A descriptive cross-sectional study design was used in this study. Mothers and healthcare workers were among the participants in the study. 257 mothers were chosen using a simple random sampling technique, while 56 health workers were chosen using a convenience sampling technique. A Patient Health Questionnaire was used to screen for depression, and a structured questionnaire with closed-ended questions was used to obtain primary data on postpartum depression interventions. The statistical software SPSS version 16.0 was used to analyze the data. Postpartum depression was found to be prevalent in 7% of all mothers who took part in the study.

The severity of the depression varied from mild to severe. Psychosocial support was found to be the most effective intervention used by healthcare professionals to alleviate depressive symptoms. According to the findings, postpartum depression is common among mothers, though at a lower rate, and psychosocial support has proven to be the most effective treatment. The study goes on to say that postpartum depression can affect children's and mother's interactional behaviors, and it can lead to feelings of failure, which can lead to deeper depression. The study suggests that hospital authorities, in collaboration with the Ministry of Health, organize frequent screening exercises for postpartum depression.

Fetch (2017) also conducted research on Postpartum Depression Educational Intervention. A control and intervention group approach was used in the study. A PPD test was given to both the control and intervention groups to assess their knowledge of PPD. Following this project's PPD educational intervention, pregnant women showed an increase in knowledge about PPD, an increase in intention to modify risk factors, and an increase in help seeking behaviors for PPD, according to the findings. The study suggests that the participants be tested again using the PPD test at specific intervals within a year of giving birth. This will enable the long-term impact/outcomes of the educational intervention provided during childbirth classes to be assessed.

For the US Preventive Services Task Force, Elizabeth et al. (2019) conducted a study called Interventions to Prevent Perinatal Depression Evidence Report and Systematic Review. In Medline, comprehensive literature searches for primary literature were conducted. Two reviewers assessed the research quality of all eligible studies using USPSTF design-specific criteria. For small samples, restricted maximum likelihood models with the Knapp-Hartung correction were used. For the dichotomous depression status outcome, the Egger test was used to investigate small-study effects, and meta-regression and sensitivity analyses were used to investigate factors associated with effect size and counseling based interventions, particularly depression-focused CBT and IPT, were found to be effective in preventing perinatal depression, according to the findings. Women with current depressive symptoms, a history of depression, low socioeconomic status, and a lack of support were the subjects of this research. Although most evidence was limited to women at increased risk for perinatal depression, the study recommended that counseling-based interventions should be effective in preventing perinatal depression.

Tandon et al. (2018) conducted a study on the feasibility and acceptability of a one-on-one postpartum depression intervention for mothers and babies. The Mothers and Babies Course, an evidence-based postpartum depression prevention intervention, was adapted from a group to an individual modality in this study. Clients found MB 1-on-1 to be enjoyable, understandable, and useful, according to the findings of the study. Home visitors stated that the intervention was delivered with great fidelity and that the clients understood the material in general. However, there appeared to be some discrepancies in comprehension ratings between home visitors and clients for specific MB modules. Clients found MB 1-on-1 enjoyable, understandable, and useful, according to the findings. Clients appeared to understand the material, according to home visitors, who reported high implementation fidelity. Given the promising feasibility and acceptability data, the researchers suggested that a refined 12-session version of MB 1-on-1 be tested for its effectiveness in reducing depressive symptoms.

Yin, et al., (2020) searched ten major English and Chinese language electronic bibliographic databases for RCTs examining the effect of psychosocial interventions for perinatal depressed women in

Mainland China for their study, Psychosocial interventions on perinatal depression in China: A systematic review and meta-analysis. Studies that met the eligibility criteria and were published before February 25th, 2019 were included, but those that focused on a very specific subpopulation or reported non-psychosocial interventions were excluded. A standard form was used to extract data and to achieve a summary measure of the effectiveness of the interventions in reducing perinatal depressive symptoms, a meta-analysis was performed. The interventions' theoretical underpinnings and implementation processes were also described. Psychosocial interventions in China were found to significantly reduce perinatal depressive symptoms, according to the study. However, there was significant heterogeneity in the evidence as a whole. The majority of the interventions were carried out by non-specialist health care providers in urban hospitals. To close the treatment gap for perinatal depression, the study recommends that strategies for scaling up effective interventions be further developed and evaluated in a variety of settings.

Yin et al. (2020) conducted a systematic review and meta-analysis on psychosocial interventions for perinatal depression in China. RCTs examining the effect of psychosocial interventions for perinatal depressed women in Mainland China were searched in ten major English and Chinese language electronic bibliographic databases. Studies that met the eligibility criteria and were published before February 25th, 2019 were included, but those that focused on a very specific subpopulation or reported non-psychosocial interventions were excluded. A standard form was used to extract data. To obtain a summary measure of the effectiveness of the interventions in reducing perinatal depressive symptoms, a meta-analysis was performed.

The interventions' theoretical foundations and implementation processes were also described. In the initial database search, 6857 articles were found, of which 26 studies were eligible for data analysis, resulting in a sample size of 4673. Psychosocial interventions in China significantly reduced perinatal depressive symptoms, according to a meta-analysis. However, there was significant heterogeneity in the evidence as a whole. The majority of the interventions were carried out by non-specialist health care providers in urban hospitals. To close the treatment gap for perinatal depression, the study recommends that strategies for scaling up effective interventions be further developed and evaluated in a variety of settings.

Catherine, et al. (2020) conducted a literature review on the prevalence of postpartum depression among African mothers.

A total of 21 articles met the study's criteria over the course of the research. The EPDS was used in fifteen articles, while other assessment tools were used in six others. In studies that used the EPDS tool, postpartum depression ranged from 6.9% in Morocco to 43% in Uganda, and from 6.1 percent in Uganda to 44% in Burkina Faso in studies that used other depression assessment tools. The EPDS's sensitivity and specificity results ranged from 75% to 100% and 87 percent to 98 percent, respectively. Postpartum depression was found to be 6.9% in Morocco and 43 percent in Uganda in studies that used the EPDS tool, and 6.1 percent in Uganda and 44 percent in Burkina Faso in studies that used other depression assessment tools. The EPDS's sensitivity and specificity results ranged from 75% to 100% and 87 percent to 98 percent, respectively. Despite the paucity of literature, the study concludes that the magnitude of PPD in Africa remains high, implying that PPD is still a neglected illness that requires immediate intervention. EPDS is a sensitive and specific tool that can be used in a variety of study settings.

