KNOWLEDGE, ATTITUDE AND PRACTICES OF REPRODUCTIVE HEALTHCARE WORKERS ON PERIPARTUM DEPRESSION IN KIAMBU COUNTY, KENYA

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DECLARATION

This dissertation titled **"KNOWLEDGE, ATTITUDE AND PRACTICES OF REPRODUCTIVE HEALTHCARE WORKERS ON PERIPARTUM DEPRESSION IN KIAMBU COUNTY, KENYA" is** my original work and has not been submitted in part or whole to any other institution of learning for the award of any degree.

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May God bless you all.

Thank you.

DEDICATION

I dedicate this dissertation to my children Kagiri and Mwangi who have been the source of my motivation to want to be a better version of myself.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of variance
APA	American Psychiatric Association
DSM 5	Diagnostic and Statistical Manual of Mental Disorders, fifth edition
EPDS	Edinburgh Postnatal Depression Scale
KAP	Knowledge, attitude and practices
KNH	Kenyatta National Hospital
MCH	Maternal and Child Health
PCPs	Primary Care Physicians
PDEPS	Perinatal Depression Screening
PPD	Postpartum Depression
PHQ-2	Patient Health Questionnaire-2
PHQ-9	Patient Health Questionnaire-9
PMHPs	Perinatal Mental Health Problems
R-DAQ	Revised depression attitude questionnaire
SDGs	Sustainable Development Goals
UON	University of Nairobi
UN	United Nations
WHO	World Health Organization

OPERATIONAL DEFINATIONS

Antepartum depression: Refers to a period of depressive illness that occurs anytime during a pregnancy.

Postpartum depression: A term used to describe a period of depressive illness that occurs after delivery up to a period of one year.

Peripartum depression: This is a term that is used to include both antepartum and postpartum depression.

Knowledge: This is defined as awareness or understanding regarding a certain subject.

Attitude: Defined as a feeling or opinion in regard to something.

Practices: This refers to the actual doing of something again and again or application of performance regarding a certain subject, as opposed to just theories relating to it.

ABSTRACT

Introduction: Peripartum depression has been cited as an illness that has a huge significance on mental health worldwide because it's a condition that is underrecognized and not treated often. Healthcare professionals are instrumental in recognizing and intervening in patients with perinatal mental health problems. As such, routine screening for perinatal depression by healthcare providers is prefaced by their awareness, practices and knowledge of its consequences and signs. However, several studies have indicated that in most primary care settings, receiving appropriate care that is timely is preceded by the attitude of the healthcare workers towards mental illnesses. In Kenya, available research has detailed occurrence and risk factors of perinatal depression as well validation of various screening tools. Like other low-income countries, little is, however, known about the healthcare providers' efforts in terms of their knowledge, attitude and practices towards perinatal depression in Kenya.

Aim: To determine the knowledge, attitude and practices of reproductive healthcare workers on peripartum depression.

Method: This was a cross-sectional study design. Using the revised depression attitude questionnaire(R-DAQ), the reproductive healthcare workers in the obstetrics and gynaecology department in Kiambu, Thika and Gatundu Level 5 hospitals, were assessed for their knowledge, attitude and practices on peripartum depression. Data was then double-checked before entry into Excel Spread sheet and then exported to Statistical Package for Social Studies version 23 for descriptive statistics, while tests for association were done using ANOVA, t-test and Pearson correlation.

Results: The KAP score of the reproductive healthcare workers in Kiambu County was high, with the knowledge subscale having a score of 40.3/50 (80.6%), an attitude subscale score of 21.5/25 (86%) and a practice subscale score of 24.5/35 (70%). There was no association between the KAP score and the sociodemographic variables.

Conclusion: Despite the high scores in the knowledge, attitude and practice subscales, there is still more room for improvement in management of peripartum depression to enhance diagnosis and appropriate referral. More training is required as most participants preferred to deal with patients with physical ailments than with depression and showed low confidence in suicide risk assessment.

CHAPTER ONE: INTRODUCTION

1.1 Background to the study

The fifth edition of the "Diagnostic and Statistical Manual of Mental Disorders" (DSM 5), defines peripartum depression (PPD) as a depressive illness "with peripartum onset if onset of mood symptoms occurs during pregnancy or within 4 weeks following delivery" (APA, 2013). In clinical practice and research, the duration of depression is often extended up to 12 months postpartum (Hara & Mccabe, 2013). Peripartum depression and other perinatal mental illnesses are considered as a huge challenge to public health worldwide.

Prevalence studies documents substantial higher rates of postnatal depression in countries in low-income settings than those found in higher-income settings (Fisher *et al*., 2012; Gelaye *et al*., 2016). This is evidenced by the different assessment tools, study population in the various studies, reporting methods as well as cultural aspects (Gelaye *et al*., 2016). In such settings, women with perinatal depression are not diagnosed and thus do not get help (Glasser *et al*., 2011). As such, routine screening for postpartum depression by healthcare providers is prefaced by their awareness, practices and knowledge of its consequences and signs.

In the area of perinatal healthcare, healthcare providers should have confidence and be knowledgeable enough to handle conditions that can impact significantly on a woman and her offspring (Legere *et al.*, 2017). Thus, it is very important for healthcare providers to correctly diagnose peripartum depression and provide the required intervention (Zauderer & Davis, 2012). However, several studies have depicted knowledge deficits of healthcare providers towards peripartum depression.

In Nigeria for example, most nurses were found to have poor knowledge of postpartum depression in regard to known risk factors and signs & symptoms of the illness (Afolayan et al., 2016). This

was similar to a study done in Australia, where 70.6%(n=815) did not know the risk factors of peripartum depression (Jones et al., 2011). A Korean study found that most nurses to have above average knowledge of depression but on evaluation of their knowledge base, only 3.1% (n=851) identified the major symptoms of depression and 8.6% could mention the duration of symptoms as per the diagnostic criteria (Park et al., 2015). Healthcare providers know the relationship between depression and suicide and attempted suicide and the need for hospitalization (Mulango et al., 2018; Park et al., 2015). Palliative care nurses in Australia reported not being trained on depression as an impediment to detecting depression among their patients (McCabe et al., 2012). This is similar to another study done among student midwives which showed they were not confident and felt not well prepared to handle patients with mental illness (Jarrett, 2014), this contrasts with expectations of students who were completing their midwifery program as you would expect them to be very confident as they are freshly trained.

Primary healthcare providers in Cameroon had knowledge deficits when it comes to pharmacological treatment of depression, whereby only 28.6%(n=226) of respondents knew that fluoxetine is an antidepressant drug despite 85.8% of them agreeing that depression requires pharmacological management (Mulango et al., 2018). General practitioners would more often recognise the need to provide care and treatment to women with perinatal depression and prescribe antidepressants as compared to midwives who would provide non-specific drugs (Buist et al., 2006).

A healthcare provider should create an environment of trust as this will determine the help seeking behaviour of the women they attend to (Sword *et al*., 2008; Place *et al.*, 2017). Evidence indicates that the attitudes and behaviours of healthcare workers impact significantly to how patients with peripartum depression are taken care of and should therefore be included into healthcare settings (Dennis *et al*., 2006; Lara *et al*., 2014). Several guidelines stress the role of healthcare providers

in screening for depression in general, and perinatal depression (Earls *et al*., 2010; Umboh *et al*., 2013; Matijasevich *et al*., 2014. Healthcare providers have been shown to have a negative attitude towards detection and management of women with peripartum depression. Brazilian primary healthcare providers felt that postnatal depression is the domain of psychiatry, and few felt that postnatal depression is deserving of their time as they had very few patients with symptoms (Santos Junior et al., 2013). Palliative care nurses in Australia felt stigma towards depression was a significant barrier to diagnoses of depression with patients even hiding their symptoms (McCabe et al., 2012). Other studies have shown a positive attitude of health care providers towards peripartum depression with Australian midwives having the will to provide support emotionally to patients who need it (Jones et al., 2012). In Korea nurses had a positive attitude towards depression and did not think it's the patient's fault to be sick or it's because the patient has a weak willpower (Park et al., 2015).

Generally, guidelines indicate that the use of tools to screen for peripartum depression like the Patient Health Questionnaire-9 (PHQ-9) and the Edinburg Postnatal Depression Scale (EPDS) should be part of routine maternal healthcare (Gjerdingen *et al*., 2009). Women tend to have frequent and regular visits to primary care providers during pregnancy and the period after delivery and they've been shown to have positive attitude to screening during such visits (Walker *et al*., 2013), and this has been shown to be feasible (Liberto, 2012). However, in most primary care settings, lack of concrete professional development and systematic approaches interfere with qualified healthcare providers ability to provide care to women with symptoms of peripartum depression (Lenze & Potts., 2017; Place *et al*.,2017; Legere *et al*., 2017). On top of that, lack of sufficient time and training/knowledge to counsel can lead to poor attitude and stigma from the practitioners, causing more harm to maternal care (Mcconachie & Whitford, 2009; Mccauley & Elsom, 2011).

Untreated peripartum depression especially among economically disadvantaged women reduces their functional ability and causes great suffering in many spheres of her life. It is linked to an increase in mortality and morbidity in these women (Khalifeh *et al.*, 2016) poor health of the infant (Rahman *et al*., 2016), and poor early childhood outcomes (Gentile, 2017) thus, it is a condition important to public health (Green *et al.*, 2017). Settings that encourage screening of postpartum depression by healthcare providers, provide care to women with maternal depression and offer to educate patients on their mental health, have a big impact on how peripartum illnesses are taken care of and managed (Shidhaye & Giri, 2014).

