# Antepartum Depression and Intimate Partner Violence Experience among Women in a Low-Income Urban Settlement in Nairobi, Kenya

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## Declaration

I hereby declare that this thesis dissertation is my own original work submitted, in fulfilment of the requirement, to the University of Nairobi for the award of the Masters of Science Degree in Clinical Psychology. I further declare that I have not submitted this thesis dissertation to any other university or institution of higher learning for award of any other degree.

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## Supervisors' Approval

This dissertation is submitted to the University of Nairobi for examination with our approval as the University Supervisors.

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**Dedication**

I dedicate this dissertation to all mothers out there who cart the future.

“Surely, your labours shall not be in vain”

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## Abbreviations and Acronyms

**ACOG:** American College of Obstetricians and Gynaecologists

**ANC:** Antenatal Care

**APA:** American Psychiatrists Association

**APHRC:** African Population and Health Research Centre

**BBC-CK:** Building Blocks for Change Care-Kenya

**CDC:** Centre for Disease Control and Prevention

**COHRE:** Centre for Housing Rights and Evictions

**DALYs:** Disability-Adjusted Life Years

**EEOC:** Equal Employment Opportunity Commission

**EPDS:** Edinburg Postnatal Depression Scale

**HIV:** Human Immunodeficiency Virus

**ICRW:** International Centre for Research on Women

**IOM:** Institute of Medicine

**IPV:** Intimate Partner Violence

**KDHS:** Kenya Demographic and Health Survey

**KDRH:** Kenya Division of Reproductive Health

**KNBS:** Kenya National Bureau of Statistics

**KNH:** Kenyatta National Hospital

**LHCMS:** Lang'ata Health Centre and Maternity Services

**MDD:** Major Depressive Disorder

**NCGMHS:** Nairobi County Government Medical Health Services

**NDHS:** Nigeria Demographic and Health Survey

**NGQOPC:** National Guidelines for Quality Obstetrics and Perinatal Care

**NRC:** National Research Council

**PCSF-IPV:** Population Control Screening Form for Intimate Partner Violence

**SPSS:** Statistical Package for Social Sciences

**UN:** United Nations

**WHO:** World Health Organisation

## Definition of Terms

**Unipolar depression:** distinguishing term for major depression from the other depressive form called bipolar depression.

**Neuropsychiatric disorders:** encompasses disorders of affect, cognitions, and behaviour that arise from overt disorder in the cerebral function, or from indirect effects of extracerebral disease (Pitkanen, Stevens, & Kopelman, 2016)

**Major depression:** mood disorder characterized by a two-week period of low or depressed mood, loss of interest or pleasure in nearly all activities, changes in appetite and weight, sleep disturbances, low energy, feelings of worthlessness or guilt among other symptoms, (American Psychiatry Association, n.d.)

**Antepartum period:** is that time during pregnancy, right from conception up to the time before labour or childbirth.

**Antenatal care:** routine health care accorded to women who are pregnant with a view of promoting health, and preventing, diagnosing and treating common health problems affecting them during pregnancy.

**Intimate partner violence:** entails physical violence, sexual violence, stalking, and psychological aggression directed at spouse, boyfriend, or girlfriend, dating partner, and ongoing sexual partner.

**Mood disorders:** Also known as, affective disorders, mood disorders are pervasive psychiatric disorders in which there is disturbance in the mood and related vegetative and psychomotor functions. They encompass sign and symptom clusters that represent a departure from an individual's habitual functioning sustained over a prolonged period, several weeks to months.

**Antepartum depression:** a depressed mood state that meets the criteria for major depression occurring in the period between conception and labour

# ANTEPARTUM DEPRESSION AND INTIMATE PARTNER VIOLENCE EXPERIENCE AMONG WOMEN IN A LOW-INCOME URBAN SETTLEMENT IN NAIROBI, KENYA

Abstract

**Introduction:** Depression during pregnancy is a 'silent' danger found to result in negative outcomes. Globally, antepartum depression associated with intimate partner violence (IPV) in low-income urban settlements has become a subject of interest in research. In Kenya, very little, if any, in terms of research has exploited this area. This study sought to find the association between IPV and depression among the antepartum women from low-income urban settlements.

**Broad objective:** To establish the prevalence of depression and IPV experience among antepartum women at the Lang'ata Health Centre and Maternity Services (LHCMS), Nairobi County .

**Specific objectives:** i).To determine the prevalence of depression among the partcipants. ii). To determine the prevalence of IPV among the participants. iii).To determine sociodemographic factors and pregnancy factors associated with depression and with IPV. iv). To determine the association between depression and IPV

**Methodology:** Using a systematic random sampling technique, the researcher recruited a sample of 331 participants at the LHCMS' ANC clinic in this cross-sectional analytical study. Structured socio-demographic questionnaire, EPDS, and PCSF-IPV were used to obtain sociodemographic, depressive, and IPV data respectively. Data was cleaned and analysed by SPSS version 20 and reporting done in terms of charts, tables, bar graphs, and narratives.

**Study results:** The prevalence of antepartum depression was 46.5% at ≥13 EPDS cut off while the prevalence of IPV was 54.4%. Chi-square tests of associations were mainly conducted to analyse for various associations between the variables. There were significant association between antepartum depression and the following: age ($p$=0.014); marital status ($p$=0.003); pregnancy-planned or not ($p$=0.002); number of children alive ($p$=0.045); education level ($p$=0.008); occupation (p=0.043); IPV ($p$= <0.001). Moreover, significant associations between IPV and the following were also noted: age ($p$=0.012); marital status ($p$=0.027); occupation ($p$=0.023).

**Conclusion and recommendation:** Pregnant women from low-income settlements are not immune to depressive affliction and IPV. Biopsychosocial approach toward the care of these women is therefore encouraged. Training of health care workers, especially those handling ANC mothers routinely, on basic depression and IPV screening skills, targeted counselling skills including couple counselling and appropriate referrals and follow ups is necessary. Moreover multi-sector approaches, at the decision making level, need to prioritize comprehensive policies that will help control depression and IPV pandemic.

# CHAPTER ONE

## 1.0 Introduction

Depression is one of the neuropsychiatric disorders, which have been estimated to account for about 14% of the global disease burden. Among the neuropsychiatric illnesses, unipolar depression was reckoned to contribute to 11.8% of all years lived-with-disability according to a World Health Organization (WHO) 2005 report (Prince et al. 2007). In a study that set to determine the global and 21 regional disease burden between 1990 and 2010, major depressive disorder rose from the 15$^{th}$ position in 1990 to the 11$^{th}$ position (37% increase) among the leading causes of disability-adjusted life years (DALYs) globally (Murray et al.2013). In fact, factoring in deaths linked to depression due to suicide elevates depression to the third position in terms of overall global disease burden. Moreover the prediction is that by the year 2030, it will be the leading cause of disease worldwide (Albert, 2015).

The risk of developing depression is approximately two times higher in women than in men according to Choi, Park, Park, Ko & Shin (2014). The female to male ratio of global depression-related disability is 1.7:1 (Albert, 2015), an observation corroborated by the WHO report that females shoulder 50% more depression burden than males (WHO, 2008). In both high-income and low- and middle-income countries, depression is the foremost cause of disease burden for women (WHO, 2008). Other than socio-cultural and economic factors, the overrepresentation of women than men in depression can be attributed to their biological predisposition. Marcus (2009) argues that hormonal mechanisms, sociolisation and genetic players explain the gender variations in the expression of mood disorders. Indeed, increase in depression has been found to correlate with hormonal changes in women during puberty, prior to menstruation, and following pregnancy (Albert, 2015: Burton, 2012). Moreover, pregnancy is recognised as a vulnerability factor for depression (Apter, Devouche, & Gratier, 2011). This is because other than hormonal influences, this period is also associated with numerous stressors such as loss of intimacy, poverty and violence, especially IPV (Lovisi, 2005).

Figures for the prevalence estimates of depression in pregnancy have rather been varied. Gaynes et al. (2005) have submitted an estimated range of 8.5% to 11.0% point prevalence for combined major and minor depression at various periods in the course of pregnancy whereas a range of 12% to 20% is reported in Leigh and Milgrom (2008). The interplay among the various social, psychological, and biological factors is responsible for these depressive rates in pregnancy (Fisher et al., 2012). One of the psychosocial stressors that has received a lot of attention as a significant contributor to depression in pregnancy is IPV. According to the WHO (2011), the importance of IPV in pregnancy is reflected in its global dominance that varied between one percent and almost 30% in Japan city and Peru provinces

respectively, thereby making it a major public health player worldwide. The health consequences of IPV in pregnancy as elucidated by the report include negative outcomes affecting both the mother and the baby. Moreover, higher levels of depression and other common mental disorders are associated with physical, sexual, and psychological IPV (WHO, 2011). During a systematic review of publications on the prevalence of non-psychotic common perinatal mental disorders, six of the studies indicated that physical abuse during pregnancy or in the previous year contributed to a higher prevalence of depression and anxiety (Fisher et al., 2012).

Even though IPV and low-income form part of the psychosocial constellation that predict depression not only in the general population but much more among the antepartum women, the magnitude of the depressive effects of their co-occurrence among antepartum women from low-income urban settlements in Kenya is largely unknown. This is in spite of the fact that depression has adverse effects on both maternal and child wellbeing. To the child, it has the potential to undermine important growth and developmental trajectories during the foetal life leading to low birth weight and premature birth. Low birth weight and premature birth are major causes of infant morbidity and mortality (Orr & Miller, 1995). Furthermore, the lifelong effects of low birth weight and prematurity reverberate into the adolescence and adulthood (Hack, Klein & Taylor, 1995)

## 1.1Background information

Antepartum period is that time during pregnancy, right from conception up to the time before labour or childbirth (Antipuesto, 2011).This term will be used interchangeably with pregnancy. Pregnancy, besides being a period of much joy and anticipation, is a very critical period of human growth and development. This is because there are many factors that can undermine the period. While biological stressors such medical conditions are common, psychosocial stressors are even more worrying because they are more common and are likely to be ignored as significant danger. Psychosocial stressors that confront pregnant women are varied. In a study aimed at elucidating the stressors that affect pregnant African-American women, the stressors reported by the women included: bad neighbourhood, experiences of racial discrimination, financial stressors, and crime, (Giurgescu et. al, 2013). Other potential stressors in pregnancy include events associated with trauma such as terrorist attacks and floods; significant life events such as job loss, a family member's death (Guardino& Schetter, 2014). When these stressors occur during pregnancy, the effects can be deleterious. Stress in pregnancy is associated with negative antepartum and postpartum outcomes. Dole et al. (2003) found that pregnant women, in Central North Carolina, who had higher anxiety levels, with negative impact assigned life events and with a perception of racial discrimination had increased risk of preterm birth. Substance use and prenatal stress among pregnant African-American women were the reason behind them delivering preterm and lower birth-weight babies as compared to their Mexican counterparts (Zambrana, Dunkel-Schetter, Collins, & Scrimshaw, 1999).

Pregnancy stressors are deserving of attention especially in Kenya where fertility rates were still relatively high, at 4.4 children per woman, compared to the global average of 2.5 in the 2010-2015 period. The fertility rate is however on a downward trend and is projected to drop further to 3.6 in the 2025-2030 period (United Nations, Department of Economic and Social Affairs; Population Division, 2015). With such a high fertility rate coupled with the ever present threat of the adverse effects on the pregnancy outcomes, proper antenatal care (ANC) remains the beacon of hope for many pregnant mothers and their would be children. Having observed this need, Kenya developed the National Guidelines for Quality Obstetrics and Perinatal Care(NGQOPC) in which Focused ANC is one of the major areas covered. The guidelines advocate for a minimum of four comprehensive personalised visits by women during which thorough assessment, education and care are undertaken in order to not only prevent but also detect and manage complications as soon as possible {Kenya Division of Reproductive Health (KDRH), 2004}. The said visits should be spread out during the entire pregnancy period. The first visit should be at less than 16 weeks during which a comprehensive history, physical examination and the mandatory investigations such as urine analysis, syphylis test, blood hemoglobin level and also HIV tests are done. Depending on the laboratory results, the necessary treatments or advice may be given (KDRH, 2014). The second visit is at between 16 weeks and 28 weeks and has the history taking and general examination component. Investigations may be done as per required need, a tetanus jab is also administered. The third visit occurs at the period between 28 weeks and 32 weeks. During the fourth visit, again the routine history taking, physical examination and the necessary investigations are done and the necessary management and health education implemented (KDRH, 2014).

While these are well thought guidelines that can serve to improve the quality of antenatal care in Kenya, the trends in the utilization of ANC services are worrying. The Kenya Demographic and Health Survey (KDHS) on maternal and child health of 2014 reported that while 96% of pregnant women who had given birth in the past 5 years received ANC from a skilled provider, only 20% attended their first ANC during the first trimester as recommended by the guidelines (KDHS, 2014). This implies that majority of the pregnant women delay their first ANC visits until when the pregnancy is advanced. Indeed, Pell et al. (2013) found that pregnant women in Kenya generally initiated their first ANC visit at around the sixth or seventh month. In a community based survey investigating utilization of ANC and delivery services among rural women in Western Kenya, 29% of the women complained of incomplete and inadequate services in the ANC clinics visited, among the 10% who did not attend ANC during the most recent pregnancy; 36% saw no reason to attend, 27% cited the cost of transport and the services as untenable, 22% believed that the care was inadequate, while 14% said that the distance to the ANC facility was prohibitive. Majority of the women (two-thirds) studied waited until the third trimester to begin attending ANC while only half of the women made the recommended 4 visits (van Eijk et al., 2006). This is despite the fact that women who made at least four high quality ANC visits were more than two times likely to deliver in a health facility (Obago, 2013).

The introduction of the free maternity services in all the public hospitals in Kenya, may have not necessarily have translated into quality antenatal care. Inadequate infrastrucure and shortage of skilled human resource has hampered the provision of quality health services including ANC. For example while 14 nurses per 4000 mothers are recommended by the World Bank, Kenya has only half that number who are also disparately distributed. Lack of physical access to health facilities is also cited as an impediment to quality health care (Bourbonnals, 2013). The levels of quality of ANC were also determined to be overally low in Kenya by Lee, Madhan, and Bauhoff (2016) in a study in which they used six dimensions of quality of care that form part and parcel of the currently available standardized service provision assessments to assess the levels and heterogeneity of antenatal care in Kenya. It is to be noted that the development of the NGQOPC was for the purpose of tackling some of the challenges. A major shortfall of this manual was in the fact that the mental health of pregnant women was largely ignored. Thus, there are no clear cut standardized protocols on how to help pregnant women who may develop mental health challenges secondary to pregnancy. This is despite the fact that pregnancy predisposes women to the risk of mental disorders including anxiety and depression (Waqas et al., 2015). Research has shown that depression is the most common mental illness that afflicts women in pregnancy accounting for between 10 and 20% of pregnancy related psychiatric disorders in the developed world (Ali**,** Azam, Ali,Tabbusum, & Moin, 2012). According to Newport, Wilcox & Stowe (2002) about one third of women experience the first major episode of depression during the antepartum period.

Major depression is a mood disorder manifested by at least a two-week period of low or depressed mood, loss of interest or pleasure in nearly all activities, changes in appetite and weight, sleep disturbances, low energy, feelings of worthlessness or guilt among other symptoms (American Psychiatrist Association, n.d). Though not given much attention, research has demonstrated that depression in pregnancy, if not treated, can lead to increased risk for postnatal depression and direct negative effects on the growing foetus. Untreated depression can also lead to suicidal behaviour and risk of self-harm in the mother together with reduced self-care and poor compliance with prenatal care (Santvana et al., 2005). Moreover, other negative maternal and foetal outcomes documented include; preeclampsia, reduced intrauterine foetal growth, premature birth, and low birth-weight baby (Bennet, Einarson, Taddio, Koren & Einarson, 2004; Martin et al. 2006 & Bailey, 2010). It is thus imperative that depression be officially acknowledged and addressed by our health care systems as an important condition in pregnancy that can lead to complications. Such a step will allow for deliberate assessment of each and every pregnant woman's mental health status during ANC visits with a view of detecting mental illness including depression. This is important because depression is not only preventable but also treatable. On the other hand, women who are depressed are more unlikely to receive proper antenatal care and even as the nausea, vomiting, and preeclampsia manifest as complications including drugs, alcohol and nicotine use (ACOG & APA, 2009).

The joint report from American Psychiatrists Association(APA) and American College of Obstetricians and Gynaecologists (ACOG) has given a flurry of recommendations on the treatment of depression in pregnancy. A collaborative approach between the Psychiatrist and obstetrician together with the patient is the gold standard. Pregnant women currently on medication for depression who have severe depression are to continue on medication, while those with recurrent depression or have symptoms despite their medication may include psychotherapy to replace or augment medication. The presence of suicidal or psychotic symptoms makes treatment by a psychiatrist mandatory. Women who are pregnant and are not on antidepressant medication currently, may benefit from psychotherapy especially if they prefer to avoid antidepressant medication (ACOG & APA, 2009).

Untreated depression in pregnancy has been linked to other psychosocial risk factors such as IPV (WHO, 2011). Breiding, Basile, Smith, Black, and Mahendra (2015) defined IPV as follows: *"Intimate partner violence includes physical violence, sexual violence, stalking, and psychological aggression (including coercive tactics) by a current or former intimate partner (i.e., spouse, boyfriend/girlfriend, dating partner, or ongoing sexual partner)"* {Breiding, J.M., Basile, C.K., Smith, G.S., Black, C.M., & Mahendra, M., (2015). *Intimate partner violence surveillance: Uniform definitions and recommende data elements.* Atlanta: CDC}. They further contended that if one shares a close personal relationship with another in which there is emotional attachment, consistent interaction, ongoing physical contact and sexual behaviour, recognition as a couple and being familiar and knowledgeable about each other, then they fit into the definition of an intimate partner. Moreover, an intimate partner does not have to meet all of these dimensions. Breiding et al. further opined that an intimate partner relationship is inclusive of spouses (married spouses, common-law spouses, civil union spouses, and domestic partners); boyfriends/girlfriends; dating partners; and ongoing sexual partners. They may or may not be cohabiting. Subsumed within this overarching definition are the key elements which McCloskey (2012) specifically defined. The first being physical abuse which he defined as any act of violence or physical aggression that includes, slapping or shoving up to and including homicide. The second one is sexual abuse described as a non-consensual sexual behaviour forced on another person including sexual imposition, fondling up and rape. Thirdly, psychological violence was defined as controlling, intimidating, and coercive behaviour including threats to harm, put-downs and insults, monitoring of actions, restricting of environments and induction of fear in others. Lastly, he defined stalking behaviour to include tracking down, leaving unwanted phone calls at work or home, contacting co-worker or friends and family, and other uninvited contacts.

Even though it is documented that an appreciable number of men also undergo some form of IPV, women are the most vulnerable of the two and therefore overrepresented among the victims of IPV. *"The overwhelming global burden of IPV is borne by women"* (WHO, 2012). According to the CDC (2015), intimate partners have subjected nearly a third and a tenth of all women and men in the U.S. respectively, to contact sexual violence, physical violence, or stalking. IPV leads among the violent victimizations of women; it is where the intimate partner is implicated in the perpetration of abusive physical, sexual, emotional, and

controlling behaviors (WHO, 2012). A comprehensive compilation and analysis of data by the WHO on a global and regional scale revealed that the global lifetime prevalence of IPV among all ever-partnered women was 30% (WHO, 2013). However, it is worth noting that these estimates did not factor in emotional/psychological violence and stalking but majored mainly on physical and/or sexual violence. Factoring in the latter might have yielded overwhelming figures. Indeed, Machisa, Jewkes, Morna, & Rama (2011) argued that emotional violence was more prevalent than any other type of violence with nearly 44% of women being victims and about 65% of men reportedly being perpetrators. Moreover the ACOG observed that owing to the fact that many victims are fearful of revealing their personal experiences with violence, the true prevalence of IPV may not be known (ACOG, 2012). This observation further strengthens the argument that IPV prevalences may be actually higher than reported in research.