Interventions for Mothers with Postpartum Depression: A Systematic Review was investigated by Yin et al. (2020). Twelve quantitative studies from different countries were included in the systematic review, including four from America, three from Iran, two from Europe, one from India, one from Pakistan, and one from China (1). The retrieved studies were examined for socio-demographic characteristics of the study subjects, characteristics, type and components of the intervention, and recommendations. The prevalence of depression among postpartum mothers was found to be 38.6% in various studies. Infant and child care, breastfeeding, problem solving, play and quality time with the infant, immunization and contraception, psycho-education about the illness, role transitions to motherhood, sensory motor stimulation, and ways to deal with practical issues were all addressed in the majority of the studies.

The majority of studies proposed for routine, cost-effective, and accessible postnatal care, as well as telephone follow-up, direct education of new mother's supporters, and ensuring the availability of community resources and manpower.Nnaka, A. C. (2018), made an assessment and treatment of postpartum depression amongst mothers in Imo-State, Nigeria. In-depth, face-to-face interviews were conducted to examine 10 Imo State postpartum mothers' lived experiences of assessment processes and to understand if their psychological desires were addressed. The interviews were audio recorded and notes were taken; the recordings were transcribed, and the transcripts were imported into NVivo9 for the data to be examined. The inductive coding method was used in data coding. The text was used as the source for coding, and the dominant themes were isolated and a range of themes were defined. The participants stated that feelings of unhappiness and sadness increased after delivery of their babies, which were misinterpreted by family and friends. Participants stated that they sought recovery through prayer and herbs. The findings from this study can be used to promote positive social change by

enhancing Imo State women's awareness on postpartum depression and also to support health care providers in designing relevant assessments and providing care for women with postpartum depression.

Nathalie et. al, (2012), undertook a study on effects of a brief psychoanalytic intervention for perinatal depression. This intervention is based on the Geneva's mother–infant intervention model. A sample of 129 pregnant women was recruited in Geneva (Switzerland) and screened for depressive symptoms with two instruments: the 'Edinburgh postnatal depression scale' (EPDS) and the 'Dépistage anténatal de la dépression postnatale'. A group of 40 women presenting depressive symptoms (treatment group) participated in a four-session intervention called 'Psychotherapy centred on parenthood (PCP)'. Findings of the study revealed that in the treatment group EPDS scores dropped from 12.8 to 4.8; none of these women met the EPDS cut-off score of 12 at 3 and 6 months postpartum. Mother–infant relationship was well adapted for all 31 dyads at the end of the intervention. The study recommends that PCP is a promising intervention for treating perinatal depression and helping mothers engaging in parenting.

Gurung et al. (2018) conducted a systematic review of economic evaluations to identify and assess the benefits of interventions for postnatal depression. A comprehensive search strategy was used to conduct a systematic review across eight electronic databases and other sources. The study included full or partial economic evaluations of interventions involving preventive strategies (including screening) and any treatments for women with or at risk of PND that were conducted in OECD countries. Epidemiological studies and studies solely focused on costs were excluded. To inform the analysis, the included studies were subjected to a quality assessment. The majority of the economic evaluations focused on psychological/psychosocial interventions, with seventeen meeting the inclusion criteria. Additional support from health professionals, peer support, and combined screening and treatment strategies were among the interventions. All of the studies measured maternal health outcomes, but only four of them included child health outcomes. The maternal health outcomes included quality-adjusted-life-years gained, improvement in depressive symptoms, and the detection or recovery of PND cases, while the child health outcomes included cognitive functioning, depression, sleep, and temperament

across studies. Non-health outcomes like couples' relationships and parent-infant interaction were rarely taken into account.

Other methodological issues were identified, such as time horizon limitations and the perspective(s) used, which were likely to lead to imprecise benefit estimates. Excluding relevant health and non-health outcomes may result in a partial cost-effectiveness assessment, resulting in suboptimal resource allocation decisions. Future research should look for ways to broaden the scope of economic evaluations and consider how to integrate health and non-health outcomes for all people affected by this disease. The time horizon used in studies must be appropriate in order to accurately estimate the long-term benefits and costs of PND interventions.

Shelton's study, Postpartum Depressive Symptoms: A Study of Influencing Factors, was published in 2015. A Study of Influencing Factors and a Treatment for Improved Postpartum Depressive Symptoms In Phase I of the study, a total of 62 women took part, with 11 of them being eligible for Phase II. Six women were enrolled in Phase II, three in the control group and three in the intervention group, among those who were eligible. The majority of the study's participants were married, upper-income Caucasian mothers. The study found that normal parenting stress was present, but that 48 percent of participants experienced clinically significant global stress. Mothers had clinically significant poor sleep quality, and those who had more sleep disruption had more depressive symptoms and fatigue.

Perceived stress, sleep disturbance, fatigue, and caesarean section delivery method accounted for 45% of the variation in depressive symptoms, and stress was the single statistically significant predictor. The study recommends that Future research should further explore the relationship of activity and depressive symptoms and the use of stroller walking as a preventative intervention for PPD.

AUTHOR ,TYPE AND	**SAMPLE SIZE**	**INTERVENTION**	**TRIAL STRENGTH**	**RESULTS**

YEAR OF STUDY				
Wisner & Wheeler, (1994) Quasi experimental design	23 US pregnant women who had at least 1 previous episode of PPD	Monitoring and monitoring plus prophylactic antidepressant medication condition.	24 hours	The study findings showed that significantly, more women who elected monitoring alone (62.5%) suffered the recurrence of PPD compared to women who also received antidepressant medication (6.7%).
Wisner, Perel et.,al (2001) Randomized clinical trial	In the study, 51 USwomen with a previous episode of PPD I = 26 mothers C = 25 mother were used for the study.	Nortryptiline	20 weeks	The study revealed that no significant group differences were found. Of the 26 women who took nortriptyline preventively, 6 suffered a recurrence of postpartum depression while of the 25 women who took placebo, 6 suffered recurrence.
Sichel, et al, (1995) Open label single group	7 US women with histories of postpartum psychosis and 4 women with histories of PPD	high-dose oral estrogen	1 year follow up	Findings of the study revealed that all but one participant remained non-depressive and required no treatment with

	were used for the stud			psychotropic medications during the 1year follow-up period.
Lawrie, Hofmeyr, De Jager et al., (1998) Randomized control study (block)	103 South African women women attending the postnatal clinic at Coronation Hospital, Johannesburg, South Africa.	The EPDS scale screening scale		The EPDS, administered verbally, is a valid screening instrument in this urban South African community.
Harris, et al., (2002) Randomized control trial	446 UK thyroid antibody-positive women were studied.	Thyroxine	6weeks to 6months	Thestudy findings revealed that no significant group difference in rates of depression a
Anokye, et., al. (2018) Descriptive cross-sectional study design.	257	Psychological intervention	2months	The study findings revealed that postpartum depression was prevalent among 7% of all mothers selected all mothers selected. The severity ranged from minimal depression to severe depression. Psychosocial support proved to be the most effective intervention that has been used by the healthcare workers to reduce depressive symptoms.