1.2 Problem statement

Peripartum depression contributes to global burden of mental illnesses, though it's often underrecognized and poorly treated. Various significant factors play a major role when it comes to making a proper diagnosis and treating peripartum depression. Although healthcare providers have knowledge and expertise in the biopsychosocial model of depression and the accompanying distress (Place *et al*., 2015), it is still not clear how healthcare workers address depression as they interact with peripartum women in many countries of low-income (Place *et al*., 2017). Evidence indicates that the attitude of healthcare workers and women and how they perceive perinatal mental illness can stop women from receiving appropriate care in good time (Mcconachie & Whitford, 2009). This is also coupled with other challenges such as lack of hospital guidelines on management of postpartum depression as well as the lack of access and information on the appropriate screening tools to use. Specifically, the gap between healthcare providers' knowledge, attitudes and practices about peripartum depression has been identified as a major challenge for its early detection and subsequent management in most hospital settings (McCabe *et al*., 2012; Isik

& Bilgili, 2010; Legere *et al*., 2017). Similar to other low-income countries, very little information is available about healthcare providers' efforts in screening and management perinatal depression in Kenya. Also, their knowledge, attitude and practices are not known, which will also affect detection and care. As such, this calls for a need to explore the knowledge, attitudes and routine practices of healthcare workers towards maternal mental illness in the cultural context of Kenya. In addition, it will be critical to highlight the unique needs of the reproductive healthcare workers and the PCPs as they interact with women during perinatal period. This study intends to address these deficits.

1.3 Justification for the study

The increased prevalence of maternal depression as documented in various literature shows that depression in the peripartum period is important when it comes to general maternal mental health in Kenya. As women attend perinatal clinics, their mental health should be addressed, this may help to reduce negative outcomes. As such, it's critical that perinatal women have access to adequate information about their mental health. This information will have a huge impact on how a woman shall perceive her mental health, including making informed choices, deciding whether to disclose her mental health condition and her help seeking behaviour (Perinatal & Higgins, 2017). In addition, perinatal women have a right to receive information about perinatal mental health to enable them to make their mental health a priority (Perinatal & Higgins, 2017). As such, healthcare providers can provide a good avenue for screening, to educate and give guidance on appropriate management/referral of patients with maternal mental health conditions including peripartum depression. This study whose aim is to explore the knowledge, attitudes and practices of reproductive healthcare workers towards maternal mental illness in the cultural context of Kenya, shall benefit the perinatal women, medical personnel, policy makers, Kiambu County government, the National government and other stake holders. The study findings shall provide a

framework and basis for the reproductive healthcare workers to gauge their own knowledge and attitudes towards women with peripartum depression, in addressing their negative views and stigmatization.

1.4 Research questions

1.4.1 Study question

What is the knowledge, attitude and practices of reproductive healthcare workers towards peripartum depression in Kiambu County?

1.4.2 Specific questions

1. What is the knowledge on peripartum depression among reproductive healthcare workers in Kiambu County?
2. What is the attitude of reproductive healthcare workers towards peripartum depression in Kiambu County?
3. What are the practices of reproductive healthcare workers in Kiambu County towards peripartum depression?

1.5 Objectives

1.5.1 General objective

To determine the knowledge, attitude and practices on peripartum depression among reproductive healthcare workers in Kiambu county.

1.5.2 Specific objectives

1. To evaluate the knowledge on peripartum depression among reproductive healthcare workers in Kiambu county.
2. To determine the attitudes of reproductive healthcare workers towards peripartum depression in Kiambu county.
3. To determine the practices of reproductive healthcare workers regarding peripartum depression.

1.6 Significance of the study

The study results shall be used as a basic framework for policy makers to develop appropriate guidelines and interventions in the management of peripartum depression. The data will be useful in development of standard operating procedures for the management of peripartum depression in the obstetrics and gynaecology wards and outpatient clinics. The results will also act as a reference to inform knowledge gaps among reproductive healthcare workers on peripartum depression which can be addressed through continuous medical education. The findings will also be used to inform curriculum development and training needs regarding peripartum depression.

CHAPTER TWO: LITERATURE REVIEW

This chapter reviews related studies and literature done on the subject presented by various researchers and authors. It evaluates literature with respect to the overall study aim that is to determine the knowledge, attitude and practices on peripartum depression among reproductive healthcare workers in Kiambu County. The chapter specifically covers the theoretical foundation on maternal mental depression and the Conceptual framework.

2.1 Perinatal depression

The World Health Organization (WHO) defines health as "a state of complete physical, mental and social well-being'' and not merely the absence of disease or infirmity. This further shows the importance of mental health. The WHO mental health action plan (2013-2020) has a vision where mental health is protected and promoted, given importance and mentally ill patients have access to mental healthcare that is of high quality as well as prevention of mental health issues. It also emphasizes the need to reduce the mortality, morbidity and disability of the mentally ill. Mental health is an important component in the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) (Patel *et al*., 2015). Goal 3 of the SDGs talks about promotion of well-being for all ages and a vision to ensure ensuring healthy lives and promoting well-being for all ages. Target 4 of goal 3, further elaborates the significance of promoting mental health and well-being by 2030 (UN News Centre, 2015).

Globally approximately 10% of pregnant (antepartum) women and 13% of postpartum women will be diagnosed with depression (WHO, 2015). This is even higher, in developing countries i.e., 15.6% antenatally and 19.8% postnatally (Fisher *et al*., 2012; Gelaye *et al*., 2016). Many studies have been done regarding postpartum depression including its various risk factors and management, as opposed to antepartum depression with comparatively few studies. Postpartum depression should not be confused with postpartum blues which occurs about 3-5 days postpartum and affects about 40-80% of mothers and presents with a transient and mild disturbance in mood (Buttner *et al*., 2012). Postpartum depression is also different from postpartum that also starts in the first few weeks of pregnancy with a psychotic episode and has a low incidence of 0.1% to 0.5%s (Hara & Mccabe, 2013).

Postpartum depression is a public health concern because it affects the mother's psychological health and physical health (Ongeri *et al*., 2018). Some of these health concerns include impaired emotional attachment and significant changes in mother-child interaction, with noticeable physiologic and cognitive changes (Olson *et al*., 2002). This can result in long lasting effects. In boys born to mothers with depression, these effects are likely to be seen in the form of behavioural problems and impaired cognitive functioning, while in girls they are likely to develop a depressive illness (Olson *et al*., 2002). Other health concerns include poor infant feeding practices and subsequently, poor infant nutritional status (Madeghe *et al*., 2016).

During the period of pregnancy, delivery and postnatally, women have an increase in accessibility of healthcare services as healthcare workers provide routine services to them. Services that women receive during antenatal visits include laboratory tests, imaging and examination by the attendant healthcare worker. Postnatally, women have scheduled visits to their doctor/nurse during puerperium and family planning sessions as well as during well child visits for immunization purposes. During such visits for routine services, depression in these women can be identified and intervention initiated early (Elshatarat et al., 2018; Jones, Creedy, Gamble, & Health, 2011; Place et al., 2017). Therefore, healthcare workers have a significant role in providing psychological and social support to these women and enabling them seek timely help for the symptoms of peripartum depression (Jones *et al*., 2012).

2.2 Knowledge of Healthcare Providers on Peripartum Depression

Reproductive healthcare workers are important in identification of peripartum depression. When symptoms of peripartum depression are recognized as well as their associated risk factors, early diagnosis and management is possible and this in turn leads to a reduction in the burden of peripartum depression (Elshatarat *et al*., 2018). Reproductive healthcare workers should have

knowledge on peripartum depression and be competent in screening, assessing and its management to be able to execute these responsibilities and roles (Fiori *et al*., 2006; Logsdon *et al*., 2010; McCabe *et al*., 2012). The American Psychiatric Association (APA, 2013), states that the symptoms of peripartum depression can start while pregnant or after childbirth and can present up to one year after giving birth. Various studies have documented below average knowledge levels and poor practices among healthcare workers in regard to screening and providing care to women with peripartum depression (Isik & Bilgili, 2010; McCabe *et al*., 2012).

A deficit in knowledge about symptoms of perinatal depression has been recorded in a number of studies and general healthcare providers have been shown to downplay the severe symptoms of depression including suicidality (McCabe *et al*., 2012). For example, in Turkey, nurse practitioners could not define, identify known risk factors or tools used in diagnoses of peripartum depression (Isik & Bilgili, 2010). Knowledge deficits were also found among nurses who work in various other countries (Jones *et al*., 2011; Jones *et al*., 2012). Nurse practitioners in Slovenia had poor knowledge about postpartum depression and could not define nor state when the disease begins. The Slovenian nurse practitioners could not identify the symptoms of postnatal depression and did not know about any of the available screening tools. They also did not know of the available psychological therapies and treatment options available for postpartum depression (Skočir & Hundley, 2006). A similar study done in Australia also showed that nurse-midwives did not know the prevalence of antepartum depression, when it begins, or various factors associated with it. They also did not know available assessment tools nor available psychological or pharmacological therapies available (Jones *et al*., 2011).

