INTIMATE PARTNER VIOLENCE DURING PREGNANCY AND THE ASSOCIATED PERINATAL OUTCOMES AT MOI TEACHING AND REFERRAL HOSPITAL IN ELDORET, KENYA

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Research thesis submitted to the School of Medicine in partial fulfilment of the requirements for the award of the degree of Masters of Medicine in Reproductive Health

MOI UNIVERSITY

DECLARATION

I declare that this study is my own original work. It has not been presented to any other university for the purpose of obtaining a degree or any other academic transcript.

Candidate: Loice Munyazi Luhumyo

SM/PGRH/05/14

Signed: ..... Date: ..... ……..

The undersigned, being Moi University lecturers, certify that we have read and hereby recommend for acceptance by the University as a thesis in partial fulfilment of the requirements for the award of the degree of Master of Medicine in Reproductive Health.

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ACKNOWLEDGEMENT

I thank my supervisors Dr E. Mwaliko and Dr P. Tonui for their patience and guidance as I was carrying out this study, my family who continued to encourage me as I was preparing this document and my colleagues in the Department of Reproductive Health for their useful suggestions.

I also thank the mothers who took their time to respond to my questions on this sensitive area of study.

CONFLICT OF INTEREST

The study was about violence against women by virtue of studying on Intimate partner violence of women in pregnancy. Since I, the principal investigator, am also a woman, I declare that there was no conflict of interest or any bias during data collection and analysis of study findings.

DEDICATION

I wish to dedicate this study to the pregnant women who are victims of Intimate Partner Violence as they suffer silently of the consequences of this practice.

LIST OF ABBREVIATIONS

ANC	Antenatal Care
CAR-E	Centre for Assault Recovery of Eldoret
CDC	Center for Disease Control
EDD	Expected Date of Delivery
HIV	Human Immunodeficiency Virus
ILO	International Labour Organization
IPV	Intimate Partner Violence
IPVp	Intimate Partner Violence in Pregnancy
IQR	Interquartile range
IREC	Institutional Research and Ethics Committee
KNBS	Kenya National Bureau of Statistics
LBW	Low birth weight.
LNMP	Last Normal Menstrual Period
MTRH	Moi Teaching and Referral Hospital
NCADV	National Coalition Against Domestic Violence
PADV	Protection against Domestic Violence
RHD	Rheumatic Heart Disease
RMBH	Riley Mother and Baby Hospital
UNICEF	United Nations Children Emergency Fund
VAW	Violence against Women
WAST	Woman Abuse Screening Tool
WHO	World Health Organization

OPERATIONAL DEFINITION OF TERMS

Boyfriend – A person's regular male companion with whom they have a romantic or sexual relationship (Oxford English Dictionary).

Child abuse – Violence against and the exploitation of children including all forms of physical or psychological abuse, injury, neglect or negligent treatment, maltreatment or exploitation, including sexual abuse (UNICEF,2012).

Determinants - Personal, social, economic and environmental factors that influence occurrence of Intimate partner violence in pregnancy.

Domestic violence – Under the Protection against Domestic Violence Act (PADV) (2015), it is defined as any form of violence against a person, the threat of violence or imminent danger to that person, by any other person with whom that person is, or has been, in a domestic relationship. Where domestic relationship is; marriage to that person currently or previously, living in the same household with that person, separated or a divorced partner, is a family member of that person, is engaged to get married to that person, has a child with that person, has a close relationship with that person (Act Number 2 of 2015, The Constitution of Kenya).

Formal employment – work in which one is hired under an established working agreement that includes salaries and wages, health benefits, defined work hours and work days, are given salary increments and promotions (ILO, 2002).

Gender equity – fairness of treatment for men and women according to their respective needs. This may include equal treatment or treatment that is different but which is considered equivalent in terms of rights, benefits, obligations and opportunities (Pavlic et al, 2000).

Gender-based violence - It is violence that occurs as a result of the normative role expectations associated with each gender, along with the unequal power relationships between the two genders, within the context of a specific society.

Honor killings – The killing of a relative who is perceived to have brought shame to the family.

Informal employment – work in which an employee is hired temporarily without an established working agreement, they don't receive health benefits and work hours are not guaranteed. In most instances, they are paid in cash and if they are paid by cheque. No taxes are deducted from their salaries (ILO, 2002).

Intimate Partner Violence (IPV) - This is a range of sexually, psychologically and physically coercive acts used against adult and adolescent women/men by current or former male/female intimate partners (Center for Disease Control- CDC, 2010).

Intimate partner – A person with whom one has a close personal relationship that can be characterized by the following: emotional connectedness, regular contact, ongoing physical contact and/or sexual contact, identity as a couple, familiarity and knowledge about each other's life .e.g. current or former spouses, boyfriends or girlfriends, dating partners or sexual partners (CDC, 2010).

Intimate relationship – An interpersonal relationship that involves physical and/or emotional intimacy. Physical intimacy is characterized by friendship, platonic love, romantic love or sexual activity.

Low Birth Weight- weight at birth of less than 2500g (WHO and UNICEF 2012).

Perinatal outcomes – birth weight, maturity, 5 minute Apgar score, fetal death, neonatal death within 24 hours of delivery.

Perpetrator – A person who carries out a harmful, illegal or immoral act (Oxford English Dictionary). In this context, a male intimate partner who carries out violence in pregnancy.

Physical violence - it is the intentional use of physical force with the potential for causing death, disability, and injury/harm (CDC, 2010).

Placenta abruptio - premature partial or complete separation of the placenta from the uterine wall affecting gas exchange between the mother and the fetus leading to low oxygen supply to the fetus (EMS, 2009).

Postnatal depression – depression with peripartum onset defined as the most recent episode occurring during pregnancy as well as in the 4 weeks following delivery (DSM 5).

Premature – a baby born before 37 weeks of gestation (Blencowett et al, 2012).

Preterm birth- delivery before 37 weeks of pregnancy are completed (Blencowett et al, 2012).

Psychological aggression - The use of verbal and nonverbal communication with the intent to harm another person mentally/ emotionally and/or to exert control over another person (CDC, 2010).

Psychometric tests – standard and scientific methods used to measure the reliability (consistency) and construct validity (accuracy of test results) of an instrument (psychometric institute).

Safe motherhood – According to safe motherhood policy project, they are a series of initiatives, practices, protocols and service delivery guidelines designed to ensure that

women receive high-quality gynaecological, family planning, prenatal, delivery and postpartum care, in order to achieve optimal health for the mother, fetus and infant during pregnancy, childbirth and postpartum (WHO,2007).

Sexual violence - Any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed, against a person's sexuality using coercion, by any person regardless of their relationship to the victim, in any setting, including but not limited to home and work (WHO).

Spouse – a person's lawfully married husband or wife .

Stalking - repeated unwanted attention and contact that causes fear or concern for one's own safety or the safety of someone else (CDC, 2010).

Transactional sex – This is the exchange of favours, gifts or money for sexual activity (Chatterji et al, 2005). It is mainly the non-commercial, non-marital sexual relationships motivated by the implicit assumption that sex will be exchanged for material support or other benefits (Stoebenau et al, 2016). Transactional sex is different from commercial sex where sex is sold for financial gains (Choudry et al, 2015).

ABSTRACT

Background: Intimate Partner Violence (IPV) against women is the range of sexual, psychological and physical coercive acts used against adult and adolescent women by current or former male intimate partners (CDC, 2010). When this occurs in pregnancy, it directly or indirectly affects the mother leading to adverse maternal and perinatal outcomes. Locally, the prevalence of IPV in pregnancy (IPVp) is 37%. Determining the risk factors of IPVp would make it easier to identify affected pregnant women. It is also necessary to find out whether adverse perinatal outcomes occur in cases of IPVp.

Objectives: To determine the prevalence, the types, the factors associated with and the perinatal outcomes of IPVp among women giving birth at Moi Teaching and Referral Hospital (MTRH).

Methods: This was a cross-sectional study of 369 women who had just given birth and were admitted in the postnatal ward at MTRH. They were recruited using systematic sampling. Data was collected using a structured questionnaire which was modified from the WHO violence against women Tool. The analysis was done using the R Core Team 2017. Categorical variables were summarized as frequencies and percentages whereas continuous variables as mean, standard deviation, median and interquartile ranges. Logistic regression was used to assess the association between risk factors and the occurrence of IPVp.

Results: The prevalence of IPVp was 37.1%. Stalking, physical, sexual and psychological IPVp were identified with psychological violence emerging as the most prevalent affecting 73.7% of the victims. There was an association between IPVp and partner alcohol and drug intake (adjusted odds ratio (aOR) 2.19), partner's low level of income, partner not being the spouse, history of exposure to violence while young (aOR 3.02) and a previous history of IPV (aOR 25.77). Women who were exposed to physical IPVp were more likely to give birth to children who had low 5-minute APGAR scores ($p = 0.014$). There was no difference in age ($p = 0.836$), marital status ($p = 0.529$) and the type of employment ($p = 0.914$) between those who experienced IPVp and those who did not.

Conclusion: IPVp was prevalent (37.1%) in this study. The types of IPVp identified were physical, sexual, stalking and psychological with the most common being the psychological type. Affected pregnant women were more likely to have been exposed to violence while young, to have experienced IPV previously, to have partners who were not their spouses, who took alcohol or drugs and who had a low level of income. When physical IPVp occurred, it was more likely to be associated with low APGAR scores.

Recommendations: Pregnant women should be screened for IPVp. Policies to effect screening and identification of these women should be formulated to aid in curtailing the burden of IPVp. There is a need to conduct further studies to assess the causal inferences of physical IPVp and low APGAR scores.

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CHAPTER ONE: INTRODUCTION

1.1 Background information

The World Health Organization (WHO) global and regional estimates of violence against women report that violence against women is a global public health problem that affects about a third of women globally.

Violence against women takes many forms including intimate partner violence, honour killings, sexual violence, early marriages, trafficking and female genital mutilation (WHO).

The prevalence of violence against women varies from country to country with variations also occurring within countries. About thirty-five per cent (35%) of women worldwide have experienced physical or sexual intimate partner violence or non-partner sexual violence, most of which is intimate partner violence (WHO, 2013).

Intimate Partner Violence (IPV) against women is defined by the WHO as "the range of sexually, psychologically and physically coercive acts used against adult and adolescent women by current or former male intimate partners"(Center for Disease Control- CDC, 2010). CDC further defines an intimate partner as one who has/had a close relationship with a person characterized by emotional connectedness, regular contact, ongoing physical contact, sexual behaviour, identity as a couple and familiarity and knowledge about each other's lives.

The prevalence of IPV has been documented internationally, regionally and locally. Worldwide, almost one third (30%) of all women who have been in a relationship have experienced physical and/or sexual violence by their intimate partner (WHO, 1999).

The percentage of women aged 15 to 49 years who have experienced physical and/or sexual violence by an intimate partner in their lifetime ranges from 15 to 71% (WHO, 2013).

In Uganda, the prevalence of IPV among ever-pregnant, ever-partnered women was found to be at 13.5% (Devries , Kishor, Johnson, Stockl, Bacchus, Garcia-Moreno ,2010).

Tanzania Demographic and Health Survey, 2010 found out that 39% of women aged 15-49 years reported physical/sexual violence by their current partner at least once (Msuya, Adinan and Moshe, 2014).

Locally, according to Kenya Demographic Health Survey (KDHS), thirty-eight per cent (38%) of married women aged 15-49 years have ever experienced physical IPV whereas about 14 per cent of women experienced sexual IPV. Women are more likely to experience physical violence committed by their spouse/partner than men. In Rift Valley province, 33.8% of married women aged 15-49 years experienced physical or sexual violence committed by their husband or partner. Western province experienced the highest IPV at 55.6% whereas North Eastern province was lowest at 12.1%. In Kenya, the prevalence of physical violence is notably more than that of sexual violence whereas psychological violence was not reported. (KNBS, 2014)

With the significant prevalence of the occurrence of IPV in general, it is important to understand that pregnancy further increases the risk of IPV. In a survey carried out on 6002 households, pregnant women's risk of abusive violence was found to be at 60.6% greater than that of non-pregnant women (Newberger et al, (1992). Most commonly these pregnant women are at risk of violence from their male partners. Also, a study done at Kisumu District Hospital (2013), found out that 37% of

pregnant women attending antenatal care experienced one form of IPV in pregnancy with the most common being psychological violence (29%) and least being physical violence (10%) (Makayoto, Omolo, Kamweya, Harder, & Mutai, 2013).

Whenever it happens, IPV is known to be underreported. According to Gillian and Susan (2005), women are generally reluctant to disclose experiences of domestic violence because of shame and fear of retaliation. Also, in a cross-sectional survey of pregnant women on IPV in Nigeria, a majority of the abused women did not support reporting IPV (Onoh, Umeora, Ezeonu, Onyebuchi, Lawani and Agwu, 2013). On the other hand, according to Enrique (2004), health workers also fail to diagnose IPV because women tend to under-report its occurrence or they lack standardized methods for its diagnosis. This evidence implies that estimates of the prevalence are likely to underestimate the extent of the problem.

If properly diagnosed, IPV in pregnancy would be more common than some maternal health conditions routinely screened for in the antenatal clinic. Studies elsewhere have shown the significant prevalence of IPV in pregnancy, ranging from 2% in Australia, Denmark, Cambodia and Philippines to 13.5% in Uganda. On the other hand, the prevalence of some of the gestational conditions like Pre-eclamptic Toxaemia (PET) ranges from 2% to 8% globally and that of gestational diabetes is 1-5% in the United Kingdom (UK) and United States of America (USA) (Devries at al., 2010). This calls for more attention to the diagnosis and care of IPV during pregnancy as an important cause of morbidities to both the mother and her unborn child (Devries et al., 2010). Furthermore, measures to understand and therefore curb this practice need to be undertaken.

An understanding of the potential risk factors would be vital in the diagnosis of IPV, especially during pregnancy. Several studies have described a number of risk factors of IPV in pregnancy e.g. unplanned pregnancies, history of exposure to abuse at a tender age, use of alcohol and injectable drugs and sexual risk factors e.g. transactional sex, multiple sexual partners and polygamy. (Makoyoto, Omolo, Kamweya, Harder and Mutai, 2013, Khuram and Adnan, 2003, Beitchman and Zucker 1992, Karamagi, Tumwire, Tyllesker and Heggenhougen 2009, Simukai,Naeemah, Temmerman, Musekwa and Zarowsky, 2011). However, some of the described predisposing factors are conflicting in different studies e.g. the level of education, the socioeconomic status, age, parity and Human Immunodeficiency Virus (HIV) diagnosis with some studies finding positive associations whereas some did not find any significant associations.

IPV in pregnancy has its range of immediate and long-term complications to both the mother and the fetus. It has been associated with poor obstetric outcomes such as inadequate prenatal care, vaginal bleeding, hypertension, abortions, depression and unintended pregnancies (Han and Stewart, 2014).

The psychological effects are more debilitating than the physical effects. Fear, anxiety, fatigue, post-traumatic stress disorder, sleeping and eating disturbances are more common long-term reactions to violence (Heise, Pitanguy and Germain, 1994).

According to Coker, Sanderson and Dong (2004), abuse during pregnancy was also associated with an increased risk of perinatal death, preterm delivery and low birth weight (LBW).

Local studies that were consulted, even after determining the prevalence of IPV in pregnancy, were short of clearly ascertaining the determinants of IPV during pregnancy. Having noted the adverse perinatal outcomes associated with IPV from

other studies, it would be judicious to determine the immediate perinatal outcomes associated with IPV in the western Kenya region.

1.2 Problem Statement

Worldwide, thirty percent (30%) of women experience IPV. In Kenya, thirty-eight (38%) of women experience IPV with thirty-three per cent (33%) of them experiencing IPV in Rift Valley (KNBS, 2014). Whenever IPV occurs, it is often under-reported or undiagnosed. Pregnancy has been noted to increase the risk of IPV by sixty per cent (60%).

Whenever it occurs, abuse during pregnancy is associated with an increased risk of adverse physical and psychological effects to the mother (Coker et al, 2004; Heise et al, 1994) which may lead to adverse outcomes to the fetus.

To adequately diagnose IPV in a particular setting and eventually minimize its adverse consequences, the health worker needs to be equipped with knowledge of the local determinants. Studies that were consulted even after determining the prevalence of IPVp had conflicting findings on the determinants and perinatal outcomes of IPVp.

Local studies done focused on identifying the determinants of IPVp and not on the perinatal outcomes of the same. There is no policy direction in Kenya on IPVp which would have a bearing in addressing adverse pregnancy outcomes and be responsive to their needs. This, coupled with the paucity of local data on the determinants and perinatal outcomes of IPV in pregnancy in this region, has warranted this study in order to adequately characterize the problem.

1.3 Justification

IPV is a significant public health problem in Kenya and globally. It is the most common type of VAW and also a strong cause of violation of fundamental human rights.

IPVp contributes towards the global increase in maternal deaths (Devries et al (2010), maternal morbidities and poor birth outcomes. The healthcare system is one of the institutions which is likely to interact with most women in their lifetime (during the antenatal period). This presents as a good window of opportunity in identifying victims of IPVp. Identification of the risk factors of IPV in pregnant women and an analysis of the perinatal outcomes will aid in understanding and adequately addressing the problem. The information generated will contribute to the growing pool of knowledge of IPVp and also help in informing and stimulating dialogue among health professionals and policy advisors in exploring and advocating for targeted interventions to eradicate this practice and eventually contribute towards achieving the goal of safe motherhood.

1.4 Research questions

1. What is the prevalence of Intimate Partner Violence in pregnancy among women giving birth at the Moi Teaching and Referral Hospital (MTRH)?
2. What are the proportions of the different types of Intimate Partner Violence in pregnancy among women giving birth at MTRH?
3. What are the determinants of Intimate Partner Violence in pregnancy among women giving birth at MTRH?
4. What are the perinatal outcomes associated with IPV in pregnancy at MTRH?

1.5 Objectives

1.5.1 Broad objective

To establish the prevalence, types, determinants and perinatal outcomes of Intimate Partner Violence in pregnancy (IPVp) among women giving birth at MTRH.

1.5.2 Specific Objectives

1. To determine the prevalence of Intimate Partner Violence in pregnancy among women giving birth at MTRH.
2. To determine the proportions of the different types of Intimate Partner Violence in pregnancy among women giving birth at MTRH.
3. To describe the determinants associated with Intimate Partner Violence in pregnancy among women giving birth at MTRH.
4. To determine the perinatal outcomes associated with Intimate Partner Violence in pregnancy at MTRH.