Feth, L., (2017) Control and intervention group approach	The total sample included 68 women; there were 32 participants in the control group and 36 in the intervention group	Post partum educational intervention		The results indicated that there was an increase in knowledge about PPD, an increase intention to modify risk factors and an increase in help seeking behaviors for PPD in pregnant women following the PPD educational intervention of this project.
Elizabeth et. Al., (2019) Systematic reviews	Comprehensive literature searches were conducted for primary literature in Medline. Egger test was performed to explore small-study effects meta-regression and sensitivity analyses were conducted to explore factors associated with effect size for the dichotomous	Counselling - based interventions		This review found that counseling - based interventions, in particular depression focused CBT and IPT, may be effective in preventing perinatal depression

	depression status outcome			
Tandon, et al., (2018)	75	Intervention—the Mothers and Babies Course	7 months	The study discovered that clients found MB 1-on-1 to be enjoyable, easily understood, and useful. Home visitors reported excellent fidelity in delivering the intervention and, in general, felt that clients understood the material. However, there appeared to be some discrepancies between home visitor and client ratings of comprehension for specific MB modules
Yin, et al., (2020) Systematic reviews and meta analyses	A total of 6857 articles were .A total of 26 trials of psychosocial interventions representing a sample size of 4673 perinatal women Were included.	Psychosocial interventions	-	The meta-analysis indicated that psychosocial interventions in China significantly reduced perinatal depressive symptoms.

Jidong, et al., (2021) Systematic review	34 studies	Psychosocial Interventions		concluded that culturally appropriate and evidence-based psychological interventions for maternal mental health problems would benefit Nigerian indigenous mothers.
Thomas L, Gandhi S, Parel JT (2018)	12 studies	cost-ef-fective and accessible postnatal care as a routine, follow up practices through telephone		Majority of studies recommended for cost-ef-fective and accessible postnatal care as a routine, follow up practices through telephone, direct education to supporters of new mother, and ensuring the availability of community resources and manpower.
Nathalie et. al, (2012)	40 women	Mother infant relationship	31 days	Studies show that Mother–infant relationship was well adapted for all 31 dyads at the

				end of the intervention.
Dennis & Dowswell 2013). Randomized control trial	246	Behavioral educational Intervention	2weeks	Psychosocial and psychological interventions for preventing postpartum depression decrease the frequency of women who develop it. Intensive, professionally-led postpartum home visits and telephone-based peer support are two promising interventions
(Chibanda et al., 2014). Randomized control study	**58**	Problem solving intervention with pharmacotherapy (Amitriptyline)	6 – 8 weeks	The study demonstrated that group PST appeared acceptable and more efficient compared to pharmacotherapy

				in the treatment of PND but will require regular and reliable training and supervision.
O'Hara, 2000) Randomized control study	120	Interpersonal Therapy	12 weeks	The study showed that most women in the IPT group had a significant increased rate of recovery, and greater decrease in scores o

Dennis et al. (2014) Randomized control	701	Multi component Support Intervention		The result of the study indicated that support provided by peers might be an effectiveintervention that reduces the risks of PND at 12 weeks after childbirth.

2.13 Pros and cons of current treatment options

Antidepressant medication, behavioral and hormonal therapy, and other methods may need to be tested after a definitive diagnosis of PPD is made to find the best approach for the individual patient and their most pronounced symptoms and needs. Peer and partner support, for instance, may be more effective for a patient with an equally overwhelmed partner than interpersonal therapy for a patient who can't seem to handle their grief or anger.There are also concerns for the infant in breastfeeding mothers. Neonates and young infants are especially vulnerable to potential drug effects due to their immature hepatic and renal systems, immature blood-brain barriers, and developing neurological systems (FDA 1998 , Yaffe S., et al 2000) Sumpter A & Anderson B,2009). Also , many mothers and physicians seek non-medical (non-pharmaceutical) therapeutic approaches owing to the possible side effects of antidepressant drugs delivery to the child through breast milk.

2.14 Summary of literature review

PPD pharmacotherapy studies with antidepressants are becoming more common. When selecting an antidepressant, factors such as prior psychiatric history,psychiatric diagnosis, current and past symptom severity, breastfeeding status (lactation) ,suicidal risk, prior and current psychiatric treatments tolerability, medical comorbidities, family psychiatric history, patient treatment choice, and ability to adhere to the recommended treatment plan should all be considered. Also, whenever the drug is used during breastfeeding, the clinician must balance the risks of infant drug exposure through breast milk against the risk of undiagnosed maternal PPD. While there is a lack of quality data on antidepressant use during lactation, the benefits of treating PPD with antidepressants during lactation far greatly exceed the minor risk of antidepressant use while breastfeeding healthy, full-term infants in the large majority of cases.

Furthermore, even though antipsychotics can be found in various amounts in breast milk and infant serum, the antidepressant prescribed to a lactating woman should be based on her previous treatment history as well as the potential for adverse effects on the mother and infant.

Selective serotonin reuptake inhibitors (SSRIs) are the most recommended pharmacological antidepressants for breastfeeding mothers due to low detectability of serotonin in infant plasma and rare adverse reactions. Although no studies on the long-term effects of SSRIs in breastfed infants are currently available. There is also little research comparing the efficacy of different antidepressant

classes, but studies evaluating the efficacy of antidepressant medications to non-pharmacological therapeutic approaches have found that medication is just as effective.

Because of concerns about side effects and addiction, many mothers, particularly those who breastfeed, are still hesitant to use medication (Fitelson et al, 2011).

Non-pharmacological treatments include interpersonal therapy, cognitive behavioral therapy (CBT), and peer and partner support. All of these treatments have been found to be relatively effective in the treatment of PPD with no negative side effects. However, stigma, time ,cost, and the inability to find childcare for consultations are all barriers to receiving this type of treatment. People in peer support groups report feeling relieved of negative feelings associated with stigma when they are surrounded by others who are going through the same thing as them (Fitelson et al, 2011).