Noonan *et al*, (2018) assessed midwives in the Republic of Ireland on how knowledgeable and confident they felt about perinatal mental health. This study established that 63.3 % of the midwives felt are knowledgeable about anxiety, stress and depression while about 8.4% felt they

have knowledge about the conditions. In addition, they also found a correlation in which those who reported to have knowledge about anxiety, stress and depression, were very confident in identifying the conditions and very confident in managing these conditions. Similar findings have been reported in the United Kingdom where student midwives were comfortable defining and describing mental health problems with 97% (n=33) able to correctly define postnatal depression (Jarrett, 2014).

A study in Saudi Arabia on 2018 shows that nurse practitioners had poor knowledge of postpartum depression and could not define, state disease prevalence or identify symptoms of postpartum depression. They also did not know of available screening tests and modalities of management (Elshatarat *et al.*, 2018). Just a third of the nurse practitioners felt they could educate women on postpartum depression (Elshatarat *et al.*, 2018). Knowledge deficit by healthcare workers was cited to be a hinderance to screen, identify and manage peripartum depression (Leiferman *et al*., 2008). In Brazil, healthcare providers could not recognize nor diagnose peripartum depression owing to inexperience and lack of exposure to women with postpartum depression. They attributed the illness to change in hormones and not a common problem (Santos *et al*., 2013). Ververs et al, (2009) found very few primary care health providers knew about the negative impact on development of children brought about by maternal depression. In another study, healthcare providers were not aware of issues specific to their culture in regard to maternal depression (Edge & MacKian, 2010).

Studies in Africa have also documented a lack of knowledge among healthcare workers in regard to depression in general. A study in Nigeria showed poor knowledge about postpartum depression among nurses and the various factors that contribute to development of postpartum

depression(Afolayan et al., 2016). Similarly, a study among general practitioners in Nigeria showed a knowledge gap on depression (James et al., 2012).

2.3 Attitude of healthcare providers towards peripartum depression

Research has shown that how a woman relates with health workers greatly influences the help seeking behaviour of the women (Sword *et al*., 2008). A lot of women would prefer to be attended by someone with a good general attitude and who shows empathy (Place *et al*., 2017). The attitude of healthcare provides a basis for good and appropriate care to women with symptoms of perinatal depression. A good attitude entails respect, empathy, encouraging, non-judgemental and being ready to respond to concerns raised by patients (Berenzon *et al*., 2013). For effective care, these women should have confidence that the person attending to them has good knowledge of peripartum depression (Dennis & Chung-lee, 2006; Lara *et al*., 2014).

Family Physicians (FPs) felt that women fail to disclose symptoms of depressive illness due to the stigma around the condition and this creates a barrier to identifying and treating perinatal depression (Leiferman *et al*., 2008; Noonan *et al*., 2018). In another study, FPs did not want to give the diagnosis of perinatal depression as they felt that the stigma associated with it could affect how these women seek their services and they felt the women would recover if left untreated (Chew-Graham *et al.*, 2007). In the United Kingdom, Megnin-Viggars et al, (2015) found that for women, the fear of losing custody of their babies and stigma around mental illness contributed to the women not disclosing their mental health problems.

Studies have also shown that healthcare workers have a positive attitude towards perinatal depression. In Israel, 89.5% of primary care physicians would seek clarification from patient if they identify signs of postpartum depression, then consult their colleagues and/or refer to a professional (Glasser *et al*., 2016). Most FPs recognized their part in diagnosis and provision of

care to clients with peripartum depression (Noonan *et al*., 2018). Family Physicians felt more in apposition to provide care for perinatal depression as opposed to doctors in obstetrics and paediatrics (Leiferman *et al*., 2008). In Israel, 96.5% of paediatricians felt that identifying signs of postnatal depression is important, compared to the family physicians (100%) who all noted the importance of recognizing signs of postpartum depression (Glasser *et al.*, 2016). Thus, family practitioners were found to have a better attitude than paeditricians; but screening of mothers by paediatricians was noted to be important (Glasser *et al.*, 2016).

There have been mixed findings on attitude of healthcare workers towards depression in Africa. Mulango et al., (2018) did a study among healthcare workers in Cameroon and found them to have negative views towards depression and most of them of them did not feel at ease to deal with depressed patients. This is in contrast to a study in Tanzania that showed most healthcare practitioners felt comfortable to work with depressed patients and that it was a rewarding experience (Mbatia et al., 2009).

2.4 Practices of Healthcare Workers towards Peripartum Depression

Perinatal depression largely remains undiagnosed, and this has acted as an impediment to provision of care to women who need it (Khan, 2015). Lack of standard guidelines leads to a difference in practice of management of peripartum depression including screening. There are screening tools that have been validated that can help in early identification of peripartum depression (Owora *et al*., 2016a; Owora *et al*., 2016b). In Kenya screening tools such as EPDS and PHQ-9 have been validated including the Perinatal Depression Screening (PDEPS) which is tool that blends psychiatric concepts that are western and local customary expressions of emotional suffering and has been cited to work better especially in rural settings (Green *et al*., 2017). The most effective way to establish good screening practices is by having a standardized guideline to follow once a

patient has been screened and found to have positive symptoms, to ensure timely and correct management and this will greatly improve women's health and the impact on their families (Milgrom *et al*., 2011).

Inadequate time, poor training in recognition of mood symptoms, and lack of a clear referral procedure have been cited as barriers to management of postpartum depression (Olson *et al*., 2002). In Seehusen et al.'s, (2005) study, participants felt that to screen at each postnatal visit (19.2%) and immunization visit (34.9%) requires too much time and effort. McCauley and Casson, (2013) had similar findings with family physicians identifying the increase in workload as a hindrance to more complex management decisions. Other barriers to early diagnosis of maternal depression that were identified include lack of continuum of care, starting treatment late and few available appointment slots to access service (Chew-Graham *et al*., 2007). Other studies have also established that healthcare providers use guidelines less frequently due to inadequate time and the long format of screening guidelines available (Edge & MacKian, 2010).

While guidelines are supposed to be the basis of best practice principles, they have been noted to be generic and lack a clear flow of events and are vague on specific treatment (Noonan *et al*., 2018). This lack of specificity in the guidelines has been a great impediment to relaying of correct information and this has led to women not receiving adequate care (Santos *et al*., 2013). In Mexico, healthcare workers felt that it's important to evaluate for postpartum depression but cite lack of hospital guidelines on management of postpartum depression and lack of access and information on screening tools to use (Place *et al*., 2017). In the United States, 57.7 % of paediatricians knew the diagnostic criteria for depression (Yu & Sampson, 2019). In addition, the paediatricians reported to be screening new mothers for postpartum depression using validated tools such as PHQ-2, PHQ-9 or EPDS (Yu & Sampson, 2019).

The lack of clear guidelines of care, absence of prompt resources and few available mental health specialists has been shown as a barrier to the care of clients with peripartum mental illnesses (Santos *et al*., 2013). In a further study by Ververs et al (2009), established that 29% of general practitioners never referred pregnant women on medication for depression to mental health specialists whereas 50% would refer occasionally. Leiferman et al (2008), found that 62.8% of family physicians never/rarely referred women to be treated for peripartum depression. Lack of understanding about the cultural background of some patients has also been cited as a hinderance to diagnosis and care of mental health problems particularly among minority ethnic groups (Edge & MacKian, 2010).

In Africa studies have shown poor practices among healthcare providers with majority of them rarely screening or assessing for symptoms of depressive illness (Mulango et al., 2018). In Nigeria, generalists were reluctant to prescribe antidepressants to patients and felt it better for mental health specialists to manage these patients (James et al., 2012). Similar findings were found in Tanzania monde where the healthcare providers felt that treatment of symptoms of depression was better left to mental health practitioners.