IPV has negative effects on the physical and mental health of women. Some of the physical effects include; soft tissue injuries; fractures and other bony injuries; head injuries; injuries to major body organs and system among many others. Some of the mental health outcomes of IPV include; anxiety and phobias; posttraumatic stress syndrome; and depression (WHO, 2012). In pregnancy, IPV is also associated with miscarriage, stillbirths, premature labor and birth, fetal injury, and small-for-gestational age infants (WHO,2012), substance abuse, depression and other psychiatric disorders (Campbell, 2002).

While IPV is known to transcend all socioeconomic strata, women from the low-income societies are most vulnerable (APA, 2016;WHO, 2016). According to Center for Housing Rights and Evictions (COHRE) (2008), violence against women, was widespread in many of the slums in the six major global cities studied including; Mumbai, Buenos Aires, Accra and Nairobi-where domestic violence in the slums was noted to be acute. This is in line with the findings by Azziz-Baumgartner et al. (2014) that IPV commonly occured in low-income Bangladeshi community and displaced ethnic-minority Biharis as compared to other communities. The living conditions in the urban low-income settlements are quite appalling. The COHRE study found that women in the slum form the majority of the lowest income earners and therefore have to make do with deplorable living conditions including poor housing, inadequate or sometimes complete lack of public services such as water and sanitation systems and poor health care facilities.

In a bid to survive and also cater for the needs of their children, a number of women in the slums (some of whom are single parents, widowed, abandoned, or neglected by their spouses) find employment in the informal economies of the slums. Such informal labor markets lack worker protections such as reasonable wages, workplace safety and limited hours (COHRE, 2008). Moreover, apart from having an average income of 42% lower than that of men, women also have to take care of the children and house chores leaving them with less time for working outside (African Population and Health Research Center (APHRC), 2014). This in essence means that women are the most affected by the economic hardship experienced among slum dwellers. Moreover pregnancy has the potential of further worsening this

situation. The period itself is a cause of losses in earnings given that pregnant women normally participate in the informal jobs such as casual labor where job security is never guaranteed. Even when employed in the formal sector, pregnancy still exposes women to demotions, prejudice, and job losses. Furthermore situations are described where expectant women were subjected to harassment and hostility in response to their pregnancies or subjected to forced unpaid leave or job losses (Equal Employment Opportunity Commission (EEOC), 2015).

Violence against women including domestic violence, a broader term that also espouses IPV, has been a subject of many international treaties and national acts. These international and national efforts are all geared towards ensuring that women's rights and fundamental freedoms are safeguarded. To this end, the 85th plenary meeting of the United Nations General Assembly made several declarations on elimination of violence against women. Other than affirming that violence against women violated their rights and fundamental freedoms, the plenary meeting also declared that violence against women was the hallmark of historical skewness in the power distribution between men and women leading to dominion over and discrimination against women by men and to the undermining of women's full advancement. Moreover violence against women constitutes one of the major social methods employed to condemn women to subordinate status in the society compared to their male counterparts (United Nations, 1993). In view of this, in its 4th article, the United Nations General Assembly proclaimed the following:

> *States should condemn violence against women and should not invoke any custom, tradition or religious consideration to avoid their obligations with respect to its elimination. States should pursue by all appropriate means and without delay a policy of eliminating violence against women* .... (United Nations, 1993, December 20, Declaration on the elimination of violence against women: UN General Assembly. Retrieved from www.un.org/documents/ga/res/48/a48r104.htm)

Kenya has enacted two critical acts of parliament namely; The Protection Against Violence Act no.2 of 2015 (Republic of Kenya, 2015), in which intimate relationships are subsumed within the legal definition of domestic relationship and domestic violence, and the Sexual Offences Act no.3 of 2006 (Republic of Kenya, 2006). These acts, while addressing the issue of violence against both male and female gender, attest to the the fact that some progress has been made in addressing violence directed at women especially domestic violence which includes IPV. However, Aura (n.d) contends that the existence of these acts has done little to improve the situation of women. This is because of the strong sociocultural environment in which majority of the women are unaware of their rights. Even when those rights are known to them, still cultural norms have to overide any other rights. Socioeconomic disadvantage among women is also an impediment to quality legal representation which essentially means that the victims are usually incapable of pursuing justice in the event of violence directed toward them.

## 1.2 Statement of the problem

Depression is one of the most common mental health condition that afflicts antepartum women worldwide (Carter & Kostaras, 2005). In spite of this, the affective disorder has been largely ignored in the ante-natal care protocols of the health care systems in Kenya. Consequently, almost all health care workers dealing with antepartum care do not give it the due attention it deserves. As a result, many cases of depression go unrecognised and therefore untreated among this critical group despite the fact that depression is known to be associated with adverse maternal and child outcomes (Schetter & Kanner, 2012). For example the long term sequelae of extremely premature and low-birth-weight infants is strongly associated with cognitive deficits, motor delays including cerebral palsy, academic difficulties, language delays, and significantly increased rates of attention problems, behavioral difficulties, and psychological problems (Hack et al., 1995).

Women are known to be particularly at a higher risk of developing depression than their male counterparts by almost twice as much (Choi et al.2014). Moreover, pregnancy is recognised as a vulnerability factor for depression ( Silva, Leite, Nogueira, & Clapis, 2015). Apart from having a higher risk for depression, Kadam (2015) concludes that women from the slums are also known to be overrepresented among IPV survivors and that they are the ones who suffer the most in economically deprived environments. This observation is supported especially in Kenya by the 2014 KDHS findings that 42.4% of women among the lowest wealth quintile had ever experienced physical or sexual violence compared to 31.6% of women among the highest wealth quintile. When education level was considered, 35.7% women among those with nil education had ever experienced physical or sexual violence as compared to 32.9% of women among those with at least secondary level education (KDHS, 2015).

## 1.3 Significance and justification

Quite a number of studies have been done globally and in Africa focusing on depression and its association with IPV among pregnant women but few studies have targeted the pregnant women from low-income urban areas. In Kenya, very little, if any, in terms of research has exploited this area creating a huge disparity. It is a high time that investigation and management of IPV and associated depression became part of the antenatal care protocol. However, in the absence of research-based evidence on their devastating effects on the pregnancy and its outcome, this area will continue to be unimportant to the health care givers and policy makers.

This study sought to bring out the association between low-income and IPV and their effects on the prevalence of depression among the antepartum women from low-income urban settlements. The study also endeavoured to generate additional knowledge in the area of depression and IPV among antepartum women from low socioeconomic income, in the

Kenyan context. Few studies have concerned themselves with this area not only globally but much more in Kenya.

Most studies that have been done on the association of IPV and depression among antepartum women have been concetrated in the developed world leaving out the poor countries where some of the poorest people on earth abide. Furthermore, the version of poverty in the developed countries and some middle class countries where studies among the poor antepartum women undergoing IPV have been done is necessarily different from that of the poor countries. The former have a strong and effective government social welfare support systems that are able to cushion their 'poor' from the potential effects of poverty and thus act as a protective factor against depression, violence and other social ills. Low and Low-middle class countries, including Kenya, are hosts to some of the poorest populations in the world. For nearly half a century post-independence, a lasting, intractable intergenerational cycle of socioeconomic deprivation continue to bedevil almost half of the Kenyan population. This is further complicated by the fact that the Kenyan government has faced challenges in its quest to achieve effective and sustainably financed social protection interventions (Ministry of Gender, Children and Social Development, 2011).

According to Liu et al. (2013) and Xie et al. (2009), Social support is positively protective of one's health and psychological wellbeing by mitigating against the damages brought about by the stressors caused by life events. Conversely, a strong correlation exists between insuficient social support and heightened levels of depression during pregnancy (Elsenbruch et al., 2007). What this means is that any research findings from the studies done among the 'poor' in the middle to high middle-income and developed countries may not accurately reflect the real situation existing in those countries that have the real poor, who have never heard of such a thing as government social welfare. Therefore, the dangers of refering to such skewed findings need not be overemphasised. One such danger is the tendency of potraying a belief, albeit false, that 'things are not as bad as we thought after all'. Consequently, the cycle of the alienation and neglect of this important yet vulnerable portion of the society is bound to escalate.

What must be considered is that a problem can only be effectively dealt with if its magnitude is established. Interventions usually require major advocacy, policy formulations, and implementations. Moreover, players also do demand for facts before they recognise matters arising as legitimate. It is for this reason that more studies on IPV in pregnancy need to be carried out in Kenya in order to establish a case for major interventions beginning from the national level to the grass roots. Matseke, Peltzer, and Mlambo (2012) concluded that screening for IPV among pregnant women visiting the antenatal health care might be critical in mitigating on the adverse effects of this vice. Furthermore, the research situation in Kenya in the area of mental health is severely wanting. According to the Ministry of Medical Services (2012) *"Currently, there is inadequate evidence and information on the prevalence of mental and behavioral disorders in Kenya"*. Consequently, not much research evidence is

published in the area of antepartum depression among women undergoing IPV from the low-income urban settlements. Therefore the study was necessary to address this gap.

Kenya has made big strides in the pursuit of improved maternal and child health. However, the current protocols used in the maternal and child health care including antenatal care (ANC) has grossly omitted mental health. This is in spite of the fact that mental health disorders such as depression are known to be very common during pregnancy and after childbirth world over and that depression is known to drive the pregnant women into risky behaviors such as alcohol and drug abuse in addition to the fact that such women are prone to obstetric complications and preterm labor (WHO, 2008). In view of the aforementioned, the WHO's fifth millenium developmental goal can be achieved only if mental health care is intergrated in the specific country's maternal health policy, plans and implementations, (WHO, 2008). Therefore, the need to establish depressive prevalence levels among the poor pregnant women undergoing IPV is paramount, this is especially important in our set up since similar studies have not only rarely been done in Kenya but the low-income areas including Kibera in Nairobi have been perenially ignored in terms of health related research {Building Blocks for Change-Care for Kenya (BBC-CK), 2014}.

Lobbying and persuation for improved quality health care, especially in the area of mental health, must be backed by research findings. At least this is a requirement by many policy makers and planners. While the recommendation by WHO (2008) is clear and implementable, there is uncertainity as to whether such well thought idea shall ever see the light of the day. Therefore, locally generated evidence based findings are direly needed to persuade the health care policy makers and by and large the government to realise the importance of making mental health part and parcel of the ANC management protocols.

### 1.4 Research question:

Is there an association between antepartum depression and Intimate Partner violence?

### 1.5 Hypothesis:

Null Hypothesis: There is no difference in the prevalence levels of depression among women experiencing IPV and those not experiencing.
Alternate Hypothesis: There is a significant difference in the prevalence levels of depression between women experiencing IPV and those not experiencing IPV.

### 1.6 Objectives

#### 1.6.1 Overall objective:

To establish the association between depression and IPV among antepartum women at the LHCMS, Nairobi County.

### 1.6.2 Specific objectives:

i. To determine the prevalence of depression among the participants
ii. To determine the prevalence of IPV among the participants.
iii. To determine sociodemographic factors and pregnancy factors associated with depression and with IPV
iv. To determine the association between IPV and depression

# CHAPTER TWO

## 2.0 Literature Review

Depression has become a major health concern globally owing to the overwhelming evidence of the associated deleterious effects on its victims. An estimated 350 million people are suffering from depression worldwide thus making this mood disorder the leading condition in terms of causes of disability worldwide and indeed the leading contributor of the global burden of disease, (WHO, 2016). With a global prevalence that almost doubles that of men, women are mostly affected (WHO, 2008). Pregnant women have not been spared either.

Whilst the current figures of the prevalence of depression in pregnancy are inconsistent, an estimated 10% of the pregnant women worldwide and 15.6% in the developing countries are known to predominantly suffer depressive illness (WHO, 2016b). A systematic review by Bennet, Einarson, Taddio, Koren, & Einarson (2004) revealed the prevalence rate of depression during pregnancy to average 10.8%. According to Gaynes et al. (2005) new episodes of minor or major depression are found in up to 14.5% of women during pregnancy. Data on the prevalence rate of antepartum depression in the sub-Saharan Africa are uncommon. However the rates may be assumed to be higher than those in the developed world given the many socioeconomic and demographic challenges experienced in this part of the world. In a study done in Ghana and Cote d'Ivoire, 26.6% and 32.9% of the pregnant women studied had substantial depression respectively (Bindt et al., 2012). The depressive prevalence rates were even higher among rural South African pregnant women, 47% of the pregnant women were depressed (Rochat, Tomlinson, Barnighausen, Newell & Stein, 2011). These figures are consistent with the study findings in a Tanzanian peri-urban study in which about 40% of pregnant women in their second to third trimesters were depressed (Kaaya et al., 2010). Mwakio (2005) found the prevalence of depression among women attending ANC at the Kenyatta National Hospital to be 29%. These trends are of concern because, as concluded by Guo et al., (2013), women and the children they care for in the Sub-Saharan Africa are living under a potentially hazardous public health situation posed by a depressive pandemic.

Depression is a pervasive disorder that presents a number of health challenges not only to the mother but also to the fetus during pregnancy. Its effects are known to negatively impact their wellbeing in the postpartum period and the years to come. The affective condition has constrictive effects on health seeking behaviors of the pregnant women thus further complicating an already dire situation. Furthermore unattended major depression subjects the mother and her fetus to an additional risk from poor nutrition, substance use particularly alcohol and tobacco, suicidal tendencies, complicated labor and small for dates babies (Kahn, Moline, Ross, Cohen, Altshuler, n.d). Other complications include; intrauterine fetal growth retardation, escalation in pain and discomfort during pregnancy, worsening of gastrointestinal symptoms, and other cardiopulmonary symptoms such as palpitations (Zuckerman, Amaro, &

Bauchner, 1989). Chung, Lau, Yip, Chiu, & Lee (2001) followed up 959 women longitudinally from early pregnancy to postpartum and documented that women who suffered depressive symptoms in late pregnancy had associated increased risk of epidural analgesia, caeserian section and instrumental vagina deliveries, and admission into the newborn unit by 14%, 12%, and 5% respectively. In view of this, a plethora of recommendations have been given in the care of pregnant mothers with the aim of improving their quality of antenatal care even as depression has come under increasing scrutiny as a silent danger to the health of the mother and the fetus. Since depressive symptoms are prevalent early in the antepartum period, Nicholson, Setse, Hill-Briggs, Cooper, Strobino & Powe (2006) lobby for the need for robust prenatal guidelines that also allows for effective screening of depression among women attending antenatal care as early as possible. This view is supported by the ACOG who recommends for depresssive screenings in the course of each trimester of a given pregnancy (ACOG, 2006).

As efforts of screening, diagnosing and managing depression in pregnancy routinely are advocated for, it is even more important to recognize and address the common risk factors that may trigger, exacerbate or escalate depressive symptoms in pregnancy. Pereira, Lovisi, Pilowsky, Lima & Legay (2009) found that other than sociodemographic characteristics, previous history of depression and obstetrics variables, violence perpetrated by intimate partners among the women from the poor neighborhoods of Rio de Janeiro, Brazil, was a significant risk factor for major depression in pregnancy. In two Cape Town peri-urban settlements 39% of mothers had depressed mood and that lack of partner support, IPV, low socioeconomic status and young age were the strongest predictors (Hartley et al., 2011). IPV is a significant psychosocial risk factor associated with incidences of depressive symptoms in pregnancy and therefore deserves attention if the global burden of disease related to depression is to be reduced (Devries et al., 2013; WHO, 2016b).

In a 2010 National Intimate Partner and Sexual Violence Survey, Black et al., (2010) found that approximately 42.4 million women (35.6%) in the United States alone had experienced at least rape, physical violence, and/or stalking by an intimate partner at some point in their lifetime compared to 32.3 million men (28.5%) who had experienced rape, physical violence, and/or stalking by an intimate partner at some point in their lifetime. Among the IPV cases reported to the police in Canada, women aged 15 years and above accounted for 81% of all spousal violence victims (Sinha, 2012). In the regions of Africa, Eastern Mediterranean and South-East, as mapped by WHO, 37% of women who had ever been in an intimate relationship had been exposed to physical and/or sexual IPV at least once with Africa reporting a prevalence of 36.6%; Americas 29.8%; Eastern Mediterranean 37%; Europe 25.4%; South-East Asia 37.7%; and Western Pacific 24.6% (WHO, 2013). These regions were those grouped under the Low-and-middle income regions by the WHO while the High income region recorded the lowest prevalence rate of 23.2% in the said estimates.

IPV is a universal menace affecting every continent, subcontinent, country, rural and urban areas alike. It permeates all societies and social strata impacting on both the rich and the poor.

Based on the aggregate data from 17 countries, the prevalence of IPV against women is 36.6% in Africa (WHO, 2013). The International Center for Research on Women (2005) presented almost the same picture in that between 13% and 45% of women were assaulted by their intimate partners in the Sub-Saharan Africa. These figures, however, are relatively lower than the actual scenario on the ground and this could be attributed to the fact that in many African cultures, some form of violence is culturally sanctioned and women are socialised to accept such as normal and in so doing may not acknowledge or report it as violence. According to Ellsberg & Heise (2005) and the Nigerian Demographic and Health Survey (NDHS) of 2003 (National Population Commission of the Federal Republic of Nigeria, 2003) between 50.4% and 66.4% of women and 61% of men respectively were in support of wife beating, thus leading to a conclusion that violence perpetrated against women is accepted as a cultural norm among Nigerians. In their elucidation of the causes of wife battering in Africa, Robson (1993) and Atinmo (1997) submitted that the culture of wife battering is one which is sustained by the power of traditions and norms within the African culture and that the practice is accepted as normal. Furthermore Silwal (2012), observed that women victims of violence often opt to remain silent due to the apathy in the systems created to address their plight including the social and legal systems.

A study done in South Africa, which examined the asssociation between IPV and adverse physical health outcomes and health risk behaviors among women, reported an IPV prevalence of 31% (Gass, Stein, William & Seedat, 2011). The data from the 2008 NDHS was analyzed in a study which established that 15.6% of the women had experienced at least one type of physical violence while 22.4% had experienced at least one type of emotional violence (Solanke, 2014). IPV is also a major menace in the East African region. The region has been ranked among the leading in the world in terms of IPV (Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2006) with in-country demographic and health surveys demonstrating that almost 50% of all women of ages between 15-49 in Kenya, Tanzania, and Uganda have experienced physical or sexual abuse within a partnership {Institute of Medicine (IOM) and National Research Council (NRC), 2015}. The KDHS released by the Kenya National Bureau of Statistics (KNBS) (2015) estimates that 38% of ever-married women aged between 15-49 have ever experienced physical violence committed by their intimate partner and 23% experienced violence within the 12 months prior to the survey. Compared to the violence experienced by men of the same age group in which only 9% of ever-married men have ever experienced physical violence and only 5% experienced violence in the last 12 months prior to the survey, the assertion that women generally bear the brunt of IPV cases cannot therefore be overstated. It should be noted, again, that these findings did not factor in other forms of IPV including emotional/psychological violence and stalkng. Moreover, the tendency to deliberately conceal or underreport incidences of violence by the partner including failure to recognise some forms of violence and/or regarding them as acceptable cultural norms means that these figures are far much lower than the actual situation on the ground. According to Fox-Bartels (2008), female victims account for more than 90% of IPV occurences with male aggressors as the perpetrators.