CHAPTER TWO: LITERATURE REVIEW

Intimate Partner Violence (IPV) against women is defined by the World Health Organization (WHO) as "the range of sexually, psychologically and physically coercive acts used against adult and adolescent women by current or former male intimate partners"

An intimate partner is one who has/had a close relationship with a person characterized by emotional connectedness, regular contact, ongoing physical contact, sexual behaviour, identity as a couple, familiarity and knowledge about each other's lives (CDC, 2010).

The Centre of Disease Control further categorizes IPV as,

1) *Physical violence.*

   It is the intentional use of physical force with the potential for causing death, disability, and injury/harm. It also includes coercing other people to commit acts of hitting, shoving, kicking, burning with acid, hair pulling and other actions with the intention of causing death, disability or harm.

2) *Sexual violence*

   These are attempted or completed acts of sexual acts which occur without the victim's consent.

3) *Stalking*

   Repeated unwanted attention and contact that causes fear or concern for one's own safety or the safety of someone else e.g. phone calls, texts, spying, harming one's pet.

4) *Psychological aggression*

   The use of verbal and nonverbal communication with the intent to harm another person mentally/ emotionally and/or to exert control over another person. It includes expressive aggression (name calling/ humiliating); coercive

control (limiting access to transportation, money, friends and family, excessive monitoring of whereabouts); threats of physical/sexual violence, control of reproductive or sexual health (refusal to use birth control, coerced pregnancy termination); exploitation of a victim's vulnerability (e.g. immigration status, disability); exploitation of perpetrators vulnerability and presenting false information to the victim with the intent of making them doubt their own memory or perception e.g. mind games.

The WHO global and regional estimates of violence against women reports that violence against women is a global public health problem that affects about a third of women globally. Thirty-five per cent (35%) of women worldwide have experienced physical or sexual intimate partner or non-partner violence, most of which is intimate partner violence. Worldwide, almost one third (30%) of all women who have been in a relationship have experienced physical and/or sexual violence by their intimate partner.

Devries et al (2010) analyzed the prevalence of IPV during pregnancy across 19 countries and concluded that IPV is a common experience which ranges from 2.0% in Australia, Cambodia, Denmark and the Philippines to 13.5% in Uganda among ever-pregnant, ever-partnered women. Prevalence appeared to be higher in African and Latin American countries than European and Asian countries.

Intimate partner violence is a significant public health problem in Kenya and worldwide. Although limited research on IPV exists in Kenya, it is known that it is the most common type of violence against women and also a strong cause of violation of fundamental human rights.

The prevalence of physical violence is more than that of sexual violence in Kenya with thirty-eight per cent (38%) of ever-married women at 15-49 years of age having

ever experienced physical violence committed by their husband/partner whereas about 14 per cent of women experienced sexual violence committed by a partner (KNBS, 2014).

In Rift Valley province where Uasin Gishu County is situated, 33.8% of ever-married women aged 15-49 years ever experienced physical or sexual violence committed by their husband or partner. The highest prevalence as documented by KNBS (2014) being Western province at 55.6% and the lowest being North-Eastern province at 12.1%.

Pregnant women are at a higher risk of experiencing IPV because they are more likely to be in intimate relationships compared to non-pregnant women. In addition, their age (15–49 years old) has also been identified as a higher risk group for IPV (Simukai et al (2011).

The health care system, being the only institution which is likely to interact with most women at some point in their life, during the perinatal period, is well placed to identify and refer victims of violence. Kenya Demographic and Health Survey of 2014 (KNBS, 2014) supports this by giving statistics of 96% of mothers getting antenatal care (ANC) from a health professional, about 62% of them delivering in hospitals and 51% of them attended to during the postnatal period (KNBS, 2014). This presents as a good window of opportunity in identifying victims of IPV as it increases the chances of healthcare professionals coming into contact with women, therefore making it possible to screen for intimate partner violence.

Women have been noted to admit abuse when questioned gently and privately by a supportive health care provider. Loraine, Gill and Bewley (2002), report of higher

rates of violence having been elicited from women after direct and repeated questioning by health care professionals.

Therefore, screening and identification of at-risk women, together with appropriate and timely referral of victims is an important step towards managing intimate partner violence. According to Makayoto et al (2013), support and referral are urgently needed to help reduce the burden experienced by pregnant women and their unborn babies.

A study done by Coker et al from 1997 to 1998 looking at partner violence during pregnancy and risk of adverse pregnancy outcomes, concluded that efforts to reduce the impact of abuse during pregnancy should include universal screening, as well as culturally competent interventions to support women. Women should, therefore, be screened for both physical and psychological violence since psychological violence may result in distinct negative consequences (Groves, Moodley, Mc Naughton-Reyes, Martin, Foshee and Maman ,2015). Identification of risk factors for IPVp is thus an important step towards the screening of these women.

Among the different types of IPVp documented, psychological IPV occurs more commonly during pregnancy (Groves et al (2015). Ludermir, Valongueiro, Thalia, Barreto and Ricardo (2010) studied the association of violence in pregnancy and postnatal depression and found out that psychological violence during pregnancy is associated with postnatal depression independently of physical or sexual violence. After adjusting for psychological violence and other confounding factors, the association of physical or sexual violence in pregnancy to the development of postnatal depression was substantially reduced in the same study.

A study done at Kisumu District hospital in 2013, found out that 37% of pregnant women attending antenatal care experienced one form of IPV in pregnancy with the most common being psychological violence (29%) and least being physical violence (10%) (Makoyoto et al, 2013).

Violence against women is a phenomenon that is difficult to measure due to a variation in the types of acts considered violent by different populations. There is also a variation on the tools and methodologies used by different studies with regards to violence against women across the globe. Some of the tools used include, the Woman Abuse Screening Tool (WAST), The WAST – short tool, The Hurt, Insult, Threats, Scream tool (HITS), the Composite Abuse Scale amongst many others. This impaired the comparability of the results of these studies (Marizella et al., 2014).

In an attempt to minimize the methodological problems emanating from the different studies and to allow comparisons of the same studies across the different cultures, the World Health Organization carried out the Violence against Women (WHO VAW) study in which they developed and used the WHO VAW instrument.

A psychometric assessment of the WHO VAW instrument done in a randomly selected national sample of women aged 18 – 65 years in Sweden showed that the instrument demonstrated good internal consistency indicating that it provides a reliable and valid measure of these types of violence. The results that were found in the psychometric test were Cronbach's α coefficients of 0.79 (psychological scale), 0.80 (physical scale), 0.72 (sexual scale) and 0.88 (total scale). The instrument was also able to discriminate between groups known from different studies to differ in the exposure to physical and/or sexual violence (Lotta, Charles, Gunilla, 2013). It also demonstrated significant cross-cultural validity and reliability when comparing the IPV prevalence rates between countries (Lotta et al, 2013).

Another study also looked at the psychometric properties of the WHO VAW instrument for the measurement of violence against pregnant women and concluded that the instrument is reliable in identification of VAW in pregnancy (Marizella et al, 2014).

The use of the validated WHO violence against women questionnaire can help the professionals who provide prenatal care to better screen for this phenomenon.

It is important to however note that Intimate partner violence not only affects women but also men. Statistics from the National Coalition Against Domestic Violence (NCADV) on male victims of IPV report that 1 in 4 men are victims of some form of physical abuse by an intimate partner with 43.5% of men being stalked by an intimate partner in their lifetime.

2.1 Perinatal effects of abuse in pregnancy

Coker, Sanderson and Dong (2004) conducted a cross-sectional study to investigate the association between partner physical or emotional abuse during pregnancy and pregnancy outcomes, including perinatal death, low birth weight and preterm delivery in women, aged 18–65 years, concluded that abuse during pregnancy was associated with an increased risk of perinatal death (aRR =2.1;95% CI 1.3, 3.4), preterm delivery (aRR=1.7;95% CI 1.1,2.6) and low birth weight (aRR =2.0; 95% CI 1.4,3.1). When compared with term normal birthweight deliveries, women delivering preterm LBW and term LBW infants were more likely to report abuse during pregnancy.

Low birth weight infants are more likely to die than heavier babies. These babies also have poor health outcomes e.g. fetal and neonatal morbidity and mortality, inhibited growth and cognitive development and chronic diseases later in life (WHO and United Nations Children Emergency Fund (UNICEF), 1992)

Preterm birth is the main cause of death, morbidity and disability of neonates. The shorter the gestation, the smaller the baby and the higher the risk of death, morbidity and disability (WHO and UNICEF, 1992). In low-income settings, half of the babies born at or below 32 weeks die due to the lack of feasible cost-effective care e.g. warmth, breastfeeding support and basic care for infections and breathing difficulties.

In contrast to the above findings of Coker et al, an observational descriptive study which was done in Southern Brazil by Pacheco Rodrigues et al (2014) in an attempt to evaluate obstetric and neonatal outcomes of IPV in pregnancy, however, showed no statistically significant association between low birth weight and Apgar score with the occurrence of IPV during pregnancy.

So far, no documented study to ascertain the association on intimate partner violence in pregnancy and the occurrence of any perinatal outcomes has been done in Western Kenya region.

The adverse outcomes of abuse during pregnancy may occur due to both direct and indirect effects of the abuse to both the mother and her unborn child. Directly, through blunt physical or sexual trauma to the mother, or maternal infections or indirectly through the following:

(1) Elevated physical and psychological stress levels,

(2) Isolation and inadequate access to prenatal care (Cha & Masho,2013)

(3) Negative maternal coping behaviors, such as cigarette smoking, alcohol use, and illicit drug use.

(4) Inadequate maternal nutrition.

Stress may exacerbate pre-existing conditions such as chronic hypertension or depression, or it may lead to pregnancy complications such as pregnancy-induced

hypertension or preterm labor. Pregnant women undergoing IPV may face challenges and difficulties with obtaining appropriate prenatal care (Cha & Masho ,2013).

Domestic violence in pregnancy represents a serious threat to the physical and emotional health of women and their children both before and after birth with documented increased rates of miscarriage, premature birth and low birthweight, fetal injury and fetal death, premature labor and chorioamnionitis, maternal infections and poor weight gain (Gillian et al (2005)

Physical injuries to fetuses, including bruising, broken bones and stab wounds as well as death may occur (Gillian et al (2005).

In addition to the direct detrimental effects of repeated violence in pregnancy, battered women may be prevented by their partners from seeking or receiving proper antenatal or postnatal care thus having a likelihood of presenting to antenatal care later than non-abused women.

The developing fetus may be further damaged by the secondary effects on the mother, which include suicide attempts, increased tobacco, alcohol and drug use, infections and anaemia.

2.2 CONCEPTUAL FRAMEWORK

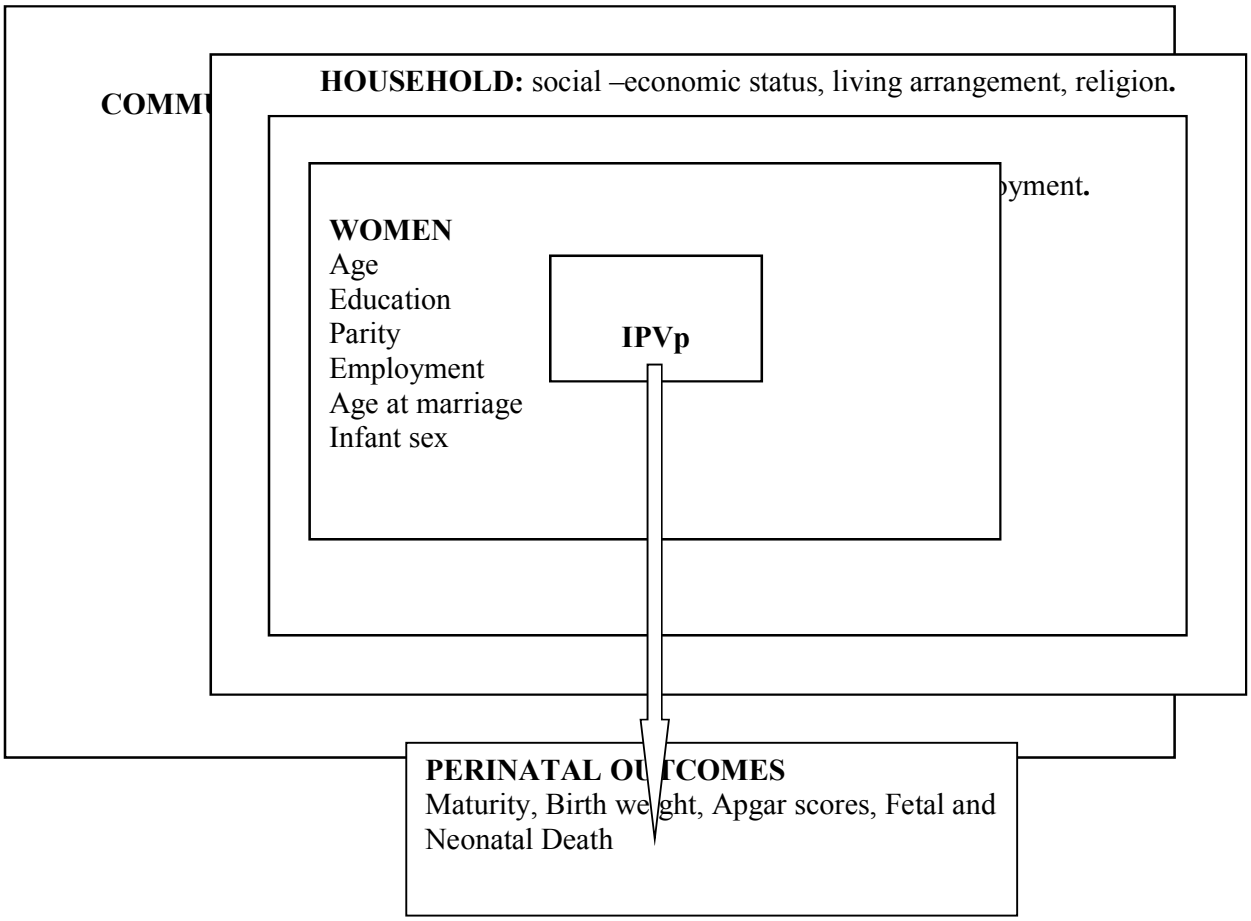


Figure 2.1: A conceptual framework for determinants and perinatal outcomes of IPV modified from www.researchgate.net

The conceptual framework above emanates from the ecological model which reiterates that violence is as a result of factors operating at four (4) levels: individual level, relationship factors, community and societal factors. Violence is therefore a multifaceted phenomenon that is as a result of a dynamic interplay between an individual and the environment.

2.3 Determinants of Intimate Partner Violence

Intimate partner violence is as a result of factors which are operating at different levels; Individual factors, relationship factors and sociocultural factors (WHO RHR 12.36 (2012).

Individual factors: young age; low level of education; witnessing or experiencing violence as a child; harmful use of alcohol and drugs; personality disorders; acceptance of violence (e.g. feeling it is acceptable for a man to beat his partner) and past history of abusing partners.

***Relationship factors*:** conflict or dissatisfaction in the relationship; male dominance in the family; economic stress; man having multiple partners and disparity in educational attainment.

Socio-cultural factors: gender-inequitable social norms (especially those that link notions of manhood to dominance and aggression); poverty; low social and economic status of women; weak legal sanctions against IPV within marriage; lack of women's civil rights, including restrictive or inequitable divorce and marriage laws; weak community sanctions against IPV; broad social acceptance of violence as a way to resolve conflict and armed conflict and high levels of general violence in society.

Khurram et al, (2003), found out that the main risk factors found for abuse during pregnancy were belonging to a low-income group, low education in both partners, and unplanned pregnancy.

Simukai et al.(2011) in their systematic review of intimate partner violence in pregnancy-associated the following factors with violence in pregnancy; low level of

education, low socioeconomic status, being unemployed, young age (adolescents), HIV diagnosis in pregnancy, transactional sex, having more than 5 partners, alcohol use and a history of abuse with experiencing abuse before 15 years of age.

Gillian et al (2005), found out that the use of injectable drugs, a low social class, poor education, divorced or separated women, women with a high parity, teenagers and women with unwanted or mistimed pregnancies as some of the factors associated with IPV in pregnancy.

A study done in Kisumu by Makayoto et al (2013), found out that having witnessed maternal abuse in childhood, being in a polygamous and multiparous relationship and alcohol abuse were the most common risk factors of IPV in pregnancy. They however found no association between HIV and IPVp.

Women who reported that their male partners had other sexual partners were more likely to report exposure to IPV than those who did not report infidelity in their male partners (Ntaganira, Muula, Masaisa, (2008). When the husband had another sexual partner e.g. polygamy, it led to a higher risk of IPV (Karamagi et al, (2009).

Consumption of alcohol, by either men or women, was an important reason for intimate partner violence to occur (Karamagi et al (2009).

Women who were sexually abused as children were significantly more likely to experience abuse as adults as compared to women who had not had such an experience in childhood (Messman, Long, (1996) and Kaye et al, (2002). Adult women with a history of abuse are more likely to be revictimized (Beitchmen, Zucker, (1992).

Maternal age might confound the relationship between domestic violence and the risk of Low Birth Weight (LBW). Adolescents have a higher risk of both domestic

violence and LBW delivery than older women (Kaye et al (2002); McFarlane et al (1992). According to an analysis done by Simukai et al (2011) there was no statistically significant difference regarding the risk of adverse perinatal outcomes of IPV in pregnancy in those exposed and non-exposed.

The Kaye et al study of 2006 revealed that generally there is no statistically significant difference when the mean birth weight of infants born to adolescents or older women were compared. Even when they stratified them for domestic violence, the mean birth weight did not differ significantly (Kaye, Mirembe, Bantebya , (2006) . However, as per Karamagi et al, (2009), the youth were associated with a higher risk of IPV. Hoque, Hoque, Kader (2009), reinforced that IPV is highest in the 21-25 years age group, with those of (15 -19 years) twice as likely as the oldest age group (45-49 years) to report sexual violence.

Kaye et al however noted a higher prevalence of IPV in the younger age group i.e. those less than 25 years (64%) (Kaye, Mirembe, Bantebya (2006).

According to Hoque et al, (2009), there is an increased risk of violence when a man is HIV positive or when a woman perceives herself to be at high risk of acquiring HIV from the man.

Women who were HIV infected were twice as likely to have experienced IPV as compared to those not infected (Ntaganira, Muula, Masaisa et al ,2008) and Hoque et al ,2009).