2.5 Theoretical Framework

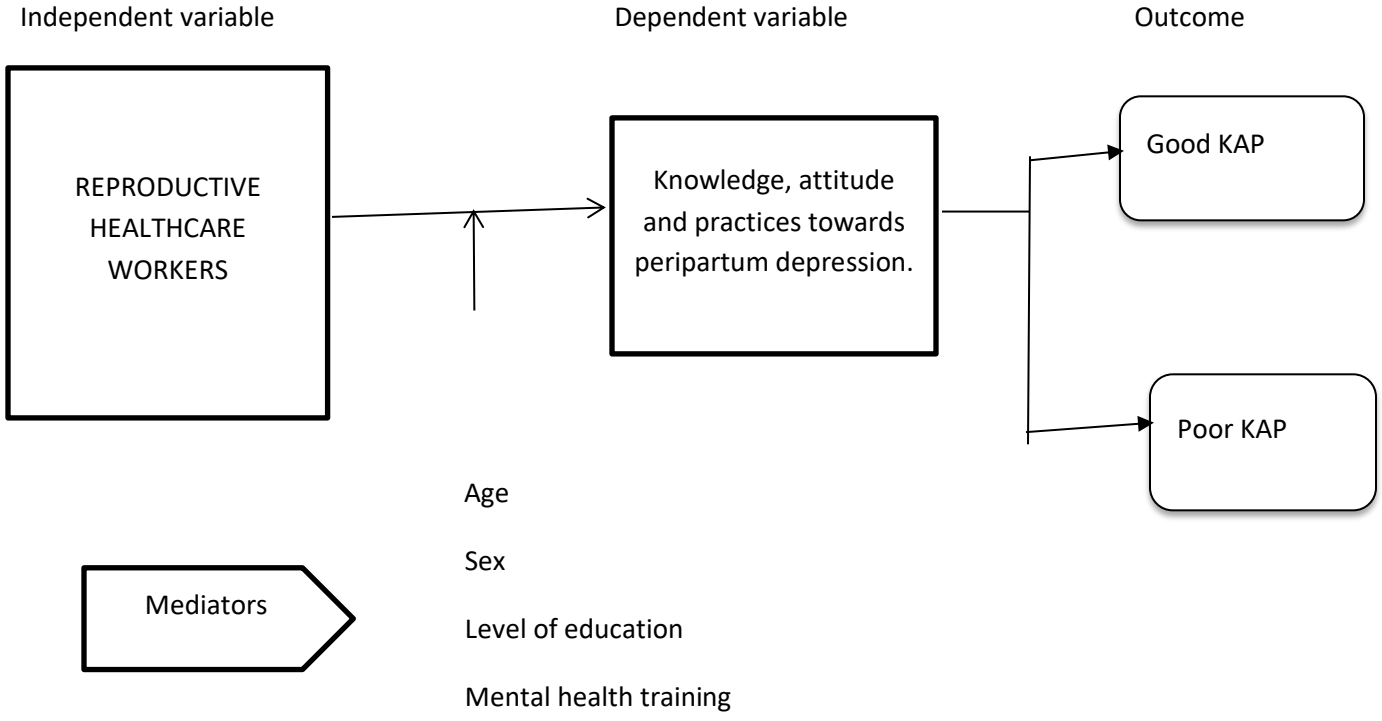
The theoretical framework is based on the KAP (Knowledge, Attitude & Practices) survey model by Médicins du Monde(2011). This model shows that a KAP survey uses a quantitative method with the aid of a standardized questionnaire. KAP surveys explain misconstrued understanding of a given topic. They also reveal potential obstacles and gaps that can be addressed(Médicins du Monde, 2011).

A KAP survey will reveal the situation on the ground, what the study participant knows and practices about a given subject and provide suggestions on what can be done to have better

outcome. It will also help provide a baseline for future use in assessing how effective various interventions are in enhancing positive knowledge, attitude & practices of a given subject(Médicins du Monde, 2011).

This model will be applied in this study to show what is said and what is done about peripartum depression among reproductive healthcare workers in Kiambu County. It will also help identify gaps and new tangents to the situation on the ground in regard to peripartum depression management by reproductive healthcare workers. The study findings will aid in tailoring the correct interventions that will be useful in promoting positive knowledge, attitude and practices in peripartum depression management. This information will be useful in protocol development and policy formulation about peripartum depression.

2.6 Conceptual framework



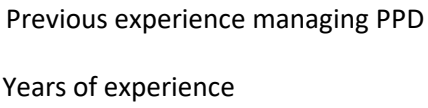


Fig 2.1 Conceptual framework

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section identifies the procedures and methods that were used to complete the study. This chapter includes the research design and methodology used to test the variables, the population, samples size, technique and sampling frame, type of data to be collected, data collection instrument and procedure, reliability and validity of the instrument, and discussion of the data presentation and analysis.

3.2 Study site and description

The study was undertaken at the department of obstetrics and gynaecology at the following level 5 hospitals in Kiambu County: Kiambu, Thika and Gatundu. Kiambu level 5 hospital is a 417-bed public hospital in Kiambu town, Thika level 5 hospital is a 467-bed public hospital in Thika town while Gatundu hospital is a 300-bed public hospital in Gatundu South Constituency. Kiambu County government is among the 47 counties in the Republic of Kenya and runs the three facilities.

It is located in the central region of Kenya and covers a total area of 2,543.5 Km^2. The County is divided into twelve (12) sub-counties namely Thika town, Juja, Ruiru, Kiambaa, Kiambu, Githunguri, Gatundu North, Gatundu South, Lari, Kabete, Kikuyu and Limuru. These are further divided into 60 wards.

3.3 Study method and design

The study design was a quantitative, cross-sectional survey.

3.4 Study population

The study population included the reproductive health workers in the obstetrics and gynaecology department in the three study sites: Kiambu, Thika and Gatundu level 5 hospitals. Reproductive health workers included nurses, reproductive health clinical officers, medical officers and consultant obstetrician/gynaecologists. Obstetrics and gynaecology department included the Maternal and Child Health (MCH) clinics, maternity ward and gynaecology ward.

3.4.1 Sample Size and sampling

Sample size was calculated using Fisher's formula (*"Daniel WW (1999). Biostatistics: A Foundation... - Google Scholar*, n.d.)").

$$n = \frac{Z^2 x\ P(1-P)}{d^2}$$

Where,

n = Desired sample size

Z = value from standard normal distribution corresponding to desired confidence level (Z=1.96 for 95% CI)

P = expected true proportion (will use 50% as there are no prevalence studies, therefore the researcher assumed 50% of respondents are knowledgeable and 50% are not.)

d = desired precision (0.05)

$$n_0 = \frac{1.96^2 x\ 0.50(1-0.50)}{0.05^2} = 384$$

By October 2020, the three hospitals i.e., Kiambu, Gatundu and Thika, had 147 reproductive health workers distributed as follows: Kiambu hospital had 66, Gatundu hospital had 23 while Thika hospital had 58. Adjusting the sample size for finite populations less than 10,000

$$nf = \frac{n_0}{1 + \frac{n_0 - 1}{N}} = \frac{384}{1 + \frac{384 - 1}{147}} = 107$$

A Sample size of 107 reproductive health workers will be required for the study. The number of the workers will be selected as a proportionately as follows:

Table 3.1 sample size

	Number of health workers	Sample size
Kiambu	66	(66/147) x 107 = 48
Gatundu	23	(23/147) x 107 = 17
Thika	58	(58/147) x 107 = 42

3.4.2 Sampling procedure

The study used the list from the registry of employees of each facility, and used a simple random method with a random number generator by use of Microsoft Excel software, a list of employees was selected for the study.

3.4.3 Inclusion criteria

The inclusion criteria was;

1. Qualified reproductive health workers working at Kiambu, Thika and Gatundu level 5 hospitals.
2. Reproductive health workers who gave informed consent to take part in the study

3.4.4 Exclusion criteria

The following were excluded from the study;

1. Students on attachment at the obstetrics and gynaecology department
2. Reproductive health workers who were not willing to give informed consent to be part of the study.

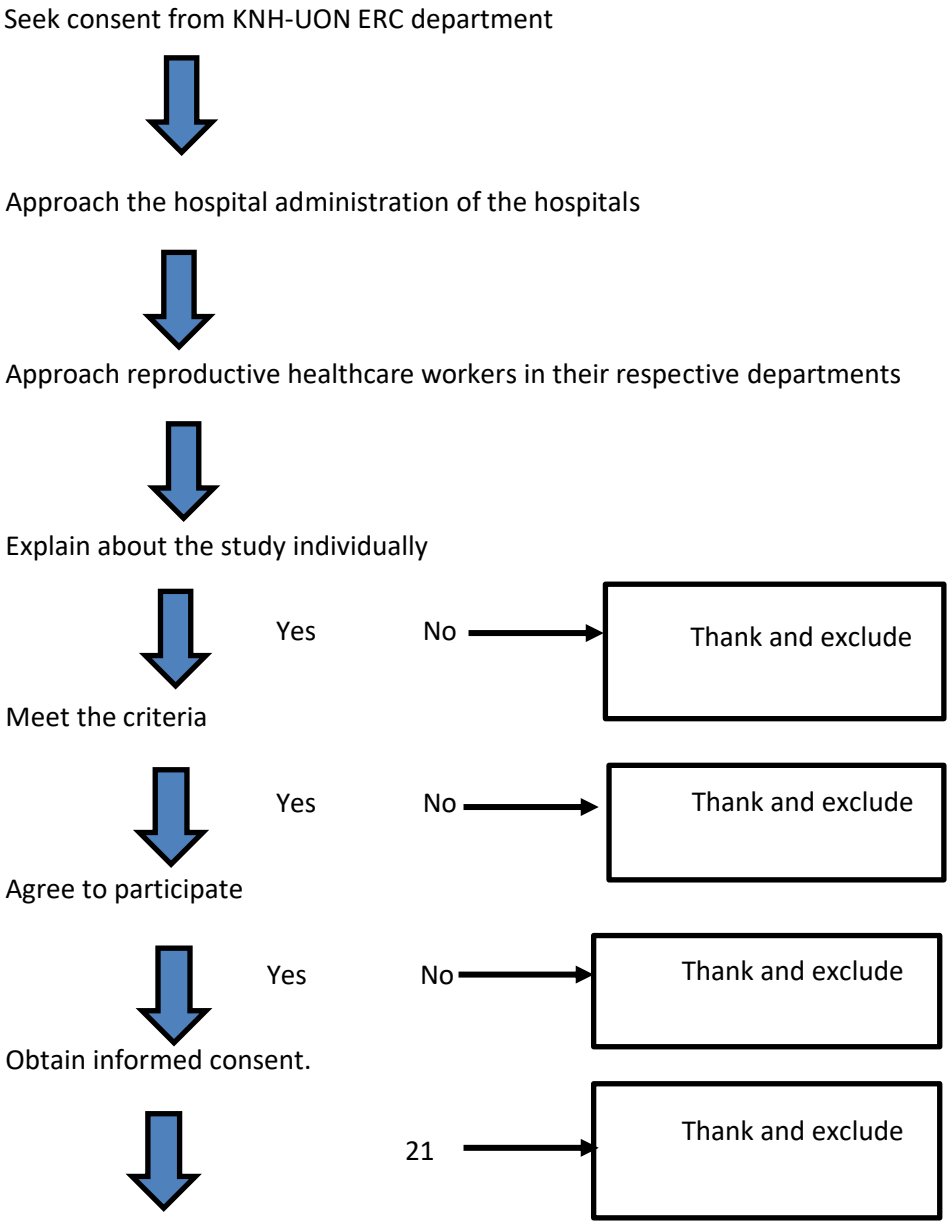
3.5 Study variables

The independent variable was the reproductive healthcare workers. The dependent variables were the knowledge, attitude and practices towards peripartum depression. Effect modifiers included age, sex, religion, marital status, years of experience, level of education, cadre, hours worked, department of work, previous mental health training and barriers to SMD management.