IPV, which predominantly affects women, is a serious violation of human rights, but when this violence is targeted at a pregnant woman then not only are the rights of the woman violated but also the rights of the innocent and defenceless unborn child. According to the WHO, (2011):

*Violence against women, committed by an intimate partner, is an important public health and human rights issue. In recent years, attention has focused also on intimate partner violence during pregnancy due to its prevalence, adverse health consequences and intervention potential* {WHO. (2011). *Intimate Partner Violence During Pregnancy.* Geneva: WHO. *Information sheet, para.1*}

In a WHO multi-country study scrutinizing data collected in ten countries involving over 24,000 women, it was discovered that 90% of cases of violence committed against women in pregnancy were perpetrated by the man responsible for the pregnancy (Garcia-Moreno, Jansen, Ellsberg, Heise & Watts, 2005). In terms of causality, the directionality of the relationship that exists between pregnancy and IPV has remained contentious owing to the mixed and at times conflicting research findings. Jasinski (2004) cited in WHO (2011) submits that according to research, pregnancy is not a protective factor against IPV, and as to whether IPV is escalated or diminished during pregnancy is not easy to tell owing to the conflicting evidence available. However, Fox-Bartels (2008) insists that pregnancy increases women's vulnerability to IPV. Garcia-Moreno et al. (2005) in the WHO study observed that some places, such as Ethiopia, had surprisingly lower physical violence prevalence among pregnant women despite the overall high levels of physical violence while others reported escalation of this vice in pregnancy. Their conclusion was that pregnancy brings about reprieve from violence and abuse in some societies making pregnancy a protective factor, whereas in others, there is widespread abuse in pregancy. Stemming from these findings, Garcia-Moreno et al. opine that there is need for further studies to illuminate on the patterns of violence by an intimate partner pre-pregnancy, during pregnancy and after pregnancy.

According to Devries et al. (2010), ninenteen countries were mapped by the UN as manifesting prevalence levels of between 2% in Australia, Demark, and Cambodia and 13.5% in Uganda. These findings parallel those of a 10-Nation WHO multi-country study that established that the prevalence of women who reportedly experienced violence during at least one pregnancy varied from 1% in Japan city to 28% in Peru city (Garcia-Moreno et al. 2005). A Norwegian national report on domestic violence indicated that the number of women who had experienced threats and violence in pregnancy was 4% (Haaland, Clausen, & Schei, 2005). And 10.6% of women in a Belgian 11-clinic cross-sectional study reported being victims of overall IPV in pregnancy with 2.5% being exposed to physical violence only (Van Parys, Deschepper, Michielsen, Temmerman, &Verstraelen, 2014). A systematic review of studies done in Africa and published between January 2000 and January 2010 showed the overall prevalence of IPV during pregnancy in Africa to range between 2.3% and 57.1%, the prevalence of physical violence alone ranged from 22.5% to 40%, while that of sexual violence was between 2.7% and 26.5% (Shamu, Abraham, Temmerman, Musekiwa &

Zarowsky, 2011). Consistent with these findings and the conclusion made by Shamu et al. (2011) that prevalence of IPV among pregnant women in Africa is one of the highest worldwide, 46.2% of a sample of 2042 women studied in six public primary health care clinics in the low-income urban Zimbabwe reported being subjected to physical and/or sexual IPV during pregnancy (Shamu, Abrahams, Zarowsky, Shefer, & Temmerman, 2013). Moreover 35.1% of pregnant women attending the antenatal care at two Rwandan government clinics reported to have experienced IPV in the last 12 months (Ntaganira et al., 2008); and 27% of 1180 women, attending antenatal care at the Tanzanian Muhimbili National Hospital over a period of 4 months, who were surveyed reported undergoing physical and sexual IPV in the index pregnancy (Mahenge, Likindikoki, Stockl & Mbwambo, 2013).

Although the KDHS (2015) reveals that 38% of ever-married women aged between 15-49 years have ever experienced physical IPV, the prevalence of IPV among pregnant women in Kenya is undetermined (Makayoto, Omolo, Kamweya, Harder, & Mutai, 2013). Studies done and consequently published are few. Two studies, however, warrant mentioning; the one conducted at the Kisumu District Hospital during which the researchers endeavoured to establish the prevalence and related factors of IPV among pregnant women seeking antenatal care in the hospital. It was deduced that 37% of the respondents had experienced at least one form of IPV during pregnancy with psychological violence being the most common at 29%, followed by sexual violence at 12% and physical violence at 10% (Makayoto, et al., 2013). However, as pointed out by the researchers, this study had glaring limitations such that the findings could not be generalised to the whole country. These limitations included the characteristics of the study population and the sample size being so small and confined to only a miniature section of the country. The second study is that which was done at the KNH ANC in which 16% of the respondents reported to be undergoing some form of IPV (Mwakio, 2005). More studies are therefore required in different parts of the country to corroborate these findings and also increase the volume of already available evidence which can in turn be used to make credible deductions concerning the magnitude of IPV among pregnant women in Kenya.This is because IPV during pregnancy, is not only associated with physical injuries but also adverse psychological outcomes.

IPV during pregnancy has received a lot of attention in the global arena owing to its deleterious effects on both the maternal and foetal health. Among other physical and mental health sequelae, IPV in pregnancy is also associated with manifestations of depressive symptoms. A study of 128 pregnant women who had suffered abuse within the preceding year found that such women had almost 2.5 times the odds of developing depression (Jesse, Walcott-McQuigg, Mariella, & Swanson, 2005). Bailey (2010) posits that almost 40% of women who have experienced abuse report depressive symptoms thereby making depression the commonest mental health outcome of IPV. According to Lara et al. (2014), exposure to IPV accounts for a considerable number of women presenting with depressive symptoms and disorders during the perinatal period and that subjects of IPV in pregnancy are more and present with more depressive symptoms than those not exposed to it.

A study conducted in 2 prenatal clinics of North Carolina, US, confirmed that 74% of the women who had undergone at least one psychological incidence of aggression were depressed. Approximately 82% of these women, who had been subjected to at least one act of physical violence by their partner during pregnancy, were depressed while among those exposed to at least one episode of sexual coercion, 80% were depressed and 77% women who sustained at least one violence-related injury during pregnancy were depressed ( Martin, et al.,2006). Furthermore, while analysing the link between IPV and depressive symptoms among Mexican women, Lara et al. (2014) found that a total of 53.4% of pregnant women who had been victims of IPV in the past year had depressive symptoms as opposed to 14.1% of those who had not suffered IPV. Similar findings were echoed by Mahenge, et al. (2013) in the Muhimbili National Hospital study, Tanzania (refered to above), they discovered that among pregnant women who were exposed to physical and/or sexual IPV in the index pregnancy, 73% reported high levels of depressive symptoms compared to only 50% among the pregnant women who did not experience physical and/or sexual IPV, whose depressive levels were low though. Moreover, the former were 3 times more likely to have a higher score of symptoms of depression compared to the latter. These findings lend credence to the belief that IPV in pregnancy is strongly associated with the escalation of depressive symptoms. This is important since depression in pregnancy has been associated with a constellation of negative lifestyle and behaviors such as alcohol and substance abuse (self-medication), self neglect, insomnia, anorexia,and abandonment of activities of daily living including prenatal care. Other impacts of depression include, adverse maternal and child health outcomes such as preeclampsia, reduced intrauterine foetal growth, premature birth, and low birth-weight babies (Martin et al. 2006 & Bailey, 2010).

While a number of countries have made big strides in research on antepartum depression among women undergoing intimate partner violence, few studies have been published in Kenya to address this gap. Moreover the KDHS which is an important source of credible information on the demographics is conspicously missing data on IPV among pregnant women. The net effect is that very little is known as far as the burden of antepartum depression among pregnant women undergoing IPV in Kenya is concerned. Moreover the depressive prevalence levels among pregnant women undergoing IPV from the low-income class in Kenya are undetermined and virtually unknown.

Studies targeting, exclusively, a low-income urban settlement such as Kibera to the same effect are hard to find. Thus, any information out there that may allude to the contrary may be just mere anecdotal data. According to BBC-CK (2014), Kibera is not only the most densely populated but is also the most violent slum in Nairobi. This assertion must therefore worry any health care system and especially the one concerned with antepartum care since women are known to be the primary targets of violence.

## 2.1 Theoretical Framework

### 2.1.1 Learned helplessness

While working with animals in Professor Richard Solomon's Laboratory at the University of Pennsylvania, Martin Seligman discovered that when the animals were exposed to such noxious stimuli that they could do little to mitigate on the effects, they ceased doing anything about it. In other words, they 'learned' to be helpless (Seligman, n.d). This phenomena has been used to explain the behavior adopted by human being in many situations including those with depressive illness and people, especially women, undergoing domestic violence or IPV.

Women who undergo battering by their spouses learn not to seek any form of solution to their abuse owing to the erroneous belief that their predicament is unresolveable (Walker, 1979). Walker (1979) further argues that such victims of domestic violence are conditioned to think that their lives are not under their control and in so doing behave passively and submissively toward both the violence and the perpetrator. The conditions that many of the battered women find themselves living in, especially in Africa, are conducive for the manifestation of the sense of learned helplessness. Many of the African traditions promote wife beating as a form of 'necessary discipline' so much so that majority of the African women have been conditioned to accept this evil as normal (Rotimi, 2007).

The fact that patriarchy promotes male dominance in almost all spheres of society has not made things any better for women, for example, a bill against wife beating in 1968 was thrown out by the then legislators of the male-dominated Kenyan parliament who contended that wife beating was a normal cultural practice and that enactment of any law against it was tantamount to infringing on the private affairs of the husband and wife (Hansard, 1968 cited in Ondicho, 2000). Most recently, the circus of perpetual societal suppression of the voices and rights of women has continued to play out especially in Kenya where the 'sexual offences act' which was designed among other provisions to also address the issue of marital rape was only passed after the said clause was expunged from the legislative document leaving married women severely exposed to marital rape (Kamau, Nyaundi, & Serwanga, 2006).

Systematic failures by the helping agencies to adequately address the plight of women who have undergone or are undergoing domestic violence leaves the victims with no one to turn to for help thereby further condemning them to the state of helplessness (Hayes, 2013). For example, many women have blamed counsellors for failure to respond to disclosures of violence and for showing less interest in the violence or level of danger faced by them. Cases have also arisen where counsellors advised the victims to consider their own contributory role in the escalation of the violence. The women were also advised to negotiate with their partners with a view of improving on the communications between them, while others were outrightly asked to change their behavior toward the perpetrator. All these were done by the counsellors, who tended to pile blame on the victims, even when it was evident to them that

the women were undergoing unprovoked violence meted on them by their intimate partners (Seeley & Plunket, 2002).

Moreover, deficiencies in the legal frame work on domestic violence, a common phenomena in Africa, coupled with apathy in the law enforcement agencies further enhance the notion of helplessness (Murthy, 2010). Lack of trust in the law enforcement agencies has led to severe undereporting of IPV incidences since the police are said to treat such incidences lightly because they themselves are known to perpetrate violence (Bowman, 2003).

Sociocultural and economic disadvantage among women including, but not limited to, low employment opprotunities, low pay, restriction on property ownership, poverty, unequal power balance between men and women, and low educational opportunities may further complicate the feeling of helplessness by promoting the notion that women are to be completely dependent on their male counterparts for survival (Murthy, 2010). Other cultural practices where women are exchanged as property like '*ngozi'* in Zimbabwe, where a young girl may be given to compesate another family for the death of their man caused by her family, leaves the woman vulnerable to violence with no cultural room for redress (WHO, 2002). In some cultures, wife beating is approved as a cultural necessity, suprisingly, even by women themselves. In Nigeria, for example, 66.4% of never-married and 50.4 % of unmarried women and 61% of males approved of wife beating (Ellsberg & Heise, 2005). A woman is considered a societal property among some cultures (such as the Luo) in Kenya and thus liable to be inherited upon the death of the 'original owner' (husband).

These conditions are thus important precursors of learned helplessness. The women, who can do nothing about their situation, find their esteem going down coupled with ruminations concerning their inability to change their situation. These women may consequently develop a sense of worthlessness and hopelessness and therefore develop depressive symptomatology (Bowman, 2003).

# CHAPTER THREE

## 3.0 Methodology

### 3.1 Study design

This was a across-sectional analytical study that focused on pregnant women attending ante-natal clinic at the Lang'ata Health Centre and Maternity Services (LHCMS), Nairobi County.

### 3.2 Study site

The study was carried out at the LHCMS, a health care facility run by the Nairobi County Government Health Services (NCGMHS), located in the Mugumoini Sublocation, Mugumoini Location in the Lang'ata Constituency of the Nairobi County in Kenya. Kibera is arguably one of the largest slums in the world with a population of between 220,000 and 250,000 residents (African Population and Health Research Center, 2014; Marras, 2008) and the second largest in Africa. It is located about 3-5 kilometers from Nairobi city centre in the Nairobi's SouthWestern peri-urban zone in the Lang'ata area. For easy administration, Kibera is subdivided into at least seven major villages. The LHCMS serves an estimated population of 59,861. This includes an estimated 14,840 women of child-bearing age (15-49 years), primarily drawn from the following villages of Kibera; Raila, Soweto West, Kianda, Gatwekera. However, patients are reported to come from the wider Kibera area. By virtue of its location it also serves some people (few) from the Middle-class populace of Lang'ata, and Otiende. Services offered at the health facility include; general outpatient services, laboratory services, special clinics (HIV/AID and ART clinic, Tuberculosis clinic, child welfare clinic, antenatal clinic), counselling services among many others. According to the records available, the facility recorded an attendance of 27,597 cases with the ANC clinic attending to 4,230 pregnant women in the year 2015. As of the month end of August, 2016, the facility had already enlisted 2,424 pregnant women under its ANC program.

### 3.3 Study population

The study population to which this study can be generalized is women of child-bearing age who are pregnant and who reside in the urban informal settlements in Kenya particularly in Nairobi.

### 3.4 The sample population

The sample population consisted of the women seeking ANC services at the LHCMS, Nairobi County.

### 3.5 Sample size

Determination of the sample size was done as follows: firstly, the following formular as developed by Cochran was used to determine 'n' (the desired sample size when the population is more than 10,000):

$n = \frac{Z^2pq}{d^2}$ ( Israel, 1992; Mugenda & Mugenda, 2003)

where: n = the desired sample size (if the target population is greater than 10,000)

Z = the standard normal deviation at the required confidence interval

p = the proportion of the women estimated to be undergoing 1. IPV and 2. depression.

q =1-p

d = the level of statistical significance set

Having determined 'n', the final sample estimate n*f*, desired sample size since the target population was less than 10,000 people (4300 pregnant women), was determined by the following formular:

$nf=\frac{n}{1+(n)/N}$ ( Israel, 1992; Mugenda & Mugenda, 2003)

Where: n*f* = the desired sample size (when the population is less than 10,000)

n = the desired sample size ( when the population is more than 10,000)

N = the estimate of the population size

Makayoto et al. (2013) in the study done at the Kisumu District Hospital found the prevalence of IPV in pregnancy to be 37%. In a similar study by Mwakio (2005) at the KNH, it was discovered that 29% of the pregnant women had Major depression in pregnancy. The researcher calculated the sample size using each of the prevalence rate and then consider the higher sample size of the two.

Since the researcher desired a confidence level of 95%, this corresponded to a Z-statistic of 1.96 from statistical tables of normal curve (Israel, 1992). The desired precision level (d) was taken to be ±5% and taking the p value to be 37% (0.37), q is 0.63

**Sample size based on IPV prevalence of 37%**

The desired sample size (n) for IPV prevalence of 37% when the target population is more than 10,000 people is:

$$n = \frac{(1.96)^2 x 0.37 x 0.63}{(0.05)^2}$$

$$=358.190784$$

Given that our target population was about 4300 pregnant women, therefore the desired IPV sample size (n*f*) for this study was determined to be:

$$nf = \frac{358.190784}{1+(358.190784)/4300}$$

$$= \frac{358.190784}{1.08330018}$$

$$= 330.647766$$

= 331 pregnant women

**Sample size based on depression prevalence of 29% when the target population is 10,000 or more**

$$n = \frac{(1.96)^2 x 0.29 x 0.71}{(0.05)^2}$$

n =316.394176

Given that our target population was 4300 pregnant women which is less than 10,000

$$nf = \frac{316.394176}{1+316.394176/4300}$$

=294.709443

= 295 participants

The researcher took the higher figure of the two sample sizes, that is, a sample size based on IPV prevalence of 37%. The sample size therefore was 331 participants.

### 3.6 Sampling method

The researcher approached every 3rd participant (this allowed the researcher adequate time to administer questionaires from one participant to the next), explained the nature of the study as indicated in the consent form and the participant who was willing to be included in the study was requested to sign an informed consent. The starting point was the third woman who was recorded for the day and thereafter every third person was approached to participate in the study. In the event that the selected participant declined to be part of the study, the researcher jumped on to the next immediate person.

### 3.7 Variables

*Table 1: Variables*

| Type | Variable | Measure (determination) |
|---|---|---|
| Independent | IPV during current pregnancy | Self report |
| Dependent | Current MDD | EPDS |
| Other variables | Age of during current pregnancy | As per the ANC card |
| | Marital status | Self Report |
| | Education level | Self Report |
| | Parity | As per the ANC card |
| | Trimester | As per the ANC card |
| | Occupation | Self Report |
| | Average monthly income | Self Report |
| | Religion | Self Report |
| | Number of living children | Self Report |

### 3.8 Conceptual Framework

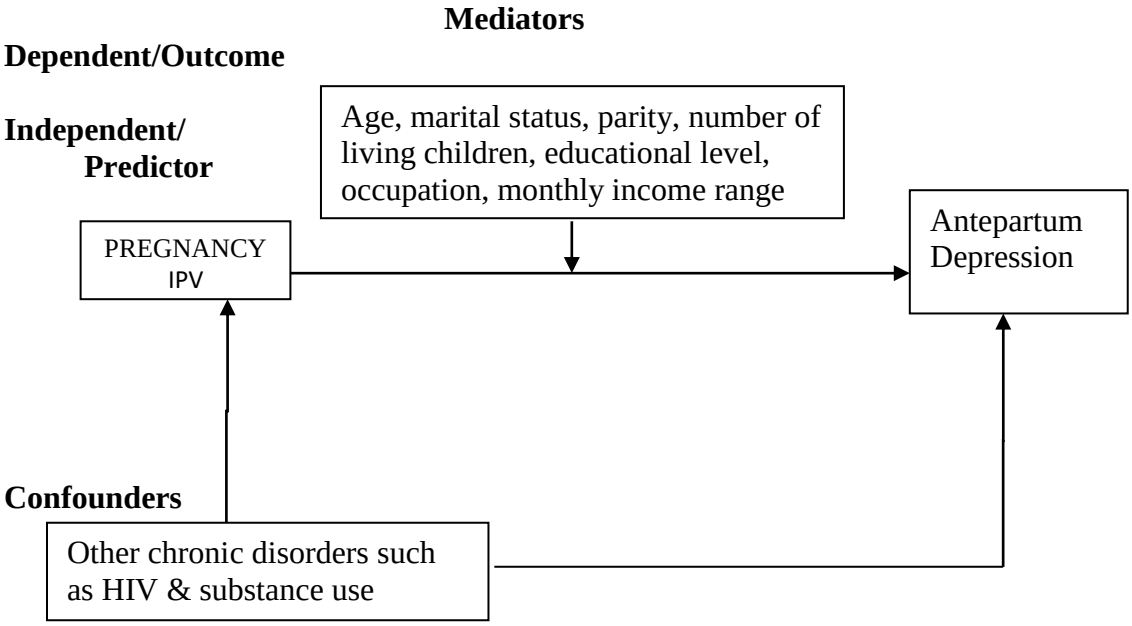
Pregnancy and IPV are each known to independently predispose women of childbearing age to major depression. When these independent variables interact in the context of low socio-economic status, other related factors that have the potential of further complicating the depressive symptoms of a pregnant woman come into play. Some of the factors (mediators) that are likely to influence the depressive outcomes as presented in the Fig. 1 below include; age, marital status, parity, number of living children, educational level, occupation and monthly income.

The researcher endeavoured to establish the nature and patterns of interaction between IPV, pregnancy and factors related to low socio-economic status and how the interplay among these factors are related to the depressive prevalence level found among these women. To this end, the researcher intended to find out whether the combination of pregnancy and IPV increased the prevalence levels of depression significantly. Moreover, the researcher also sought to establish how the mediators influence the pathway between IPV and pregnancy towards antepartum depression.

It should be noted that there are other factors including chronic illnesses like HIV and substance abuse, common in the low-income areas, which have the potential of independently leading to depression. These factors, which shall be treated as confounders, also interact with pregnancy and IPV to determine depressive levels.

The interaction of pregnancy and IPV in the context of low socio-economic status leading to antepartum depression was diagrammatically conceptualized according to the figure 1 below:

*Figure 1: Conceptual framework*




**Note:** confounders were not investigated since the researcher assumed that some of the confounding factors were fairly well distributed among all the participants.