Ezechi (2009) found that intimate partner violence is common among HIV positive pregnant women with a threefold risk in HIV positive women who are in HIV serodiscordant relationships. In a multicountry study done in Kenya, Uganda, Tanzania, Rwanda, Botswana, South Africa and Zambia by Were, Curran, Sinead, Nakku, Mugo, Kiarie, Bukusi, Celum, Baeten et al (2011), HIV infected women had a

33% higher risk of IPV compared to uninfected women. Karamagi et al, (2009) and Kaye et al (2009), respectively found no association between IPV and HIV test in the last pregnancy and over the participants' lifetime.

Women with no formal education were more likely to have experienced IPV than women with some education and above (Ntaganira et al, 2008).

Educated women in more conservative settings experience greater intimate partner violence while educated women in less conservative settings experience less intimate partner violence. Overall, women's education was protective against intimate partner violence (Karamagi et al, (2009). Less educated women were twice as likely to experience intimate partner violence compared to the more educated women. Hoque et al, (2009) found out that half of the victims of domestic violence had low levels of education (no education, primary level) which concludes therefore that the other half had a higher level of education (secondary level and above). However, other conflicting reports conclude that more educated women are at increased risk of physical and sexual violence (Rao V, 1997).

With regards to parity, Hoque et al, (2009) reported that the prevalence of domestic violence was higher (68%) in multiparous women whereas Kaye, Mirembe and Bantebya ,2002) associated an increased risk of domestic violence in first pregnancies.

CHAPTER THREE: METHODS

3.1 Study design

This was a cross-sectional study. It involved identification of women who had suffered IPVp, where the prevalence was determined, their determinants were described and perinatal outcomes were identified.

3.2 Study location

The study was conducted at the Moi Teaching and Referral Hospital (MTRH), one of the two national referral hospitals in Kenya. It is located in the Western region of the country in Uasin Gishu County, Eldoret town. Apart from serving Uasin Gishu residents, it also serves Western, Nyanza and Rift valley regions by virtue of it being a referral centre. It has a catchment population of about 15 million. As a teaching facility, it is a centre where training of medical undergraduate and postgraduate students takes place. Among other departments, the Reproductive Health Department has antenatal, postnatal, delivery and gynaecology wards which provide inpatient reproductive health services. The outpatient department provides antenatal services, high-risk obstetric clinics, postnatal and family planning clinics and gynecology clinics and gynae-oncology services. Currently, screening for intimate partner violence at MTRH does not routinely take place and therefore its prevalence and associated factors have not been established yet.

MTRH boasts of conducting about 12,000 deliveries per year (normal and caesarean sections (MTRH records, 2015). MTRH also hosts the Centre for Assault Recovery of Eldoret (CAR-E), which was founded in 2007 and offers treatment and counselling services to victims of sexual and physical violence. Mothers experiencing IPV in pregnancy are identified from the Gynaecology ward, antenatal clinic or the antenatal ward. Corroborative history taking, examination and investigations are carried out in

consultation with CAR-E. Psychological counselling is done on these victims with further legal documentation and action taken as per the CAR-E protocol.

The neonatal unit of MTRH is located at the Riley Mother and Baby Hospital and it attends to about 2400 neonates per year with an average bed occupancy rate of 84%. It is at this unit that neonates, delivered within and as referrals from outside, who need specialized care are admitted for treatment and management (MTRH records, 2015).

3.3 Study population

Women who had delivered (vaginal deliveries and Caesarean Sections) and were in the MTRH postnatal ward and mothers' hostel.

3.4 Sample size

A study in Kisumu (Makayoto et al, 2013) showed that the prevalence of IPV among pregnant women was 37.0%. So in order to be 95% sure that we estimated the prevalence of IPV within plus or minus 5% of the reported prevalence we determined the sample size using the following formula (Cochran, 1963).

$$n = \left(\frac{Z_{1-\alpha/2}}{d}\right)^2 \times P(1-P)$$

$$= \left(\frac{1.96}{0.05}\right)^2 \times 0.37(1-0.37)$$

$$= 359$$

Where P is the prevalence of IPV, d = 0.05 is the margin of error, and Z is the quantile of the standard normal distribution corresponding to 100 x (1-α) %.

3.5 Sampling technique

The systematic sampling method was used to recruit the participants into the study in the postnatal ward and mother's hostel. An anticipated average population size of 1000 mothers delivering in MTRH per month and an intention to carry out data

collection within a period of three months were used in calculating the sampling interval. Therefore to sample from an average population size of 3000, the sampling interval was 3000/359 which was approximately 8, the denominator being the study sample size.

Details of all vaginal deliveries and caesarean sections were recorded in the Maternity Services Health Facility Register kept in labour ward, from where the respondents were sampled from. The first respondent was selected randomly from the first eight entries on the register on the first day of data collection. Subsequently, every 8th client was sampled. When a sampled client did meet the exclusion criteria or did not consent for the study, the next client on the register was sampled. A total of 381 respondents were sampled within a period of three months. Twelve respondents that had been sampled did not consent. A sample size of 369 was finally achieved.

3.6 Eligibility criteria

3.6.1 Inclusion criteria

- Postnatal women admitted at MTRH's postnatal wards and mother's hostel including emancipated minors
- Women delivered at RMBH.

3.6.2 Exclusion criteria

- Very ill patients who were not able to respond to the questionnaire.
- Those who failed to provide consent.

3.7 Materials and methods

The scope of this study, with regards to the ecological framework of determinants of violence, was to determine individual and relationship factors of Intimate partner violence in pregnancy and not the community and societal factors.

The instrument used for data collection consisted of four parts: a researcher-designed socio-demographic and health questionnaire, a modified WHO Violence against Women Screening Tool, a questionnaire on characteristics of the perpetrator and a section on the perinatal outcomes. The demographic and health component was incorporated in order to collect demographic data, obstetric data, HIV status, history of chronic illnesses and outcome of pregnancy, components that lack in the WHO Violence against Women Screening Tool. A section on perinatal outcomes was filled and a final section of the questionnaire on information about the characteristics of the perpetrator or partner was then completed.

The WHO Violence against Women Screening Tool thirteen questions that inquire into the occurrence of psychological (four questions), physical (six questions) and sexual (three questions) violence. The questions on physical violence were, whether the participant had ever been slapped or thrown something at that could hurt her, pushed or shoved, hit with a fist or something else that could hurt her, kicked or dragged or beaten up, chocked or burnt on purpose, threatened with a gun, knife or another weapon against her. On sexual violence, the following questions were asked, whether she had been physically forced to have sexual intercourse when she did not want to, whether she had intercourse due to fear or whether she had been forced to do something sexual that she found degrading or humiliating. On psychological violence , questions were asked on whether she had been insulted or made to feel bad about herself, belittled or humiliated in front of other people, scared or intimidated on purpose, threatened to hurt her or someone she cared about.

The whole WHO instrument was adopted in this study and its modification comes about by the addition of a section on “stalking” whereby a question was asked on whether the participant had received repeated unwanted attention and contact that

caused fear or concern for her own safety or the safety of someone else. Additional questions on the psychological violence asking on whether the participant had ever been isolated or confined or if she had ever been prevented from visiting friends or relatives were also asked. The modification was made so as to incorporate that which had emanated from the literature on the classification of IPV.

The principal investigator trained four (4) research assistants all of which were healthcare workers (2 nurses and 2 psychological counsellors) on sampling, data collection and confidentiality. The research assistants worked on a rotational shedule.

Upon sampling form the Maternity Services Health Facility Register, the research assistants located the respondents in the postnatal wards where they checked for eligibility. After sampling, informed consent or assent was obtained. Then the part of the questionnaire which had the demographic and health data and the modified WHO Violence against Women Screening Tool was administered on the respondents. The questions on violence were asked to find out if they had occurred in the just concluded pregnancy and also to find out if acts of violence had ever occurred before the pregnancy. A final section of the questionnaire on information about the characteristics of the perpetrator or partner was then completed.

Then, data on the outcome of the pregnancy was obtained from the patient's records and documented in the questionnaire. This data included specifically whether the baby was alive or dead, the weight of the baby, the 5 minute Apgar score and the gestation at birth. A 5 minute Apgar score was arrived at as advised by a study which was done by Drage, Kennedy and Schwarz (1964), which showed a stronger relation between the five minute score and neonatal mortality than the one minute score.

The questionnaire was formulated in English and was translated to Swahili language. The quality and relevance of the Swahili questions was ascertained by back-translation to English.

Literate participants completed the tool in English or Swahili under the guidance of a research assistant whereas illiterate participants, had the questions read to them in either English or Swahili and their responses were adequately indicated.

All respondents understood either English, Swahili or both.

To ensure privacy and confidentiality, the interview was conducted in a private room in the postnatal ward. Patients were assured of the confidentiality of the information collected and were informed that it was only for research purposes and would not be included in hospital records. Women who screened positive for IPVp were referred for counselling and further treatment. Psychological counsellors were available in the postnatal ward to offer psychological support.

Piloting with pretesting and refining of the study questionnaire was done on forty (40) postnatal women at Uasin Gishu District Hospital.

3.8 Data management and analysis

Each administered questionnaire was numbered. The gathered data was cleaned and entered into an excel spreadsheet, encrypted to ensure confidentiality of the data, and the password was available to the principal investigator alone. Back-up of the data was done to cushion against loss. Once the data had completely been converted into the electronic database, the questionnaires were kept in a safe cabinet under lock and key, and access was allowed to the principal investigator alone. They will be shredded after five years.

Categorical variables such as level of education, mode of delivery, marital status, and presence of intimate partner violence (IPV) among others were summarized using

frequencies and the corresponding percentages. Continuous variables such as age, gestation, and income among others were summarized using median and the corresponding interquartile range (IQR) due to a violation of Gaussian assumptions. The birth weight of the infants was summarized using mean and the corresponding standard deviation (SD). Gaussian assumptions were assessed using Shapiro Wilks test and using histograms.

Association between IPV in pregnancy and categorical independent variables such as the history of IPV before the current pregnancy, level of education, occupation, history of the participant being a victim of violence in childhood among others were assessed using Pearson's Chi-Square test. Comparison of distributions of continuous variables by IPV in pregnancy status was done using the two-sample Wilcoxon rank-sum test. Independent samples t-test was used to compare the mean values between the victims and non-victims of IPV in pregnancy.

A logistic regression model was used to study the determinants of IPV in pregnancy. The associated odds ratios (OR) and the corresponding 95% confidence interval (95% CI) were also reported.

Data analysis was done using R-Core: A program for statistical computing (R Core Team, 2017). Results were presented using tables and graphs.

3.9 Validity and Reliability

Validity -Data was collected using a validated WHO Violence Against Women instrument. With routine crosschecking of the questionnaires to ensure that they were adequately filled.

Reliability- Piloting of the data collection tool was done with minor revisions of some areas based on the lessons drawn from the pilot study. At the same time training of research assistants on the tool was carried out. The research assistants were trained on how to collect data, on research ethical issues and maintaining confidentiality. Data entry and analysis methods were adequately documented and implemented.

3.10 Ethical considerations.

- Ethical clearance to carry out the study was obtained from the Institutional Research and Ethics Committee (IREC).
- Permission to carry out the pilot study was granted.
- Authority to carry out the research at the institution of Moi Teaching and Referral Hospital was obtained.
- An explanation of the importance and effects of the study was made to the participants. For the participants who were aged eighteen years and above, an informed consent was obtained (Appendix 1) whereas an assent form (Appendix 1) was filled for those who were underage i.e. 18 years and below.
- Confidentiality was maintained during and after the research.
- There was no coercion, no monetary rewards and participants were free to withdraw from the study at any point if they wished to.
- **Risks** - The main risk associated with this study was a breach of patient confidentiality. Confidentiality was maintained by limiting the number of

persons that had access to patients' records and ensuring that only de-identified information was collected.

- **Benefits** – Patients who had experienced IPVp were offered an option of being linked to a psychological counsellor in the postnatal ward for counselling purposes.

STUDY FLOW CHART

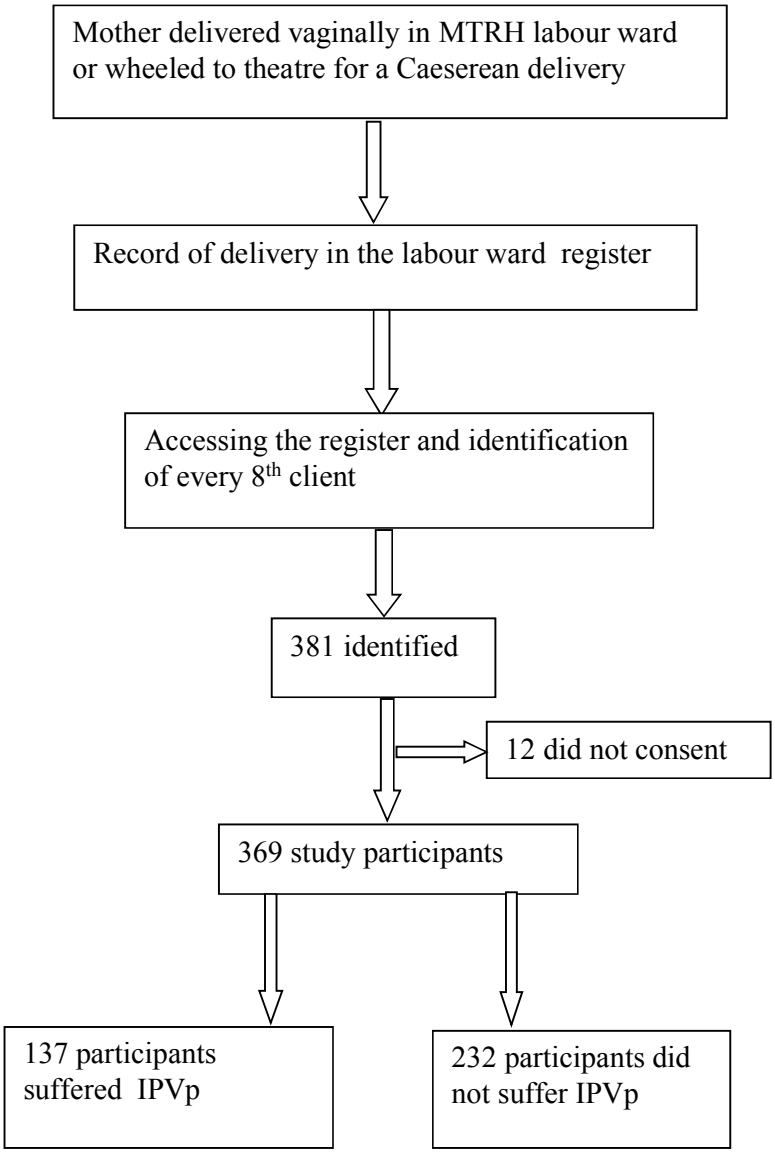


Figure 3.1: Study flow chart

CHAPTER FOUR: RESULTS

Among the 369 participants, the median gestation was 39.0 (IQR: 36.0, 40.0) weeks with a minimum and a maximum of 27.0 – 44.0 weeks respectively. Those who had spontaneous vaginal delivery were 72.9%, caesarean delivery 26.6%, and assisted vaginal delivery was 0.5%.

Table 4.1: Details of the just concluded pregnancy

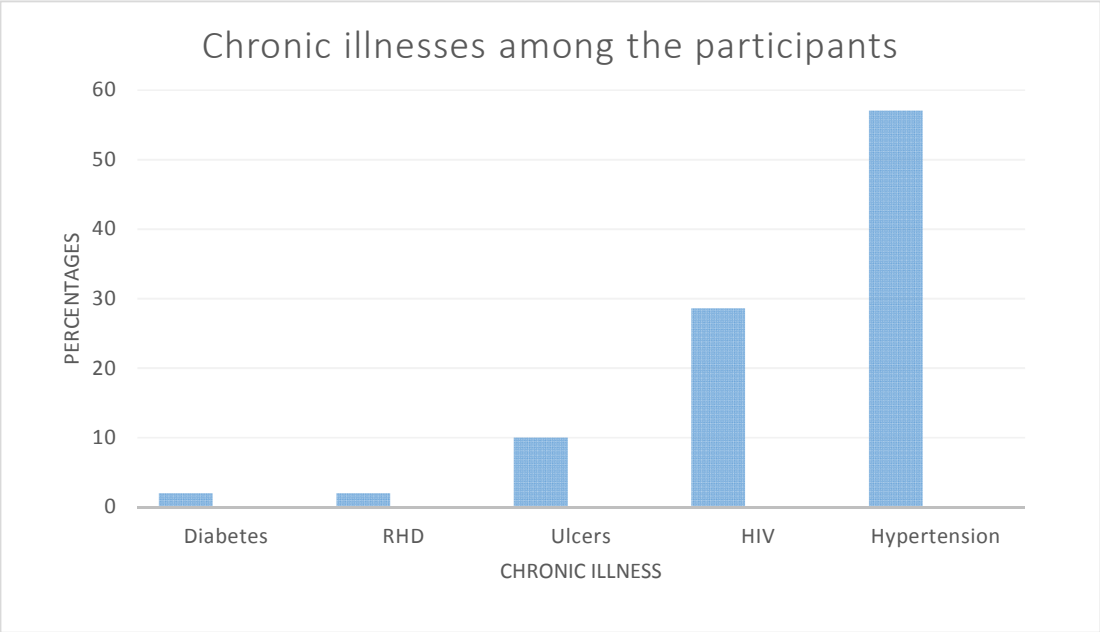
Variable	N	n (%) or Median (IQR)
Gestation (Weeks)	369	39.0 (36.0, 40.0)
Range (Min. - Max.)		27.0 – 44.0
Mode of delivery		
Assisted vaginal delivery		2 (0.5%)
Caesarean section	369	98 (26.6%)
Spontaneous vaginal delivery		269 (72.9%)

The median age of the study participants was 25.0 (IQR: 21.0, 31.0) years with a minimum and a maximum of 16.0 to 48.0 years respectively. Those who were married were 75.9% with a median duration of 3.0 (IQR: 1.0, 8.0) years. There were 11 (3.0%) participants who reported more than one sexual partner.