3.6 Subject recruitment

A questionnaire was developed to collect the data and converted into an electronic format using Google Forms. The principal investigator sought institutional permission to conduct the study from Kiambu county and respective facility managers. The principal researcher approached all reproductive health workers at the study sites individually during tea breaks, lunch break or when less busy and assessed for eligibility to participate in the study. The principal investigator

explained to the study participants about the study, answered any question that may arose and obtained a written informed consent individually. Each participant was assured that participating in the study is voluntary and they are free to decline at any stage. The participants were also assured of confidentiality and explained to that the questionnaire will not have personal identifiers. The participants who gave consent were given the questionnaire to self-administer either electronically via google forms or physical paper questionnaires for those with challenges. The participants were thanked for their time. The researcher gave her contacts in case of any issue or concerns arising.



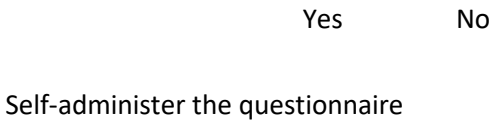


Fig. 3.1 Flow chart for subject recruitment.

3.7 Data collection tools

3.7.1 The Sociodemographic Questionnaire

A researcher developed sociodemographic questionnaire included these items: age, sex, religion, marital status, years of experience, level of education, cadre, department of work and previous mental health training.

3.7.2 The Revised Depression Attitude Questionnaire (R-DAQ)

The data collection tool used in this study was the revised depression attitude questionnaire(R-DAQ). R-DAQ is a scale with 22 items that was developed by Haddad et al., (2015). The R-DAQ is a revision of the original depression attitude questionnaire (DAQ) that was developed by Botega et al., (1996).

The depression attitude questionnaire has been used in many countries across the world to examine the knowledge, attitude and practices of various healthcare workers towards depression (Waller & Hillam, (2000); Ohtsuki et al., (2012); Mbatia et al., (2009); James et al., (2012); Mulango et al., 2018). The R-DAQ has recently been used in Riyadh to determine the attitude of physicians towards depression (Aldahmashi et al., 2019).

R-DAQ covers three main areas which test for confidence of professionals in depression management, optimism about depression treatment and views about practitioners perspectives in regard to management of depression(Mark Haddad et al., 2015)(Aldahmashi et al., 2019).

The first area covered by the questionnaire assesses how optimistic the practitioners feel about therapeutic approaches to depression care and will test for knowledge, it consists of 10 items stated negatively which are reverse scored. The second area covered by the R-DAQ focusses on the perspective of the practitioners and tests on attitude, it has 5 items. The third area covered by the questionnaire has seven items that tests for confidence of professionals in dealing with depression and assesses if they feel well trained to handle such patients and will assess the practices. The items were scored via a Likert scale with a range from strongly disagree to strongly agree with 1 point given to strongly disagree statement and 5-point score to a tick on strongly agree. As stated above, 10 items with negative statements were given a reverse score. The total scores started from 22 to 110 with higher scores showing a more positive and optimistic view of depression and its care. The R-DAQ had a Cronbach's alpha (α) coefficient of 0.84 with good internal consistency. The 22-item questionnaire had a Flesch Reading Ease score of 46.7, and a Flesch-Kincaid Grade level of 9.4, which shows that the tool can be understood by a typical student who is between 14 to 15 years.

The intraclass correlation coefficient for the test-retest reliability was 0.62 (95% C.I. 0.37 to 0.78), indicating good consistency.

3.7.3 Questionnaire Pre-test

The tools were pretested at the MCH (maternal & child health) clinic in Mathari National Teaching & Referral Hospital to check for ease of administering the questionnaire and identify problematic

areas in the questionnaire to avoid inconsistent responses. No problematic areas were identified, and the questionnaire was easily understood.

3.8 Minimization of error and bias

The electronic data collection tool was developed with inbuilt validation checks to improve data completeness and accuracy. Following data collection, the principal investigator checked the questionnaires for completeness and accuracy.

3.9 Data management

The data was collected through google forms, and later downloaded as a Microsoft Excel spreadsheet. Data was checked for completeness and free of error. Data was then exported to Statistical Package for Social Sciences (SPSS) version 23.

3.10 Data analysis

Measures of central tendency (means, medians, inter-quartile ranges and standard deviations) were used to summarize continuous variables like age and years of experience. Categorical data like gender, religion, marital status and cadre among others was summarized using frequencies and percentages.

The level of knowledge, attitude and practice on peripartum depression among reproductive healthcare workers in Kiambu County were analysed using means with standard deviation, as well as medians with interquartile ranges. Associations of the various sociodemographic characteristics with the overall R-DAQ score was made using Pearson correlation, t-test and analysis of variation (ANOVA). All statistical tests were 2-sided with a $p < 0.05$ significance level.

3.11 Study Approvals

Prior to conducting the study, permission was sought from the Kenyatta National Hospital-University of Nairobi (KNH-UON) Ethics and Research Committee. The principal investigator sought a research permit from the National Commission for Science, Technology and Innovation (NACOSTI). The researcher also sought permission from the hospital management of Kiambu, Thika and Gatundu Level 5 hospitals and respective departmental heads. Informed written consent was obtained from each person participating in the study prior to their participation in the study.

3.12 Quality Assurance Procedure

The researcher is a postgraduate student who worked under supervision of University of Nairobi lecturers and is trained in research methods and data collection tools. The research proposal has been defended at the Department of Psychiatry, University of Nairobi and was reviewed by the Kenyatta National Hospital-University of Nairobi Ethics and Research Committee. The Ethics and Research Committee ensured the proposal is up to standard.

3.13 Ethical Considerations

- The study approval was sought from the Kenyatta National Hospital-University of Nairobi (KNH-UON) Ethics and Research Committee before carrying out the study.
- Permission was obtained from the relevant county officials in Kiambu county and respective hospital management of Kiambu, Thika and Gatundu level 5 hospitals.
- The researcher obtained informed consent from research participants.
- The principal investigator ensured confidentiality during data collection by not using personal identifiers on the study tools and using codes.

3.13 Study limitations

This study was conducted in high patient volume government health facilities and as a result the findings may not be generalizable to low patient volume government health facilities and private facilities. The three study sites were purposively selected as they are the largest in Kiambu County in terms of health workers and obstetrics and gynaecology patients and thus provide a good representation of the knowledge, attitude and practices on peripartum depression among reproductive healthcare workers in Kiambu County.

CHAPTER 4: RESULTS

4.1 Introduction

This section presents the findings of the study, on the data collected and analysed, whose general objective was, to determine the knowledge, attitude and practices on peripartum depression among reproductive healthcare workers in Kiambu County.

4.2 Response Rate

A total of 120 questionnaires were distributed and responses from 110 participants were received, indicating a response rate of 91.7%.

4.3 Sociodemographic characteristics

The population consisted of 110 reproductive healthcare workers from three major hospitals in Kiambu county namely, Kiambu Level 5 Hospital, Thika level 5 hospital and Gatundu Level 5 Hospital. Their ages were grouped into 4 age groups with majority (40%) of the reproductive healthcare workers between 20 – 29. Mean age was 35.0(SD=10.2) with the minimum age at 20 years and the oldest participant was 58 years old. Most of the population was female at 80%

In terms of their religion, majority of the respondents were Christians (31.8% Catholics, 59.1% Protestants). Putting into perspective the Cadre, majority of the respondents (78.1%) were registered nurses. 53.6% of the respondents had more than 5 years working experience. Many of the respondents were diploma holders (61.8%), with only 6.4% of the study participants having postgraduate qualifications. Most of the reproductive healthcare workers were stationed in the maternity ward (54.5%).

Table 4.1: Characteristics of Reproductive Healthcare Providers in Kiambu County

		Frequency *(n=110)*	**Percent**
Age in years	20 – 29	44	40.0
	30 – 39	38	34.5
	40 – 49	14	12.7
	50 – 59	14	12.7
Gender	Male	22	20.0
	Female	88	80.0
Religion	Catholic	35	31.8
	Protestant	65	59.1
	Muslim	1	0.9
	Others	9	8.2
Cadre	Consultant obstetrician gynaecologist	4	3.6
	Medical officer	15	13.6
	Clinical officer - reproductive health	4	3.6
	Registered nurse	87	79.1
Years of experience	<5	51	46.4
	≥5	59	53.6
Education level	Diploma	68	61.8
	Undergraduate	35	31.8
	Postgraduate	7	6.4
Department	MCH clinic	25	22.7
	Maternity	60	54.5
	Gynaecology ward	25	22.7
Facility	Thika Level 5	43	39.1
	Kiambu Level 5	49	44.5
	Gatundu Level 5	18	16.4

4.4 Knowledge

Knowledge of reproductive healthcare workers about depression treatment was assessed in the first subscale of the R-DAQ questionnaire as shown in Table 2.