### 3.9 Inclusion criteria

- All registered pregnant women and girls (irrespective of the trimester), seeking ANC services at the Lang'ata Health Center and Maternity Services, were included in the study. They were mainly residents of Kibera settlement.
- They had to give informed consent {note that pregnant girls under 18 years are considered mature minors and were therefore qualified to give consent on their own behalf. According to the 'Guidelines for Conducting Adolescent HIV sexual and Reproductive Health Research in Kenya', adolescents who are at least 12 years and below 18 years may consent for themselves as mature minors (NASCOP & KEMRI, 2015)}

### 3.10 Exclusion criteria

The following women were excluded from the study:

- Those who did not give consent.
- Women who were accompanied by their intimate partners (this would have limited the respondents' ability to give accurate answers).
- Women who were found to be very sick including those having severe psychiatric illnesses that impair insight.

### 3.11 Data collection instruments

The study employed the use of structured questionaires, with both English and Swahili translation, administered by the researcher to gather data. These included:

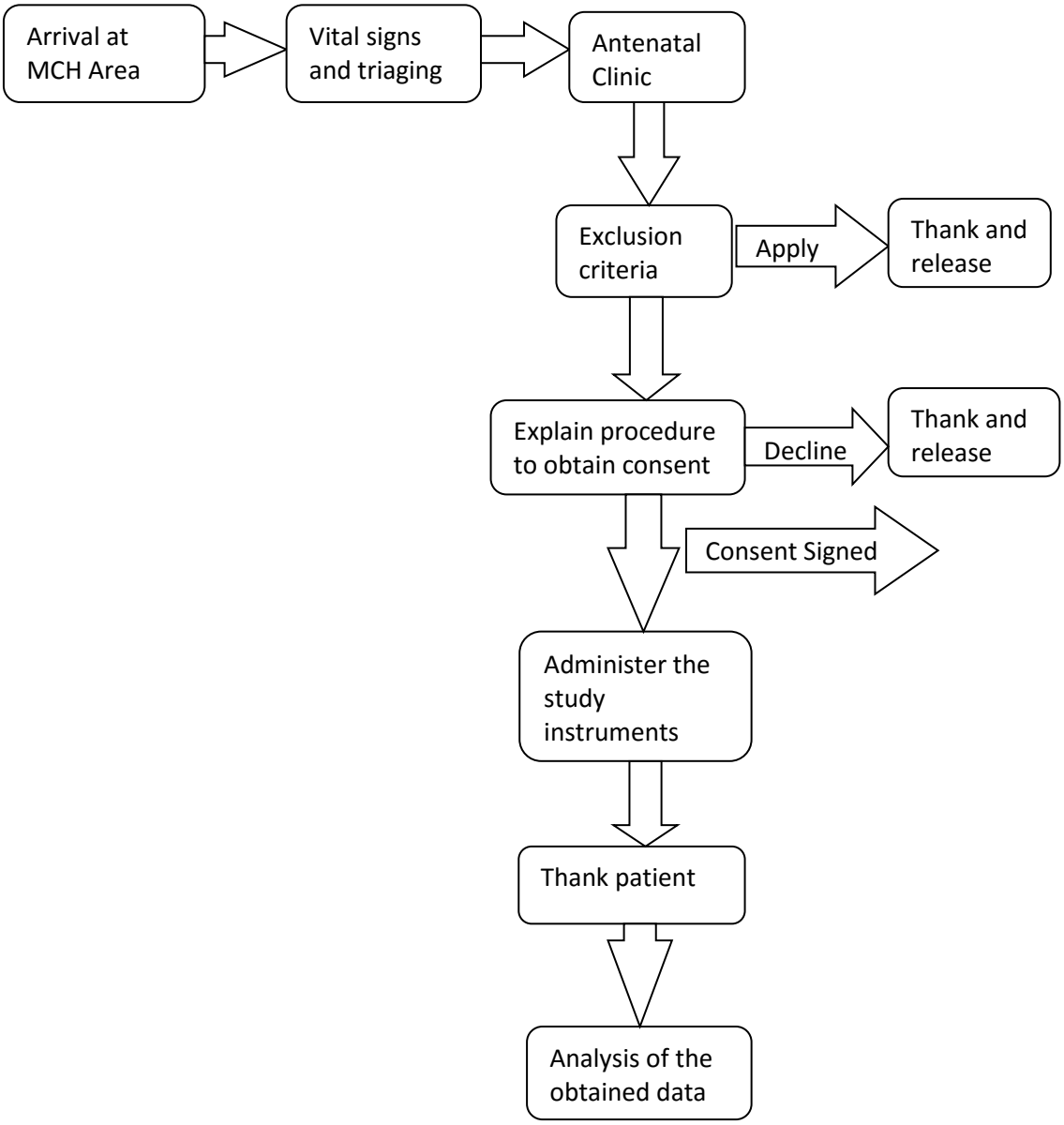
1. Sociodemographic and obstetric data: age, marital status, parity, trimester of the pregnancy, whether the pregnancy was planned or not, religion, educational level, socioeconomic status, and number of living children.
2. The KNH and Population Council Screening Form for IPV (PCSF-IPV) (see appendix III); a tool developed for screening IPV in public health care settings in Kenya, by Undie, Maternowska, Mak'anyengo, & Askew (2013), that assesses current physical, sexual and emotional IPV.
3. Depression screening: Edinburg Postnatal Depression Scale (EPDS) (see appendix II), initially developed by John L. Cox and his colleagues in the 1987 for screening postnatal depression, is a 10-question screening tool that has since been validated for use to screen for depression among antepartum mothers (ACOG, 2008). It has been found to have high sensitivity and specificity. For example, a study in Brazil found it to have a sensitivity of 81.58% and a specificity of 73.33% (e Couto et al., 2015). A translation into the Kiswahili version has since been undertaken for use by the researchers within the East Africa region (Kumar, Ongeri, Mathai & Mbwayo, 2015).

### 3.12 Data collection procedure

All pregnant women on reporting to the Health Centre underwent the normal initial registration procedures at the Maternal/Child and Health general reception area where their vital signs were taken. After which they were moved to the antenatal clinic manned by a qualified nurse with her assistant(s) for antenatal initial intake or follow-up procedures depending on whether it was her first visit or follow-up visit. It was from this stage that the potential participants were identified based on sampling procedure, inclusion and exclusion criteria. They were facilitated to move to an adjacent room, which was conveniently located to sustain smooth flow of patients. The researcher then explained the nature of the study to the potential participant after which an informed consent to participate in the study was obtained from her. Data was collected through the researcher's administration of the 3 questionnaires. Incase any pregnant woman expressed unwillingness to participate, she was skipped and the one who was immediately next considered.

### 3.13 Flow chart

*Figure 2: Flow Chart*




### 3.14 Data management and results

Data was coded to safeguard the identity of the participants, the forms were then placed in water proof polythenes and kept under lock and key. Data entry and cleaning was undertaken using statistical package for the social sciences (SPSS) version 20. The data was then analyzed using the SPSS version 20 computer software and the results presented in tables, bar graphs, piecharts and narrative.

### 3.15 Ethical considerations

Authorization to conduct the research at the LHCMS was obtained from the office of the County Director of Health, Nairobi County Government Medical Health Services and approval for this study sought from the KNH/UoN- Ethics and Research Committee. Following the approval of the Ethics and Research Committee and authorization from the County Chief Director of Health, the researcher developed a respondent's informed consent form.

Each participants was briefed on: the purpose of the study, the processes involved, possible risks and benefits associated with the study and their rights to refuse to participate as volunteers in the study or to withdraw their consent at any given time in the course of the study unconditionally. They were assured that their refusal or withdrawal would not in any way compromise their rights to quality care. It was affirmed to them that their personal information would be handled with the highest level of confidentiality. Furthermore they were encouraged to ask questions on such things that were not clearly understood. Once they understood and agreed to participate in the study, they were requested to sign an informed consent form. Only those who accepted to participate in the study voluntarily were included as no manner of inducements was used.

The benefits associated with this study are overwhelming including; the creation of awareness on the plight of pregnant women and indeed all women who hail from the slums, provision of valuable scientific research evidence that can be used to design effective mental health interventions targeting women attending ANC clinic, and generation of additional body of knowledge in MCH and Mental Health.

However, as it is with most studies, this study had the danger of exposing the participants to some risks. The questionaires were expected to bring back to memory the violent experiences that they underwent or were undergoing at the hands of their intimate partners. Consequently a few of the women manifested some signs of acute psychological distress. The researcher was able to intervene by offering brief psychological first aid. Since the health center had at least three qualified counsellors, the researcher was able to refer those who required further psychosocial support to the counsellors. Furthermore, conditions which were judged to be severe were referred appropriately through the Health Centre's referal system.

To protect each participant from the danger of reprisal from the intimate partner, their identity was concealed using codes. In addition, the researcher ensured that data collected was kept in a secure safe. This was to ensure for each participant's individual confidentiality at all times.

While the researcher had included measures to be taken in the event a mother developed an obstetric or any other medical emergency in the course of the study, this issue was settled by

allowing all patients being triaged and attended to by the nurse. Therefore the researcher did not encounter any obstetric or medical emergency during interviews.

CHAPTER FOUR

# RESULTS

## 4.1 Socio- demographic data

The researcher recruited a sample of 331 participants who gave their consent by signing the consent form to participate in the study. The mean age of the participants was 25.9 with a median of 28. The youngest participant was 15 years and the oldest was 43 year old. Majority of the participants interviewed were between the ages of 20 and 24 years (36.3%) followed by those of age 25 to 29 years (31.7%). Most of them were married (82.8%) and in their third trimester of pregnancy (46.8%). Additionally, most of the participants had gone up to secondary education (47.1%) but majority were unemployed (52.3%). Most had more than Ksh. 10,000 household income per month (63.1%). These results on socio-demographic data are as shown in table 2 below:

*Table 2- Sociodemographic data*

| **Characteristic** | **N** | **Percentage (%)** |
|---|---|---|
| **Age** | | |
| 15-19 years | 29 | 8.8 |
| 20 to 24 years | 120 | 36.3 |
| 25 to 29 years | 105 | 31.7 |
| 30 to 34 years | 51 | 15.4 |
| 35 to 39 years | 21 | 6.3 |
| 40 and above years | 5 | 1.5 |
| **Marital status** | | |
| Single | 45 | 13.6 |
| Married | 274 | 82.8 |
| Separated/Divorced | 12 | 3.6 |
| **Gestation** | | |
| First trimester | 28 | 8.5 |
| Second trimester | 145 | 43.8 |
| Third trimester | 155 | 46.8 |
| **Education level** | | |
| Primary education | 132 | 39.9 |
| Secondary education | 156 | 47.1 |
| College education | 43 | 13.0 |
| **Occupation** | | |
| Employed | 31 | 9.4 |
| Casual employment | 53 | 16.0 |
| Self-employment | 74 | 22.4 |
| Unemployed | 173 | 52.3 |
| **Household monthly income (Ksh.)** | | |
| 3000-6000 | 28 | 8.5 |
| 6000-10 000 | 90 | 27.2 |
| above 10 000 | 209 | 63.1 |

### 4.2 Prevalence of antepartum depression

To determine whether a mother had depression or not, an Edinburg Postnatal Depression Scale (EPDS) tool was used. A cut-off score of 13 and above was used to indicate that a mother had depression. The depressed EPDS mean score was 16.7 with a range of 14. The minimum score was 13 and the maximum was 27. From these results, 46.5% of the participants screened positive for depression as indicated in table 3 below:

*Table 3- Prevalence of depression among the participants*

| **Description** | **N** | **Percentage (%)** |
|---|---|---|
| Participants with depression | 154 | 46.5 |
| Participants without depression | 177 | 53.5 |
| **Total** | 331 | 100 |

### 4.3. Association of antepartum depression with socio-demographic variables

To determine the association of antepartum depression with socio-demographic factors, a chi square test was computed on the socio-demographic covariates and the level of significance was set at 5% (CI-95%). The output is as shown in the table 4 below:

*Table 4 - Association between Sociodemographic and antepartum depression*

| Variable | Description | Depression | | No depression | | Significance |
|---|---|---|---|---|---|---|
| | | n | % | n | % | |
| Age of mother | 15 to 19 years | 14 | 48.3 | 15 | 51.7 | $\chi 2 = 14.351$ P=0.014 |
| | 20 to 24 years | 66 | 55 | 54 | 45 | |
| | 25 to 29 years | 38 | 36.2 | 67 | 63.8 | |
| | 30 to 34 years | 21 | 41.2 | 30 | 58.8 | |
| | 35 to 39 years | 10 | 47.6 | 11 | 52.4 | |
| | 40 and above years | 5 | 100 | 0 | 0 | |
| | Total | 154 | 46.5 | 177 | 53.6 | |
| Marital status | Single | 27 | 60 | 18 | 40 | $\chi 2 = 11.895$ P=0.003 |
| | Married | 117 | 42.7 | 157 | 57.3 | |
| | Separated/Divorced | 10 | 83.3 | 2 | 16.7 | |
| | Total | 154 | 46.5 | 177 | 52 | |
| Occupation | Employed | 19 | 61.3 | 12 | 38.7 | $\chi 2 = 8.143$ p=0.043 |
| | Casual employment | 25 | 47.2 | 28 | 52.8 | |
| | Self employment | 25 | 33.8 | 49 | 66.2 | |
| | Unemployed | 85 | 49.1 | 88 | 50.9 | |
| | Total | 154 | 46.5 | 177 | 53.5 | |
| Monthly income range | 3000 to 6000 | 12 | 42.9 | 16 | 57.1 | $\chi^2 = 4.389$ p=0.111 |
| | 6001 to 10000 | 50 | 55.6 | 40 | 44.4 | |
| | Above 10000 | 89 | 42.6 | 120 | 57.4 | |
| | Total | 151 | 46.2 | 176 | 53.8 | |
| Education level | Primary education | 48 | 36.4 | 84 | 63.6 | $\chi 2 = 9.72$ p=0.008 |
| | Secondary education | 81 | 51.9 | 75 | 48.1 | |
| | College education | 25 | 58.1 | 18 | 41.9 | |
| | Total | 154 | 46.5 | 177 | 53.5 | |
| Planned pregnancy | Planned pregnancy | 81 | 39.9 | 122 | 60.1 | $\chi^2 = 9.259$ p=0.002 |
| | Pregnancy not planned | 73 | 57 | 55 | 43 | |
| | Total | 154 | 46.5 | 177 | 53.5 | |

### 4.4.1 Association between antepartum depression and age

There was a statistically significant association between antepartum depression and age with a chi square test of association of 14.351 and a p value of 0.014. The results suggested that women who were 40 and above years were more likely to be depressed (100%) during pregnancy than the other age groups. Additionally, those who fell in the 20 to 24 years age range experienced a higher depressive prevalence (55%) than those who were between15-19 (48.3%), 25-29 (36.2%), 30-34 (41.2%) and 35-39 (47.6%) years respectively.

### 4.4.2 Association between antepartum depression and marital status

The results showed that there existed a statistically significant association between marital status and antepartum depression with a chi square test of association of 11.895 and a p value of 0.003. The findings showed a higher prevalence of depression among women who were divorced (83.3%) and among the singles (60%) than among the married (42.7%). This indicated that women who were divorced were more likely to experience depression than those who were married or single.

### 4.4.3 Association between antepartum depression and whether pregnancy was planned or not

A statistically significant association ($\chi^2$= 9.259, p=0.002) was found between antepartum depression and whether pregnancy was planned or not. Women who did not plan their pregnancy (57%) were more likely to be depressed than women who did (39.9%).

### 4.4.4 Association between antepartum depression and education level

There was a statistically significant association between antepartum depression and education level with a chi square test of 9.72 and a p value of 0.008. Women who had gone up to college level were more prone to depression (58.1%) than those who went up to secondary (51.9%) and primary school (36.4%) respectively.

### 4.4.5 Association between antepartum depression and occupation

The association between depression and occupation was statistically significant with a chi square test of $\chi^2$ =8.143 and a p value of 0.043. More depressive prevalence was found among employed women (61.3%) than casually employed (47.2%), self-employed (33.8%), and unemployed (49.1%).

### 4.5 Reproductive health and antepartum depression

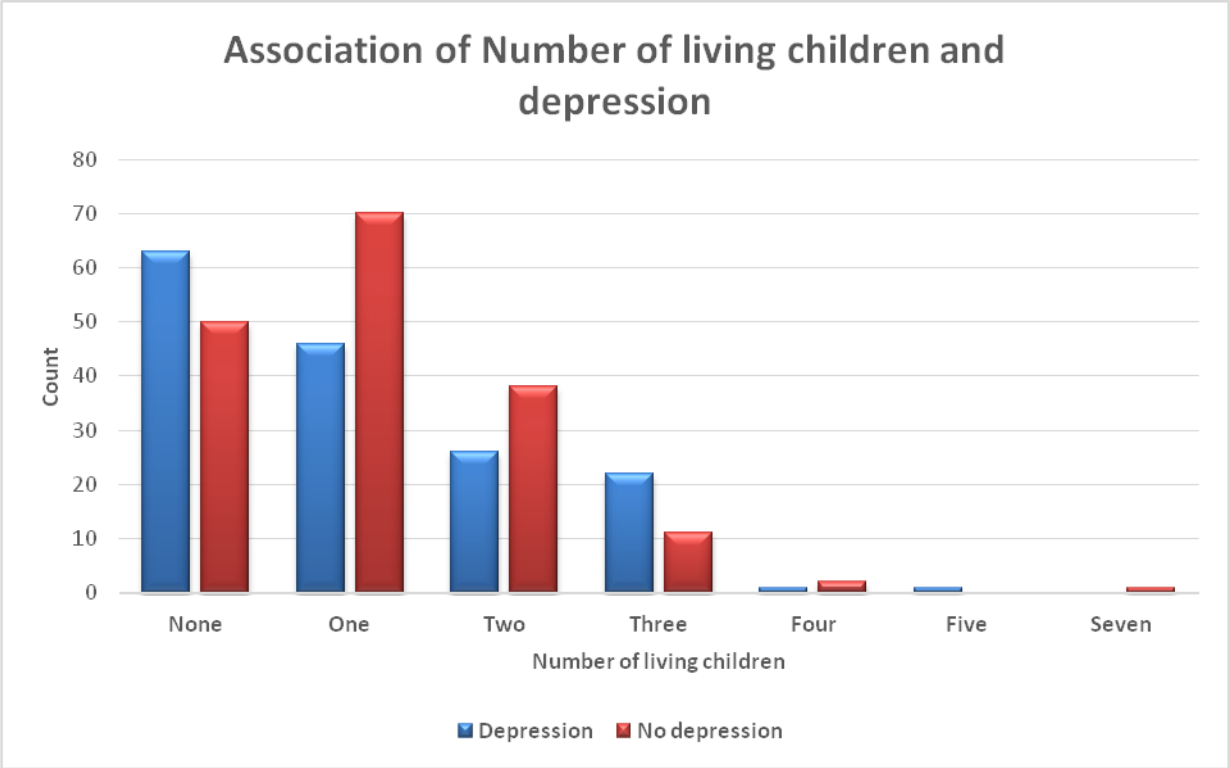
*Table 5-Association between depression and reproductive covariates*

| **Variable** | **Description** | **Depression** | | **No depression** | | **Significance** |
|---|---|---|---|---|---|---|
| | | **N** | **%** | **N** | **%** | |
| Parity | Para 0 | 54 | 51.4 | 51 | 48.6 | |
| | Para 1 | 47 | 42.7 | 63 | 57.3 | |
| | Para 2 | 28 | 38.9 | 44 | 61.1 | $\chi 2$ =7.972 |
| | Para 3 | 21 | 60 | 14 | 40 | p=0.242 |
| | Para 4 | 3 | 42.9 | 4 | 57.1 | |
| | Para 5 | 1 | 100 | 0 | 0 | |
| | Para 7 | 0 | 0 | 1 | 100 | |
| | **Total** | **154** | **46.5** | **177** | **53.5** | |
| Number of children alive | None | 61 | 54 | 52 | 46 | |
| | One child | 45 | 38.8 | 71 | 61.2 | |
| | Two children | 25 | 39.1 | 39 | 60.9 | $\chi 2$ =12.859 |
| | Three children | 21 | 63.6 | 12 | 36.4 | p=0.045 |
| | Four children | 1 | 33.3 | 2 | 66.7 | |
| | Five children | 1 | 100 | 0 | 0 | |
| | Seven Children | 0 | 0 | 1 | 100 | |
| | **Total** | **154** | **46.5** | **177** | **53.5** | |
| Gestation | First trimester | 15 | 53.6 | 13 | 46.4 | $\chi 2$ =2.099 |
| | Second trimester | 72 | 49.7 | 73 | 50.3 | p=0.35 |
| | Third trimester | 66 | 42.6 | 89 | 53.3 | |
| | **Total** | **153** | **46.6** | **175** | **53.4** | |