Table 4. 2: Demographic characteristics of study participants

Variable	N	n (%) or Median (IQR)
Age (Years)	369	25.0 (21.0, 31.0)
Range (Min. - Max.)		16.0 - 48.0
Marital status		
Single		89 (24.1%)
Married	369	280 (75.9%)
Years of marriage	280	3.0 (1.0, 8.0)
Range (Min. - Max.)		0.1 - 28.0
Type of marriage		
Monogamous	277	254 (91.7%)
Polygamous		23 (8.3%)
Number of current sexual partners		
None		3 (0.8%)
1		355 (96.2%)
2	369	9 (2.4%)
3		2 (0.5%)
Religion		
Catholic		117 (31.7%)
Muslim	369	2 (0.5%)
Protestant		248 (67.2%)
Others		2 (0.5%)
Occupation		
Formal employment		35(9.5%)
Informal employment	369	10 (2.7%)
Self-employment		146 (39.6%)
Unemployed		178 (48.2%)
Income per month (Kenya Shillings)	203	6000.0 (3000.0, 10000.0)
Range (Min. - Max.)		400.0 - 60000.0
Education level		
No formal education	369	3 (0.8%)
Primary		114 (30.9%)
Secondary		160 (43.4%)
College/University		92 (24.9%)

Up to 181 (49.1%) participants were either self-employed or formally employed. The median income was Kenya Shillings 6000.0 (IQR: 3000.0, 10000.0) with a range of 400.0 to 60000.0. One-quarter of the participants had completed college or university education.



Key: RHD – Rheumatic heart disease; HIV- Human Immunodeficiency Virus

Figure 4.1: Chronic conditions among the study participants

Several participants (49) were on treatment and follow-up for the conditions above. The most prevalent condition was hypertension which affected 28 (57.1%) followed by HIV 14 (28.6%), 5 participants had Ulcers (10%) and lastly 1 participant had Diabetes and also 1 had RHD at 2.0% each.

Table 4.3: Family social history of the study participants

Variable	N	n (%)
Living arrangements		
Parents		86 (23.3%)
Partner	369	260 (70.5%)
Others		23 (6.2%)
Other Living arrangements		
Alone		7 (30.4%)
Employer	23	1 (4.3%)
Extended (other family members)		15 (65.2%)
Alcohol or drug use	369	7 (1.9%)
Initiated alcohol use during pregnancy	7	1 (14.3%)
Increased alcohol intake with the onset of IPV in pregnancy	7	1 (14.3%)
Victim of violence in childhood	369	36 (9.8%)
Type of violence in childhood		
Physical		23 (63.9%)
Psychological	36	9 (25.0%)
Sexual		4 (11.1%)
Own mother was a victim of some form of violence (physical, sexual or psychological violence)		
No		330 (89.4%)
Yes	369	38 (10.3%)
Unknown		1 (0.3%)

Up to 260 (70.5%) of the participants were living with their partners, 1.9% were using alcohol or drugs, 36 (9.8%) were victims of violence in childhood, 38 (10.3%) of the participants had mothers who were victims of some form of violence.

Table 4.4: Obstetric history of the study participants

Variable	N	n (%)
Parity before just concluded pregnancy		
0		159 (43.1%)
1		98 (26.6%)
2	369	56 (15.2%)
3		29 (7.9%)
>3		27 (7.3%)
Attended ante-natal clinic	369	357 (96.7%)
Gestation at First ANC visit (Weeks)	357	21.0 (7.3)
Range (Min. – Max.)		4.0 – 45.0
Number of ANC visits		
One		25 (7.0%)
Two	357	42 (11.8%)
Three		107 (30.0%)
More than three		183 (51.3%)
HIV positive	369	14 (3.8%)
HIV diagnosis time		
HIV diagnosis before pregnancy		7 (50.0%)
HIV diagnosis during pregnancy	14	7 (50.0%)
Had the current pregnancy been planned	369	225 (61.0%)

Of the 369 participants, 96.7% attended ANC with 290 (81.3%) making three or more visits. The average gestational age at first ANC visit was 21.0 (SD: 7.3) weeks. There were 14 (3.8%) HIV positive participants of which 50.0% were diagnosed during pregnancy and the other half before pregnancy.

The current pregnancy was planned for 61.0% of the 369 participants.

Intimate Partner Violence in pregnancy

Intimate partner violence was assessed using the modified WHO violence against women tool and the results grouped into physical, sexual, stalking, and psychological violence. Out of the 369 respondents that we had in this study, 137 (37.1%) suffered IPV in the last pregnancy whereas 232 (62.9%) did not.

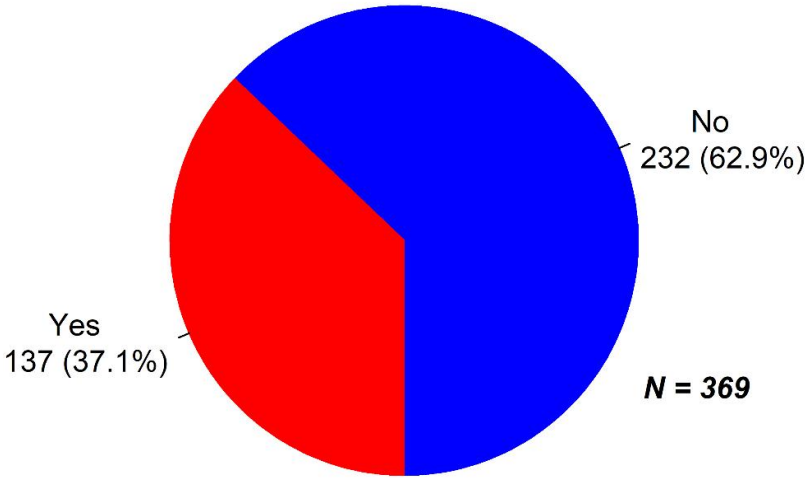


Figure 4.2: The Overall prevalence of intimate partner violence in pregnancy

Physical violence in pregnancy

Physical violence was assessed as shown in Table 4.5. Up to 33.5% of the victims of IPVp were slapped or had something that could hurt thrown at them, 23.3% were pushed or shoved, 13.8% were hit with a fist or something else that could hurt, 11.6 % were kicked or dragged or beaten, 1.4% were chocked or burnt on purpose, and 3.6 % had been threatened with or actually assaulted with a gun, knife or another weapon. Overall the proportion of intimate partner physical violence accounted for 14.6% (n = 54) amongst all the participants (N = 369) and 39.4% of those who suffered IPV.

Table 4.5: Physical violence in the most recent pregnancy by husband/ex-husband/boyfriend or ex-boyfriend among victims of intimate partner violence in pregnancy.

Variable	N	n (%)
Slapped or thrown something at that could hurt	137	46(33.5%)
Pushed or shoved	137	32(23.3%)
Hit with a fist or something else that could hurt	137	19(13.8%)
Kicked or dragged or beaten up	137	16(11.6%)
Chocked or burnt on purpose	137	5 (1.4%)
Threatened to use or actually used a gun, knife or another weapon to assault	137	8 (3.6%)
Had been physically assaulted before the pregnancy	369	59(15.9%)
Physical violence in pregnancy *(among victims of IPVp)*	137	54(39.4%)

Sexual violence in pregnancy

Up to 15.3 % of the victims of IPVp were forced to have sex when not in the mood, 27.7 % had sex when not in mood due to fear, and 17.5% were forced to do sexually degrading or humiliating acts. The composite outcome of these three items showed that the proportion of intimate partner sexual violence in pregnancy among all the partcipants was 13%. Up to 12.4% of the participants had been sexually violated before the just concluded pregnancy and 35.0% of the victims of IPVp had been sexually assaulted.

Table 4.6: Sexual violence in the most recent pregnancy by husband/ex-husband/boyfriend or ex-boyfriend among victims of intimate partner violence in pregnancy.

Variable	N	n (%)
Physically forced to have sex when not in the mood	137	21(15.3%)
Had sex when not in the mood due to fear	137	38(27.7%)
Forced to do sexually degrading or humiliating acts	137	24(17.5%)
Had been sexually assaulted before the pregnancy	369	46(12.4%)
Sexual violence in pregnancy *(among victims of IPVp)*	137	48(35.0%)

Stalking in pregnancy

Thirty participants (28.4%) received repeated unwanted attention and contact that caused fear or concern for their own safety or the safety of someone else from their own husband/ ex-husband/boyfriend or ex-boyfriend. About 10.5% (39) of the participants had ever been stalked by the husband/ex-husband/boyfriend or ex-boyfriend before the pregnancy.

Table 4.7: Stalking by husband/ex-husband/boyfriend or ex-boyfriend in the last pregnancy among victims of IPVp

Variable	N	n (%)
Received repeated unwanted attention and contact that causes fear or concern for own safety or the safety of someone else from own husband/ ex-husband/boyfriend or ex-boyfriend *(among victims of IPVp)*	137	30(21.9%)
Has been stalked by husband/ex-husband/boyfriend or ex-boyfriend before the pregnancy	369	39(10.5%)

Psychological violence in pregnancy

Intimate partner psychological violence was assessed using six items (Table 4.8). The results show that 56.2% of the victims of IPVp had been insulted or made to feel bad about themselves, 34.3% reported being belittled or humiliated in front of other people, and 21.1% reported having been scared or intimidated on purpose. Up to 17 (12.4%) of the participants had been threatened of them getting hurt or someone caring about them getting hurt, 32.1% had ever been isolated or confined, and 37.9% had been prevented from visiting relatives or friends. Overall, intimate partner psychological violence accounted for 27.4% of IPVp (101) among all participants and 73.7% among victims of IPVp. Psychological violence occurring prior to the just concluded pregnancy was reported by 30.9% of the participants.

Table 4.8: Psychological violence by husband/ex-husband/boyfriend or ex-boyfriend in the last pregnancy among victims of intimate partner violence in pregnancy.

Variable	N	n (%)
Insulted or made to feel bad	137	77 (56.2%)
Belittled or humiliated in front of other people	137	47 (34.3%)
Scared or intimidated on purpose	137	29(21.1%)
Threated to be hurt you or hurt someone you care about	137	17(12.4%)
Ever been isolated or confined	137	44 (32.1%)
Prevented from visiting friends or relatives	137	52 (37.9%)
Had been psychologically violated before the pregnancy	137	114(83.2%)
Psychological violence in pregnancy *(among victims of IPVp)*	137	101(73.7%)

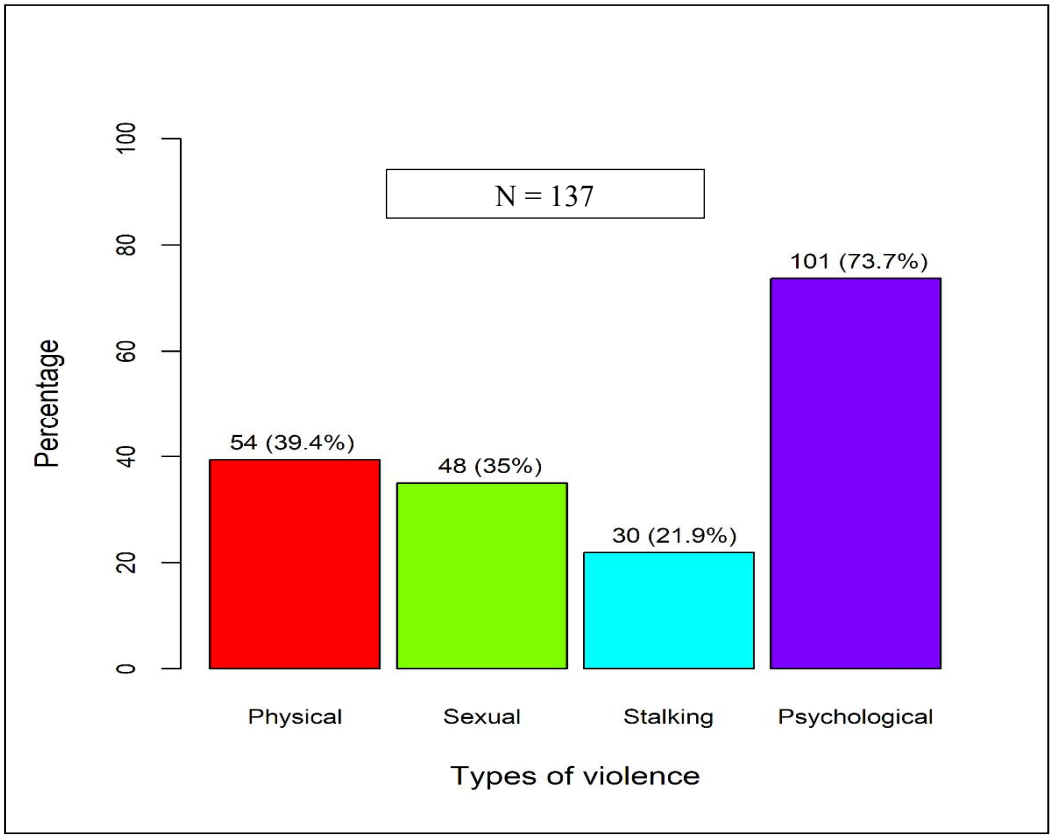


Figure 4.3: Types of IPV in pregnancy

Psychological violence accounted for the greatest proportion of IPV (73.7%) followed by physical (39.4%), sexual (35.0%), and finally stalking (21.5%) among all the participants who reported IPV in pregnancy, Figure 4.3.

Table 4.9: Prevalence of intimate partner violence in pregnancy.

Type of violence	N	# of violence events	% (95% CI)
Physical violence	369	54	14.6 (11.2, 18.7)
Sexual violence	369	48	13.0 (9.7, 16.9)
Stalking violence	369	30	8.1 (5.6, 11.4)
Psychological violence	**369**	**101**	**27.4 (22.9, 32.2)**
Overall violence	369	137	37.1 (32.2, 42.3)

Psychological violence emerged the topmost type of IPVp amongst all the participants at 27.4% (CI 22.9, 32.2).The least to occur was stalking at 8.1% (CI 5.6, 11.4).

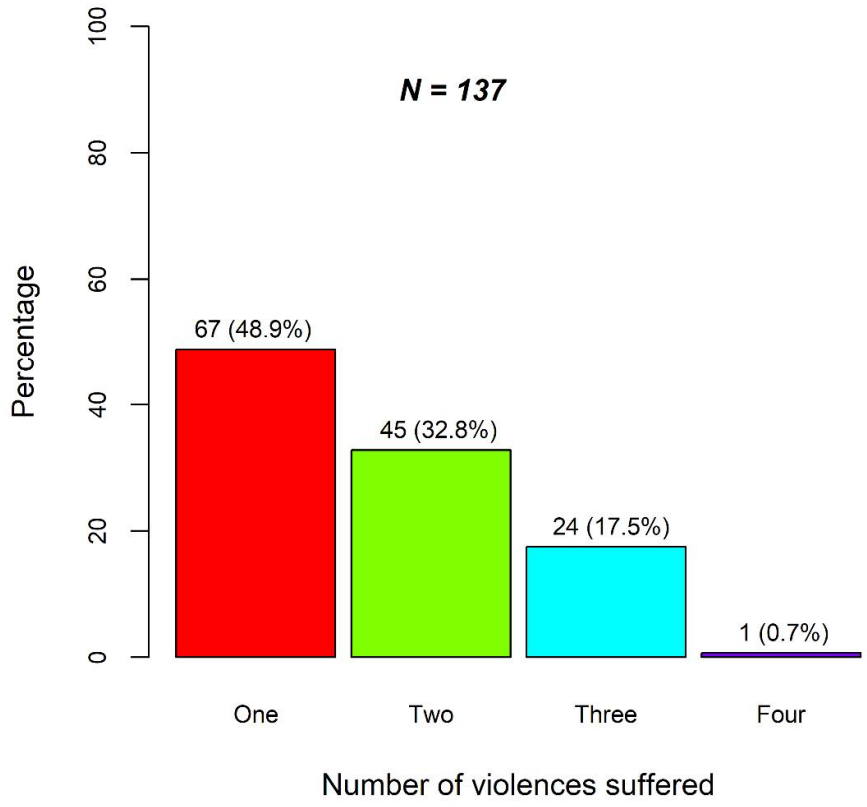


Figure 4.4: Number of types of violence suffered among victims of IPVp

Half of the victims (51.1%) suffered more than one type of intimate partner violence in pregnancy.

Table 4.10: Patterns of the types of violence to the victims of IPVp.

Physical violence	Sexual violence	Stalking violence	Psychological violence	N	# of violence events	% (95% CI)
No	No	No	No	369	232	62.9 (57.7 – 67.8)
Yes	No	No	No	369	10	2.7 (1.3 – 4.9)
No	**Yes**	No	No	369	10	2.7 (1.3 – 4.9)
Yes	**Yes**	No	No	369	2	0.5 (0.0 – 1.9)
No	No	**Yes**	No	369	11	3.0 (1.5 – 5.3)
Yes	No	**Yes**	No	369	1	0.3 (0.0 – 1.5)
No	**Yes**	**Yes**	No	369	1	0.3 (0.0 – 1.5)
Yes	**Yes**	**Yes**	No	369	1	0.3 (0.0 – 1.5)
No	No	No	**Yes**	369	36	9.8 (6.9 – 13.3)
Yes	No	No	**Yes**	369	18	4.9 (2.9 – 7.6)
No	**Yes**	No	**Yes**	369	17	4.6 (2.7 – 7.3)
Yes	**Yes**	No	**Yes**	369	14	3.8 (2.1 – 6.3)
No	No	**Yes**	**Yes**	369	6	1.6 (0.6 – 3.5)
Yes	No	**Yes**	**Yes**	369	7	1.9 (0.8 – 3.9)
No	**Yes**	**Yes**	**Yes**	369	2	0.5 (0.0 – 1.9)
Yes	**Yes**	**Yes**	**Yes**	369	1	0.3 (0.0 – 1.5)

About 17.5% suffered at least 3 types of violences in pregnancy with 10% of them having suffered from physical, sexual and psychological violence.

Partner characteristics

Characteristics of the partners of the participants were also assessed. The findings were as shown in Figures 4.5 to 4.9.