Table 4.2: Knowledge subscale items

	SD	D	NDA	A	SA
Psychological therapy tends to be unsuccessful with people who are depressed	29 (26.4)	53 (48.2)	8 (7.3)	14 (12.7)	6 (5.5)
Antidepressant therapy tends to be unsuccessful with people who are depressed	42 (38.2)	57 (51.8)	6 (5.5)	3 (2.7)	2 (1.8)
One of the main causes of depression is a lack of self-discipline and will power	41 (37.3)	38 (34.5)	7 (6.4)	15 (13.6)	9 (8.2)
Depression treatments medicalize unhappiness	27 (24.5)	47 (42.7)	13 (11.8)	22 (20.0)	1 (0.9)
Becoming depressed is a natural part of being old	60 (54.5)	42 (38.2)	1 (0.9)	5 (4.5)	2 (1.8)
Becoming depressed is a way that people with poor stamina deal with life difficulties	35 (31.8)	32 (29.1)	15 (13.6)	21 (19.1)	7 (6.4)
Once a person has made up their mind about taking their own life no one can stop them	72 (65.5)	30 (27.3)	1 (0.9)	3 (2.7)	4 (3.6)
Depression reflects a response which is not amenable to change	31 (28.2)	52 (47.3)	13 (11.8)	10 (9.1)	4 (3.6)
Becoming depressed is a natural part of adolescence	57 (51.8)	39 (35.5)	6 (5.5)	5 (4.5)	3 (2.7)
There is little to be offered to depressed patients who do not respond to initial treatments	53 (48.2)	40 (36.4)	4 (3.6)	8 (7.3)	5 (4.5)

The maximum expected score was 50 and lowest score was 10. The mean score for knowledge was 40.3(80.6%, SD 6.0), while the minimum and maximum score was 11.0 and 50.0. The median score was 41.0 (IQR 37.0 – 44.0).

4.5 Attitude

The attitude subscale had 5 items with a maximum expected score of 25 and lowest score of 5.

Table 4.3: Attitude subscale items

	SD	D	NDA	A	SA
Depression is a disease like any other e.g., asthma, diabetes	10 (9.1)	18 (16.4)	1 (0.9)	41 (37.3)	40 (36.4)
All health professionals should have skills in recognizing and managing depression	5 (4.5)	2 (1.8)	1 (0.9)	26 (23.6)	76 (69.1)
People with depression have care needs similar to other medical conditions like diabetes COPD or arthritis	5 (4.5)	6 (5.5)	4 (3.6)	40 (36.4)	55 (50.0)
Recognizing and managing depression is often an important part of managing other health problems	3 (2.7)	3 (2.7)	3 (2.7)	46 (41.8)	55 (50.0)
Anyone can suffer from depression	3 (2.7)			28 (25.5)	79 (71.8)

The mean score for attitude was 21.5 (86%, SD 2.9), while the minimum and maximum score was 11.0 and 25.0. The median score was 22.0 (IQR 20.0 – 24.0).

4.6 Practices

The practices subscale was used to determine how the reproductive healthcare workers handled patients with perinatal depression, with regards to diagnosis and treatment of the patients. It consists of 7 items with a maximum expected score of 35 and lowest score of 7. 49.1% of the healthcare professionals agreed that they feel confident assessing depression in patients. On the contrary, 38.2% of the healthcare professionals are more comfortable working with physical illness than with mental illnesses like depression whereas, 22.7% disagree.

Table 4.4: Practices subscale items

	SD	D	NDA	A	SA
I feel comfortable in dealing with depressed patients' needs	5 (4.5)	14 (12.7)	23 (20.9)	55 (50.0)	13 (11.8)
I feel confident in assessing depression in patients	4 (3.6)	13 (11.8)	23 (20.9)	54 (49.1)	16 (14.5)
I am more comfortable working with physical illness than with mental illnesses like depression	5 (4.5)	25 (22.7)	17 (15.5)	42 (38.2)	21 (19.1)
My profession is well placed to assist patients with depression	5 (4.5)	14 (12.7)	11 (10.0)	51 (46.4)	29 (26.4)
My profession is well trained to assist patients with depression	6 (5.5)	27 (24.5)	14 (12.7)	43 (39.1)	20 (18.2)
I feel confident in assessing suicide risk in patients presenting with depression	8 (7.3)	24 (21.8)	27 (24.5)	41 (37.3)	10 (9.1)
It is rewarding to spend time looking after depressed patients	11 (10.0)	9 (8.2)	19 (17.3)	47 (42.7)	24 (21.8)

The mean score for practice was 24.5 (SD 4.3), while the minimum and maximum score was 13.0 and 35.0. The median score was 25.0 (IQR 22.0 – 27.0)

4.7 **Association between KAP and sociodemographic characteristics**

4.7.1 **Association between age and overall KAP score**

Table 4.5: Association between age and overall KAP score

		Total KAP score
Age	Pearson correlation	-0.062
	p-value	0.523
	N	110

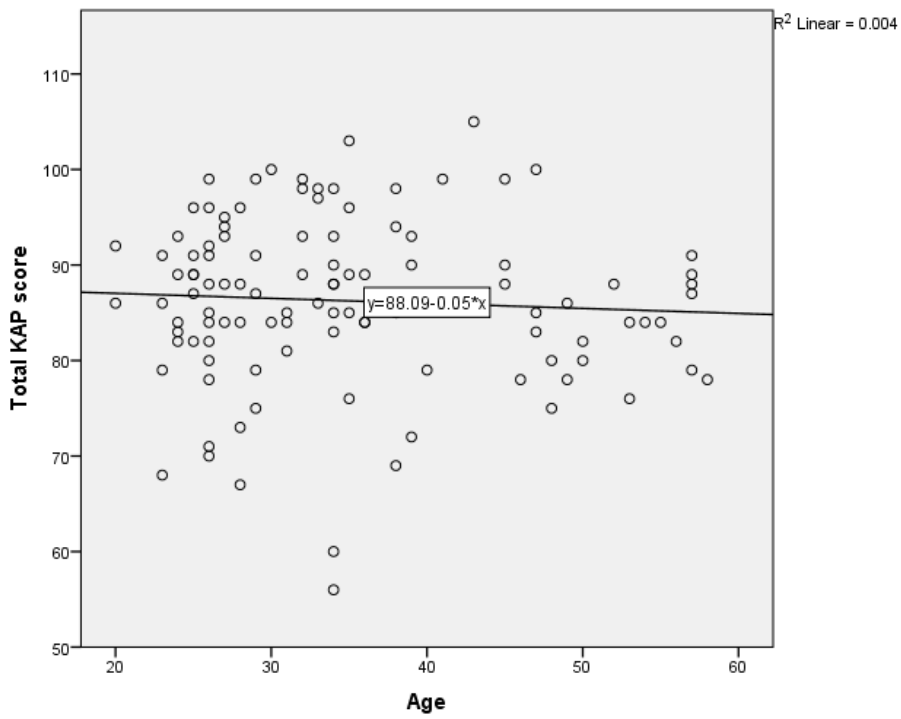


Fig 4.1 Association between age and KAP score

A Pearson correlation was used to determine the association between age and the overall KAP scores. The results indicate that as the age increases the KAP score decreases, but this relationship was found to be extremely weak (r = - 0.062) and not statistically significant (p=0.523).

Association between gender and overall KAP score

Table 4.6: Association between gender and overall KAP score

		N	Mean KAP Score	Std. Deviation	p-value
Gender	Male	22	85.6	10.9	0.744
	Female	88	86.4	8.2	

An independent samples t-test was used to determine if there were statistical differences in the mean KAP scores between the gender. The difference between the scores was found not to be statistically significant (p=0.744).

Association between religion and overall KAP score

Table 4.7: Association between religion and overall KAP score

		N	Mean KAP Score	Std. Deviation	p-value
Religion	Catholic	35	84.0	8.5	0.195
	Protestant	65	87.7	8.8	
	Muslim	1	80.0	-	
	Others	9	85.2	8.4	

An ANOVA (Analysis of Variance) was used to determine if there were statistical differences in the mean KAP scores between the religion. The difference of the scores was found not to be statistically significant (p=0.195).

Association between marital status and overall KAP score

Table 4.8: Association between marital status and overall KAP score

		N	Mean KAP Score	Std. Deviation	p-value
Marital status	Married	63	86.0	9.3	0.547
	Single	44	86.3	7.9	
	Div./Sep.	3	91.7	10.2	

An ANOVA (Analysis of Variance) was used to determine if there were statistical differences in the mean KAP scores between the marital status. The difference of the scores was found not to be statistically significant (p=0.547).

Association between cadre and overall KAP score

Table 4.9: Association between cadre and overall KAP score

		N	Mean KAP Score	Std. Deviation	p-value
Cadre	Consultant Obst/Gyn	4	85.5	5.4	0.863
	Medical officer	15	85.6	8.5	
	Clinical officer	4	83.0	18.8	
	Registered Nurse	87	86.5	8.4	

An ANOVA (Analysis of Variance) was used to determine if there were statistical differences in the mean KAP scores between the cadre. The difference of the scores was found not to be statistically significant (p=0.863).