#### 4.5.1 Association between antepartum depression and no. of children

There was an association between number of children and depression with a chi square test of 12.859 and p value of 0.045. While only four women had at least four children each, women who had 3 children experienced a higher depressive prevalence (63.6%) than those who had no children (54%), 1 child (38.8%) and 2 children (39.1%) respectively. This is reflected in figure 3 below:

*Figure 3: Association between number of living children and depression*

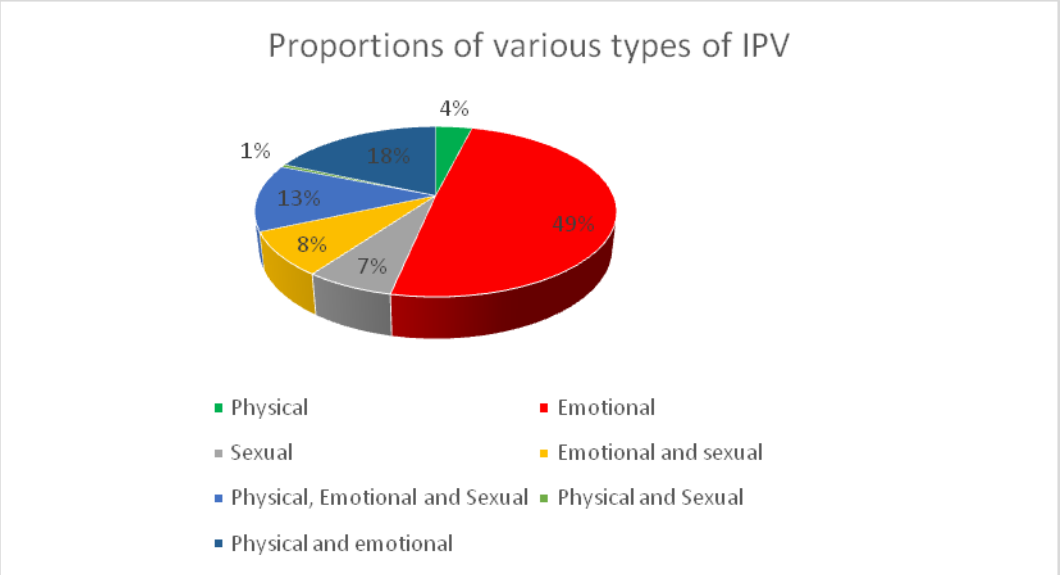



### 4.6 Intimate Partner Violence

Intimate Partner Violence (IPV) was categorized into three forms namely; physical, emotional, and sexual. In general, 54.4% (180/331) of the participants experienced at least one form of Violence from their partners. The most common form of violence was emotional IPV (48.3%) followed by physical IPV (19.3%) and finally sexual IPV (15.4%).

Additionally, it was noted that 33% of the women experienced only one form of IPV, that is, emotional, physical, or sexual. Another 15% experienced any of the two forms of IPV, that is, sexual and physical or physical and emotional or emotional and sexual. Finally, some 7% mothers experienced all the three forms of IPV. The breakdown is reflected in the figure 4 below:

*Figure 4-Proportion of various forms of IPV*




**Association of IPV with socio-demographic covariates**

Analysis was done to determine the association of IPV with socio-demographic factor. The results showed that there was statistically significant association between IPV and age, marital status and occupation. The table 6 below demonstrates these results:

*Table 6- IPV and socio-demographic covariates*

| *Variable* | *Description* | *Experienced IPV* | | *Not experienced IPV* | | *Significance* | |
|---|---|---|---|---|---|---|---|
| | | **N** | **%** | **n** | **%** | | |
| Age of mother | 15 to 19 years | 10 | 34.5 | 19 | 65.5 | 0.15 | Chi-14.576 |
| | 20 to 24 years | 69 | 57.5 | 51 | 42.5 | 0.029 | p=0.012 |
| | 25 to 29 years | 51 | 48.6 | 54 | 51.4 | 0.181 | |
| | 30 to 34 years | 32 | 62.7 | 19 | 37.3 | 0.017 | |
| | 35 to 39 years | 13 | 61.9 | 8 | 38.1 | 0.058 | |
| | 40 and above years | 5 | 100 | 0 | 0 | 0.999 | |
| | **Total** | **180** | **54.4** | **151** | **45.6** | | |
| Marital status | Single | 19 | 42.2 | 26 | 57.8 | 0.021 | X=7.238 |
| | Married | 151 | 55.1 | 123 | 44.9 | 0.073 | P=0.027 |
| | Separated/Divorced | 10 | 83.3 | 2 | 16.7 | 0.047 | |
| | **Total** | **180** | **54.4** | **151** | **45.6** | | |
| Parity | Para 0 | 51 | 48.6 | 54 | 51.4 | 0.232 | |
| | Para 1 | 56 | 50.9 | 54 | 49.1 | 0.732 | X=11.845 |
| | Para 2 | 40 | 55.6 | 32 | 44.4 | 0.362 | P=0.066 |
| | Para 3 | 25 | 71.4 | 10 | 28.6 | 0.021 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Para 4 | 6 | 85.7 | 1 | 14.3 | 0.092 | |
| | Para 5 | 1 | 100 | 0 | 0 | 1 | |
| | Para 7 | 1 | 100 | 0 | 0 | 1 | |
| | **Total** | **180** | **54.4** | **151** | **45.6** | | |
| Children alive | None | 57 | 50.4 | 56 | 49.6 | 0.318 | |
| | One child | 59 | 50.9 | 57 | 49.1 | 0.949 | X=10.368 |
| | Two children | 35 | 54.7 | 29 | 45.3 | 0.587 | P=0.11 |
| | Three children | 25 | 75.8 | 8 | 24.2 | 0.012 | |
| | Four children | 2 | 66.7 | 1 | 33.3 | 0.586 | |
| | Five children | 1 | 100 | 0 | 0 | 1 | |
| | Seven Children | 1 | 100 | 0 | 0 | 1 | |
| | **Total** | **180** | **54.4** | **151** | **45.6** | | |
| Gestation | First trimester | 14 | 50 | 14 | 50 | 0.533 | X=1.261 |
| | Second trimester | 76 | 52.4 | 69 | 47.6 | 0.815 | P=0.532 |
| | Third trimester | 90 | 58.1 | 65 | 41.9 | 0.429 | |
| | **Total** | **180** | **54.878** | **148** | **45.1220** | | |
| Education level | Primary education | 78 | 59.1 | 54 | 40.9 | 0.294 | X= 2.464 |
| | Secondary education | 82 | 52.6 | 74 | 47.4 | 0.267 | P=0.292 |
| | College education | 20 | 46.5 | 23 | 53.5 | 0.151 | |
| | **Total** | **180** | **54.4** | **151** | **45.6** | | |
| Occupation | Employed | 22 | 71 | 9 | 29 | 0.027 | |
| | Casual employment | 33 | 62.3 | 20 | 37.7 | 0.419 | X=9.558 |
| | Self employment | 31 | 41.9 | 43 | 58.1 | 0.008 | P=0.023 |
| | Unemployed | 94 | 53.4 | 79 | 45.7 | 0.09 | |
| | **Total** | **180** | **54.4** | **151** | **45.6** | | |
| Household income range | 3000 to 6000 | 18 | 64.3 | 10 | 35.7 | 0.23 | |
| | 6001 to 10000 | 51 | 56.7 | 39 | 43.3 | 0.473 | X=1.735 |
| | Above 10000 | 109 | 52.2 | 100 | 47.8 | 0.428 | P=0.42 |
| | **Total** | **178** | **54.4** | **149** | **45.6** | | |

### 4.6.1 IPV and age

A statistically significant association existed between age and IPV with a chi square test of 14.576 and a p value of 0.012. From the results, all the participants (5/5) who were 40 years and above had experienced IPV followed by those who were 30 to 34 years (32/51) where 62.7% reportedly experienced IPV. Women aged 15 to 19 years were less likely to have experienced IPV (34.5%).

### 4.6.2 IPV and marital status

IPV was significantly associated with marital status with a chi square test of 7.238 and p value of 0.027. From the results, 83.3 % of women who were divorced reported to have experienced IPV while the lowest prevalence was recorded among the single women (42.2%). This suggested that being single reduced the chances of experiencing IPV.

### 4.6.3 Occupation and IPV

There was a statistically significant association between occupation and IPV with a chi square test of 9.558 and p value of 0.023. Employment increased the chances of experiencing IPV since the depressive prevalence among employed women was 71%. Self-employed women had the lowest depressive prevalence at 41.9%.

The rest of the variables did not have any statistically significant association with IPV experience. These were parity (Likelihood ratio chi square test 11.845, P=0.066); planned pregnancy or not (Pearson chi square test 1.493, p=0.222) and the number of children alive (Likelihood Ratio test 10.368, p=0.110). Additionally, religion (Pearson Chi square test 1.688, p=0.194); level of education (Pearson chi square test 2.461, p=0.292); household income (Pearson chi-square 1.715, p=0.424) and gestation period (Chi-square 1.260, p=0.533) were also not associated with IPV experience.

### 4.6.4 Association between depression and IPV

The association between antepartum depression and IPV was computed and the results suggested a strong association between the two variables, chi square test was 29.328 and p=<0.001. Accordingly, 60% of the women who experienced IPV were depressed. This therefore, showed that IPV increases the likelihood of being depressed. The results are as tabulated in table 7 below:

*Table 7-Association between depression and IPV*

| **Variable** | **Description** | **Depression** | | **No depression** | | **Significance** |
|---|---|---|---|---|---|---|
| | | N | % | n | % | |
| IPV | Experience IPV | 108 | 60 | 72 | 40 | |
| | Not experienced IPV | 46 | 30.5 | 105 | 69.5 | $\chi 2$ =29.328 P=< 0.001 |
| | **Total** | **154** | **46.5** | **177** | **53.5** | |

Additionally there was a significant association between depression and the different forms of IPV with a chi square test of 23.513 and a p value o 0.001. Moreover, it was determined that there was an increased prevalence rate of depression (87%) among women who had experienced all the three forms of IPV compared to those who experienced one or two types

of IPV. The association between depression and different forms of IPV is as reflected in table 8 below:

*Table 8-Association between depression and the different exclusive forms of IPV*

| **Variable** | **Description** | **Depression** | | **No depression** | | **Significance** |
|---|---|---|---|---|---|---|
| | | N | % | n | % | |
| IPV | Physical | 2 | 28.6 | 5 | 71.4 | |
| | Emotional | 49 | 55.1 | 40 | 44.9 | |
| | Sexual | 4 | 33.3 | 8 | 66.7 | |
| | Emotional and sexual | 7 | 46.7 | 8 | 53.3 | $\chi 2$ =23.513 |
| | Physical, emotional and sexual | 20 | 87 | 3 | 13 | p=0.001 |
| | Physical and sexual | 0 | 0 | 1 | 100 | |
| | Physical and emotional | 26 | 78.8 | 7 | 21.2 | |
| | | **108** | **60%** | **72** | **40%** | |

### 4.6.5 Association between depression and physical IPV

Among the participants who experienced physical IPV, 75% scored positive for depression. The chi square test was 25.856 with p value <0.001. This is as tabulated in table 9 below:

*Table 9-Association between depression and physical IPV*

| **Variable** | **Description** | **No depression** | | **Depression** | | **Significance** |
|---|---|---|---|---|---|---|
| | | **N** | **%** | n | **%** | |
| Physical IPV | Yes | 16 | 25 | 48 | 75 | $\chi 2$ =25.856 |
| | No | 161 | 60.3 | 106 | 39.7 | p= <0.001 |
| | **Total** | **177** | **53.5** | **154** | **46.5** | |

### 4.6.6 Association between depression and emotional IPV

There was a statistically significant association between emotional IPV and depression since 63.8% of those who experienced emotional IPV were scored positive for depression. The chi square test was 36.932 with p value <0.001. This is tabulated in table 10 below:

*Table 10-Association between depression and emotional IPV*

| **Variable** | **Description** | **No depression** | | **Depression** | | **Significance** |
|---|---|---|---|---|---|---|
| | | **N** | **%** | **n** | **%** | |
| Emotional IPV | Yes | 58 | 36.2 | 102 | 63.8 | $\chi 2$ =36.932 |
| | No | 119 | 69.6 | 52 | 30.4 | p= <0.001 |
| | **Total** | **177** | **53.5** | **154** | **46.5** | |

### 4.6.7 Association between depression and sexual IPV

The chi square test conducted shows that there is a statistically significant association between depression and sexual IPV since the test result was 4.927 with p value of 0.026. Among the ones who had sexual IPV, 60.8% were depressed. This is as shown in table 11 below:

*TABLE 11- Association between depression and sexual IPV*

| **Variable** | **Description** | **No depression** | | **Depression** | | **Significance** |
|---|---|---|---|---|---|---|
| | | **N** | **%** | **n** | **%** | |
| Sexual IPV | Yes | 20 | 39.2 | 31 | 60.8 | $\chi 2$ =4.927 |
| | No | 157 | 56.1 | 123 | 43.9 | p= <0.026 |
| | **Total** | **177** | **53.5** | **154** | **46.5** | |

### 4.6.8 Logistic regression for depression and the different forms of IPV

After conducting the chi-square, further analysis using multiple logistic regressions was computed on the three forms of IPV. The results showed that Emotional IPV and Physical IPV were strongly associated with depression. It indicated that mothers who had experienced emotional IPV had 38% (Exp (0.325) = 1.38) increased chance of being depressed than those who had not experienced emotional IPV. Additionally, the results showed that mothers who had experienced physical IPV had 43% (Exp (0.358) = 1.43) increased chance of being depressed than those who had not experienced physical IPV. This difference was significant with a p value of < 0.001 and 0.003 for emotional IPV and physical IPV respectively as shown in table 12 below:

*Table 12-logistic regression on the different forms of IPV*

| | | B | S.E. | Wald | Df | Sig. | Exp(B) | 95% C.I. for EXP(B) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Lower | Upper |
| Step 1[a] | Emotional IPV | -1.119 | 0.25 | 19.972 | 1 | 0.000 | 0.327 | 0.2 | 0.534 |
| | Sexual IPV | 0.073 | 0.352 | 0.043 | 1 | 0.835 | 1.076 | 0.54 | 2.144 |
| | Physical IPV | -1.01 | 0.344 | 8.603 | 1 | 0.003 | 0.364 | 0.185 | 0.715 |
| | Constant | 1.242 | 0.324 | 14.675 | 1 | 0.000 | 3.462 | | |
| Step 2[a] | Emotional IPV | -1.125 | 0.248 | 20.526 | 1 | 0.000 | 0.325 | 0.199 | 0.528 |
| | Physical | -1.026 | 0.336 | 9.326 | 1 | 0.002 | 0.358 | 0.186 | 0.692 |
| | Constant | 1.269 | 0.297 | 18.267 | 1 | 0.000 | 3.558 | | |

## 4.7 Socio- demographic covariate with Emotional IPV

### 4.7.1 Occupation and Emotional IPV

The Likelihood Ratio chi square test conducted showed that there was a statistically significant association between emotional IPV and occupation since the test result was 13.206 with p value of 0.004. Chi square table is as shown in table 13 below:

*Table 13- A chi-square for occupation and emotional IPV*

| **Description** | **Presence of emotional IPV** | | **No emotional IPV** | | **Total** |
|---|---|---|---|---|---|
| | N | % | n | % | |
| Employed | 20 | 64.5 | 11 | 35.5 | **31** |
| Casual employment | 31 | 58.5 | 22 | 41.5 | **53** |
| Self-employment | 24 | 32.4 | 50 | 67.6 | **74** |
| Unemployment | 85 | 49.1 | 88 | 50.1 | **173** |
| **Total** | **160** | | **171** | | **331** |

The results of the other variables showed that the p value was greater than 0.05 meaning that there was no statistically significant association of these variables with emotional IPV. The difference occurred only by chance. These included variables such as marital status (p=0.065), parity (p=0.113), children alive (p=0.282), gestation (p=0.356), education level (p=0.248), household income (p=0.348), religion (p=0.0.143) and age group (p=0.095). This means that emotional IPV is independent of marital status, parity, children alive, gestation, level of education, household income, age group mother, and religion.

### 4.8 Association of sexual IPV with socio-demographic covariates

#### 4.8.1 Marital status and sexual IPV

Marital status was strongly associated with sexual IPV since the chi-square test was 9.004 with a p value of 0.011. Women who were single reported the lowest sexual IPV prevalence rate (6.7%) than women who were divorced/separated who had a 41.7% prevalence of sexual IPV. This is shown in table 14 below:

*Table 14- A chi-square for marital status and sexual IPV*

| **Description** | **Experience sexual IPV** | | **Not experience sexual IPV** | | **Total** |
|---|---|---|---|---|---|
| | n | % | n | % | |
| Single | 3 | 6.7 | 42 | 93.3 | **45** |
| Married | 43 | 15.7 | 231 | 84.3 | **274** |
| Separated/divorced | 5 | 41.7 | 7 | 58.3 | **12** |
| **Total** | **51** | | **280** | | **331** |

Other variables associated with sexual IPV are parity (Pearson chi-square test 17.843, p=0.007), children alive (Pearson chi-square test 19.324, p=0.004), occupation (Pearson chi-square test 8.169, p=0.043)

Variables that were not associated with sexual IPV were marital status (p=0.065), parity (p=0.113), gestation (p=0.251), education level (p=0.105), household income (p=0.938), religion (p=0.545) and age group (p=0.759).

### 4.9 Association of physical IPV with socio-demographic covariates

Marital status was strongly associated with physical IPV since the chi-square test was 10.408 with a p value of 0.005. The findings show that 50% of the women among those divorced reported physical IPV while 8.9% of the women among those who were single underwent physical IPV. This is as indicated in the table 15 below:

*Table 15- A chi-square for marital status and physical IPV*

| **Description** | **Experience physical IPV** | | **Not experienced physical IPV** | | **Total** |
|---|---|---|---|---|---|
| | n | % | N | % | |
| Single | 4 | 8.9 | 41 | 91.1 | **45** |
| Married | 54 | 19.7 | 220 | 80.3 | **274** |
| Separated/divorced | 6 | 50 | 6 | 50 | **12** |
| **Total** | **64** | | **267** | | **331** |

Variables not associated with physical IPV include parity (p=0.0.280), children alive (p=0.354), occupation (p=0.207), gestation (p=0.388), education level (p=0.277), household income (p=0.754), religion (p=0.271) and age group (p=0.514).

CHAPTER FIVE

# 5.0 DISCUSSION

This study targeted 331 participants and the response rate was excellent with all (except 2) variables under study receiving 100% responses. Among the participants interviewed, those who were between the age of 20 to 24 years (36.3%) predominated, followed by those falling in the age range of 25 to 29 years (31.7%). Most had reached high school (47.1%), were married (82.8%), unemployed (52.3%) and in their third trimester of pregnancy (46.8%). Most reported a total household income of at least Ksh.10,000 per month (63.1%). These results conform to those by other studies done elsewhere. In Silva et al. (2015)'s study, the age group 20 to 25 years were the majority, most had reached high school (37.3%), most were married (82.8%) and had low monthly family income (63.7%). Mahenge et al. (2013) did a study at Muhimbili National Hospital and found that participants in the age group 26 to 34 years (60.59%) were the majority, had reached high school (51%), and were married (83%). Finally, Al-Azri et al. (2016)'s study had 63.5% of the participants who were unemployed.