Exercise For mothers who are reluctant to accept prescription drugs or who do not have easy access to good mental health providers, this could be the ideal intervention.Exercise appears to improve mood and wellness in the general adult population, according to growing evidence (Blumenthal et al., 2007; Conn, 2010; Craft, Freund, Culpepper, & Perna, 2007). Similarly, the overall findings from exercise intervention studies with postpartum women are encouraging; however, the literature has limitations. The sample sizes are small and reflect homogeneous groups, despite the fact that the authors do not address power in any of the studies.

According to McCloskey and Reno (2019), yoga, spa treatment, and relaxation training exercises can help with mild to moderate depression, while massage uses healing to soothe PPD patients. The most common relaxation techniques are self-hypnosis, meditation techniques, and deep breathing,exercising ,healthy diet, regular sleep, and rest can all aid in the reduction of PPD symptoms.

There are evidences that exercise interventions work ,however, there are methodological issues with samples, inappropriate measures, and vague descriptions of some interventions in the literature (Callaghan, 2004; Conn, 2010; Cuijpers et al., 2008; Daley et al., 2007; Lumley et al., 2004). Addressing the issue of PPD requires developing a research base of effective, accessible, and acceptable treatment modalities (Beck, 2008).

Feasibility and acceptability of researched postpartum interventions in Nigeria

Mental health is often not prioritized as a problem in developing countries like Nigeria (Fitelson et al.,2010) but the evidence suggests that postpartum depression might even be more common and serious for women in developing countries (Fitelson *et al*., 2010). Despite supporting evidence, the symptoms of post partum depression often go unrecognized and consequently untreated (Fitelson *et al*.,2010) The long term consequences of postnatal depression suggest preventive approaches are warranted and to further investigate postnatal depression as a public health concern, the feasibility and acceptance of these interventions in Nigeria must be ascertained .This part of my project is dedicated to studying and assessing the feasibility and acceptability of already researched non pharmacological interventions (counseling based interventions, psychological interventions & behavioral educational interventions in the management of postpartum depression in Jos northern women,Gwafan region, Nigeria.

More so,the findings from these assessments will help facilitate researched intervention by making appropriate modifications to the processes and procedures involved, following the recommendations made by the Medical Research Council framework in Jos, North Nigeria..Also ,a larger scale study is envisaged to follow, in order to investigate the full effectiveness and cost-effectiveness of these very interventions.

3.1 METHODOLOGY

3.2 Study design

The purpose of this part of my project to critically explore the acceptability and feasibility already mentioned evidence based interventions in Jos ,Northern Nigeria.Feasibility study encompasses any sort of study that can help investigators prepare for full scale research leading to intervention. In this project, they are based upon to produce a set of findings that will assist in determining whether an intervention should be proposed for efficacy testing. Researchers can also use feasibility studies to see if their ideas and findings can be shaped to be more relevant and long-lasting, as well as to see if any protocols need to be changed and how those changes might happen.

Method that will be used in the study is convenience sampling method .However,a group of 19 participants will be recruited from Jos ,University teaching hospital maternity ward while the rest of the participants will be recruited from postnatal ward and pediatric ward . This will be achieved through the help of my representative in Nigeria.All participants will take part in 5 orientation sessions over 4 consecutive weeks. The main outcomes will include the feasibility of the recruitment process , measurement tools as well as the acceptability and feasibility of the provided intervention for the

participants .In order to measure acceptability of the intervention, qualitative interviews (questionnaire)will be conducted as well to provide an insight into peoples' experiences / perceptions of the said interventions for PPD of which's qualitative data generated and data analyzed will be used to refine the intervention.

3.4 Participants

Participants were recruited through the help of my representative Jos ,University teaching hospital maternity block.There will be a group of N =50 participants taking part in non pharmacological (psychological interventions ..This group size was considered ideal due to the nature of the interventions, in order to allow group work. Eligibility criteria are as following: being over 18 years of age, previous or current diagnosis of depression,using an Edinburgh Depression Scale (EPDS) score of 10 or above and mild or moderate depression according to Clinical Interview Schedule Revised (CIS-R).women living or experiencing one or more of the following: depression, anxiety, fear and avoidance at 2- 6 weeks post childbirth ,women who could fluently communicate verbally as well as write english and are also able or willing to commit to **4 consecutive** weekly sessions. Potential participants will be excluded if they: experience severe mental health issues addictions or are currently undergoing psychologic management.We will also exclude women with psychotic illnesses , organic brain disorder, bipolar disorder, personality disorder, alcohol or substance dependency, which will be identified through self-report. Those who will consent to the study as well as participated fully in the orientation session, will be awarded given cash rewards.

3.5 Recruitment stage 1

Women will be identified at the Jos University teaching hospital maternity clinic.the routine screening undertaken for depression using the Whooley questions ,this screening method has high sensitivity (95%) and modest specificity (65%) for antenatal depression.(Bosanquet K ,et al., (2015).

Those who answer 'yes' to either question and are considered by the midwife to be appropriate for further assessment for the therapy, will be asked for their consent to be contacted by the research team about the study.Women will also be identified from pediatric clinics where they will be given study information, eligibility screening questions (EPDS) and a form to indicate their willingness to be contacted by the research team for assessment if screening positive (EPDS 10 or above). Health care provider (mid wife practitioner) will identify adult women in postpartum periods with signs or symptoms of depression, anxiety, fear or avoidance after birth as well as suspected ,current or past history of postpartum depression using the Edinburg Scale.

Healthcare provider (midwife practitioner) will apply the inclusion criteria: patients who are able to read, write, speak and comprehend English; patients able and willing to commit to 4 consecutive weekly sessions, to be interviewed about taking part and to fill in questionnaires at four time points.

Healthcare providers will also apply the exclusion criteria: patients with malignant pain (medical history); patients who experience severe mental health issues ,psychotic disorders ,chronic diseases or addiction problems (medical history/self-declared); patients who are currently undergoing psychological treatment (self-declared/medicalhistory).

3.6 Recruitment stage 2

The main investigator will ask patients some questions about their current state of health (in order to find out more about potential health limitations or underlying ailments that might interfere with participation. The main investigator will reiterate the nature of the intervention (there will a total of 4 sessions delivered in a group, complemented by homework and a one to one interview approximately 1weeks after the last session). The patients will be able to ask whatever questions they might have regarding various interventions.