Association between years of experience and overall KAP score

Table 4.10: Association between years of experience and overall KAP score

		Total KAP score
Years	Pearson correlation	-0.020
	p-value	0.836
	N	110

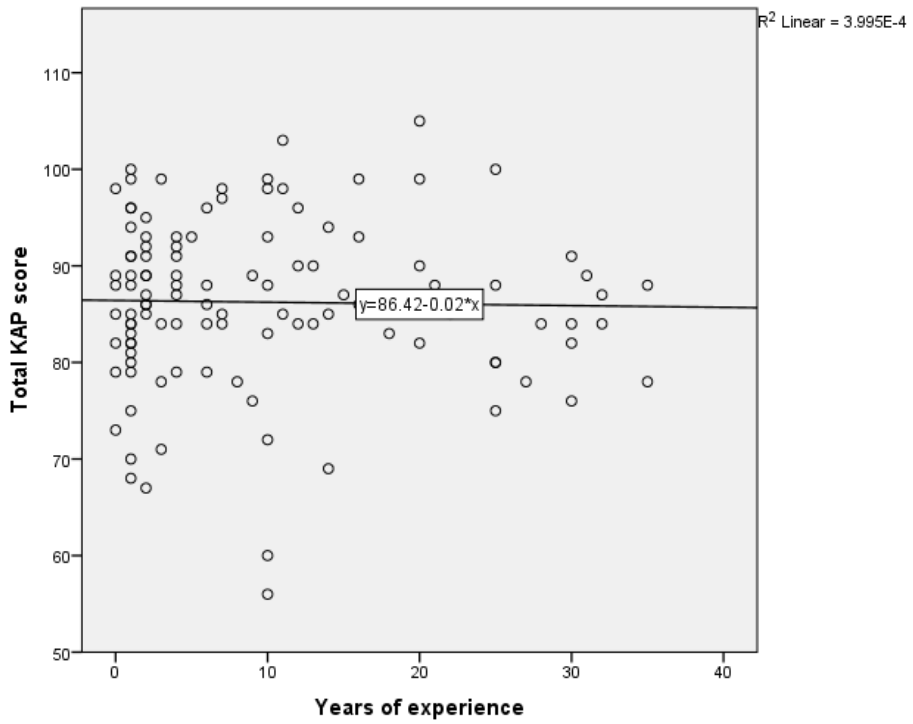


Fig 4.2 Association between years of experience and KAP score

A Pearson correlation was used to determine the association between years of experience and the overall KAP scores. The results indicate that as the years of experience increases the KAP score decreases, but this relationship was found to be extremely weak (r = - 0.020) and not statistically significant (p=0.836).

Association between highest education achieved and overall KAP score

Table 4.11: Association between highest education achieved and overall KAP score

		N	Mean KAP Score	Std. Deviation	p-value
Education	Diploma	68	86.5	8.5	0.939
	Undergraduate	35	86.0	9.9	
	Postgraduate	7	85.6	5.4	

An ANOVA (Analysis of Variance) was used to determine if there were statistical differences in the mean KAP scores between the highest education achieved. The difference of the scores was found not to be statistically significant ($p=0.939$).

CHAPTER 5 DISCUSSION

5.1 Introduction

Reproductive healthcare workers are instrumental in recognizing and intervening in patients with perinatal mental health problems. Like other low-income countries, little is, however, known about the healthcare providers' efforts in terms of their knowledge, attitude and practices towards perinatal depression in Kenya. This chapter discusses this study results and compares them to similar studies that have been done. The author only found one study that used the exact tool as this study, that was done in Saudi Arabia among non-psychiatric physicians (Aldahmashi et al., 2019). Most of the other studies discussed in this chapter use the older depression attitude questionnaire and other different tools.

5.2 sociodemographic characteristics

This study did not find any strong association between the sociodemographic characteristics of the participants and their level of knowledge, attitude and practice. A study in Saudi Arabia found that male participants were more confident in depression management compared to their female counterparts. A study done in India found that nursing providers, whose cadre is compared to the nurses in this study, had a low knowledge base for perinatal depression when compared to medical practitioners (Ransing et al., 2020).

5.2 Knowledge

In this study, most of the reproductive healthcare workers had sufficient knowledge on managing depression in patients. This is comparable to a study done in Kenya in an urban referral hospital among 37 nurses where majority of them had sufficient knowledge of depression(Muga et al., 2019) and a study done in Korea that found nurses had above average knowledge of

depression(Park et al., 2015). Likewise, a study done in Tanzania also revealed that most primary healthcare workers had above average knowledge of depression(Mbatia et al., 2009). A study

A comparison of our findings was done using some of the individual questions within the R-DAQ. Healthcare providers in Cameroon and Korea knew the relationship between depression and suicide and attempted suicide and the need for hospitalization (Mulango et al., 2018, Park et al., 2015). Reproductive healthcare workers (92.8%) in our study disagreed with the statement that once a person has made up their mind about taking their life no one can stop them, this shows that they know suicide and attempted suicide can be managed adequately.

Most of the participants refuted the claim that depression is a natural part of growing old, this is similar to findings in studies in the United Kingdom and Tanzania where health practitioners strongly disagreed that ageing can cause depression (M. Haddad et al., 2012, Mbatia et al., 2009). Primary health care workers in Tanzania agreed that becoming depressed is the way people with poor stamina deal with life difficulties(Mbatia et al., 2009), unlike in our study and a study in Cameroon(Mulango et al., 2018) where participants disagreed with the statement.

James et al., (2012) found that general practitioners in Nigeria disagreed that psychotherapy can be unsuccessful in depressed people, comparable to our study where most of the respondents also disagreed, showing they understand the importance of psychotherapy in depression management. Our study participants also knew that antidepressant can be successful in treating depressed patients. Similar findings were found in studies done in Tanzania, Cameroon and Nigeria (Mbatia et al., 2009, Mulango et al., 2018, James et al., 2012). Non-psychiatric physicians in Saudi Arabia felt that depression treatment does not medicalize unhappiness and that there is more that can be done if the initial treatment fails to work, these findings were similar to what we found in our study (Aldahmashi et al., 2019).

5.3 Attitude

Evidence indicates that the attitudes and behaviors of healthcare workers impact significantly to how patients with peripartum depression are taken care of and should therefore be included into healthcare settings (Dennis *et al*., 2006; Lara *et al*., 2014). In support, our study found that 92.7% of the health workers agree that all health professionals should have skills in recognizing and managing depression. On the contrary, healthcare providers have been shown to have a negative attitude towards detection and management of women with peripartum depression. In addition to that, lack of sufficient time and training/knowledge to counsel can lead to poor attitude and stigma from the practitioners and causing more harm to maternal care (McConachie & Whitford, 2009; McCauley & Elsom, 2011).

Brazilian primary healthcare providers felt that postnatal depression is the domain of psychiatry, and few felt that postnatal depression is deserving of their time as they had very few patients with symptoms (Santos Junior et al., 2013). Whereas our study shows that majority of the health workers agree that people with depression have care needs similar to other medical conditions like diabetes. Palliative care nurses in Australia felt stigma towards depression was a significant barrier to diagnoses of depression with patients even hiding their symptoms (McCabe et al., 2012). Other studies have shown a positive attitude of health care providers towards peripartum depression with Australian midwives having the will to provide support emotionally to patients who need it (Jones et al., 2012). Our study found that most reproductive healthcare workers portray a positive attitude towards depression management in patients, similar to various studies done in Tanzania, Nigeria, Saudi Arabia, Korea ,(Mbatia et al., 2009, James et al.,2012, Aldahmashi et al., 2019, Park et al., 2015).

5.4 Practices

Majority (61.8%) of our study participants felt comfortable to deal with the needs of depressed patients, and it was the same among primary health care workers in a study in Tanzania (Mbatia et al., 2009). Reproductive healthcare workers in our study also felt confident in depression assessment, this is in contrast to another study done among student midwives which showed they were not confident and felt not well prepared to handle patients with mental illness(Jarrett, 2014). Reproductive healthcare workers in Kiambu County felt they were well placed and well trained to assist patients with depression. This is comparable to a study in Greece whereby, the health workers felt that they should be involved in detecting cases of depression (Agapidaki et al., 2014), however, they did not feel like they have the appropriate training on how to assist the patients (Agapidaki et al., 2014). Only 20 % (n=111) of polish midwives felt that they had been trained to care for patients with perinatal depression(Magdalena & Tamara, 2020).

In Riyadh, Saudi Arabia, non-psychiatric physicians felt more comfortable working with physical illnesses than with mental illnesses including depression and few were confident in assessing the suicide risk in depressed patients(Aldahmashi et al., 2019). This compares to our study where more reproductive healthcare workers also felt more comfortable to deal with physical illnesses as opposed to depression and more of them had low confidence in the assessment of suicide risk in depressed patients.

5.5 Conclusion

Majority of the reproductive healthcare workers exhibited high scores in the knowledge, attitude and practice subcategories. However, there is still room for improvement in the three areas to get more professionals to confidently diagnose and refer cases of peripartum depression appropriately for better prognosis in management. More training and sensitization is still needed

as more reproductive healthcare workers still preferred dealing with physical illnesses than depression and had low confidence in assessment of suicide risk in depressed patients.