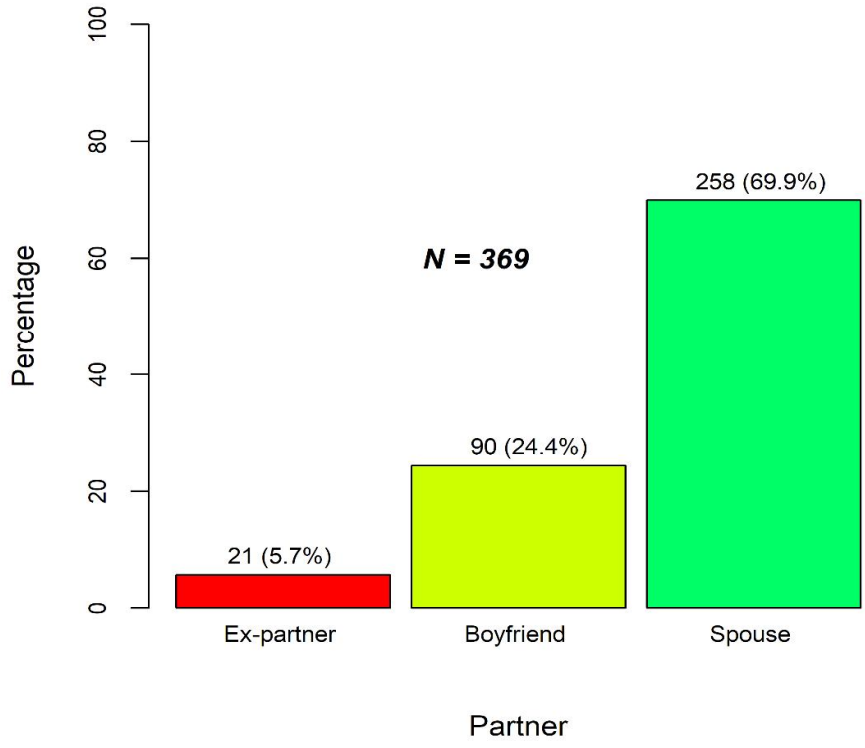


Figure 4.5: Partners of the participants

Up to 5.7% and 24.4% of the participants reported ex-partners, and boyfriends as their intimate partners respectively.

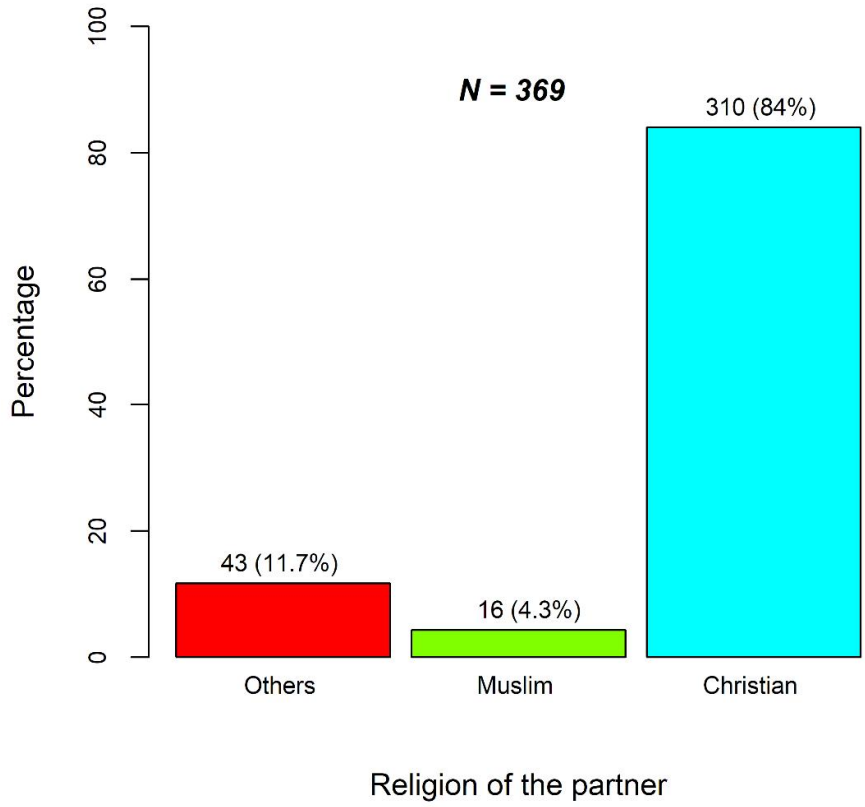


Figure 4.6: Religion of the partners

Up to 84% of the partners of the participants were Christians.

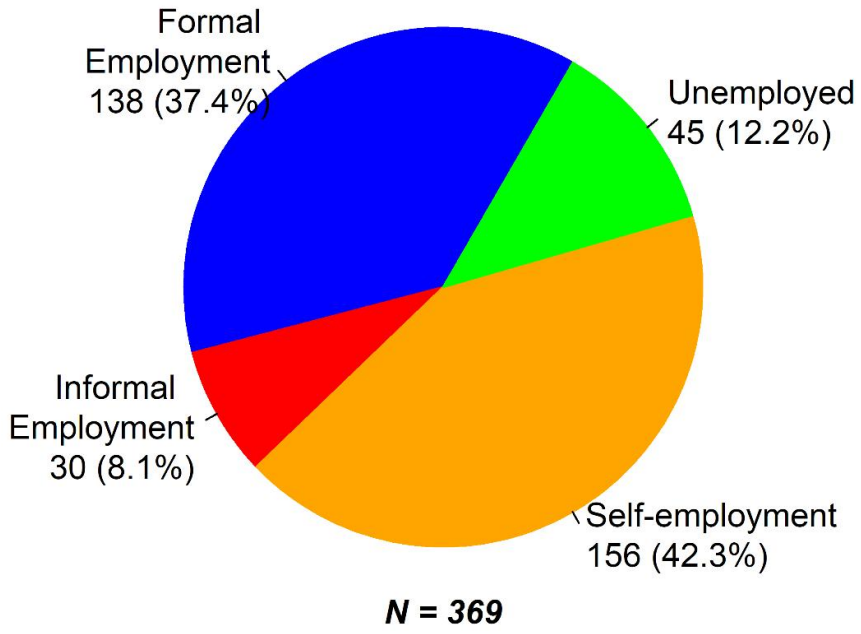


Figure 4.7: Employment of the partners

Up to 79.7% of the partners of the participants were either working in a formal employment or were sere self-employed.

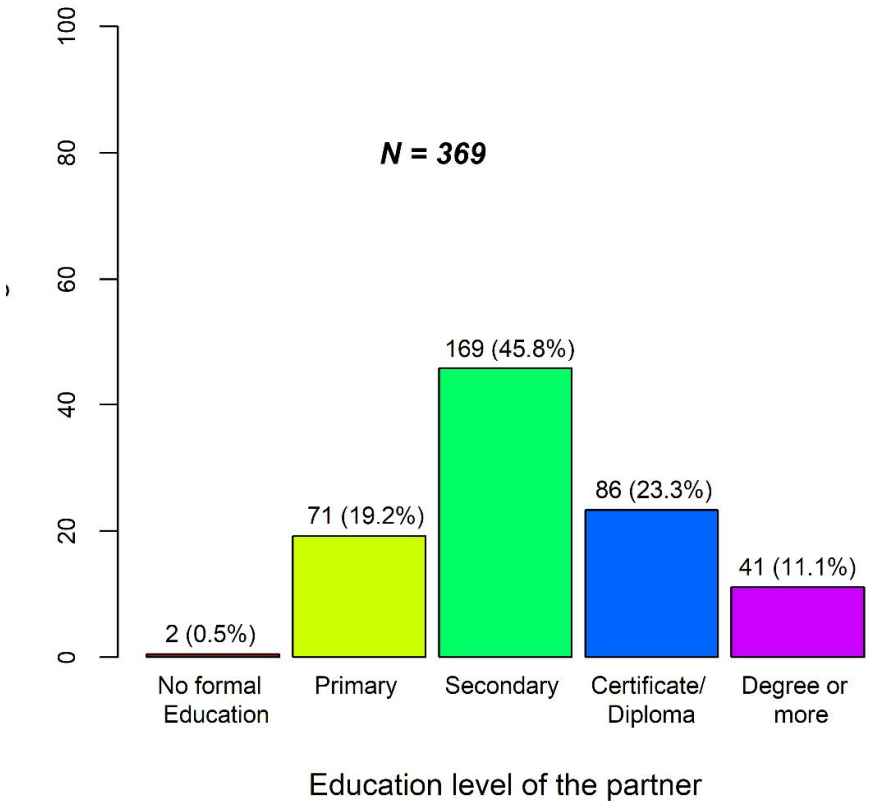


Figure 4.8: Education level of the partners/perpetrators

One-third of the partners of the participants (34.4%) had completed college or university level of education.

Table 4.11: the amount of income of the partners

Variable	N	Median (IQR)
Income of the partner (Kenya Shillings)	313	12000.0 (9000.0, 20000.0)
Range (min. - Max.)		2000.0 - 100000.0

The median income for the partners was reported as Kenya Shillings 12000.0 (9000.0, 20000.0) with a range of 2000.0 – 100000.0.

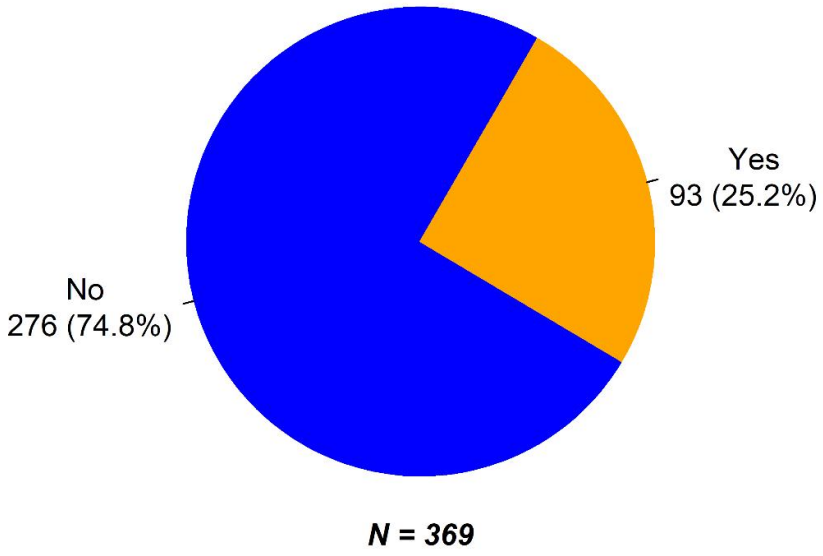


Figure 4.9: Alcohol or drug use by the partners

One quarter (25.2%) of the partners of the participants were using alcohol or any other form of drug.

Table 4.12: Bivariate analysis of factors associated with IPV in pregnancy

Variable	Experienced IPV in pregnancy No (N=232)	Yes (N=137)	P
	n (%) or Median (IQR)		
Participant characteristics			
Age of the participant (Years)	26.5 (6.5)	26.7 (6.6)	0.836[t]
<20	27 (11.6%)	17 (12.4%)	0.970[c]
20-30	144 (62.1%)	85 (62.0%)	
>30	61 (26.3%)	35 (25.5%)	
Married	173 (74.6%)	107 (78.1%)	0.529[c]
Number of sex partners > 1	**3 (1.3%)**	**8 (5.9%)**	**0.022[c]**
CompletedCollege/University education	166 (71.6%)	86 (62.8%)	0.084[c]
Formal or self –employed	113 (48.7%)	68 (49.6%)	0.914[c]
[§]Income (Kenya Shillings)	**7600.0 (3000.0, 12000.0)**	**5000.0 (2250.0, 7750.0)**	**0.033[w]**
Have history of chronic illness	23 (9.8%)	26 (19.0%)	0.164[c]
Living with the partner	165 (71.1%)	95 (69.3%)	0.718[c]
Living with extended family	55 (23.7%)	31 (22.6%)	0.899[c]
Alcohol or drug abuse	3 (1.3%)	4 (2.9%)	0.431[c]
Victim of childhood violence	**12 (5.2%)**	**24 (17.5%)**	**<0.001[c]**
Victim of childhood physical violence	8 (3.4%)	15 (10.9%)	0.006[f]
Victim of childhood sexual violence	2 (0.9%)	2 (1.5%)	0.630[f]
Victim of childhood psychological violence	2 (0.9%)	7 (5.1%)	0.015[f]
Mother was a victim of violence	**18 (7.8%)**	**20 (14.6%)**	**0.050[c]**
Primiparity	**110 (47.4%)**	**49 (35.8%)**	**0.030[c]**
Attended ANC	226 (97.4%)	131 (95.6%)	0.373[c]
Gestation at first ANC (weeks)	20.7 (7.4)	21.0 (7.7)	0.635[t]
Gestation (weeks)	**37.5 (3.2)**	**38.3 (2.8)**	**0.016[t]**
HIV positive	**4 (1.7%)**	**10 (7.3%)**	**0.007[c]**
Current pregnancy was planned	146 (62.9%)	79 (57.7%)	0.323[c]
Previous History of IPV	**38 (16.4%)**	**112 (81.8%)**	**<0.001[c]**
[h] With higher education than perpetrator	59 (25.9%)	27 (19.9%)	0.191[c]
Caesarean delivery mode	63 (27.2%)	35 (25.5%)	0.735[c]
Perpetrator/partner characteristics			
Age (Years)	30.0 (26.0, 35.0)	30.0 (26.0, 38.0)	0.130[w]
Spouse of the participant	**169 (72.8%)**	**83 (60.6%)**	**0.015[c]**
Christian by religion	**206 (88.8%)**	**104 (75.9%)**	**0.002[c]**
Formal or self - employed	184 (79.3%)	110 (80.3%)	0.894[c]
[†]Income (Kenya Shillings)	**14000 (9250.0, 24750.0)**	**12000.0 (9000.0, 20000.0)**	**0.005[w]**
[h] Completed College/University education	**88 (38.6%)**	**36 (26.5%)**	**0.022[c]**
Alcohol or drug abuse	**38 (16.4%)**	**55 (40.1%)**	**<0.001[c]**

IPV - Intimate Partner violence; [§] n = 203; [†] n = 313; [ħ] n = 364; [c] Pearson's Chi Square test; [f] Fisher's Exact test; [w] two-sample Wilcoxon rank-sum test

The results show no evidence of a difference in age (mean (SD): 26.50 (SD: 6.5) vs. 26.7 (SD: 6.6), p = 0.836), the proportion married (78.1% vs. 74.6%, p = 0.529) and the proportion with formal or self-employment (49.5% vs. 48.7%, p = 0.914) between those participants who experienced IPV in pregnancy and those who did not experience.

There was evidence from the data to demonstrate that the participants who experienced IPVp were more likely to be having more than one sexual partner (5.9% vs. 1.3%, p = 0.022). The participants who experienced IPVp were also more likely to be earning a lower income (median income (IQR): Ksh. 5000.0 (IQR: 2250.0, 7750.0) vs. Ksh. 7600.0 (IQR: 3000.0, 12000.0), p = 0.033). Participants who had a history of chronic illness, were living with their partner, were living with the extended family and those who were using alcohol or drugs were not associated with IPVp, p = 0.164, 0.718, 0.899, and 0.431 respectively.

A smaller proportion of the participants who suffered IPVp had a higher level of education compared to those who did not suffer IPVp. However there was no sufficient evidence from the data to link higher education level of the participants to IPV (29.9% vs. 19.9%, p = 0.191).

There was no evidence of a difference in the proportion of the participants who delivered via Caeserean section between the group who suffered IPVp and those who did not (27.2% vs. 25.5%, p = 0.735).

A significantly higher proportion of the participants who experienced IPVp were more likely to have experienced violence at childhood (17.5% vs. 5.2%, p<0.001).

Findings show that experiencing childhood physical, and psychological violence were strongly associated with IPVp (3.4% vs. 10.9%, p = 0.006, and 0.9% vs. 5.1%, p = 0.015) respectively. There was no evidence of an association between experience of childhood sexual violence and IPVp (0.9% vs. 1.5%, p = 0.630). Similarly, participants who had been pregnant more than once were more likely to experience IPV in pregnancy (64.2% vs. 52.6%, p = 0.030).

There was no evidence of a difference in the gestational duration at first ANC visit between those who experienced IPVp and those who did not (20.7 (SD: 7.4) weeks vs. 21.0 (SD: 7.7) weeks, p = 0.635). However, the findings show that the participants who experienced IPVp were more likely to have a longer gestational duration at delivery compared to those who never experienced (37.5 (SD: 3.2) weeks vs. 38.3 (SD: 2.8) weeks, p = 0.016).

HIV positive participants were more likely to experience IPV in pregnancy compared to the HIV negative (7.3% vs. 1.7%, p = 0.007). There was no association between period at which HIV was diagnosed and IPVp (p > 0.999). Fifty per cent of those who did not experience IPVp and 50.0% of those who experienced IPVp were diagnosed during pregnancy.

There was no statistically significant difference in the age between the perpetrators of the IPV in pregnancy and the non-perpetrators of IPVp Median (IQR): 30.0 (IQR: 26.0, 38.0) vs. 30.0 (IQR: 26.0, 35.0) years, p = 0.130.

Perpetrators of IPV in pregnancy were less likely to be the spouses of the participants (60.6% vs. 72.8%, p = 0.015), less likely to be Christians (75.9% vs. 88.8%, p = 0.002), and less likely to have completed college or University education (26.5% vs. 38.6%, p = 0.022). However, they were more likely to have been using alcohol or

drugs (40.1% vs. 16.4%, p<0.001), and earned a significantly lower income, Ksh. 12000.0 (IQR: 9000.0, 20000.0) vs. 14000.0 (IQR: 9250.0, 24750.0), p = 0.005.

Table 4.13: logistic regression model assessing the determinants of IPV in pregnancy

Variable	Unadjusted OR (95% CI)	Initial aOR (95% CI)	Final aOR(95% CI)
Participant characteristics			
Number of sex partners > 1	**4.81 (1.79, 12.91)**	4.72(0.36,62.64)	-
Completed College/University education	**0.48 (0.32, 0.70)**	0.96(0.29,3.24)	-
[§]Income /1000 increase (KShs)	**0.96 (0.93, 0.99)**	0.99(0.92, 1.05)	-
Victim of violence in childhood	**3.89 (2.28, 6.65)**	2.11(0.54, 8.23)	**3.02 (1.41,6.49)**
Mother was a victim of violence	**2.03 (1.24, 3.34)**	1.42 (0.29, 6.97)	-
Nulliparous	**0.62 (0.45, 0.85)**	1.42(0.48, 4.22)	-
HIV positive	**4.49 (1.89, 10.67)**	0.67 (0.09, 5.12)	-
Previous History of IPV	**22.87 (15.21, 34.40)**	53.08(15.80,178.31)	**25.77(15.70,42.32)**
Partner characteristics			
Partner is the spouse	**0.57 (0.41, 0.80)**	0.42 (0.14,1.26)	**0.43(0.26, 0.73)**
Christian by religion	**0.40 (0.26, 0.60)**	0.34 (0.10,1.14)	-
[†]Income /1000 increase (KShs)	**0.97 (0.96, 0.99)**	0.96 (0.91, 1.02)	**0.95(0.93, 0.98)**
[h]Completed College/University education	**0.57 (0.41, 0.81)**	0.46 (0.13,1.64)	-
Alcohol or drug abuse	**3.42 (2.39, 4.90)**	5.36 (1.68,17.07)	**2.19(1.29,3.71)**

IPV - Intimate Partner violence; [§] n = 203; [†] n = 313; [h] n = 364
OR – Odds ratio; aOR – adjusted Odds Ratio; CI – Confidence Interval ; KShs – Kenyan Shillings

Backward selection model was used to develop the model. The variables with the greatest p-values >0.05 were removed one at a time until the final suitable model was achieved.