The recruitment will be carried out in partnership with the the Jos university teaching hospital,maternity department.The Investigator will brief the Participants in regards to psychological intervention as well as provide information package with all the relevant information about the intervention. The Investigator will identify patients who are eligible (by applying inclusion and exclusion criteria). Following that, the investigator will meet the patients one on one in order to find out more about their general health conditions and also to reiterate the nature of the intervention and answer questions.

The patients considered eligible will be handed an information form and a consent form. They will be given **1week** to return the signed consent form (if at all they decide to participate).

Outcome measures

The primary outcomes of of the intervention includes the acceptability of the proposed intervention, the feasibility of recruitment and the adherence to the intervention.

Feasibility

(A)Number of people participating in the research (B) Time taken to fill in questionnaires.

(C) Follow-up response rates (1-2 weeks)

3.7 Intervention development phase

The intervention feasibility and acceptability phases includes the **Can it work phase**?This phase answers the questions of if there some evidence that provided interventions might work?**Does it work phase** which answers the questions of if there are some evidences that provided interventions might be efficacious under ideal or actual conditions, compared to whatever other practices might be done instead?and **will it work phase** answers the question of If it be effective in real-life contexts, settings, and cultures/populations that might adopt the intervention as practice?This part of the project is aimed at ascertaining if the provided interventions can work.

Intervention session setting /procedure

These psychological interventions will be administered within the Jos university teaching hospital ,maternity department ,,a setting already familiar to most of the participants/patients. A spacious multipurpose hall to move around with natural light, comfortable chairs within the premises was chosen to host all 4 sessions. Permission to carry out these orientation intervention setting was obtained from chief medical director of Jos university teaching hospital.During these sessions participants were enlightened on the various forms of psychological interventions for the management of postpartum depression as well as ,,techniques and strategies pertaining to various forms of interventions.The overview of these interventions were administered by 2 certified psychological well-being practitioners who agreed to take part in the study.The practitioners will be required to audio record cases, which will be assessed by their supervisor to ensure competence, Supervisors will rate adherence from a checklist and feedback to trainees. These ratings will be used to assess fidelity.

Acceptability of various interventions for postpartum depression

Acceptability will be divided into three categories: prospective acceptability (how an individual feels about the intervention prior to actively participating), intervention coherence and adherence (the extent to which a participant understands the intervention and how it works and also the engagement with the programs) and experiences of taking part (including perceptions of the intervention, barriers ,as well as satisfaction).This project focuses on prospective acceptability of various intervention.

3.8 Prospective acceptability

Barriers to taking part in the interventions screening.

% of acceptability of various interventions

Burden (reasons for not taking part/discontinuation or dropping out).

Intervention coherence and adherences

Number of sessions attended.

Prospective acceptability involvement statement

A preliminary qualitative study was conducted to enhance our understanding of peoples perceptions of various intervention provided . Patients' perspectives and acceptance were explored through a focus group with target population participants to understand how these various interventions would fit with their daily life activitiesAcceptability and willingness to engage in the intervention sessions were also considered. An additional focus group was conducted with to achieve a better understanding of their experiences supporting this population.The patients/participants reported needs, barriers and preferences that might influence the structure, content and the mode of delivery of these interventions.Some barriers identified by participants/patients were: the amount of time necessary to take part, travel time, resources as well as not being able to sit for long periods of time.

3.9 Procedure of Qualitative Data Collection Qualitative interview (questionnaire)

Qualitative study

We will collect qualitative data through interviews to assist in determining the feasibility and acceptability of the intervention.We will explore the acceptability of the intervention to women receiving IPT, CBT, PST and the feasibility of recruitment and follow-up.We will also conduct semistructured interviews either face to face or on the phone using the topic guide .It is anticipated that interviews will last approximately 30 min to 1 hour and will be conducted in English language.

The interviews will explore participants'views on how the sessions took place, the format and frequency of the sessions and the acceptability of the delivery of the intervention. The key areas to be explored will be reasons for participation ,barriers to receiving the intervention, and perception of the intervention process including participants'initial expectations and reflections. .The interview guide also aims to capture the perceived usefulness and acceptability of the intervention, including suggestions for content

and upgrade. At the end of the interview sessions, participants will be debriefed and encouraged to contact researcher or investigator with any further concerns or suggestions.

Part 2

3.10 Data analysis

After informed consent was obtained, each participant completed the study questionnaire in the waiting room or at a nearby location either before or after her prenatal/postnatal visit.The questionnaire we're self administered.The study questionnaire was also used to ascertain history of depression by asking questions like "Have you ever had a period of 2 weeks or more when nearly every day you felt particularly sad ,unhappy ,depressed or in which you lost all interest in things like work or social relationships?" and then asking the participant to indicate the time frame(s) of depression (i.e., "before ever being pregnant,""during a previous pregnancy, within 6 months after a previous pregnancy,after a previous pregnancy but more than 6 months after delivery ,during this pregnancy but not now," or "currently").To determine the participant's current depressive level, the questionnaire contained the Edinburgh Postnatal Depression Scale (EPDS), a 10-item self-rating scale developed to screen for depression in pregnant or postpartum women in community samples Cox JL,et al .,(1997).

The scale focuses on cognitive and affective features of depression rather than somatic symptoms, which may confound detection during pregnancy or the postpartum period. As part of the study questionnaire, participants were given a list of depression treatment options and asked to rank their attitude towards various treatments. Attitudes toward psychotherapeutic and pharmacological treatments (acceptability) were assessed by asking participants to respond to the following questions by indicating either "definitely acceptable,""probably acceptable,""probably unacceptable," or "definitely unacceptable" to each of the following five questions in **(Annex C).**Analysis will be performed using descriptive statistics (percentages) **SPPS 19 Windows software statistical package**

Acceptability of various intervention modalities /approaches

The acceptability of various treatment/intervention modalities was further evaluated using five questions developed by Goodman in English.

The questionnaire seeks to explore women's intervention preferences for depression and women's acceptance of specific treatment interventions for postpartum depression using (cognitive behavioral therapy, problem solving therapy, women's acceptance of specific treatments for postpartum depression (cognitive behavioral therapy, They are asked to respond on a scale of 1 to 4, with 1 meaning "definitely," 2 meaning "probably," 3 meaning "probably not," and 4 meaning "definitely not."These will indicate the modalities in which they are more likely to participate if at all they seek help for depression.

3.11 RESULTS

Only 40 of the 47 women who agreed to participate in the study completed the questionnaire from which this study was inferred. Participants had to be at least 18 years old and no older than 45 years old to take part in the study.

Acceptability of different intervention modalities (pregnant = 20 ,postpartum 20) and Percentage of Participants Who Endorsed Acceptability and feasibility of Various Depression Interventions.