5.6 Recommendations

Although the KAP score of the reproductive healthcare workers in Kiambu was high, there are certain areas where the score was lower. This is especially in the practice subscale where the study participants preferred to deal with physical illnesses rather than with mental illnesses like depression and were less confident in suicide risk assessment. This shows there is need for continuous professional development programs to address these deficits.

This study to the best of my knowledge has not been done before in the country and was done in only one of the 47 counties in Kenya, therefore more studies like this should be done to see if the high scores are similar in other populations.

5.7: Study Limitations

The researcher interviewed a few consultant obstetrician gynaecologists because they are few in number and most were very busy to spare their time to respond to the questionnaires.

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APPENDICES

Appendix 1

Work plan

	STEP	Nov	March	April	September	Octobe r	Nov	Feb,22
1	Proposal development							
2	Ethical review and corrections							
3	Pretesting of the data collection tool							
5	Data collection							
6	Data cleaning and entry							
7	Data analysis							
8	Report writing							
9	Dissemination of the research finding and publication							

Appendix II

Budget

ITEM	**COST PER ITEM (Ksh)**	**TOTAL COST**
Customize online data collection tool	20,000	20,000
Statistician	40,000	40,000
Stationery and Printing	20,000	20,000
Ethics fee	2,000	2,000
Contingencies	15,000	15,000
Publishing	40,000	40,000
GRAND TOTAL		**137,000**

Appendix III

Sociodemographic questionnaire

1. Age (completed years)

_____

2. Gender

a) Male

b) Female

3. Religion

a) Catholic

b) Protestant

c) Muslim

d) Others (*specify)*

4. Marital status

a) Married

b) Single/unmarried

c) Divorced/separated

5. Cadre

a) Consultant obstetrician gynaecologist

b) Medical officer

c) Clinical officer – reproductive health

d) Registered nurse

6. Years of experience

_____

7. Highest level of education attained

a) Diploma

b) Undergraduate

c) Postgraduate

d) Others (*specify)*

8. Department of work

a) MCH clinic

b) Maternity

c) Gynaecology ward

Appendix Iv

Revised Depression Attitude Questionnaire (R-DAQ), Haddad et al 2014

	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree
Please read the statement and tick/click the box that relates best to your personal opinion					

1	**I feel comfortable in dealing with depressed patients' needs**	☐	☐	☐	☐	☐
2	**Depression is a disease like any other (e.g. asthma, diabetes)**	☐	☐	☐	☐	☐
3	**Psychological therapy tends to be unsuccessful with people who are depressed**	☐	☐	☐	☐	☐
4	**Antidepressant therapy tends to be unsuccessful with people who are depressed**	☐	☐	☐	☐	☐
5	**One of the main causes of depression is a lack of self-discipline and will-power**	☐	☐	☐	☐	☐
6	**Depression treatments medicalise unhappiness**	☐	☐	☐	☐	☐
7	**I feel confident in assessing depression in patients**	☐	☐	☐	☐	☐
8	**I am more comfortable working with physical illness than with mental illnesses like depression**	☐	☐	☐	☐	☐
9	**Becoming depressed is a natural part of being old**	☐	☐	☐	☐	☐
10	**All health professionals should have skills in recognising and managing depression**	☐	☐	☐	☐	☐
11	**My profession is well placed to assist patients with depression**	☐	☐	☐	☐	☐
12	**Becoming depressed is a way that people with poor stamina deal with life difficulties**	☐	☐	☐	☐	☐
13	**Once a person has made up their mind about taking their own life no one can stop them**	☐	☐	☐	☐	☐
14	**People with depression have care needs similar to other medical conditions like diabetes, COPD or arthritis**	☐	☐	☐	☐	☐
15	**My profession is well trained to assist patients with depression**	☐	☐	☐	☐	☐
16	**Recognising and managing depression is often an important part of managing other health problems**	☐	☐	☐	☐	☐

17	**I feel confident in assessing suicide risk in patients presenting with depression**	☐	☐	☐	☐	☐
18	**Depression reflects a response which is not amenable to change**	☐	☐	☐	☐	☐
19	**It is rewarding to spend time looking after depressed patients**	☐	☐	☐	☐	☐
20	**Becoming depressed is a natural part of adolescence**	☐	☐	☐	☐	☐
21	**There is little to be offered to depressed patients who do not respond to initial treatments**	☐	☐	☐	☐	☐
22	**Anyone can suffer from depression**	☐	☐	☐	☐	☐

Appendix v

Informed consent information and form

Study title: Knowledge, attitude and practices of reproductive healthcare workers towards peripartum depression in Kiambu County.

Principal Investigator: Mwangi Sheila Wanjiru, student department of psychiatry, University of Nairobi.

Co-investigators: Dr Pius Kigamwa, Dr Anne Mbwayo. Lecturers' University of Nairobi.

Introduction

My name is Mwangi Sheila Wanjiru, a master of medicine in psychiatry student at the University of Nairobi. I am conducting a study regarding the knowledge, attitude and practice of reproductive healthcare workers on peripartum depression in Kiambu county. The purpose of this form is to give you the information you need to help you decide whether you want to be a participant of this study. You are free to ask any questions about the purpose of the study, what happens if you participate in the study, the possible risks and benefits, your rights as a volunteer and anything that is not clear in this form. Once you understand and agree to participate in the study, I will request you to sign your name on this form.

Your participation in this study is voluntary and you may withdraw from the study at any time without any repercussions.

May I continue? Yes/No

This study was approved by The Kenyatta National Hospital-University of Nairobi Ethics and Research Committee protocol No. _____

WHAT IS THIS STUDY ABOUT?

The researchers listed above are interviewing reproductive healthcare workers who work at Thika level 5 hospital, Kiambu level 5 hospital and Gatundu level 5 hospital. The purpose of the study is to find out the knowledge, attitude and practices of reproductive healthcare workers towards peripartum depression.

WHAT WILL HAPPEN IF YOU DECIDE TO BE IN THIS RESEARCH STUDY?

If you agree to be in this study, the researcher will give you a questionnaire which you shall fill.

IS THERE ANY DICOMFORT OR RISK THAT IS LIKELY TO OCCUR DURING THIS STUDY?

A risk that can occur during medical research is loss of privacy. To minimize this risk, we will ensure to keep everything you tell us as confidential as possible. We will use a code to identify you in a password-protected computer database and keep all our paper records in a locked file cabinet.

If there are any questions you don't feel like answering, you can skip them. You have the right to refuse the interview or any questions asked during the interview.

ARE THERE ANY BENEFITS BEING IN THIS STUDY?

The information you give will help the hospital and Kiambu county government in policy formulation with regard to management of peripartum depression. It will also aid in provision of appropriate continuous medical education about peripartum depression. There will be no direct benefit to you as an individual.

WILL BEING IN THIS STUDY COST YOU ANYTHING?

There will be no financial implication or any monetary gain if you participate in this study.

WHAT IF YOU HAVE QUESTIONS IN FUTURE?

If you have any other question or concern regarding this study, please call or send a text message to study staff number provided below. If you need more information in regards to your participation in the study and the rights you have, you can contact the Chairperson/Secretary, Kenyatta National Hospital-University of Nairobi Ethics and Research Committee (KNH-ERC) Telephone No. 2726300 Ext. 44102 email uonknh_erc@uonbi.ac.ke.

The principal investigator will compensate you any charges incurred during any call made for the purpose of this study.

DO YOU HAVE OTHER CHOICES?

Participation in this study is voluntary. You are free to refuse to participate and you can decide to withdraw at any point of the study without any repercussions.

CONSENT FORM

Participant's statement a

I have read this consent form or had the information read to me. I have had the chance to discuss this research study with the principal investigator. My questions were addressed accordingly in a language understood by me. I have understood my rights, risks and my benefits from the study. My participation is voluntary and I can withdraw at any time from the study. I agree to participate in this research study freely.

I understand that all efforts will be made to keep my personal information/identifiers confidential.

I have not given up any of my rights as a study participant by signing this consent form.

I agree to participate in this research study: Yes No

Participant printed name: _____

Participant signature / Thumb stamp _____ Date _____ Researcher's statement

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has willingly and freely given his/her consent.

Researcher's Name: _____ **Date**: _____

Signature_____

If you have any concerns or questions regarding your participation in this study, please contact the researcher on the number 0721159118 or her supervisor, Dr. Anne Mbwayo on 0733823896. You can also contact KNH/ERC ON 276300 Ext 44102, email uonknh-erc@uonbi.ac.

Appendix VI Dummy Tables

Table 1: Charactertistics

Age	Frequency (n=107)	Percent
<20		
20 – 24		

25 – 29
30 – 34
≥35
Gender
Male
Female
Religion
Catholic
Protestant
Muslim
Other
Marital status
Married
Single/unmarried
Divorced/separated
Cadre
Consultant
Medical officer
Clinical officer
Registered nurse
Years of experience
<5
>5
Education
Diploma
Undergraduate
Postgraduate
Department
MCH clinic
Maternity
Gynaecology ward

Table 2: Knowledge of health workers

	Frequency (n=107)	Percent
Good		
Poor		

Table 3: Attitude of health workers

	Frequency (n=107)	Percent
Good		
Poor		

Table 4: Practices of health workers

	Frequency (n=107)	Percent
Good		
Poor		