Colinearity between history of IPV before the current pregnancy and being a victim of violence in childhood were assessed. Although the p-value was <0.05, there was no strong compelling evidence to conclude that the presence of the two in the model changed the conclusions of the study. This is because the cross tabulation of the two resulted in cells with sparse data thus Chi- square assumptions were violated rendering Fisher's exact test as an alternative.

The findings of the logistic regression model above therefore indicate that participants with more than one sex partner were associated with almost five times increased odds of IPVp, OR: 4.81 (95% CL: 1.79, 12.91).

Participants who had college or university education had up to 52% reduced odds of IPV in pregnancy (OR: 0.48 95% CL: 0.32, 0.70). Partners who had a college or university education were less likely to inflict IPVp to the participants (OR: 0.57, 95% CL: 0.41, 0.81).

High income among the participants was associated with 4% reduced odds of IPVp (OR: 0.96, 95% CL: 0.93, 0.99). Higher income of the partners to the participants was associated with 3% reduced odds of IPV in pregnancy, OR: 0.97 (95% CL: 0.96, 0.99).

Participants who were victims of violence at childhood, and those whose mothers were victims of violence were associated with almost four times and two times increased odds of IPV in pregnancy, OR: 3.89 (95% CL: 2.28, 6.65), and OR: 2.03 (95% CL: 1.24, 3.34) respectively.

Nulliparous participants were less likely to experience IPV in pregnancy, OR: 0.62 (95% CL: 0.45, 0.85).

HIV positive participants were associated with more than four times increased odds of IPV in pregnancy, OR: 4.49 (95% CL: 1.89, 10.67).

Partners who were spouses to the participants had up to 43% reduced odds of inflicting IPVp to the participants, OR: 0.57 (95% CL: 0.41, 0.80), and Christian intimate partners had up to 60% reduced odds of inflicting IPV in pregnancy.

Alcohol or drug abuse by the perpetrators was associated with more than three times increased odds of IPV in pregnancy, OR: 3.42 (95% CL: 2.39, 4.90).

Table 4.14 Determinants of Intimate Partner Violence in pregnancy

Variable		uOR (95% CI)	aOR (95% CI)	P-value
Participant characteristics				
Previous history of IPV	Yes	22.87 (15.21, 34.40)	25.77 (15.70, 42.32)	0.001
	No	Reference	Reference	
Victim of childhood violence	Yes	3.89 (2.28, 6.65)	3.02 (1.41, 6.49)	0.037
	No	Reference	Reference	
Partner characteristics				
Partner is the spouse	Yes	0.57 (0.41, 0.80)	0.43 (0.26, 0.73)	0.021
	No	Reference	Reference	
Income/1000 (KShs)		0.97 (0.96, 0.99)	0.95 (0.93, 0.98)	0.003
Partner uses alcohol/drugs	Yes	3.42 (2.39, 4.90)	2.19 (1.29, 3.71)	0.033
	No	Reference	Reference	

uOR – Unadjusted Odds Ratio; aOR – Adjusted Odds Ratio; CI – Confidence Interval

Adjusting for the other factors in the model (Table 4.13), among the participants, being a victim of childhood violence was associated with more than three times increased odds of IPV in pregnancy, OR: 3.02 (95% CL: 1.41, 6.49).

After adjusting for the participant characteristics, high income for the perpetrator, and being a spouse of the participant were associated with 5%, and 57% reduced odds of

IPV in pregnancy (aOR: 0.95,95% CL: 0.93, 0.98), and aOR: 0.43(95% CL: 0.26, 0.73) respectively. Use of alcohol or other drugs by the perpetrators was associated more than two times increased odds of IPV for the participant, aOR: 2.19 (95% CL: 1.29, 3.71). Income was divided by sh.1000. The comparison was between two participants who earn a difference of 1000 shillings. The one earning 1000 shillings more has a 5% reduced odds of inflicting IPV to the participant. Therefore an increase in earnings by 1000 shillings reduces the odds of IPV by the partner in logistic regression done.

Table 4.15: Perinatal outcomes of IPVp

Variable	N	n (%) or Mean (SD)
Birth weight (Kgs)	369	2.8 (0.7)
Range (Min. - Max.)		0.7 - 4.9
Preterm labor and delivery	369	71 (19.2%)
Fetal death	369	5 (1.4%)
Early neonatal death	369	2 (0.5%)
Apgar score at five minutes		
< 7	369	62 (17.1%)
≥ 7		306 (82.9%)

The average infant birth weight was 2.8 (SD: 0.7) kilograms. Preterm labour and delivery were observed in 71 (19.2%) of the participants. The number of fetuses/neonates who died were 7 (1.9%).

Amongst all the participants, a majority had a birth weight of 2500g to 3500g.

Participants who had neonates with 5 minute Apgar scores of less than 7 were 17%.

Table 4.16: Association between perinatal outcomes and overall presence of IPV

		Experienced IPV in pregnancy		
		No (N=232)	Yes (N=137)	
Variable	**N**	**n (%) or Mean (SD)**		**P**
Birth weight	368	2.8 (0.8)	2.8 (0.6)	0.337[t]
<1000		6 (2.6%)	0 (0.0%)	0.137[f]
1000-1500		14 (6.0%)	3 (2.2%)	
1500-2500	368	38 (16.4%)	22 (16.2%)	
2500-3500		133 (57.3%)	88 (64.7%)	
≥3500		41 (17.7%)	23 (16.9%)	
Preterm labor or delivery	369	46 (19.8%)	25 (18.2%)	0.785[c]
Fetal death	369	2 (0.9%)	3 (2.2%)	0.365[c]
Neonatal death	369	2 (0.9%)	0(0.0%)	0.532[c]
Fetal or Neonatal death	369	4 (1.7%)	3 (2.2%)	0.714[c]
Apgar score				
<7	369	35 (15.1%)	27 (20.4%)	0.239[c]
≥7		197 (84.9%)	109 (79.6%)	

[c] Pearson's Chi Square test; [t] Independent samples t-test, [f] fisher's exact test

The average infant birth weight was similar for those who experienced IPV in pregnancy compared to those who did not experience IPV, 2.8 (0.6) vs. 2.8 (0.8), p = 0.337. Categorized birthweight demonstrated lack of association with experience of IPV (p > 0.05).

In both groups of participants, there were similarities in the proportion of mothers who had preterm labor and delivery, 18.2% vs. 19.8%, p = 0.785, in the proportion of fetal deaths, and neonatal deaths, 2.2% vs, 0.9%, p = 0.365, and 0.0% vs. 0.9%, p = 0.532 respectively and the proportion of composite outcomes of fetal and neonatal deaths, 2.2% vs. 1.7%, p = 0.714 in both groups of participants.

There was no evidence of a difference in the proportion of participants with 5 minute Apgar scores <7 among those who had experienced IPV in pregnancy compared to those who did not experience, 20.4% vs. 15.1%, p = 0.239.

Association between perinatal outcomes and the different types of IPV were assessed. The findings were as follows.

Table 4.17: Association between perinatal outcomes and physical violence

		Experienced physical IPV in pregnancy		
		No (N=315)	Yes (N=54)	
Variable	**N**	**n (%) or Mean (SD)**		**P**
Birth weight	368	†2.8 (0.8)	2.8 (0.6)	0.894
<1000		6 (1.9%)	0 (0.0%)	0.630[f]
1000-1500		16 (5.1%)	1 (1.9%)	
1500-2500		51 (16.2%)	9 (16.7%)	
2500-3500		184 (58.6%)	37 (68.5%)	
≥3500		57 (18.2%)	7 (13.0%)	
Preterm labor or delivery	369	61 (19.4%)	10 (18.5%)	>0.999[f]
Fetal death	369	4 (1.3%)	1 (1.9%)	0.549[f]
Neonatal death	369	2 (0.6%)	0 (0.0%)	>0.999[f]
Fetal or Neonatal death	369	6 (1.9%)	1 (1.9%)	>0.999[f]
Apgar score				
<7	**369**	**47 (14.9%)**	**16 (29.6%)**	**0.014[c]**
≥7		268 (85.1%)	38 (70.4%)	

† n = 314

There was no evidence of an association between birth weight, preterm labour, and mortality among those who experienced and those who did not experience physical violence during pregnancy. However, there was evidence of higher proportion of children born with lower Apgar score (<7) among the participants who experienced physical IPV, (29.6%) compared to those who did not experience physical IPV (14.9%), p = 0.014.

Table 4.18: Odds Ratio for physical IPVp and 5 minute Apgar score

		Experienced physical IPVp in pregnancy			
Variable	**N**	**No**	**Yes**	**p-value**	**OR**
Apgar score					
<7	**369**	**47 (14.9%)**	**16 (29.6%)**	**0.014**	**2.4**
≥7		268 (85.1%)	38 (70.4%)		(CI 1.24,4.65)

OR = Odds Ratio, CI confidence interval

Participants who suffered physical IPV in pregnancy had about two times (OR 2.4, 95% CI, 1.24,4.65) increased odds of having a 5 minute Apgar score of less than 7.

Table 4.19: Association between perinatal outcomes and sexual violence

Variable	N	Experienced sexual violence during pregnancy		P
		No (N=321)	Yes (N=48)	
		n (%) or Mean (SD)		
Birth weight	368	†2.8 (0.7)	2.9 (0.6)	0.217[t]
<1000		6 (1.9%)	0 (0.0%)	0.464[f]
1000-1500		17 (5.3%)	0 (0.0%)	
1500-2500		51 (15.9%)	9 (18.8%)	
2500-3500		192 (60.0%)	29 (60.4%)	
≥3500		54 (16.9%)	10 (20.8%)	
Preterm labor or delivery	369	63 (19.6%)	8 (16.7%)	0.699[f]
Fetal death	369	3 (0.9%)	2 (4.2%)	0.128[f]
Neonatal death	369	2 (0.6%)	0 (0.0%)	0.999[f]
Fetal or Neonatal death	369	5 (1.6%)	2 (4.2%)	0.228[f]
Apgar score				
<7	369	55 (17.1%)	8 (16.7%)	
≥7		266 (82.9%)	40 (83.3%)	0.999[f]

† n = 320

There was no evidence of any association between birth weight, preterm labour, mortality and 5 minute Apgar score among those who experienced and those who did not experience sexual violence during pregnancy ($p>0.05$).

Table 4.20: Association between perinatal outcomes and stalking

		Experienced stalking violence during pregnancy		
		No (N=339)	Yes (N=30)	
Variable	**N**	**n (%) or Mean (SD)**		**P**
Birth weight	368	†2.8 (0.7)	2.8 (0.6)	0.217[t]
<1000		6 (1.8%)	0 (0.0%)	1.000[f]
1000-1500		16 (4.7%)	1 (3.3%)	
1500-2500	368	55 (16.3%)	5 (16.7%)	
2500-3500		202 (59.8%)	19 (63.3%)	
≥3500		59 (17.5%)	5 (16.7%)	
Preterm labor or delivery	369	63 (18.6%)	8 (26.7%)	0.332[f]
Fetal death	369	5 (1.5%)	0 (0.0%)	>0.999[f]
Neonatal death	369	2 (0.6%)	0 (0.0%)	>0.999[f]
Fetal or Neonatal death	369	7 (2.1%)	0 (0.0%)	>0.999[f]
Apgar score				
<7	366	57 (16.8%)	6 (20.0%)	
≥7		282 (83.2%)	24 (80.0%)	0.617[f]

† n = 338

There was no evidence of any association between birth weight, preterm labour, mortality and Apgar score among those who experienced and those who did not experience stalking during pregnancy ($p>0.05$).

Table 4.21: Association between perinatal outcomes and psychological violence

		Experienced Psychological violence during pregnancy		
		No (N=268)	Yes (N=101)	
Variable	**N**	**n (%) or Mean (SD)**		**P**
Birth weight	368	2.8 (0.8)	†2.8 (0.6)	0.816[t]
<1000		6 (2.2%)	0 (0.0%)	0.228[f]
1000-1500		15 (5.6%)	2 (2.0%)	
1500-2500		40 (14.9%)	20 (20.0%)	
2500-3500		158 (59.0%)	63 (63.0%)	
≥3500		49 (18.3%)	15 (15.0%)	
Prematurity	369	51 (19.0%)	20 (19.8%)	0.883[f]
Fetal death	369	3 (1.1%)	2 (2.0%)	0.617[f]
Immediate neonatal death	369	2 (0.7%)	0 (0.0%)	>0.999[f]
Fetal or Neonatal death	369	5 (1.9%)	2 (2.0%)	>0.999[f]
Apgar score				
<7	369	45 (16.8%)	18 (17.8%)	
≥7		223 (83.2%)	83 (82.2%)	0.877[f]

† n = 100

There was no evidence of any association between birth weight, preterm labour, mortality and Apgar score among those who experienced and those who did not experience psychological violence during pregnancy ($p>0.05$).

CHAPTER FIVE: DISCUSSION

5.1. Prevalence of intimate partner violence in pregnancy

This study found the prevalence of intimate partner violence in pregnancy at MTRH to be at 37.1%. This prevalence is comparable to a study done on antenatal mothers in 2013 at Kisumu District hospital where they reported a prevalence of 37% (Makayoto, Omolo, Kamweya, Harder and Mutai .2013). The results of the two studies are comparable as the two are hospital prevalence. A study done among antenatal attendees in West Pokot County, Kenya, found the overall prevalence of intimate partner violence in pregnancy to be 66.9% (Owaka, Nyanchoka and Atieli ,2017). A community based cross-sectional study done in Ethiopia in 2016 found a prevalence of 44.5% during the recent pregnancy (Bedilu Bitiya and Tizta .2016).

This prevalence in this study is however within the lifetime prevalence of violence against women that ranges from 15 to 71%. The differences in prevalence between this study and the other studies done on this topic could be explained by the diversity of sociocultural practices on what constitutes violence and also a difference in the tools and methods used for data collection and analyses.

The high prevalence could also be because women are nowadays opposing traditional gender role expectations therefore provoking IPVp (Ntaganira, Muula, Masaisa, Siziya, Rudatsikira (2008). More women are also speaking out due to human rights campaigns and anti- violence advocacy, thus predisposing them to violence.

The prevalence emanating from this study at 37.1% is comparable to the global lifetime prevalence and gives a snapshot of the occurrence of this practice in Western Kenya.

5.2. Proportions of the types of IPV

In this study, psychological violence occurred more commonly (27.4% among all the participants and at 73.7% among those who suffered IPVp), followed by physical violence (14.6% among the participants and 39.4% among those who suffered IPVp), sexual violence was at 13% among the participants and 35% among those who suffered IPVp while stalking was at 8.1% among the participants and 21.9% among those affected by IPVp.

Makayoto et al (2013) also found out that the most common type of IPV in pregnancy was psychological violence (29%) and the least was physical violence (10%). Owaka et al, (2017) also found psychological violence to be the most common type to occur at 55.8%, sexual violence at 39.2% and physical violence at 29.9%.

In contrast, Bedilu et al (2016), found psychological violence to be the least to occur at 16%, followed by physical violence at 29% and the most common type to occur was sexual violence at 30%. This could be explained by the fact that the study was conducted in a different population with different sociocultural beliefs and also that it was a community based study as opposed to this study which was done in the hospital set-up.

Psychological violence is emerging as the most prevalent type suffered by women in pregnancy, as determined by this study and other studies (Owaka et al (2017), Groves et al (2015), Makayoto et al (2013), and Hoque, Hoque and Kader (2009). It can be attributed to the fact that it is a concealed type and affected women would not be easily identified by the community and would, therefore, suffer silently.

Psychological violence in pregnancy has been strongly associated with postnatal depression independently of physical or sexual violence. Since it occurs more frequently than stalking, physical and sexual violence, policies focusing on its prevention need to be developed to prevent occurrence of postnatal depression and its associated effects (Ludermir, Lewis, Valongueiro, Thalia, Barreto and Ricardo,2010).

The differences in the proportions of the types of violences could be due to a difference in the perception of violence in the different communities and also in the tools used for data collection.

Bedilu et al, 2016 found out that more than half of those who suffered IPVp experienced 3 forms of violence i.e. physical, sexual and psychological. This study however shows that 51.1% experienced more than one type of violence with 17.5% experiencing 3 or more types.

5.3. Determinants of intimate partner violence in pregnancy

Bivariate logistic regression showed that intimate partner violence in pregnancy was more likely to occur in women who had multiple sexual partners, were multiparous, were victims of childhood violence, had a history of IPV before pregnancy, were HIV positive, those whose partners were not Christians and those whose partners were taking alcohol or drugs.

Again, according to multivariable analyses the following were significant determinants of IPVp, being a victim of childhood violence, having a history of IPV before pregnancy and alcohol or drug abuse. In comparison, the number of sexual partners, the level of education, parity and HIV status were not significant in multivariable analyses.

The spouse as the partner of the participant and an increase in income were also significant determinants in the multivariable analysis.

The significant determinants by both bivariate and multivariable analyses are discussed below.

5.3.1 Number of sexual partners

Participants who had more than one sexual partner had an almost five times risk of IPV in pregnancy (OR 4.81, 95% CL (1.79, 12.91). This is in keeping with findings of the study done by Simukai et al (2011), whereby women who had multiple partners were associated with the occurrence of IPVp more than those who did not have multiple sexual partners ($p < 0.023$) . Makayoto also concurs and further elaborates that an increase in the number of sexual partners is associated with IPVp (aOR 2,48 (1.06, 5.80) citing jealousy and mistrust in intimate relationships as a reason to precipitate IPVp (Makayoto et al, 2013).

5.3.2 Parity

Primiparous participants were less likely (OR 0.62, 95% CL,0.45, 0.85) to experience IPV in pregnancy. This is in keeping with a study done by Hoque et al (2009) and Ntaganira et al (2008) but contrasts studies done by Gillian et al (2005) which associated IPV with primiparity.

Makayoto et al associated IPVp with multiparity (aOR 1.94, 1.01,3.81, p – 0.05)

This could be explained by the fact that with an increased number of dependants, economic or financial responsibilities and strains are experienced more therefore predisposing these women to IPV in pregnancy.