Where P= % of pregnant

Where N/P =% of non pregnant (postpartum)

	Definitely %	**Probably %**	**Probably not %**	**Definitely not %**
How acceptable is it for you to take medication when pregnant?	P 7.4 N/P 0	18.2 22.2	18.5 25.9	51.9 51.9
How acceptable is it for you to take medication when breastfeeding?	P 7.4 N/p 3.8	18.6 33.4	22.2 18.5	52.9 44.4
How acceptable is it for you to take medication when neither pregnant nor breastfeeding?	P 55.7 N/p 66.6	36.0 26.9	8.4 0	0 29.4
How acceptable is it for you to seek	Preg 70.6	28.5	0	0

individual counseling from a mental health professionals **CBT,IPT,PST**	N/p 66.5	33.6	0	0
How acceptable is it for you to seek group counseling?multi component therapy MCT (peer support and educational)	Preg 54.9 N/P 28.6	18.6 33.3	14.7 7.6	14.8 29.6

As one can see from the above table, 70.6% of pregnant and 66.5% of post-partum women agreed that they would definitively accept individual counseling:cognitive behavioral therapy,Interpersonal therapy and problem solving therapy from a professional If they had depression or anxiety, they should seek professional help. Only half of pregnant women and a third of postpartum women on the other hand, said they would request group counseling/treatment intervention.

Furthermore, half of the pregnant and postpartum participants did not accept taking medication while pregnant or breastfeeding. This is in contrast to the large number of people who said they would accept depression or anxiety medication if they were not pregnant or breastfeeding (55.7 percent and 66.6 percent)

Perceived Barriers to Obtaining Professional Help for Depression/Anxiety (n= 40)

The perceived barriers to perinatal psychological therapies were assessed using a questionnaire that included ten potential barriers that were answered on a 1 to 3 Likert-type scale.

(1=not difficult; 2=difficult; 3=extremely difficult). JH Goodman (2009). Lack of child care ,Lack of time, not knowing where to go for treatment, lack of transportation, being unable to afford treatment ,and their families not approving were among the items developed by Goodman. Non-perinatal (postpartum women) being ashamed to talk to others about the problem, complex procedures in

healthcare institutions, getting worried about what others might think and a complete lack of interest were the other four items identified by Berenzon and Medina-Mora (2002).

Perceived barriers to treatment in pregnant women n (20) and postpartum women n (20)

	Not difficult %	difficult %	Very difficult %	Difficult & very difficult %
Lack of time				
P	29.6	51.9	18.6	70.5
N/p	11.2	66..7	22.2	88.9
No childcare available				
P	59.4	14.9	25.9	40.8
N/p	33.6	37.0	29.8	66.7
Not knowing where to go for treatment				
P	33 .5	44.6	22.2	66.8
N/p	44.6	40.9	14.8	55.5

Not being able to afford treatment P N/p	 29.6 25.9	 55.6 40.7	 14.9 33.	 70.5 76.1
Lack of resources (transportation) P N/p	 25.9 22.2	 55.6 40.9	 33.2 29.6	 88.8 70.5
Cumbersome procedures at health facilities P N/p	 40.8 22.3	 40.8 51.9	 18.5 25.9	 59.3 77.8
Family might not approve P N/p	 22.6 33.8	 40.6 44.6	 26.8 33.1	 67.4 77.7

Ashamed to talk to others about the problem P N/P	28.6 33.6	44.2 49.6	26 .4 22.6	70.6 72.2
Worried about what others may think P N/p	68.8 77.6	36.2 40.8	28.2 22.2	64.4 63.0
Interested in seeking treatment P N/p	77.8 82.4		22.6 18.6	

5.1 Result interpretation

From the above data ,a lack of time was perceived as an important barrier to treatment for emotional problems predictably, this was more salient in the post-partum sample, 88.9% of whom perceived it as

very difficult or difficult in comparison to 70.5% of the pregnant sample as seen in the above table .Similarly, child care availability was difficult or very difficult for 40.8% of pregnant and for 66.7% of post-partum women.

More so ,most of the participants found it difficult or very difficult to know where to go for treatment (pregnant: 66.8%; postpartum: 55.5%) and nearly two thirds found it difficult or very difficult to afford it (70.5 % and 76.1%, respectively).Lack of transport was also seen as difficult and very difficult by the majority (88.8% and 70.5%) while dealing with cumbersome procedures at health institutions was more difficult for post-partum (77.8%) than for pregnant women (59.3%).Pregnant women also found difficulty in the items assessing possible stigma that is family may not approve, ashamed to talk to others about problems and worried about what others may think) (70.6% in pregnant and – 70.2% in postpartum.

Conclusively.,22.6 % of the pregnant and 18.6 % of the post-partum women reported that they would not be interested in seeking treatment in the event of emotional problems.

5.2 Discussions

This study examines treatment attitudes, intervention preferences, acceptability,feasibility and perceived barriers in a relatively small diverse sample of 20 pregnant and 20 non pregnant women (postpartum mums) receiving obstetrics care in maternity hospital and pediatric hospital in in the Jos university teaching hospital, northern Nigeria.

Women in the study believed it was difficult for a new mother to speak about feeling blue or depressed, and that individuals didn't really understand a mother who did so in the postpartum period. These findings are in accordance with previous research by C Knudson-Martin and R Silverstein of Knudson-Martin and Silverstein (2009) which found that women are afraid to admit they have emotional distress and how they frequently express their fear of becoming depressed. PPD manifests as a long-term struggle in which ability to express negative emotions is incompatible with the sociological phenomenon of motherhood, and as a result of this silence, women become overwhelmed by feelings of incompetence. They suggested mental counseling, providing emotional and family support as well as listening to them.

As previously mentioned, women's acknowledgement of the need for help may not be enough to encourage them to ask for help, as attitudes and situational factors barriers may lead them to choose self-help practices.The vast majority of study participants indicated that they preferred active treatment for depression. Individual psychotherapy was by far the most preferred treatment choice (**70.6** % for pregnant and 66.6% for postpartum). Antidepressants medication was the second most accepted choice for depression treatment; however, it was the second choice of preference for **55,7%** pregnant women and 66.6% postpartum women. This finding supports an earlier small study that reported pregnant and

postpartum women's preference to avoid medication (Sleath B, et al.,(2005) and Whitton A, et al., (1996).