The overall prevalences of antepartum depression and intimate partner violence (IPV) among the pregnant women attending antenatal care (ANC) clinic at the LHCMS was found to be 46.5% and 54.4% respectively. Furthermore, significant associations between depression and IPV and the various sociodemographic factors among the participants were also evident. In addition, the researcher found that there was significant difference in the prevalence levels of antepartum depression between women who were experiencing IPV and those who were not. These findings, therefore, rejected the null hypothesis and confirmed the alternate hypothesis.

## 5.1 Prevalence of antepartum depression

The antepartum depression prevalence of 46.5% (154/331) found in this study at the EPDS cut off score of not less than 13 (EPDS ≥13), was consistent with the findings that about 40% of pregnant women in their second to third trimesters were depressed in a Tanzanian peri-urban study (Kaaya et al., 2010) and 47% of pregnant women studied in a Rural South African study were depressed (Rochat et al., 2011).While the Tanzanian and the South African studies used the Swahili version of the Hopkins Symptoms Checklist and the IsiZulu translated version of the structured clinical interview for DSM-IV diagnoses to assess for depression, this study used the EPDS screening instrument which were available in both the original English and the Swahili translated versions.

The prevalence rate findings in this study were slightly more than one and a half times the rates found in a similar study done in Kenya by Mwakio (2015) who found an antepartum prevalence rate of 29% among women attending ANC clinic at the KNH. The rate almost doubles that of an Ethiopian study where about 25% of the pregnant women attending Addis

Ababa Public Health Centres were depressed (Biratu & Haile, 2015). When compared to the rates found in the developed world, this prevalence was higher than the estimated antenatal depression, in the US population, of between 6.1% and 16.6% (Ashley, Harper, Arms-Chavez & LoBello, 2016) and a multi-ethnic population prospective cohort study in Norway in which 13% of the pregnant women were depressed (Shakeel et al, 2015). The reason for the disparities with the Kenyan and Ethiopian studies could be attributed to differences in the geographical, socio-demographic and methodological factors. Moreover, lower prevalence rate of depression in high-income countries is in keeping with the conclusion derived from a US cohort study, that favorable socioeconomic status was protective against vulnerability to depression in the antepartum and postpartum period (Rich-Edwards et al., 2006).

On the other hand, the prevalence rate of 46.5% in this study was lower compared to that found in another study in Turkey which found an overall prevalence rate of depression of almost 55% (Aktas & Calic, 2015). The said study employed the Becks Depression Inventory (BDI) to assess depression as opposed to the Edinburg Postnatal Depresssion Scale (EPDS) used in this study; this could largely explain the disparity in the depressive figures. Higher numbers of false-positive results are more common with BDI-II and thus cut-off scores may need alterations if more accurate identification of depressive symptomatology among pregnant women is to be realized (Chaudron et al., 2010 and Sharp & Lipsky, 2002).

### 5.2 Association of antepartum depression with socio-demographic covariates

This study found significant association between antepartum depression and the following sociodemographic variables; age, marital status, whether pregnancy was planned or not, education level, occupation and the number of children alive.

The findings implied that there was a high likelihood of being depressed (100%) during pregnancy if a woman was at least 40 years of age. The same picture was evident among the teenage respondents who experienced a higher prevalence rate of depression (48.3%) than those in the 25-29 (36.2%), 30-34 (41.2%) and 35-39 (47.6%) years age groups. This is consistent with the findings noted in two other studies; a study by Thompson & Ajayi (2016) found a significant association between antenatal depression and young maternal age whereas another study associated increasing maternal age with depression in pregnancy (Ali et al., 2012). According to Hartley et al. (2011), having a young age was one of the surest predictors of antepartum depression. In a population-based cross-sectional study, adolescence or advanced maternal age came up as risk factors for major depression (Raisanen, et al., 2014). The reason for heightened risk of depression in young maternal age was attributed to having no partner, financial problems and unwanted pregnancies (Rich-Edwards et al., 2006). However, Al-Azri et al. (2016) did not find any significant association between maternal age and antepartum depression. In view of these findings Witt et al., (2010) recommends that due to heightened lifetime risk of developing mood disorders associated with younger women, monitoring these women as they grow older and in view of successive pregnancies is important.

Marital status has been known to play a significant role in depressive symptomatology.This study revealed significant association between marital status and antepartum depression. Higher depressive prevalences were discovered among women who were divorced (83.3%) and among singles (60%) than among the married indicating that being married was protective against antepartum depression. These findings echo those of Witt et al., (2010) who found that antepartum depression, among other mental health illnesses, was more likely to be manifested among women who were never married compared to married women and that divorced or separarted women had increased chance of developing antepartum depression among other mental diseases. Similar findings are evident in a study carried out by Moawed, Gemaey, & Mutairi (2015) who submitted that there was a significant correlation between depression and mother's marital status. Further to this, Hartley et al. (2011), following bivariate analysis, reported that singlehood as opposed to marriage or cohabitation had a significant association with depression. However, Rwakarema et al. (2015) in a Tanzanian cross-sectional study targeting pregnant women in three antenatal clinics in Mwanza town deduced that marital status was not associated with antenatal depression. Furthermore, another study done in the US returned similar results in that there was no significant relationship between marital status and antepartum depression among pregnant women drawn from a low-income North Carolina neighborhood(Martin et al., 2006).

Various researchers have had varying arguments as to the role of marital status in influencing the mental health status of women. On one hand, being married affords the woman the rights of husband/partner support which in turn impacts positively on the way the woman navigates through the challenges posed by the pregnancy process (Silva et al., 2015). Aktas & Calic (2015) found that husbands, to the pregnant women under study, were the main source of social support and that the said social support diminished the psychological challenges caused by stressful life events. In fact, married women who were without social support from their partners had heightened risk of developing depressive illness in the course of their pregnancy (Dudas et al., 2012). On the other hand, it has been argued that marriage exposes women to myriad mental health problems including depression. To this end, marital discord, lack of balance of power and control especially on women's side, and low level of emotional intimacy are some of the risk factors for depression and anxiety among married women (Brock, 2012). In other words while marriage may be/is protective against depression among married women, it is also a risk factor for the evolution of depressive illness. Therefore, Brock (2012) recommends targeted couple centered interventions that have the prompensity of helping couples develop adaptive marital relationships and thus foster marital satisfaction.

Thus, the practice of women being accompanied to the antenatal clinic by their husbands/partners should be encouraged. This will in turn make the men feel responsible as the women feel cared for and supported by their husbands/partners. It also calls for the empowerment of the ANC clinic nurses in basic couple counselling skills to optimize their service delivery to couples attending ANC services. According to Silva et al. (2015) the husband/partner has the potential for mitigating against pregnancy related negative biopsychosocial outcomes. This is by offering support that goes a long way in enhancing the

woman's motivation to experience their pregnancy positively even in the face of pregnancy related adversities.

Putting in place the necessary physical, psychological and socioeconomic measures before a woman can think of getting pregnant is imperative (Biratu & Haile, 2015). A statiscally significant association was found between depression and whether pregnancy was planned or not. Moreover, this study showed that women whose pregnancy was not planned (57%) had an increased chance of suffering depression than those whose pregnancy was planned (39.9%). This finding is in keeping with the submissions from an Ethiopian study where antenatal depression was detected at significantly higher levels among those antepartum mothers whose pregnancy were unplanned. Moreover these women were 2.78 times more at risk of developing antepartum depression than those whose pregnancies had been planned (Biratu & Haile, 2015). However, Hartley et al. (2011) found no association between unplanned pregnancy and depressed mood among pregnant women. In view of the high prevalence of unplanned pregnancies, it is paramount for all stakeholders to design and implement effective and sustainable reproductive health programs that emphasize on the provision of targeted family planning facilities and related tailored reproductive health education, information and communication (Prietsch et al., 2011;Ikamari, Izubara & Ochako, 2013). This would in turn stem cases of unplanned pregnancies thus mitigating on depressive symptomatology among women of reproductive age. It is worth noting that planned pregnancy is protective against depressive illness (Lima et al., 2017).

Women who had gone up to college level were more prone to depression (58.1%) than those who had not. In fact the study indicated that antepartum depression rate was lowest among women who had gone up to primary level of education (36.4%). In their study investigating the link between depression and sociodemographics, Akhtar-Danesh & Landeen (2007) found that the life time depressive prevalence rates were lowest among those who did not achieve secondary education and highest among those whose education spanned beyond scondary school. This finding therefore bring to the limelight the fact that higher education, while it is a marker of better socioeconomic prospects, may not necessarily count among women from these low-income urban settlements. More studies in these environments will need to corroborate these findings though.These findings are a strong departure from those of a Brazillian population-based cohort study which suggested otherwise. In that study, Coll et al. (2016) linked low level of maternal education to adverse socioeconomic markers such as insufficient income and argued that this was a strong predictor of antepartum depression among women with low education. Low education was also a predictor of depressed mood in a study targeting two Cape-Town peri-urban settlements (Hartley et al., 2011). A Tanzanian study by Rwakarema et al. (2015), however, did not find any significant association between antinatal depression and education.

According to this study's findings, a statistically significant association between depression and occupation was evident with a chi square test of 8.143 at a p value of 0.043. Employed women were more likely to manifest antepartum depression (61.3%) than the unemployed

(49.1%), casually employed (47.2%) and the self-employed (33.8%). Different from this study are the findings by Ayele et al. (2016) who submitted that the risk of depression among housewives as compared to women who were government employees was substantially enhanced. These findings are also contrary to a Korean study findings which found that unemployment was a risk factor for prenatal depression (Park, 2015). In fact employment has been celebrated as one of the major component of socioeconomic combination of protective factors which also encompasses higher education (Park, 2015; Silva, et al, 2015). Factors to do with cultural beliefs that exalt male dominance, power and control over household socioeconomic resources might be contributory to the findings in this study (WHO, 2010; KDHS, 2014).

The analysis of this research findings indicated that being depressed was associated with the number of living children. While only four women had at least 4 children, women who had three children were more likely to be depressed (63.6%) than those who had at most 2 children. The burgeoning burden of care, with every additional mouth to feed, may only worsen the strain on the available meagre resources. This might in turn lead to a state of despair and helplessness among women whose shoulder the responsibility of ensuring for the family's sustenance rests. Similar findings were realized in another study where having not less than 2 children was one of the factors that were most strongly associated with higher EPDS scores (Coll et al., 2016). Furthermore Coll et al. posited that the risk of developing antepartum depression increased among the women with increase in the number of children living at home compared to those who were waiting for their first borns. Increase in the number of children leads to the enlargement of family size which Thompson and Ajayi demonstrated to be a risk factor to antepartum depression (Thompson & Ajayi, 2016). The more children one had the more the parental responsibilities became which led unhappiness among the parents (Matseke et al., 2012).

### 5.3 Prevalence of intimate partner violence

The findings of this study revealed that 54.4% (180/331) of the participants had experienced at least one form of intimate partner violence. Emotional IPV was the commonest at 48.3%, followed by physical IPV and sexual IPV at 19.3% and 15.4% respectively. Furthermore 21.7% of the women experienced more than one form of IPV.

The overall IPV prevalence figure of 54.4% was comparable to the KDHS (2015) report in which around 47% of ever-married women reported spousal violence experience. The research findings fall well within the IPV prevalence range of 2.3% to 57.1% depicted in a systematic review of Sub-Saharan African studies on the prevalence and risk factors for IPV among pregnant women (Shamu et al., 2011).

The KDHS (2015)'s recorded prevalence rate of IPV of 38% among ever-married women of child bearing age (15-49 years) and the 37% IPV prevalence rate realized in another Kenyan study (Makayoto et al., 2013) are lower than the overall prevalence rate yielded by this study.

This study result was also significantly higher than some of the prevalence rates found in studies done in the developed countries. A cross-sectional study among pregnant women attending 11 antenatal clinics in Belgium returned an IPV prevalence rate of 10.6% (Van Parys et al. 2014) and a study investigating prevalence of abuse and violence in a Canadian sample of women nationally yielded an even lower rate of 1.4% of women abused during pregnancy (Daoud & Urquia, 2012). The lower prevalences yielded in the Kenyan cases could be related to sociodemographic and study methodological dynamics. In the case of the developed countries, the lower prevalence rates could be related to favorable socioeconomic environment among many other reasons. According to Shoukry & Fathy (2016) the risk of IPV is significantly reduced when a couple resides in an area where the levels of income inequality are low as compared to those living in an area where income inequality levels are high. They also posited that education, husband's employment and the household's economic status protect the woman against IPV.

Among the studies that had an IPV prevalence rate higher than that presented in this study included; a study carried out in Gambia which showed that 61.8% of the pregnant women studied reported to have been undergoing IPV at the time. This high percentage is attributed to fact that wife beating is universally accepted by the women in Gambia as a way of life (Idoko, Ogbe, Jallow, & Ocheke, 2015) and that wife battering is taken as a form of 'necessary discipline' sanctioned by the society (Rotimi, 2007). More than 50% of married and unmarried women and 61% of males in Nigeria approve of wife beating (Ellsberg & Heise, 2005).

The high prevalence of IPV in this study underscores the need for concerted efforts, by the various stakeholders in governmental and non-governmental organisations, in developing effective programs and strategies that are able to safeguard women from vulnerable societies against violence, especially that meted by intimate partners.

### 5.4 Association of IPV with socio-demographic covariates

Three factors were significantly associated with IPV namely: age, marital status and occupation. The findings of this study that age was significantly associated with IPV is in line with the observations by Onoh, et al. (2013) that the pregnant women's age significantly influenced IPV. This study's findings that all the participants who were 40 years and above had experience IPV concurs with the KDHS (2015) findings that the IPV experience rate among ever-married women majorly escalated with age. However, contrary to these findings, Stavrou, Poynton, & Weatherburn, (2016) opined that older women had significantly lower odds of undergoing IPV. Converse to the results of this study that indicated 15 to 19 years old women were less likely to be victimized by IPV, Mahenge et al., (2013) found that young age was among the factors that predisposed a woman to physical and/or sexual IPV during pregnancy. The same results were submitted by Shamu et al. (2011) who by systematically reviewing several Sub-Saharan African Research findings concluded that having a young age

was a risk factor for experiencing IPV. However, a Haitian study did not find any significant relationship between maternal age and IPV experience (Small et al., 2014).

Most of the respondents, among those recorded to have undergone IPV in this study, were married accounting for 83.9% (151/180). Moreover marital status was strongly associated physical IPV with a p value of 0.005 and with sexual IPV with a p value of 0.011 at 5% level of significance. These findings are consistent with the submissions in the KDHS (2015) report that physical violence experience was highest among women who were currently or previously married. Generally, there was a significant association between marital status and IPV. Depressive prevalence was, highest among women who were separated/divorced (83.3%) and lowest among women who were single (42.2%). This outcome is in agreement with the Kenyan study done in Kisumu where bivariate analysis revealed that there was an association between being in a marriage currently or ever before and IPV experience (Makayoto et al., 2013). Additionally, Mwakio (2015) in a similar study done at the Kenyatta National Hospital reported that being married and IPV projected a strong association with a p value of 0.032 at 5% level of significance. According to KDHS (2015), currently married and formerly married women were much more likely than the never-married ones to have undergone physical violence and that the most likely perpetrator of the violence was likely to be the current husband or partner followed by the former husband or partner. These findings are also corroborated by those of an Ethiopian research which found that women who were married or cohabited with their partners reported significantly higher levels of IPV (Abeya, Afework, Yalew, 2011). Consequently, as reflected in this study that single women reported the lowest level of prevalence rate then, it implies that being single appears to be protective against IPV. Contrary to these findings, lower rates of IPV were reported among married women while higher rates were recorded among those women who were living alone (Johriet al., 2011). In this case, being married appeared to be protective. In a longitudinal study that investigated the demographic and clinical correlates of IPV among mothers with mental illness, there was no significant relationship between IPV and marital status (McPherson, Delva, & Cranford 2007). Similarly, though this study focused on physical IPV only, there was no significant association between marital status and IPV (Pool et al., 2014)

Empowerment for women is evidenced by their access to employment and control over what they earn (KDHS, 2015). In this study, majority of the participants were unemployed (52.3%) and the rest (47.7%) were either in some form of stable employment, casual work or self-employment. The study showed that there was a statistically significant association between IPV and occupation. Thus, the employed were likely to experience IPV in this study owing to the fact that 71% of the women in employment reported IPV experience. The same finding was reflected in Das et al. (2013) who also deduced that several studies in many locations in India reported that women in employment were more likely to have reported having undergone IPV. An Iowan study found a trend whereby the likelihood of IPV increased especially where the woman was employed and the husband unemployed (Baydoun, 2009). The high prevalence of IPV among the participants in this study could be attributed in part to the tendency of male intimate partners exercising power and control over their spouses in

household decision making processes including matters financial (WHO, 2010). This has potential to degenerate into intimate partner conflicts especially where the male partner may feel that their authority is being usurped. The KDHS (2014) submits that half of employed married women report that at least the husband's decision counts when it comes to the decision on how to spend what they earn and that participation in household decisions by women is not 100%. On the contrary a Swedish cross-sectional study reported that women who did not have employment were more than 5 times more likely to complain of being victims of domestic violence during pregnancy (Finnbogadottir, Dykes & Wann-Hansson . 2014). Shamu et al. (2013) also found out in a bivariate analysis that unemployment was significantly associated with IPV experience among women in pregnancy.

### 5.5 Association between antepartum depression and IPV

A strong association between antepartum depression and IPV was noted in this study. A total 60% of women who experienced IPV were depressed. This is in agreement with Hartley et al. (2011) who, on bivariate and multivariate analysis, found that IPV was significantly associated with depressive symptoms. Moreover, adjustments for women's sociodemographic features depicted that the risk of developing depression (among other mental health sequelae) was higher in pregnant women who underwent at least one of the two forms of IPV, physical and sexual, than those who did not (Mahenge et al., 2013). The interaction between IPV and depression in pregnancy is further stressed by the fact that violence meted against pregnant women over the preceding year, by their partners, enhanced their depressive symptoms to almost 4 times as compared to those who had not been abused. Furthermore, active spousal abuse during pregnancy escalated the risk of developing depression more than six-fold (Lara et al., 2014). Conversely, depressed women were more than 13 times at risk of undergoing domestic violence than those who were not depressed (Finnbogadótti et al. 2014).

Not only was antepartum depression associated with IPV in general, but strong associations were also evident when antepartum depression was analysed against the various forms and combinations of IPV. It was noted that women who experienced all the three forms of IPV (physical, emotional, and sexual) had an increased prevalence rate of depression (87%) and thus were more likely to be depressed compared to those who experienced one or two types of IPV. These were followed by women who had experienced physical and emotional IPV (78.8%), and emotional IPV (55.1%) respectively. The heightened risk of depression among women who experienced all the three forms of violence followed by those with two forms of violence is in keeping with the assertions of Brar, et al (2017) that experiencing all the three forms of IPV heightened the risks of depression. Among women who had been subjected to a composite of psychological, physical and sexual abuse, 71% manifested features of common mental disorders including depression in pregnancy, (Ludermir, Valongueiro & de Araujo,2014). The lethality of the complex inter-partner interaction of the various forms of IPV in making depressive symptoms more common in pregnancy, therefore, calls for robust mental health assessment when handling pregnant women with history of IPV.

When all appearance of physical, emotional and sexual IPV (among all IPV victims) were considered, it was also noted that 75% of all women who had undergone at least some form of physical IPV were depressed. Moreover, the findings were that 63.8% and 60.8% were depressed among those who experienced at least some form of emotional IPV and sexual IPV respectively. Sexual IPV was associated with antepartum depression in this study with a p value of 0.022. This is in keeping with the findings that coersive sexual intercourse, instigated by their intimate partners during pregnancy, condemned the victimized women to higher depressive levels compared to their counterparts who were not exposed to sexual IPV (Martin et al., 2006). The relationship between sexual IPV can be explained in line with Martin et al. (2006)'s observation that, just like physical IPV, sexual IPV usually lead to physical injuries, which injuries heighten levels of depression.