5.3.3 Level of education

Participants who had a college or a university education had a reduced risk of IPVp (OR 0.48, 95% CL,0.32, 0.70). Similarly, partners who had a college or university education were less likely to inflict IPV in pregnancy (OR 0.57, 95% CL, 0.41, 0.81). This is in keeping with what was reported by Simukai et al (2011) where 3 studies found a strong association between a woman's low level of education and occurrence of IPVp. Gillian & Susan (2005), Karamagi et al (2009) and Hoque et al (2009) OR-7.59 also found significant associations between the two.

An advanced level of education therefore is associated with a reduced risk of suffering from or perpetrating intimate partner violence in pregnancy. This could be because an advanced level of education impacts positively on the cognition and level of understanding of a person subsequently reducing the likelihood of perpetrating IPV in pregnancy.

Husbands' high educational attainment, higher than secondary level, tends to protect women from violence because it helps to fight the conventional gender norms. They tend to be tolerant, understanding and cooperative with their wives in several issues (Marium (2014).

Similarly, a girl's schooling has an impact on her spousal relationship because the communication gap between the husband and the wife narrows as a result of improved gender equity (Marium (2014).

5.3.4 Level of income

Perpetrators of IPVp earned a significantly lower income compared to the non-perpetrators of IPVp (Ksh 12,000 vs 14,000 p=0.005).

Similarly, a higher income for the partners was associated with a reduced risk of perpetrating IPVp in this study. An increase of 1000 Kenyan shillings in income was associated with a 3% less likelihood of the partners perpetrating IPVp (OR 0.97, 95% CL 0.96, 0.99). Similarly a higher income for the participants (women) was also associated with a reduced likelihood of being a victim of IPVp. An increase of 1000 Kenyan shillings for the participants was associated with a 4% less likelihood of occurrence of IPVp (OR 0.96, 95% CL 0.93, 0.99). Khuram and Adnan, (2003) associated a low level of income with a high occurrence of IPV.

Financial constraints are one of the major causes of conflict in intimate relationships. A high level of income mitigates against these constraints, therefore, protecting relationships from intimate partner violence in pregnancy, whereas a low level of income predisposes to an increased risk of intimate partner violence in pregnancy. This is backed by a study done by Marium (2014) where she states that women capable of earning a substantially large amount of money, are at lower risk of domestic violence because they enjoy increased control in family decision through larger contribution in total family income (Marium, 2014).

Similarly, a higher level of income in men upholds their status as a family provider, increasing their masculinity and 'power' and leading to low IPV (Marium, 2014).

5.3.5 Experiencing violence in childhood

Participants who were victims of violence in childhood, and those whose mothers were victims of violence were associated with three times (aOR 3.02, 95% CL, 1.41,6.49) and two times (OR 2.03. 95% CL, 1.24, 3.34) increased odds of IPV in pregnancy respectively. Specifically exposure to childhood physical and psychological violence was strongly associated with the occurrence of IPV in pregnancy (3.4% vs. 10.9%, $p = 0.006$, and 0.9% vs. 5.1%, $p = 0.015$).

Holt, Buckley and Whelan (2008) reviewed literature (between 1995 -2006) on the impact of domestic violence on children and young people and found out that adolescents and children living with domestic violence were at an increased risk of experiencing emotional, physical and sexual abuse in their lives.

Other studies, Mesmann & Long (1996) and Beitchman, Zucker, Hood, Da Costa, Akman and Cassavia (1992) also associated history of exposure to abuse in childhood with the occurrence of IPV. Simukai et al (2011) also associated history of abuse with IPVp ($p < 0.023$).

Although this is revealing itself, several studies have come short of explaining how violence begets violence with suggestions of multiple factors deemed to be operative (Whitfield, Shanta and Vincent , 2003). Some of the factors that are known to play a role in this theory include low socioeconomic status, exposure to delinquent peers, impulsivity and low self-control (Wright and Fagan, 2013).

5.3.6 History of previous exposure to IPV

A history of previous exposure to IPVp was associated with an increased likelihood of experiencing IPVp (aOR 25.77 (15.70, 42.32). This is consistent with what was reported by Simukai et al, in 2011 whereby a past history of violence was a strong risk factor of occurrence of IPV. WHO also noted that a history of violence was consistently associated with prior exposure to other forms of violence (WHO_RHR (2012).

5.3.7 Spouses as perpetrators of IPVp

This study found out that a spouse of the woman is less likely to inflict IPVp as opposed to being a boyfriend or ex-partner. There is a 57% reduced likelihood of inflicting IPVp to the participants if the partner is the spouse. Studies correlating to this finding could not suffice. However, findings that were almost similar to that

which is emanating from this study were from what Garcia-Moreno, Jansen, Ellsberg, Heise and Watts (2006) explained that violence against women is most commonly carried out by male intimate partners.

5.3.8 Religion

Christian intimate partners had a 60% reduced likelihood of inflicting Intimate partner violence in pregnancy (OR 0.4, 95% CL, 0.26, 0.60). A case control study comparing Korean immigrant women who were victims of IPV to non- IPV victims found out that their partners high religious service attendance was associated with a lower IPV victimization (Kim, 2018)

Lee-Ross (2017), in a study which was looking at relations between Judeo-Christian religion and IPV concluded that Christian scriptures and Church context can also prevent or lessen violence against women. These could explain why IPVp is lower in Christian intimate partners as opposed to non-Christian intimate partners.

5.3.9 HIV status

Being HIV positive was associated with more than four times increased risk of IPV in pregnancy by bivariate analysis (OR 4.49, 95% CL, 1.89, 10.67). The period at which HIV was diagnosed (prior to or during pregnancy) was not associated with IPV (p >0.999).

Both of these findings are similar to a study done by Bernstein, Phillips and Zerbe (2016) on IPV and HIV infected pregnant women in South Africa, in which the HIV infected women in the study reported experiencing multiple forms of IPV. However, there was also no association between IPV and when HIV was diagnosed in the same study.

The risk of experiencing IPV in HIV pregnant women was also found out by Hoque et al (2009) where an association between HIV positive women and IPV (p=0.02) was

reported with two times increased likelihood of experiencing IPV in this population (OR=2.9).

Ntaganira, Muula, Masaisa, Siziya and Rudatsikira (2008) also found a two times increased likelihood of HIV positive pregnant women suffering from IPVp than HIV negative pregnant women (OR 2.38; 95% CI (1.59 – 3.57).

A multicountry study done by Were et al, 2011 found that HIV positive women have a 33% higher risk of IPV compared to uninfected women (aOR 1.33, p= 0.043).

However studies done by Karamagi, Tumwire, Tyllesker and Heggenhougen (2006) and Kaye, Mirembe and Bantebya (2002), found no association between IPV and HIV.

The occurrence of IPV in pregnancy among HIV positive women could be explained by the fact that the partners of HIV positive women react to their being positive by getting angry at them, blaming them, abandoning them and performing acts of violence to them. This occurs in about 3-15% of HIV positive women (WHO bulletin, series 1).

5.3.10 Alcohol and drug use

Alcohol or drug abuse by the perpetrators was associated with two times increased risk of IPV in pregnancy (aOR 2.19, 95% CL, 1.29,3.71) as per multivariable analysis. This is in keeping with studies done by Owaka et al, 2017 (OR 2.116, 1.95, 2.26) where partners who were taking alcohol were associated with two times increased likelihood of inflicting IPVp. Other studies also associated partner alcohol intake with occurrence of IPVp (Simukai et al, 2011, Makayoto et al 2013 and Karamagi et al, 2009).

Ntaganira et al (2008) while looking at determinants of IPV in pregnancy found out that partners who were taking alcohol also had an increased likelihood (OR 4.10; 95% CI (2.48,6.77) of inflicting IPV to the pregnant women.

In this study, there was only one participant who was taking alcohol/drugs whereas the partner/perpetrator was not. So an analysis of alcohol or drug use by the woman with the occurrence of IPV was not possible statistically.

The occurrence of IPVp in partners who take alcohol or drugs could be because alcohol affects the user's ability to perceive, integrate and process information (Bennet, 1997). This therefore increases the risk that the user may interpret the partner's behaviour erroneously leading to misunderstandings and IPVp.

Alcohol is also noted to have the ability of increasing the user's sense of personal power and domination over others thus precipitating IPV (Bennet (1997).

5.4. Perinatal outcomes of IPV in pregnancy

In this study, the average infant birth weights were similar for those who experienced IPVp compared to those who did not experience IPVp. The proportion of mothers who had preterm labour and delivery and fetal and neonatal deaths were also similar for both groups of participants. The same has been reported by Simukai, Naeemah, Temmerman, Musekwa and Zarowsky (2011) where there was no statistically significant difference regarding the risk of adverse perinatal outcomes of IPV in pregnancy in those exposed and non-exposed. Similar findings are also reported in a study done by Kaye, Mirembe, and Bantebya (2006) where a comparison of the mean birth weights of infants born were not statistically different. It, however, contrasts a study done by Coker, Sanderson and Dong (2004) where IPVp was associated with an increased risk of perinatal death, preterm delivery and low birth weight.

However, looking at the different types of violence in relation to perinatal outcomes, there was evidence of a higher likelihood of children born with lower 5 minute Apgar scores (<7) among the participants who experienced physical IPV in pregnancy (29.6%), compared to those who did not experience physical IPV in pregnancy (14.9%), p = 0.014 (OR 2.4 ,95% CL 1.24,4.65). This contrasts an observational descriptive study done in Southern Brazil by Pacheco, Flavia, Juliana and Juliana (2014) which upon evaluating obstetric and neonatal outcomes of IPV in pregnancy showed no statistically significant association between Apgar score and the occurrence of IPV during pregnancy. The same study, Pacheco et al (2014), did not find an association between preterm labor and the occurrence of IPV in pregnancy.

The observed impasse between the findings of this study on occurrence of physical IPVp with low Apgar scores and other studies which could not identify any association between IPVp and perinatal outcomes could be due to the low methodological rigor attributed to descriptive studies.

The occurrence of low 5 minute Apgar scores in babies born to mothers who suffered Physical IPVp in this study could possibly be explained by the direct impact of physical trauma on the babies in utero. Complications associated with direct physical trauma in pregnancy include occurrence of uterine contractions leading to preterm labour, abruptio placenta and uterine rupture which have been associated with adverse perinatal outcomes (Emergency Medical Services, 2009).

The other types of violence, when analyzed separately, did not show any significant adverse perinatal outcomes. The lack of adverse perinatal outcomes in the other types of IPVp (psychological, sexual and stalking) could be explained by the indirect trauma that these types of violence can cause which can be difficult to measure.

Psychological abuse is known to cause more debilitating effects than physical abuse. Anxiety, fear, fatigue, Post Traumatic Stress Disorder (PTSD), and sleeping and eating disturbances may occur as long-term reactions to psychological violence and may not cause immediate significant observable harm to the fetus (Heise, Pitanguy and Germain., 1994).

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1: Conclusion

1. The prevalence of Intimate Partner Violence in pregnancy among women giving birth at MTRH was 37.1%. This study therefore confirms that IPVp is prevalent in Western Kenya and is higher than the global prevalence of IPVp (4 – 12 %).
2. The most prevalent type of IPVp is psychological (73.7%), followed by physical (39.4%), sexual (35%) and lastly stalking (21.9%).
3. Alcohol and drug use, history of previous IPV and experiencing violence in childhood are predisposing factors of IPVp. Multiple sexual partners, being HIV positive and multiparity are other facilitative factors also associated with IPVp. Protective factors of IPVp are a higher level of income for the partner and being a spouse of the woman.
4. Generally, the occurence of IPVp was not associated with any adverse perinatal outcomes. Specifically, physical IPVp was associated with a higher proportion of women delivering children with low 5 minute Apgar scores.

6.2: Recommendations

With the high prevalence of IPVp in Western Kenya, it is recommended that all pregnant women who are seeking healthcare be screened of IPVp. Policies to effect inclusion of screening of pregnant women of IPVp should be formulated. It is also prudent to address the factors aggravating the occurence of IPVp in policy so as to reduce its prevalence.

The inclusion of the validated WHO Violence Against Women tool in the antenatal care package should be encouraged to help with identification of all forms of IPV in pregnancy. The use of the same tool should also be encouraged in research so as to standardize methods and reduce variations of results across studies. Validation of the

modified VAW tool used in this study needs to be done to assess its reliability in measuring intimate partner violence in pregnancy.

Women identified as having a higher likelihood of being victims of IPV in pregnancy are those that have a history of IPV before pregnancy, have experienced violence in childhood and whose partners abuse alcohol or drugs. Additional factors that may lead to the occurrence of IPVp are multiparity, being HIV positive, having multiple sexual partners, having a low educational level and having a partner who is not a Christian. Such characteristics point towards a possible occurrence of IPVp thus healthcare workers should be vigilant in diagnosing IPVp in pregnant women who present with the above factors.

Physical IPVp is associated with poor APGAR scores, it is therefore recommended that further studies to address to assess the causal inferences of physical IPVp and low 5 minute Apgar scores need to be conducted.

6.3: Study Limitations

The study relied on the participants to recall certain events which had happened in the past. This created a level of bias as there is a likelihood that not all events were recalled. To mitigate this, a short recall period was factored while developing the study design.

Self-reporting bias was mitigated by use of an already validated WHO VAW instrument

During data collection, the level of acceptance of certain behaviors to classify them as child abuse could not be discerned. This was mitigated by using the same question to identify child abuse for standardization.

Reliability and validity testing on the modification of the WHO VAW instrument was not carried out.

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APPENDICES

Appendix 1: Consent Form-English

My name is Dr Loice Luhumyo. I am a medical doctor currently pursuing a Master's degree in Reproductive Health at Moi University. I would like to recruit you into my research which will be studying Intimate Partner Violence (IPV) during pregnancy and the associated perinatal outcomes.

Intimate partner violence during pregnancy and the associated perinatal outcomes.

Intimate partner violence is any physical, psychological or sexual violence carried out by an intimate partner e.g. your husband, ex-husband, and boyfriend.

In our Kenyan public hospitals, MTRH included, screening of intimate partner violence in pregnancy is not routinely carried out. IPV in pregnancy is associated with adverse outcomes for both the mother and her unborn child including low birth weights, preterm delivery and prematurity and even fetal death.

This study will be carried out to identify factors which predispose pregnant women to IPV and also look at the perinatal outcomes of IPV in pregnancy. The interview will help in giving us more insight into the problem and so be able to better understand and intervene on the issues that will have been identified. You have the right to decide on whether or not to participate in this study and also the right to withdraw at any time. You can decline to answer any question you find uncomfortable or do not want to respond to. The treatment you receive during this admission does not depend on your participation in this study. Any information you provide to us will be handled with confidentiality.

This study has been approved by the Institutional Research and Ethics Committee (IREC) of Moi University/Moi Teaching and Referral Hospital.

If you need further clarifications please contact IREC using the address below.

The Chairman IREC,

Moi Teaching and Referral Hospital,

PO Box 3,

Eldoret.

Tel: 33471/2/3

My cell phone number is: 0721926798

Consent Form: Participants above 18 years of age

I have been adequately informed that I am being recruited in a study to find out the determinants and perinatal outcomes of IPV in pregnancy. The investigator has also informed me that my participation in this study is voluntary and will not exclude me from my routine care even if I were to opt out. She has also informed me that I'll not be required to incur any costs to participate in this study.

Yes, I consent.

Signature:…….....…Date……...…….....

Assent Form: Participants below 18 years of age

I have been adequately informed that I am being recruited in a study to find out the determinants and outcomes of IPV in pregnancy. The investigator has also informed me that my participation in this study is voluntary and will not exclude me from my routine care even if I were to opt out. She has also informed me that I'll not be required to incur any costs to participate in this study.

I am also aware that my parents have been informed of and have agreed to my participation in this study.
Yes, I give assent. Signature……..….Date……

Parent's /guardian's signature
Yes, I give consent. Signature …….. ……...Date……

Appendix 2: Consent Form-Kiswahili

Kiambatisho 2: Fomu Ya Idhini

Jina langu ni Dkt. Loice Luhumyo. Mimi ni daktari ambaye kwa sasa, ninasomea Shahada Sahibu kwa kitengo cha Afya ya Uzazi katika Chuo Kikuu cha Moi. Ningependa kukualika katika utafiti wangu,ambao utatofautisha ishara na matokeo ya **uhasama nyumbani** kwa wamama waja wazito kwa wale walioathiriwa na wasioathiriwa kwa vita hivyo.

Ishara na matokeo ya uhasama nyumbani kwa wamama waja wazito walioathiriwa na vita hivyo

Katika hospitali zetu za umma hapa Kenya, MTRH ikiwa moja wapo, kwa kawaida, ishara za uhasama nyumbani huwa hazitafutwi kwa wagonjwa hasa wamama waja wazito. Wakati vita hivi vinapotokea, huwa na madhara kwa mama na hata kwa mtoto aliye tumboni. Madhara kwa watoto yakiwa kama kilo ya mtoto kuwa chini anapozaliwa, kuzaliwa kwa mtoto kabla ya siku zake na hata kuaga kwa mtoto akiwa bado yu tumboni.

Utafiti huu utatueleza ishara zipi hasa na hata matokeo yapi hasa ya uhasama ambayo hutokea kwa mama mja mzito aliyeathiriwa. Kuna maswali machache tutakayokuuliza ili kutafuta ishara tulizokuelezea

Uko na uhuru wa kushiriki katika utafiti huu na vilevile una haki ya kuondoka wakati wowote utakapojisikia hata kama hatutakuwa tumemaliza uhusika wetu nawe. Vilevile unaweza kukataa kujibu swali lolote ambalo litakutia wasiwasi. Matibabu yoyote utakayopokea wakati wauandikishaji huu hautegemei ushiriki wako katika utafiti huu. Taarifa yoyote utakayotupatia wakati wa utafiti huu itakuwa kwa siri.

Utafiti huu umepitishwa na kupewa kibali naTaasisi ya Utafiti na Kamati ya Maadili (IREC) ya Chuo Kikuu cha Moi na Hospitali Kuu ya Mafunzo na Rufaa ya Moi. Kama unahitaji ufafanuzi zaidi tafadhali wasiliana na IREC kupitia anwani ifuatayo:

Mwenyekiti IREC,

Hospitali Kuu ya Mafunzo na Rufaa ya Moi

S.L.P. 3,

Eldoret.