More specifically, the greater preferred outcome for psychotherapy over medication, as well as the greater unacceptability of medication use while pregnant or breastfeeding, may reflect recent research suggesting increased risks to the fetus exposed to antidepressant use and administration in utero.Also ,Women may be reluctant to risk taking an antidepressant given the sometimes conflicting information about its safety during pregnancy or lactation. Potential side effects or the stigma attached to medication use may also contribute to its unacceptability.Boath EH, et al., (2004) .Clearly, more research is needed to understand how depression itself plays a role in treatment preferences and acceptability especially in Nigeria as there is a paucity of data in that regard.

Furthermore, the most significant barriers to treatment for depression in perinatal women were perceived to be a lack of time and child care, not knowing where to go for treatment, being unable to afford treatment, and inconvenient medical procedures at health facilities. In various contexts and populations, these barriers to mental health services have also been widely reported.

When participants were asked about barriers to stigma (family disapproval, shame to talk to others about problems, worry about what others might think), many of them thought these were a problem: for example, 64.4 percent in the first trimester and 63.0 percent in the second trimester found it difficult and very difficult to worry about what others might think. The degree of emotional distress experienced by pregnant and postpartum women may be related to differences in these barriers, with postpartum women being more aware of distress and the challenges in expressing it. In this regard, other barriers have also been perceived as more of a problem in the postpartum group (lack of time and child care, being unable to afford treatment and complex health procedures).

5.3 Conclusion

PPD is a time-consuming and difficult condition to treat. As a result, as the diagnosis and treatment process drags on, the symptoms of PPD in a new mother can exacerbate the problem. Although mood and mental changes in some postpartum women have been discussed for centuries, much more needs to be done in terms of early detection of risk factors, prevention, treatment, and management of postpartum depression to restore the greatest joy and gifts of care and bonding between mother and child. More specifically, the severity of the depressive episode, comorbidities, risk assessment, psychiatric history, high levels of stress, support networks, and the treatment preferences of the patient all play a role in determining the best treatment for PPD

However ,when selecting an antidepressant, the clinician should consider factors including breastfeeding status, psychiatric diagnosis ,current and past symptom severity , suicidal risk, past psychiatric history, prior and current psychiatric treatment efficacy and tolerability, medical comorbidities, family psychiatric history, patient treatment preference and ability to comply with the recommended treatment plan. Regarding use in lactation, the clinician must weigh the risks of infant drug exposure through breast milk with the risk of untreated maternal PPD. While there is a lack of high-quality data on antidepressant use during lactation, the overwhelming benefits of treating PPD with antidepressants during lactation outweigh the low risks of antidepressant use while breastfeeding healthy, full-term infants in the vast majority of cases. Furthermore, despite the fact that antidepressants are found in varying amounts in breast milk and infant serum, the antidepressant prescribed to a lactating woman should be based on her prior treatment history as well as the potential for adverse effects on the mother and infants.

Future novel PPD therapeutics should, ideally, be fast-acting and have a shorter treatment time. These characteristics will not only reduce the risk of adverse events for the mother and her child, but they will also improve treatment adherence. Given the wide range of phenotypic presentations of PPD, future research should focus on determining which pharmacotherapeutic interventions, as well as other non-pharmacotherapeutic interventions not covered here, may benefit women with different clinical presentations in order to personalize care for the mother–infant.

Antidepressants, psychotherapy, or a combination of the two are the most common treatments for depression and while both treatment strategies alone or combined have been shown to be potent, recent meta analyses have discovered high dropout rates and low relapse rates (Haller 2019). In contrast to other forms of depression, the evidence base for pharmacotherapy is fair and effect sizes are modest. Selective serotonin reuptake inhibitors (SSRIs) are the best studied drug class, followed by tricyclic antidepressants (nortryptiline) Another promising antidepressant is an allopregnanolone analogue, brexanolone (Zulresso), which was recently approved by the (FDA) for the treatment of postpartum depression.

More so ,the safety of antidepressants is a frequent concern. A detailed discussion of use during pregnancy and lactation is outside the scope of this study The most general adverse effect is neonatal withdrawal, a syndrome of irritability and poor feeding, which affect a minority of infants and is usually self-limited. Inconsistent evidence suggests SSRIs may be associated with a small risk of congenital cardiac lesions.Antidepressants are generally excreted in low levels in breastmilk, and evidence of infant toxicity is limited to case reports.

In severe PPD , however, therapy and medication can be started at the same time because medication efficacy can take several weeks. The most well-studied interventions are cognitive–behavioral therapy

and interpersonal therapy. Interpersonal therapy, which focuses on resolving conflicts and maximizing social support, may be especially well-suited to the postpartum period's relational transitions. A wide range of modalities and settings, on the other hand, have been found to be effective. As a result, brief office interventions can help patients get access to care sooner. Clinicians, for example, can use motivational interviewing to aid behavioral activation. Problem-solving interventions can also help patients work through relationship issues, and discussions about mindfulness practices can promote more adaptive stress responses.Other intervention approaches had some evidence of effectiveness, but they lacked a strong evidence base and require more research.

The findings of this study are a first step toward defining postpartum women's acceptability, preferences, and needs for depression treatment in Jos North, Nigeria, at a time when they are already vulnerable. They are, however, only tentative due to the small sample size and descriptive exploratory nature of the study. Findings from this study can be used to promote a positive social change by enhancing awareness as Well as support of health care providers especially midwives and psychologist in designing relevant assessment and provision of care for women with postpartum depression. Also hospital authorities in collaboration with the Ministry of Health should work towards organizing frequent screening exercises for postpartum depression.

Although , future research with larger samples size is needed to address these issues, primarily aspects stereotyping that prevents people from expressing sadness and depression or seeking treatment. Roadblocks to mental health care for postpartum women, both on an organizational and professional level are also something that should be investigated.
However, as we previously stated, it is essential that the official health regulations governing the health care of women and babies during pregnancy, delivery, and post-partum include mental health care in order to provide effective care to Jos, north Nigerian women.

5.4 Clinical implication and recommendation

There are host of related interventions and recommendations for women struggling with depression, including postpartum depression and depression caused by pregnancy. Healthcare practitioners must carefully weigh the pros and cons of treatment alternatives, tailoring decisions based on a woman's mental health history, depression severity, fetal gestational age or infant age, and treatment preferences. Although professional guidelines can be used to make treatment recommendations for PPD ,the best way to treat depression during pregnancy or lactation is still up for debate.
The American College of Obstetricians and Gynecologists published a report in 2008 entitled.Women must also be educated about treatment options, their risks and benefits, and the dangers of not treating depression. However appropriate evidence based information could have a significant impact on women's treatment preferences and make decision making easier. Women's treatment preferences must

be weighed against the severity of their depression and the evidence for the effectiveness and availability of various treatment options.