Further analysis using logistic regression revealed that pregnant women who had experienced physical IPV had 43% increased chance of being depressed than those who had not experienced physical IPV. Support for these findings can be gleaned from a study by Ogbonnaya et al. (2013) which determined that women who were physically assaulted by their intimate partners during antepartum period were more likely to manifest depressive illness than those who did not complain of physical IPV during their antepartum period. The explanation for higher depressive levels among physical IPV pregnant victims as opposed to those who did not suffer physical IPV should be made in a number of ways. Other than physical IPV being an independent predictor of depression (Jesse, Walcott-McQuigg, Mariella, & Swanson, 2005), it commonly causes physical injuries which in themselves bring about a multiplier effect in the depressive levels. To illustrate this, Martin et al. (2006) argued that, women's pregnancy status not withstanding, physical or sexual IPV endangers their mental health and also inflicts physical injuries which consequently heighten their depressive levels. In addition, pregnant women who were undergoing at least some emotional IPV had 38% increased chance of being depressed, upon logistical regression analysis, than those who did not experience emotional IPV. Similar report was declared by Martin et al. (2006) who not only linked women's depressive manifestations to their partners' emotional aggression but also argued that even low levels of such aggression had potential to inflict psychological injuries. The importance and influence of psychological violence during pregnancy is undebateable, thus, focus that is only based on physical and sexual violence during pregnancy may not be helpful in stemming depressive illness (Fonseca-Machado, et al., 2014). It is thus important that a biopsychosocial approach to the care of antepartum mothers, during their ANC clinic days, be always the standard of practice. Revision or redesigning of the Antenatal Care Protocols with deliberate inclusion of a section on brief psychological assessment is necessary.

### 5.6 Study limitations

One of the major limitation of this study is that it cannot be generalized to the whole population given that it concentrated mainly on those women who came for ANC services in

public health institutions thus potentially excluding those who attend private based ANC clinic or who are attended by traditional birth attendants (TBAs) or those who do not attend ANC clinic at all.

Since this was a cross-sectional design, it was not possible to determine the direction of the various associations among the variables under study.

The EPDS is not a diagnostic instrument but is only used for screening purposes. Therefore since we did not use diagnostic procedure and/or tool to confirm depressive diagnosis, there was possibilty that some of the participants that were evaluated on EPDS scoring criteria as depressed may not have been suffering from depression while those who may have been categorized as non-depressed may actually have been depressed.

Incidences of undereporting (Mahenge, Likindikoki, Stockl, & Mbwambo, 2013) or overreporting among the participants may serve to be a limitation. Some of the issues under investigations, such as IPV, are quite sensitive to talk about for fear of reprisal in spite of the reassurance of confidentiality. This therefore means that some of the women might actually have concealed their experiences thereby underreporting. Moreover common beliefs and practices among various African cultures endorse wife beating and that sex is the 'right' of a man, the woman's feelings not withstanding. Based on this, some violence may not have actually be regarded and reported as violent acts by some of the participants. Limited knowledge among the participants on what constitutes acts of violence may also have compromised accurate reporting.

## 5.7 Conclusion and recommendations

This is perhaps the only study so far, in Kenya, that limited itself specifically to investigating antepartum depression and its association with IPV among pregnant women from the low-income urban settlements. The study reveals the vulnerability of these women to the depressive affliction. Furthermore, other than depicting that IPV is widespread among these women, the study results illustrate a strong association between depression and intimate partner violence among these women.

Biopsychosocial approach to the antenatal care of pregnant women from the low-income urban settlements is strongly advocated for. This will not only ensure that their physical and mental health welfare are taken care of but that this is done in the context of their psychosocial milieu.

Revision or redesigning of the antenatal care protocols with deliberate inclusion of a section on brief psychological assessment is necessary. Furthermore the empowerment of health care workers, especially the nurses, working in the antenatal clinic set-ups with intimate partner violence and depressive symptom screening skills is important. Moreover they should be

equipped with basic targeted counselling skills that include couple counseling and ability to do appropriate referals and follow-ups.

Multisectoral approach (involving, but not limited to, health, law enforcement, legal, and spiritual sectors) at the decision making level need to prioritize comprehensive policies that will help mitigate against these biopsychosocial ills directed at pregnant women from the low income-settlements.

More studies done in low-income urban settlesments in other major towns in Kenya to buttress the available data in this area is recommended. Further to this, investigation on the impact of the interaction between intimate partner violence and depression on maternal and child outcomes among women from such settlements is also suggested.

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# APPENDIXES

## APPENDIX I: Informed Consent

**THE UNIVERSITY OF NAIROBI**
**DEPARTMENT OF PSYCHIATRY**
**CONSENT FORM**

This Informed Consent Form is for women who attend Antenatal Care Clinic at the Lang'ata Health Centre and Maternity Services. It is to invite you to participate in research on "Antepartum Depression and Intimate Partner Violence Experience among Pregnant Women in a Low-Income Urban Settlement in Nairobi, Kenya.

**Investigator:** Francis Otieno
**KNH/UoN-ERC**
**Contact Information:**
**Institution: Department**
**of Psychiatry, The**
**University of Nairobi**
**(UON)**
**P.O. Box 20723 – 00202**
**Tel: 726300-9**
**Fax: 725272**
**Email:uonknh_erc@uo**
**nbi.ac.ke**
**In emergency, please call name of investigator listed above.**

**Investigator's Statement**
I am, Francis Otieno, a clinical psychology student at The University of Nairobi, Department of Psychiatry. I am carrying out a study on the prevalence of antepartum depression and IPV among pregnant women from low-income urban settlements. This study which is done as part of the requirement to complete my postgraduate degree course in Clinical Psychology, is under the supervision of Dr. Mathai, Prof. Kuria and Dr. Ng'ang'a who are lecturers at the University of Nairobi's Department of Psychiatry.

**Introduction**
The study focuses on the various health aspects of the pregnant woman and the experiences they undergo during pregnancy and how these relate to their health. This is important in that the findings of the study are going to help further improve on antenatal care of women attending our health care facilities and inform institutions such as the UoN and KNH and ultimately the Kenyan Government on policies necessary for quality maternal and child

health care. It is expected that the participation time in the research will not exceed 30 minutes.

**Purpose of the research**

Depression, a state of unusual feeling of sadness, worthlessness and hopeless coupled with reduced energy for over 2 weeks, is a common occurrence in pregnancy. This condition is known to be harmful in many ways not only to the mother but also to the growing foetus. Some experiences that pregnant women undergo may worsen this state. Any form of violence, be it physical, sexual or emotional, is one of those experiences. The reason for doing this research is to establish the magnitude of violence, especially from an intimate partner, experienced by pregnant women and determine their depression levels then determine the association between the two in view of their socioeconomic background.

**Number of participants**

The investigator is targeting 331 pregnant women attending the antenatal care clinic at the Lang'ata Health Centre and Maternity Services to participate in the study.

**Procedures and protocol**

The investigator shall explain the content of the consent form to you and if you agree, the investigator will ask you to sign the consent form. Key to the study will be your response to a number of questions on your marital or intimate relationship with your partner, age, parity, number of living children, level of education among other factors. These questions shall help in the assessment of depression. Three sets of questions shall be used; structured demographic data questionnaires, the Edinburg Postnatal Depression Scale, and the Kenyatta National Hospital and Population Council Screening Form for IPV. While the investigator will help you understand the contents of each, he will also be available for further clarification. This will be a onetime event for each participant except where follow up will be required. Following the completion, submission of the research findings to the Department of Psychiatry, UoN, the participants will be able to know of the findings from the health centre's management. Alternatively, you could use the researcher's contact information provided in this document to access the information.

**Study duration**

The study is expected to take between 3 and 6 months to carry out, that is, from March, 2017 to September, 2017.

**Associated risks**

Some of the questions that you will be asked will likely bring back painful memories of the experiences you went through or are going through and therefore cause much distress. The researcher assures you that in the event of such moments, you will be accorded the necessary support to lessen the distress.

**Benefits**

As an individual, you will be able to get psychological treatment, appropriate referral and follow up in case an emotional need is identified. Your participation in this research is also likely to benefit the residents of Kibera, especially women, by inviting the attention of the government, non-governmental and the donor community to the need to put up necessary interventions that will enhance their welfare. Moreover, the government of Kenya stands to benefit from your participation in that the research findings will form part of the basis for provision of quality antenatal care where the mental health of pregnant women is also taken care of.

**Freedom to withdraw or refuse participation**

This is to confirm to you that you reserve the right to refuse to participate in the study or withdraw any time. That your refusal or withdrawal will not in any way compromise your right to receive any kind of attention, treatment, or care you are entitled to in this health facility.

**Confidentiality**

The information you provide here shall be treated with utmost level of confidentiality and will not be shared by anybody else except the supervisors. Furthermore, numbers instead of your name is all that will be used to identify you. Further to this, the information shall be secured so that no one other than those mentioned will ever have access to it. In the event that you need any help, the researcher will, with your consent help you as necessary.

**Whom to contact**

You may contact the Investigator or the Supervisor(s) for further clarification of any issue that may arise during or after the study.

**INVESTIGATOR'S SIGNATURE**_____ Date: _____

**PARTICIPANT'S STATEMENT AND SIGNATURE**

I have read the above information, or it has been read to me. My concerns have been satisfactorily addressed. I therefore voluntarily consent to participate in this research.

Name _____ Signature_____

Date_____

**KISWAHILI**

**CHUO KIKUU CHA NAIROBI**

**FOMU YA RIDHAA**

Fomu hii ya ridhaa ni ya wanawake wanaohudhuria kliniki ya wanawake waja wazito katika hospitali ya Lang'ata, iliyo chini ya mamlaka ya jiji la Nairobi. Unaombwa kushiriki katika utafiti kuhusu, "Maambukizi ya unyogovu au huzuni usio wa kawaida na ugomvi au vurugu katika uhusiano wa ndoa au wa kimapenzi kwa wanawake waja wazito wakaazi wa eneo la mapato ya chini jijini Nairobi, Kenya".

**Mtafiti**:
Francis Otieno Chuo: Chuo Kikuu cha Nairobi, Sanduku la posta 20723-00202, Nairobi. KNH/UoN-ERC Simu: 726300-9, Faksi: 725272, Barua pepe: uonknh_erc@uonbi.ac.ke
Mpigie simu mtafiti aliyetajwa hapo juu kukiwa na udharura wowote

**Taarifa ya mtafiti**
Mimi ni Francis Otieno, mwanafunzi wa Saikolojia ya Kimatibabu katika Chuo Kikuu cha Nairobi, Idara ya Magonjwa ya Akili. Ninafanya utafiti juu ya kiwango cha maambukizi ya unyogovu au huzuni usio wa kawaida na ugomvi au vurugu katika uhusiano wa ndoa au wa kimapenzi kwa wanawake waja wazito wakaazi wa maeneo ya mapato ya chini mijini. Utafiti huu ni sehemu ya kutimiliza masharti ya kuhitimu katika masomo ya juu ya Saikolojia ya Kimatibabu. Wasimamizi wangu ambao ni wahadhiri katika Chuo Kikuu cha Nairobi ni wafuatao: Dakitari Mathai, Profesa Kuria na Dakitari Ng'ang'a.

**Utangulizi**
Utafiti huu unaangazia vipengee kadhaa vya afya ya mwanamke mja mzito na hali anazozipitia wakati wa kubeba mimba na jinzi hali hizi zinavyo athiri afya yake. Matokeo ya utafiti huu ni muhimu kwa maana yatasaidia katika uboreshaji wa huduma wanazopewa wanawake waja wazito wanapohudumiwa katika hospitali zetu na pia kutoa habari muhimu kwa idara kama Chuo Kikuu cha Nairobi na Hospitali ya Kenyatta na hatimaye Serikali ya Kenya itakayo saidia katika kutekeleza sera za kuongeza viwango vya huduma za afya wanazozipata wanawake na watoto. Kujibu kwa maswali katika utafiti huu huenda usizidi nusu saa.

**Kusudi la utafiti**
Unyogovu au hali ya huzuni usio wa kawaida huambatana na mtu kuhisi huzuni mkali sana moyoni, kukosa furaha katika zile shughuli ambazo kwa kawaida zilikuwa zikimfurahisha hapo awali, kukosa tumaini, kuona kana kwamba hana manufaa na kukosa kufanya mambo kwa makini na nguvu. Waathiriwa tena hupata mabadiliko katika hamu ya kula chakula na usingizi. Hali hii hudumu zaidi ya wiki mbili na mara nyingi hutokea wakati wa mimba.

Unyogovu una uwezo wa kudhuru mwanamke mja mzito pamoja na mtoto aliye tumboni. Baadhi ya hali ambazo mwanamke mja mzito anapitia huwa na uwezo wa kufanya hali hii kuwa mbaya zaidi. Aina yoyote ya vurugu, ugomvi au dhuluma za kimwili, kimapenzi au kimawazo ni moja wapo wa zile hali. Kusudi la utafiti huu ni kuthibitisha viwango vya vurugu au ugomvi, haswa kutoka kwa mme au mpenzi wa kudumu, wanachopitishiwa wanawake waja wazito na pia kutambua viwango vya unyogovu au huzuni usio wa kawaida, kisha kuangazia uhusiano kati ya vipengee hivyo viwili katika muktadha wa hali yao ya mapato.

**Idadi ya washiriki**

Mtafiti ananuia kuwafikia wanawake waja wazito 331wanaohudhuria Kliniki ya wanawake waja wazito katika Hospitali ya Lang'ata.

**Utaratibu na itifaki**

Mtafiti atakueleza yaliyomo katika fomu ridhaa kisha ukikubaliana nayo utatakikana kutia sahihi kwenye fomu hiyo. Majibu yako kuhusu maswala kama ya uhusiano wako wa ndoa au wa ndani na mwenzio, umri, idadi ya mimba, idadi ya watoto walio hai, kiwango cha masomo miongoni mwa mambo mengine. Maswala haya yatazingatiwa katika kukadiria kiwango cha unyogovu au huzuni usio wa kawaida. Fomu spesheli zilizo na maswali zitapeanwa na mtafiti kisha zitajazwa na washiriki. Kando na kupeana maelezo kamili kuhusu yaliyomo ndani ya fomu hizo, kila mara mtafiti atakuwa karibu kufafanua swala lolote litakalohitaji ufafanuzi. kushiriki kwako katika utafiti huu utakuwa wa mara moja tu. Kama kutakuwa na haja yoyote ya mshiriki kufuatiliwa, basi ataelezwa vilivyo. Baada ya kukamilishwa kwa utafiti na matokeo kuachiliwa na idara ya Magonjwa ya Akili ya Chuo Kikuu cha Nairobi, mshiriki yeyote atakaye taka kuyajua ataweza kupata usaidizi kutoka kwa usimamizi wa Hospitali ya Lang'ata au atumie anwani na nambari ya simu iliyopeanwa na mtafiti kuulizia matokeo.

**Mda wa utafiti**

Utafiti huu unatarajiwa kuchukua mda wa kati ya miezi mitatu na sita hivi. Kuanzia Machi, 2017 hadi Septemba, 2017.

**Hatari zinazoambatana na utafiti huu**

Baadhi ya maswali utakayojibu huenda yakakukumbusha hali ya uchungu uliopitishiwa na hivyo kukusababisha kuhangaika. Mtafiti anakuhakikishia ushauri ikiwa hali kama hiyo itatokea.

**Faida za utafiti huu**

Ikiwa pataonekana hitaji la kimawazo la kibinafsi, unahakikishiwa ushauri, rufaa na hata ufuatilizi wa hali yako. Kukubali kwako kushiriki katika utafiti huu pia huenda ukawaletea wanakibera, haswa wanawake,  manufaa. Matokeo huenda yakasababisha serikali, mashirika yasiyo ya kiserikali na wahisani wengine kuvutiwa na hitaji la kuleta misaada mbali mbali ambayo itaboresha kwa kiwango fulani, maslahi ya wanakibera. Tena, nchi ya Kenya itapata

manufaa kupitia kusajiliwa kwako kwa utafiti huu. Hii ni kwa sababu, matokeo ya utafiti huu yatakuwa msingi mwema wa kuhakikisha kwamba afya ya wanawake waja wazito inashughulikiwa kikamilifu pasipo kupuuza afya yao ya kimawazo.

**Uhuru wa kutoshiriki au kujiondoa**

Hii ni kukuthibitishia ya kwamba una uhuru wa kutoshiriki kwa njia yoyote au kujiondoa kwa wakati wowote kutoka kwa utafiti huu bila masharti yoyote. Na kwamba uamuzi wako hautaathiri kwa njia yoyote uhaki wako wa kupokea huduma zozote kutoka kwenye hospitali hii.

**Usiri**

Habari utakazozitoa zitadumishwa katika usiri na hazitatolewa kwa mtu yeyote isipokuwa wasimamizi. Ili kuboresha usiri huu, nambari zitatumiwa kukutambua wala siyo majina yako. Zaidi ya hayo, habari hizo zitafungiwa ili mtu yeyote asije akazifikia isipokuwa wale waliotajwa. Ikiwa utahitaji usaidizi wowote ule, mtafiti atajadiliana nawe kwanza na ni wakati tu utakapopeana ruhusa ndipo hatua zifaazo zitakapochukuliwa.

**Wakuwasiliana nay**

Ikiwa una swali lolote, unaweza kuwasiliana na mtafiti au wasimamizi wake wakati wowote.

**SAHIHI YA MTAFITI**

_____ Tarehe_____

**TAARIFA NA SAHIHI YA MSHIRIKI**

Nimesoma habari zilizoandikwa au nimesomewa. Mambo yote yalisababisha wasi wasi yameelezwa kikamilifu. Kwa hivyo ninakubali pasipo kushurutishwa kushiriki katika utafiti huu.

Jina_____ Sahihi_____

Tarehe_____

**APPENDIX II: Edinburg Postnatal Depression Scale 1 (EPDS)**

Name: _____ Address: _____
Your Date of Birth: _____
Baby's Date of Birth: _____Phone: _____

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today.

Here is an example, already completed.

I have felt happy:
〇Yes, all the time
⊙Yes, most of the time (This would mean: "I have felt happy most of the time" during the past week)
〇No, not very often
〇No, not at all

Please complete the other questions in the same way.

In the past 7 days:

1. I have been able to laugh and see the funny side of things
〇As much as I always could
〇Not quite so much now
〇Definitely not so much now
〇Not at all

2. I have looked forward with enjoyment to things
〇As much as I ever did
〇Rather less than I used to
〇Definitely less than I used to
〇Hardly at all

*3. I have blamed myself unnecessarily when things went wrong
〇Yes, most of the time
〇Yes, some of the time
〇Not very often
〇No, never

4. I have been anxious or worried for no good reason
○No, not at all
○Hardly ever
○Yes, sometimes
○Yes, very often

*5. I have felt scared or panicky for no very good reason
○Yes, quite a lot
○Yes, sometimes
○No, not much
○No, not at all

*6. Things have been getting on top of me
○Yes, most of the time I haven't been able to cope at all
○Yes, sometimes I haven't been coping as well as usual
○No, most of the time I have coped quite well
○No, I have been coping as well as ever

*7. I have been so unhappy that I have had difficulty sleeping
○Yes, most of the time
○ Yes, sometimes
○Not very often
○No, not at all

*8. I have felt sad or miserable
○Yes, most of the time
○Yes, quite often
○Not very often
○No, not at all

*9 I have been so unhappy that I have been crying
○Yes, most of the time
○Yes, quite often
○Only occasionally
○No, never

*10. The thought of harming myself has occurred to me
○Yes, quite often
○Sometimes
○Hardly ever
○Never

Researcher's added question (NOT TO BE SCORED)
*11. Are you on treatment for any other illness?
○Yes (Specify.....)
○No

Administered/Reviewed by _____

Date _____

Source: Cox, J.L., Holden, J.M., and Sagovsky, R. 1987. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. British Journal of Psychiatry 150:782-786

## MIZANI YA EDINBURGH KUHUSU KIPIMO CHA UGONJWA WA KISAIKOLOJIA (EPDS) UNAOWAATHIRI AKINA MAMA WALIOBEBA MIMBA

**Mizani ya Edinburgh kuhusu kipimo cha ugonjwa wa kisaikolojia unaowaathiri akina mama waliobeba mimba (EPDS)**

EPDS ina maswali 10 ambayo mara nyingi yanaweza kukamilishwa katika muda wa chini ya dakika tano. Uchunguzi huu umetumia misingi tofauti ya kuweka alama kugundua ni mwanamke yupi ni mwathiriwa na angehitaji kupelekwa hospitalini. Mwanamke anayepata alama 10 au zaidi au anaonyesha ishara yoyote ya kutaka kujiua – hii ni, amepata alama 1 au zaidi katika swali la #10 – anapaswa kupelekwa mara moja hospitalini kwa uchunguzi.