Simu: 33471/2/3

Ukitaka kuwasiliana nami nambari ya simu ya mkononi ni: 0721926798.

Idhini: Washiriki Waliozidi Umri Wa Miaka 18

Nimepata maelezo ya kutosha kuwa ninashiriki kwa utafiti unaoangazia ishara na matokeo ya uhasama nyumbani kwa wamama waja wazito kati ya wale walioathiriwa na wale wasiohusika na vita hivyo. Pia mpelelezi mkuu amenijulisha kwamba kushiriki kwangu katika utafiti huu ni kwa hiari na sitatengwa katika huduma ya mara kwa mara hata kama sitashiriki katika utafiti huu. Nimejulishwa pia kwamba sitahitajika kutumia pesa zozote ninaposhiriki katika utafiti huu.

Sahihi:…….....…Tarehe……....…….....……

Idhini: Washiriki walio umri wa Chini Ya Miaka 18.

Nimepeta maelezo ya kutosha kuwa ninashiriki kwa utafiti unaoangazia ishara na matokeo ya uhasama nyumbani kwa wamama waja wazito kati ya wale walioathiriwa na wale wasioahusika na vita hivyo . Pia mpelelezi mkuu amenijulisha kwamba kushiriki kwangu katika utafiti huu ni kwa hiari na sitatengwa katika huduma ya mara kwa mara hata kama sitashiriki katika utafiti huu. Nimejulishwa pia kwamba sitahitajika kutumia pesa zozote ninaposhiriki katika utafiti huu.

Nimeelezewa ya kwamba mzazi/mlezi wangu amekubali kuhusishwa kwangu kwa utafiti huu.

Idhini ya mama aliye na umri wa chini ya miaka 18

Ndio nawapa idhini. Sahihi……..…Tarehe……

Idhini ya mzazi/mlezi
Ndio nawapa idhini. Sahihi …….. …….Tarehe……

Appendix 3: Questionnaire/Data Collection Form; English

Participants' Serial Number_____

A. DETAILS OF CURRENT ADMISSION

1. Date of Delivery _____
2. Gestation by dates_____ LNMP_____EDD_____
3. Diagnosis at admission _____
4. Diagnosis after delivery_____
5. Mode of Delivery _____

B. DEMOGRAPHICS

6. Age (years): _____
7. Marital status:

   [ ] Single [ ] Married (monogamous/ polygamous) [ ] Divorced/Separated

   Number of years in marriage _____

   Number/s of current sexual partner/s _____
8. Religion: [ ] Catholic [ ] protestant [ ] Muslim Others_____
9. Occupation: [ ] Formal employment [ ] Unemployed [ ] Self- employment

   [ ] Informal employment
10. Amount of income earned per month _____

11. Highest level of education: [ ] no formal education [ ] Pre-primary [ ] Primary [ ] Secondary [ ] Certificate/diploma [ ] degree and above [ ] Unknown

C. PAST MEDICAL AND SURGICAL HISTORY

12. History of any chronic illness _____

D. FAMILY SOCIAL HISTORY

13. Living arrangements: With; [ ] Parents [ ] Partner [ ] Other family members [ ] Others_____
14. Alcohol use or drug use: [ ] Yes [ ] No

    If yes which drugs: [ ] Alcohol [ ] Cigarettes [ ] Bhang [ ] Miraa / Khat [ ] Others_____

    Was alcohol or drug intake initiated in this pregnancy? _____

    Has the frequency/amount of use of alcohol/drugs increased with onset of IPV in pregnancy? _____
15. Were you a victim of any form of violence as a child? [ ] yes [ ] No

    If yes, which form was it? [ ] physical [ ] sexual [ ] psychological
15. Was your mother a victim of any form of violence (Physical, Sexual or psychological)? [ ] Yes [ ] No

E. OBSTETRIC HISTORY

17. Gravidity: _____

18. Parity: _____

19. Antenatal clinic attendance [ ] YES [ ] NO

    If YES, Date of first ANC visit_____

    Number of visits [ ] 1 [ ] 2 [ ] 3 [ ] 4 and above

20. HIV test: HIV [ ] Negative [ ] HIV Positive

    If HIV positive, was HIV diagnosed during this pregnancy or before? _____

21. Was the current pregnancy planned [ ]YES [ ] NO

F. **OUTCOME OF DELIVERY (PERINATAL OUTCOME)**

a) Preterm delivery [ ]

b) Fetal death [ ]

c) Early neonatal death [ ]

d) Birth weight [ ]

5 minute APGAR Score _____

G. MODIFIED WHO VIOLENCE AGAINST WOMEN STUDY INSTRUMENT

1) Physical violence (tick any)

In the most recent pregnancy, did your husband/ex-husband/boyfriend or ex-boyfriend

a) Slap you or throw something at you that could hurt you? [ ]

b) Push or shove you? [ ]

c) Hit you with his fist or something else that could hurt you? [ ]

d) Kick you, drag you or beat you up? [ ]

e) Chock or burn you on purpose? [ ]

f) Threaten to use or actually use a gun, knife or another weapon against you?[ ]

Had he ever done so before the pregnancy? _____

2) Sexual violence (tick any)

In the most recent pregnancy, did your husband/ex-husband/boyfriend or ex-boyfriend.

a) Physically force you to have sexual intercourse when you did not want to? [

b) Did you ever have sexual intercourse when you did not want because you were afraid of what he might do? [ ]

c) Has he forced you to do something sexual that you found degrading or humiliating? [ ]

Had he ever done so before the pregnancy? _____

3) Stalking

In the most recent pregnancy, did you receive repeated unwanted attention and contact that caused fear or concern for your own safety or the safety of someone else from your husband/ ex-husband/boyfriend or ex-boyfriend e.g. phone calls, texts, spying, harming your pet?

Yes [ ] No [ ]

Had he ever done so before the pregnancy?

4) Psychological violence (tick any)

In the most recent pregnancy, did your husband/ex-husband/boyfriend or ex-boyfriend

a) Insult you or make you feel bad about yourself? [ ]

b) Belittle or humiliate you in front of other people? [ ]

c) Do things to scare or intimidate you on purpose? [ ]

d) Threaten to hurt you or someone you care about? [ ]

e) Isolate or confine you? [ ]

f) Prevent you from visiting your friends or relatives [ ]

Had he ever done so before the pregnancy? _____

H. PERPETRATOR OR PARTNER CHARACTERISTICS

a) Who was the perpetrator or partner?

Spouse [ ] boyfriend [ ] ex-partner [ ] family members [ ] others [ ]

b) Age of perpetrator / partner: _____

c) Religion of perpetrator/ partner: Christian [ ] Muslim [ ] others [ ]

d) Employment status: [ ] unemployed [ ] formal employment [ ] self-employment

[ ] informal employment

e) Education level: [ ] No formal education [ ] pre-primary level [ ] Primary level [ ] Secondary [ ] certificate/diploma level [ ] degree or more [ ] unknown

f) Alcohol or use of other drugs by perpetrator [ ] YES [ ] NO

If yes, which type? _____

g) Amount of income earned per month _____

Appendix 4: Questionnaire/Data Collection Form; Kiswahili
Kiambatisho 2: Dodoso/ Fomu Ya kusanya maelezo kuhusu uhasama nyumbani kwa wamama waja wazito kwa wale walioathiriwa na wale ambao hawakuathiriwa na vita hivyo.

Nambari ya Mshirika_____

A. MAELEZO YA USAJILI WA SASA

1. Tarehe ya kujifungua _____

2. Muda wa ujauzito_____ Tarehe ya Hedhi ya mwisho _____

3. Utambuzi wakati wa kulazwa _____

4. Utambuzi wakati wa kutoka_____

5. Njia ya kujifungua _____

B. DEMOGRAFIA

6. Umri (miaka): _____

7. Hali ya ndoa:

[ ] Hajaolewa/mjane [ ]Ameolewa [ ]Ametalakiwa/Wametengana

Miaka aliyomaliza akiwa katika ndoa _____

Idadi ya wahusika aliohusika nao ngono wakati wa uja uzito _____

8. Dini: [ ] Katoliki [ ]kiprotestanti [ ]Muislamu [ ] dini yoyote nyingine

9. Kazi; [ ]Ameajiriwa Kazi iliyo rasmi ☐Hajaajiriwa Kazi ☐Amejiajiri Kazi

[ ] Ameajiriwa kazi isiyo rasmi

10. Kiwango cha pesa anazopata kwa kila mwezi _____

11. Ngazi ya juu ya elimu aliyohitimu: [ ] hakusoma shuleni [ ] Kitalu/chekechea [ ] Msingi [ ] Sekondari [ ] cheti cha satifiketi/diploma [ ] Shahada

C. HISTORIA YA MATIBABU NA UPASUAJI

12. Je uko na ugonjwa wowote sugu?_____

D. HISTORIA YA KIJAMII

13. Jinsi anavyoishi kijamii [ ] Anaishi na wazazi [ ] Anaishi na mpenzi [ ]Anaishi na wanafamilia wengine [ ] kokote kwengine

14. Matumizi ya pombe au madawa ya kulevya [ ]Ndio [ ]La

Ikiwa jibu ni "ndiyo", Madawa Gani [ ]Pombe [ ]Sigara [ ]Bangi [ ]Miraa [ ]Nyingine

Je matumizi haya yalianza wakati uko na mimba hii au kabla _____

Je matumizi ya madawa haya yameongezeka kutokana na uhasama huu?_____

15.Je uliwahi kuhusika kwa kitendo chochote cha uhasama nyumbani?

[ ] Ndio [ ] La

Ikiwa ndio, aina gani? [ ] kimwili [ ] ngono [ ] kisaikolojia

16. Je mzazi wako wa kike aliwahi kudhulumiwa kwa kitendo chochote cha uhasama nyumbani (kitendo cha kimwili, Ngono au kisikologia? [ ] Ndio [ ] La

E. HISTORIA YA UZAZI

17. Idadi ya mimba: _____

18. Watoto walio hai _____

19. Mahudhurio ya kliniki: [ ]Ndio [ ]La.

Kama ndio, tarehe uliyohudhuria kliniki mara ya kwanza _____

Idadi ya mahudhurio; [ ]1[ ]2[ ]3[ ] 4 [ ] zaidi ya nne

20. Virusi vya ukimwi: [ ]Chanya [ ]Hasi

Ikiwa virusi vya ukimwi vimepatikana, je iligunduliwa wakati wa mimba hii?

_____

21.Je mimba hii ulikuwa umeipangia [ ] Ndio [ ] La

MATOKEO YA UZAZI

a) Kilo ya mtoto _____

b) mtoto alizaliwa kabla ya siku [ ]

c) mtoto aliaga tumboni [ ] mtoto aliaga baada ya kuzaliwa [ ]

Muda uliochukua mtoto kuaga _____

d)Alama ya mtoto kuzaliwa kwa dakika ya tano (Apgar score)

_____

G. KIFAA CHA KUDADISI AINA YA UHASAMA NYUMBANI

1) Vurugu ya kimwili (chagua <u>moja</u> au zaidi)

Kwa hii mimba uliyoizaa, je mhusika aliwahi;-

a) Kukuzaba kofi, au kukurushia kitu ambacho kingeweza kukuumiza? [ ]
b) Kukusukuma? [ ]
c) Kukupiga ngumi au kukupiga kwa kitu ambacho kingeweza kukuumiza? [ ]
d) Kukupiga teke, kukuvuta chini au kukupiga?[ ]
e) Kukunyonga au kukuchoma kwa kusudi? [ ]

f) Kukutishia kutumia au hata kutumia kisu, bunduki au kifaa chochote akitaka kukuumiza? [ ]

Je, alikuwa amewahi kufanya hayo kabla ya wewe kupata mimba hii?

_____

2) Vurugu ya ngono (chagua moja au zaidi)

Kwa hii mimba uliyoizaa, je mhusika aliwahi;-

a) Kukulazimisha kufanya ngono kama hutaki? [ ]

b) kukulazimisha kufanya kitendo cha ngono ambacho ulikiona kama kitendo cha udhalilishaji [ ]

c) Je, wewe ulikubali kufanya naye ngono kama hutaki kwa sababu uliogopa yale angekutendea kama ungekataa? [ ]

Je, alikuwa amewahi kufanya hayo kabla ya wewe kupata mimba hii?

_____

3) Kunyemelea

Kwa hii mimba uliyoizaa, je mhusika aliwahi kukunyemelea kwa njia ambayo ilikuogofya ama kukufanya uogopee wapendwa wako?

Ndio [ ] La [ ]

Je, alikuwa amewahi kufanya hayo kabla ya wewe kupata mimba hii?

_____

4) Vurugu ya kisaikolojia (chagua moja au Zaidi)

Kwa hii mimba uliyoizaa, je mhusika aliwahi;-

a) Kukutusi au kukufanya ujihisi vibaya? [ ]

b) kukuaibisha au kukudhalilisha mbele ya watu ? [ ]

c) kufanya vitu ili kukutisha? [ ]

d) kukutisha kwamba angekudhuru au kudhuru wale unaowajali? [ ]

Je, alikuwa amewahi kufanya hayo kabla ya wewe kupata mimba hii?

_____

H. SIFA YA MHUSIKA

a) Je mhusika ni nani kwako? Mume wako [ ] mpenzi wako [ ] mume/rafiki wa kiume mliotengana [ ] mwengine [ ]

b) Umri wa mhusika: _____

c) Dini ya mhusika: [ ] Protestanti [ ] Katoliki [ ] Muislamu [ ] Dini za jadi Afrika

[ ] dini yoyote nyingine

d) Kazi anayofanya mhusika; [ ] Ameandikwa Kazi [ ] Hajaandikwa Kazi [ ] Amejiandika Kazi

e) Kiwango cha pesa anazopata kwa kila mwezi _____

f). Ngazi ya juu ya elimu aliyohitimu mhusika: [ ] hakusoma shuleni [ ] Kitalu/chekechea [ ] Msingi [ ] Sekondari [ ] cheti cha satifiketi/diploma [ ] Shahada

Appendix 5:Budget

Items	**Quantity**	**Unit Price (Kshs)**	**Total (Kshs)**
Stationery & Equipment			
Printing Papers	8 rims	500.00	4,000.00
Black Cartridges	3	2,000.00	6,000.00
Writing Pens	1 packet	500.00	500.00
Flash Disks	2	2,000.00	4,000.00
Box Files	4	200.00	800.00
Document Wallets	4	100.00	400.00
Internet	1	12000.00	12000.00
Sub total			**27,700.00**
Research Proposal Development			
Printing drafts & final proposal	10 copies	500.00	5,000.00
Photocopies of final proposal	6 copies	200.00	1200.00
Binding of copies of Proposal	5 copies	100.00	500.00
Sub total			**6,700.00**
Personnel			
Biostastician	1	30,000.00	30,000.00
Research assistants	4	20,000.00	80,000.00
Sub total			**110,000.00**
Thesis Development			
Printing of drafts and final thesis	10 copies	800.00	8,000.00
Photocopy of the final thesis	6 copies	200.00	1,200.00
Binding of thesis	6 copies	300.00	1,800.00

Transport			10,000.00
Sub total			**21,000.00**
Total			**165,400.00**
Miscellaneous Expenditure (10% of Total)			**16,540.00**
Grand Total			**181,940.00**

Appendix 6: IREC Approval

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 33471//2/3

MOI UNIVERSITY
SCHOOL OF MEDICINE
P.O. BOX 4606
ELDORET

Reference: IREC/2016/82
Approval Number: 0001671

30th June, 2016

Dr. Loice Munyazi Luhumyo,
Moi University,
School of Medicine,
P.O. Box 4606-30100,
ELDORET-KENYA.

INSTITUTIONAL RESEARCH & ETHICS COMMITTEE
30 JUN 2016
APPROVED
P. O. Box 4606-30100 ELDORET

Dear Dr. Luhumyo,

RE: FORMAL APPROVAL

The Institutional Research and Ethics Committee has reviewed your research proposal titled:-

"Determinants and Outcomes of Intimate Partner Violence in Pregnancy among Women who have given Birth at Moi Teaching and Referral Hospital".

Your proposal has been granted a Formal Approval Number: ***FAN: IREC 1671*** on 30th June, 2016. You are therefore permitted to begin your investigations.

Note that this approval is for 1 year; it will thus expire on 29th June, 2016. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you must notify the Committee of any proposal change (s) or amendment (s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The Committee expects to receive a final report at the end of the study.

Sincerely,

PROF. E. WERE
CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc CEO - MTRH Dean - SOP Dean - SOM
Principal - CHS Dean - SON Dean - SOD

Appendix 7: Approval From Moi Teaching and Referral Hospital

MOI TEACHING AND REFERRAL HOSPITAL

Telephone: 2033471/2/3/4
Fax: 61749
Email: director@mtrh.or.ke
Ref: ELD/MTRH/R.6/VOL.II/2008

P. O. Box 3
ELDORET

14th July, 2016

Dr. Loice Munyazi Luhumyo,
Moi University,
School of Medicine,
P.O. Box 4606-30100,
ELDORET-KENYA.

RE: APPROVAL TO CONDUCT RESEARCH AT MTRH

Upon obtaining approval from the Institutional Research and Ethics Committee (IREC) to conduct your research proposal titled:-

"Determinants and Outcomes of Intimate Partner Violence in Pregnancy among Women Who Have Given Birth at Moi Teaching and Referral Hospital".

You are hereby permitted to commence your investigation at Moi Teaching and Referral Hospital.

18/07/2016

DR. WILSON ARUASA
CHIEF EXECUTIVE OFFICER
MOI TEACHING AND REFERRAL HOSPITAL

CC - Deputy Director (CS)
- Chief Nurse
- HOD, HRISM

Appendix 8: Approval From Uasin Gishu District Hospital

Dr. Loice Luhumyo,
Moi University School of Medicine,
P.O.Box 4606-30100,
ELDORET

5th December 2016

To the County Director of Health,
Uasin Gishu County

Dear Sir,

COUNTY DIRECTOR-CLINICAL SERVICES
UASIN GISHU COUNTY
P. O. Box 5665-30100, ELDORET

RE: REQUEST TO CONDUCT RESEARCH PILOT STUDY

I am a registrar at the Moi University School of Medicine undertaking a Masters Degree in Reproductive Health. As part of the requirement of the programme I am doing my research thesis on "**Determinats and perinatal outcomes of intimate partner violence in pregnancy among women who have given birth at Moi Teaching and referral hospital".**

I would like to do a pilot study at Uasin Gishu County Hospital.

This study has been approved by the IREC committee of Moi University

Your assistance will be highly appreciated.

Loice Luhumyo