Additionally ,because time is a factor on both the mothers' and healthcare providers' sides, these interventions may be resource intensive. This is due to the fact that, unlike medication (antidepressants), psychotherapy can take a long time to administer. It's also crucial to recognize where and how women prefer to be treated. The majority of the women in the study preferred to seek depression treatment at an obstetrics hospital, either from their obstetrics practitioner or from a mental health practitioner, which could reflect their desire for convenience and accessibility. Given that time is a major barrier to receiving mental health treatment, a woman may be able to schedule a depression treatment appointment at the same time as her obstetric visit if mental health treatment is readily available in the obstetrics setting or maternity home.

The woman's preference for receiving depression treatment in an obstetrics setting, specifically from an obstetrics practitioner, could reflect her level of trust and comfort discussing sensitive topics like depression with a familiar rather than a new practitioner. Even if you prefer to see a mental health practitioner in the obstetrics setting, this association may give you more confidence in them and make it easier to get in touch as well as connect with them.Women's preference for this setting may reflect a stigma barrier, in which a depressed woman can avoid going to a mental health facility and being labeled as a "psychiatric patient" by self or others labeling, and instead blend into the more normalized obstetrics setting.

These preferences for depression treatment source and location have important implications for obstetricians and health-care systems to consider when providing acceptable care that includes psychological support, treatment, and obstetric care.

It's also critical to find ways to reduce barriers so that more depressed women can receive treatment. Hence ,an important recommendation to enable women to receive treatment is to provide child care so that they can attend to treatment.

Further more ,on a national and societal level, efforts to reduce stigma surrounding depression and mental health treatment are needed, but obstetricians are in an unique situation to provide information on the availability mental health care services, make referrals, as well as assist depressed women in getting help. Posters and brochures in waiting rooms and examination /manipulation rooms can provide information on postpartum depression as well as contact information for local mental health professionals. Logistical barriers, such as treatment costs and transportation, should also be addressed in order to make treatment universally accessible, regardless of socioeconomic status.

Furthermore, preventive and therapeutic services should be included in both antenatal and postnatal clinics in Nigeria, and should be specifically tailored to the needs of individual women, as well as collaborations between primary care providers, obstetric, and pediatric clinics, particularly for women who are experiencing symptoms. Two promising interventions are intensive, professionally-led

postpartum home visits and telephone-based peer support.Cognitive behavioral therapy and interpersonal psychological interventions for preventing postpartum depression decrease the frequency of women who develop it. Therefore,Intensive, professionally-led postpartum home visits and telephone-based peer support are two promising interventions and can be helpful . (Dennis & Dowswell 2013).These could as well be adopted and implemented for the managements of postpartum depression in Nigeria.

I'll also recommend that federal,State , regional ministers of health at well as policy makers at the hem of affairs of Nigerian health sector work towards the adoption of most relevant recommendations for properly addressing mental health challenges faced in Nigeria including postpartum depression.Also , funds should be allocated for the improvement of services,logistics, building partnerships ,relationships as well as collaboration to solve this significant problem,adoption of training approach aimed at educating midwives on updated treatment guidelines for the management of PPD shouldn't be exempted as well.

Conclusively ,further research is needed to help identify cost-effective alternative therapies for treating postpartum depression. Combined with prevention and screening options that will suit women's individual varied situations and preferences explored to increase reception and adherence to these interventions treatment in Nigeria .

5.6 Study strength and limitations

Because many feasibility studies are designed to test an intervention in a limited way and such tests are mostly conducted in a convenience sample, with intermediate rather than final outcomes,this study only presents preliminary outcomes ,hence this studies bears further exploration .

Small sample size .

Since sample comprised primarily of well-educated women, the result might not be generalizable to other population especially those who aren't literate and weren't included in the study.

Annex A

Overview of intervention orientation sessions and contents

Week 1 introduction : Welcoming the participants and introducing the team and a brief overview of the purpose of the orientation / contents of each session.

Week 2 Cognitive behavioral therapy: A brief overview of what cognitive behavioral therapy is, Principles of cognitive behavioral therapy,Techniques & strategies involved, Learning to recognize one's distortions in thinking that are creating problems, and reevaluate them in light of reality.

- Gaining a better understanding of the behavior and motivation of others.
- Using problem-solving skills to cope with difficult situations.
- Learning to develop a greater sense of confidence in one's own abilities.

Week 3 Problem Solving Therapy: An overview of Problem solving therapy ,principles of problem solving therapy ,techniques and strategies

- Problem definition and formulation:
- Generation of alternative solutions
- Decision-making strategies
- Solution implementation and verification /Questions

Week 4 Interpersonal Therapy/Multicomponent therapy : An overview of Interpersonal therapy,Principles of interpersonal therapy ,Techniques used in interpersonal therapy ,benefits and effectiveness . An overview of Multi component therapy ,principles of therapy ,Techniques (peer support listening visits, educational programs, efficacy /probing questions)

Annex B

Open questions administered after orientation on various forms of interventions for PPD

Acceptability and feasibility / Described experience

1.**Process (**Did you learn anything from any of these orientation intervention sessions)

2.**Acceptability** (what was most convenient session for you you and why was it the most convenient)

3**Acceptability** (Which intervention did you enjoy the least and why was it the least)

4.**Barrier** (Do you see yourself actively engaging in any of these prospective interventions in the nearest future)

5.**Process** (Do you feel any different knowing that there are indeed non pharmacological interventions to address these issues of postpartum depression)

6.**Acceptability (**How likely are you to recommend any of the aforementioned interventions to anyone or someone in need)

Annex C

1. How acceptable is it for you to take medication for depression or anxiety when pregnant?
2. How acceptable is it for you to take medication for depression or anxiety when breastfeeding ?
3. How acceptable is it for you to take medication when neither pregnant nor breastfeeding ?
4. How acceptable is it for you to seek individual psychotherapy for depression (cognitive behavioral therapy,Interpersonal therapy and problem solving therapy)
5. How acceptable is it for you to seek group counseling for depression ?multicomponent therapy (MCT) peer support & educational therapy More so, barriers to seeking healthcare like resources and stigma were also ascertained using positive responses to the following: "being embarrassed to talk about personal matters with others,""being afraid of what others might think," and "family members might not approve.For the analysis of the acceptability of varying intervention modalities and perceived barriers to treatment for depressions.

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