Alama za EPDS zisipuuzilie mbali maamuzi ya kliniki. Uchunguzi wa kina wa kliniki unapaswa kufanywa kuthibitisha ugonjwa. Mizani hii inaonyesha jinsi mama amehisi katika wiki iliyopita. Katika kesi ambapo kuna shauku ni vyema kufanya marudio ya zoezi hili baada ya kipindi cha wiki mbili. Mizani haitawatambua akina mama walio na woga wa kiakili, hofu au kuchanganyikiwa kimaadili.

### ALAMA

**Maswali ya 1, 2,** na **4** (bila *) yana alama 0, 1, 2, au 3, huku sanduku la juu likipewa alama 0 na sanduku la chini likipewa alama 3.

**Maswali 3** na **5-10** (imewekwa *) ni alama zilizogeuzwa , huku sanduku la juu likipewa alama 3 na sanduku la chini likipewa alama 0.

**Alama ya juu zaidi ni:** 30

**Uwezekano wa ugonjwa wa kisaikolojia:** alama 10 au zaidi

**Kila mara tazama swali #10,** ambalo linaonyesha mawazo kuhusu kutaka kujiua.

### MAAGIZO

1. Mama anaulizwa kupigia mstari jibu moja tu kati ya majibu manne aliyopewa, jibu lililokaribia zaidi kuhusu jinsi amekuwa akihisi kwa kipindi cha siku saba zilizopita.

2. Maswali yote 10 lazima yajibiwe.

3. Lazima kuwe na uangalifu kuzuia uwezekano wa mama kujadili majibu yake na wengine.

4. Mama lazima ajibu maswali haya mwenyewe, atasaidiwa tu iwapo hawezi kusoma au ana ufahamu mdogo wa lugha hii.

**FOMU YA MIZANI YA EDINBURGH (EPDS)**
**Nambari la Siri _____Tarehe ya Kuzaliwa_____ Nambari ya Simu_____**
**Tarehe la Mtoto Kuzaliwa _____ Mimba ya ngapi (kwa ajili ya utafiti)_____**

Ulivyo mja mzito, au hivi karibuni ulijifungua mtoto, tungependa kujua jinsi unavyojisikia (hisi). Tafadhali tia alama katika jibu ambalo linakaribia kabisa kueleza jinsi umejisikia katika kipindi cha **SIKU SABA ZILIZOPITA.** Sio tu unavyojisikia leo.
Huu ni mfano, tayari umekamilishwa.
Nimesikia(hisi) nina furaha:
☐Ndio kila wakati
☒Ndio, mara nyingi
☐La, sio kila mara
☐La, sijawahi kamwe
Hili litamaanisha: "Nimesikia (hisi) furaha mara nyingi" katika kipindi cha wiki moja iliyopita. Tafadhali jaza maswali haya mengine kwa njia hii hii.

**Kwa kipindi cha siku saba zilizopita:**

1. **Nimeweza kucheka na kuona jambo la kuchekesha katika mambo**
   ☐Ndio, kama kawaida
   ☐Sio, kama hapo mbeleni (awali)
   ☐Kwa hakika, sio kama hapo mbeleni
   ☐La, hasha

2. **Nimetarajia mambo kwa furaha**
   ☐Kama tu hapo mbeleni
   ☐Imepunguka kidogo
   ☐Imepunguka kabisa
   ☐Mara chache sana

***3. Nimejilaumu bila sababu wakati mambo yalipoenda vibaya**
   ☐Ndio, mara nyingi
   ☐Ndio, mara kadhaa
   ☐Sio, kawaida
   ☐La, sijawahi

4. **Nimekuwa na wasiwasi bila sababu nzuri**
   ☐La, sijawahi
   ☐Sio, kwa kawaida
   ☐Ndio, mara kwa mara
   ☐Ndio,mara nyingi

***5. Nimeshikwa na woga au hofu bila sababu njema**

☐Ndio, mara nyingi

☐Ndio, mara kwa mara

☐La, si sana

☐La, sijawahi

***6. Mambo yamekuwa yakinilemea**

☐ Ndio, mara nyingi nimeshindwa kukabiliana nayo

☐Ndio, mara kwa mara sijaweza kukabiliana nayo

☐La, mara nyingi, nimeweza kukabiliana vyema

☐La, mara nyingi, nimeweza kukabiliana vyema kama hapo mbeleni/awali

***7. Nimekuwa na huzuni sana hadi nimekuwa na ugumu kupata usingizi**

☐Ndio, mara nyingi

☐Ndio, mara kwa mara

☐Sio kila wakati

☐La, hapana

***8. Nimesikia huzuni sana na kutokua na furaha**

☐Ndio, mara nyingi

☐Ndio, mara kwa mara

☐Sio, kila wakati

☐La, hapana

***9 Sijakuwa na furaha kabisa hadi nimetokwa na machozi**

☐Ndio, mara nyingi

☐Ndio, mara kwa mara

☐mara moja moja

☐La, sijawahi

***10. Nimekuwa na mawazo ya kujitendea mabaya**

☐Ndio, mara nyingi

☐Ndio, mara kwa mara

☐Sio, kwa kawaida

☐Sijawahi

Swali lililo ongezwa na mtafiti (HALITAHESABIWA)

**11.** Je, unapata matibabu kwa ajili ya ugonjwa mwingine wowote?

☐Ndio (Upi? ……)

☐La

Imechunguzwa na _____ Tarehe_____

*Chanzo: Cox JL, Holden JM, Sagovsky R. Utambulizi wa ugonjwa wa mawazo baada ya mama kujifungua: uundaji wa maswali 10 ya Mizani ya Edinburgh. Br J Psychiatry 1987;150: 782-786.

APPENDIX III: IPV and Demographic Questionnaire

IPV AND SOCIO-DEMOGRAPHIC QUESTIONNAIRE

**FRONT PAGE Code:**

**HOW TO ANSWER THE QUESTIONNAIRE**

1. You are hereby provided with a pencil and an eraser.
2. Please answer all questions by ticking (✓) the appropriate response.
3. In case you're unsure of any question the researcher is available for clarification.

**PART I: IPV SCREENING TOOL**

Violence directed to pregnant women is known to expose them and their unborn babies to many health dangers during pregnancy and thereafter. To avail help services for women who are being abused, we inquire from all pregnant women whether they have ever been subjected to any form of violence during the current pregnancy:

1. Ever since you became pregnant, has your former or current husband or intimate partner ever:

| | **Please tick in the appropriate box (Yes or No)** | **Yes** | **No** |
|---|---|---|---|
| a. | Slapped, kicked, punched, pinched, chocked, attempted to strangle, burned, or hit you? | | |
| b. | Hurt you physically in any way? | | |
| c. | Pushed, dragged, shoved, squeezed, twisted, pulled your hair, or roughed you up? | | |
| d. | Threatened, insulted, mocked, belittled, humiliated, or treated you badly in any way? | | |
| e. | Forced you to participate in any form of sexual acts that you did not want to or was uncomfortable with | | |

## PART II: SOCIO-DEMOGRAPHIC AND OBSTETRIC INFORMATION

**a) Age**

In what year were you born? Year ……..

**b) Marriage**

| **Please tick the option that is applicable to you** | |
|---|---|
| Single | |
| Married | |
| Separated | |
| Divorced | |

**c) Para**.....

**d) Pregnancy**.....Planned ☐.....Not planned ☐

**e) Number of living children**.....

**f) Religion:**Christian …… Muslim …… Other (specify).....

**g) Level of Education**

| **Please tick the option that is applicable to you** | |
|---|---|
| No formal education | |
| Primary education | |
| Secondary education | |
| College education | |

If completed college:

| **Please tick which level is applicable to you** | |
|---|---|
| Certificate | |
| Diploma | |
| University | |

**h) Socioeconomic Status**

1. Occupation:

| **Please tick the option that is applicable to you** | |
|---|---|
| Employed | |
| Casual employment | |
| Self-employment | |
| Unemployed | |

2. Total household income range per month

| **Please tick the option that is applicable to you** | |
|---|---|
| Less than 3,000 | |
| Ksh. 3,000 to Ksh. 6,000 | |
| Ksh. 6,000 to Ksh. 10,000 | |
| Above Ksh. 10,000 (Specify.....) | |

**i) Gestation Period**

When is your pregnancy due (EDD)?.....

## KISWAHILI TRANSLATION OF IPV AND SOCIO-DEMOGRAPHIC QUESTIONNAIRE

**UKURASA WA JUU** **Code:**

**MAELEKEZO JINSI YA KUJIBU MASWALI YA DODOSO HILI**

1. Utapewa vyombo vya kujibia maswali ya dodoso hili, yaani, penseli na kifutio.
2. Katika maswali yaliyomo kwenye michoro ya meza ya kueleza majibu yako, tafadhali JIBU MASWALI yote kwa kuweka alama (✔) kwa kila jibu linalo kuhusu ili kuashiria jibu lako.
3. Palipo na swali usiloelewa jinsi ya kulijibu, tafadhali uliza mtafiti kwa maelezo zaidi kabla ya kujaza.

**SEHEMU YA KWANZA: DODOSO LA KUPIMA UGOMVI/VURUGU WA UHUSIANO WA NDOA/KIMAPENZI AU WA NDANI**

Ugomvi au vurugu zinazoelekezewa wanawake waja wazito huwaweka, pamoja na wana wao waliowabeba tumboni, kwenye hatari za kiafya wakati wa mimba na baadaye. Ili kutoa msaada kwa wanawake wanaodhulumiwa, tunawauliza wanawake wote wajawazito ikiwa wamewahi kudhulumiwa kwa njia yoyote wakati wa mimba ya sasa.

1. **Katika miezi 12 iliyopita – au tangu ushike mimba – je, bwana/mume/mpenzi wako amewahi:**

| | **Tafadhali weka alama (✓) kulingana na jibu lako (ndiyo au la)** | **ndiyo** | **la** |
|---|---|---|---|
| a. | Kukupiga kwa makofi, mateke, mangumi, au kukuchuna, kukukaba koo, kujaribu kukunyonga, kukuchoma au kukupiga? | | |
| b. | Kukuumiza mwili kwa njia yoyote? | | |
| c. | Kukusukuma, kukuburura, kukufinya ili usikie uchungu, kuukunja mkono wako, au kuvuta nywele zako? | | |
| d. | Kukutishia maisha yako, kukutusi, kukukejeli, kukuonyesha dharau, kusema au kufanya mambo yanayokufadhaisha roho au kukuabisha mbele ya watu wengine? | | |
| e. | Kukulazimisha kushiriki katika kufanya mapenzi au ngono hata wakati hutaki au kufanya kitendo chochote cha mapenzi au ngono ambacho hukutaka? | | |

**SEHEMU YA PILI: MASWALA NA MAMBO YA KIJAMII YA WATU**

**a) Umri:** Ulizaliwa mwaka gani? ……

**b) Ndoa**

| **Tafadhali chora alama (✓) kwa aina ya ndoa** | |
|---|---|
| Bila mume | |
| Umeolewa | |
| Umeachana na mume wako | |
| Umepewa talaka na mumeo | |

**c)Umejifungua mara ngapi? (Para)**.....

**d) Mimba**.....Ilipangwa ☐ Haikupangwa ☐

**e) Idadi ya watoto walio hai**.....

**f) Dini:** Mkristo …… Muislamu …… Ingine (Fafanua) …….....

**g) Masomo**

| **Tafadhali chora alama (✓) katika aina ya masomo yako** | |
|---|---|
| Hakusoma | |
| Shule ya Msingi | |
| Shule ya Upili | |
| Masomo ya Vyuo | |

Kwa walio maliza masomo ya vyuo:

| **Tafadhali chora alama (✓) katika aina ya masomo yako** | |
|---|---|
| Cheti | |
| Stashahada | |
| Chuo Kikuu | |

**h) Maswala ya Kifedha**

1. Kazi:

| **Tafadhali chora alama (✓) kwa aina ya kazi yako** | |
|---|---|
| Umeandikwa kazi | |
| Unashikia wengine kazi kwa muda mfupi | |
| Unajifanyia kazi mwenyewe | |
| Hufanyi kazi | |

2. Jumla ya mapato (fedha)kwa nyumbakila Mwezi:

| **Tafadhali chora alama (✓) kwa aina ya mapato/mshahara yako** | |
|---|---|
| Chini ya Kshs. 3000 | |
| Kshs. 3000 hadi Kshs. 6000 | |
| Kshs. 6,000 hadi Kshs. 10,000 | |
| Zaidi ya Kshs. 10,000 (idadi.....) | |

**i) Mimba:** Je, unatarajia kujifungua uzazi lini?.....

## APPENDIX IV: Time Frame and Budget

*Time Frame*

| **Task** | **Period** | **Explanation/Justification** |
|---|---|---|
| Proposal writing and approval | May to October, 2016 | This involved writing the various draft proposals under of my supervisors' guidance and consequent presentation for approval to the departmental panel |
| Submission to KNH-ERC for review | November, 2016 to March, 2017 | Proposal approval process at the KNH-ERC. |
| Data collection | March, 2017 to July, 2017, | Data collection period at the rate of at most 10 participants per day |
| Data analysis, interpretation | 15th July, 2017 to 10th August, 2017 | It is estimated that this will take not more than 20 days |
| Presentation reports on study findings | August, 2017 | presentation of research findings by early July |
| Final report writing | September, 2017 | Following presentation and approval of findings |

*The Budget*

| Item/task | Quantity | Unit cost (Ksh) | Total (Ksh) |
|---|---|---|---|
| Printing, photocopy, binding and stationery | | | 30000 |
| Proposal submission to the KNH-ERC | Once | 2000 | 2000 |
| Statistician's fee | - | - | 30000 |
| Transport | 200 | 30 days | 6000 |
| Miscelleneous expenses | This includes contigency fund | | 7000 |
| Grand total | - | - | 75000 |

# APPENDIX V

UNIVERSITY OF NAIROBI
COLLEGE OF HEALTH SCIENCES
P O BOX 19676 Code 00202
Telegrams: varsity
Tel:(254-020) 2726300 Ext 44355

KNH-UON ERC
Email: uonknh_erc@uonbi.ac.ke
Website: http://www.erc.uonbi.ac.ke
Facebook: https://www.facebook.com/uonknh.erc
Twitter: @UONKNH_ERC https://twitter.com/UONKNH_ERC

KENYATTA NATIONAL HOSPITAL
P O BOX 20723 Code 00202
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi

KENYATTA NATIONAL HOSPITAL APPROVED 13 MAR 2017 KNH/UoN-ERC P.O.Box 20723-00202 NRB.

Ref: KNH-ERC/A/84

13th March 2017

Francis Otieno
Reg. No.H56/76508/2014
Dept.of Psychiatry
School of Medicine
College of Health Sciences
University of Nairobi

Dear Francis

**REVISED RESEARCH PROPOSAL: ANTE-PARTUM DEPRESSION AND INTIMATE PARTNER VIOLENCE EXPERIENCE AMONG WOMEN IN A LOW-INCOME URBAN SETTLEMENT IN NAIROBI, KENYA (P852/11/2016)**

This is to inform you that the KNH- UoN Ethics & Research Committee (KNH- UoN ERC) has reviewed and **approved** your above revised proposal. The approval period is from 13th March 2017 – 12th March 2018. Approval is also granted for waiver of informed consent/assent.

This approval is subject to compliance with the following requirements:

a) Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
b) All changes (amendments, deviations, violations etc) are submitted for review and approval by KNH-UoN ERC before implementation.
c) Death and life threatening problems and serious adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH-UoN ERC within 72 hours of notification.
d) Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH- UoN ERC within 72 hours.
e) Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (*Attach a comprehensive progress report to support the renewal*).
f) Clearance for export of biological specimens must be obtained from KNH- UoN ERC for each batch of shipment.
g) Submission of an *executive summary* report within 90 days upon completion of the study. This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/ or plagiarism.

"Protect to Discover"

For more details consult the KNH- UoN ERC website **http://www.erc.uonbi.ac.ke**

Yours sincerely,

**PROF M. L. CHINDIA**
**SECRETARY, KNH-UoN ERC**

c.c. The Principal, College of Health Sciences, UoN
The Director, CS, KNH
The Assistant Director, Health Information, KNH
The Chair, KNH-UoN ERC
The Dean,School of Medicine,UoN
The Chair, Dept.of Psychiatry,UoN
Supervisors: Dr. Mathai Anna Muthoni, Prof. Wangari Kuria, Dr. Pauline Ng'ang'a

## APPENDIX VI

# NAIROBI CITY COUNTY

Governor's office
Fax: 22217704
Telephone: 2224281
Email:governor@nairobicity.go.ke
Web.www.nairobicity.go.ke

CITY HALL
P. O. Box 30075 - 00100
NAIROBI
Kenya

**COUNTY HEALTH SERVICES**
**LANGATA SUB COUNTY**

**REF.NO.DMOH/LANG/GEN/26/2016**

**22ND SEPTEMBER , 2016**

**HEALTH FACILITY INCHARGE**
**LANGATA SUB COUNTY**

**RE: RESEARCH AUTHORIZATION – FRANCIS OTIENO (STUDENT)**
**UNIVERSITY OF NAIROBI**

Reference is made to a letter from the office of the County Director of Health Services Ref.No.CMO/NRB/OPR/VOL.I.2/2016/21 (attached) dated 19th May, 2016 on the above subject.

Authority has been granted to the above named student to conduct research on **"Prevalence of Depression and IPV among Pregnant Mothers from Low Socio-Economic Urban Settlements: A Case Study of Kibera"** in your health facility.

You are therefore requested to accord him the necessary assistance to enable him complete his studies.

**DR. PHYLES MUSEMBI**
**FOR: SUB COUNTY MEDICAL OFFICER OF HEALTH**
**LANGATA SUB COUNTY**

**CC. Francis Otieno – University of Nairobi**
**Department of Psychiatry**
**County Director - Health Services**

## APPENDIX VII

**NAIROBI CITY COUNTY**

Telegrams: "PRO-MINHEALTH", Nairobi
Telephone: Nairobi 217131/313481
Fax: 217148
E-mail: pmonairobi@yahoo.com

When replying please quote

CMO/NRB/OPR/VOL1-2/2016/21
Ref. No. .....

COUNTY HEALTH OFFICE
NAIROBI COUNTY
NYAYO HOUSE
P.O. Box 34349,GPO
NAIROBI

**COUNTY HEALTH SERVICES**

19th May, 2016

Francis Otieno
University of Nairobi
College of Health Sciences
School of Medicine
Department of Psychiatry
P.O. Box 19676
**NAIROBI**

**RE: RESEARCH AUTHORIZATION**

Following your letter dated 20th May 2016 for conducting research on **"Prevalence of depression and IPV among pregnant mothers from low socio-economic urban settlements: A case study of Kibera"**, I am pleased to inform you that you have the support of the County Health Operational Research Technical working group to undertake research in Nairobi County Health Facilities.

On completion of your study, we request that you submit **one hard copy and one copy in PDF** of the research dissertation to our operational research technical working group.

**MR. RAPHAEL K. MULI**
**FOR: COUNTY DIRECTOR OF HEALTH**

Cc.
Sub-County MOH
Langata