
**COLLEGE OF HEALTH SCIENCE**

**SCHOOL OF PUBLIC HEALTH**

***DEPARTMENT OF PREVENTIVE MEDICINE***

# INTIMATE PARTNER VIOLENCE DURING PREGNANCY AND OTHER DETERMINANT FACTORS OF PRETERM BIRTH IN AMHARA REGION, ETHIOPIA

**PRINCIPAL INVESTIGATOR: ABAY WODAY**

**A RESEARCH THESIS SUBMITTED TO GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY SCHOOL OF PUBLIC HEALTH IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER'S IN PUBLIC HEALTH EPIDEMIOLOGY & BIOSTATISTICS.**

**JUNE, 2018**

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## DECLARATION

I the undersigned, declare that this thesis is my original work, has never been presented in this or any other University, and that all the resources and materials used for the thesis development are recognized and cited, and people who involved in are acknowledged.

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Date of submission: _____

**Advisor**

This thesis work has been submitted for examination with my approval as University primary advisor.

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Signature: _____

Date: _____

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## Abbreviations and Acronyms

| | |
|---|---|
| **AAU** | Addis Ababa University |
| **ANC** | Ante Natal care |
| **CDC** | US Central Diseases Prevention and Control |
| **CI** | Confidence Interval |
| **EDHS** | Ethiopian Demographic and Health Survey |
| **ETB** | Ethiopian Birr |
| **FMOH** | Federal Ministry of Health |
| **HCPs** | Health Care Providers |
| **HIV** | Human Immunodeficiency Virus |
| **HSDP** | Health Sector Development Plan |
| **HSTP** | Health Sector Transformation Plan |
| **IPV** | Intimate Partner Violence |
| **IERB** | Institutional Ethical Review Board |
| **LBW** | Low Birth Weight |
| **MDG** | Millennium Development Goal |
| **NICU** | Neonatal Intensive Care Unit |
| **PI** | Principal Investigator |
| **SDG** | Sustainable Development Goal |
| **UN** | United Nations |
| **UNICEF** | United Nations Child's Fund |
| **WHO** | World Health Organization |

## Abstract

**Background**: Preterm birth (PTB) is a public health problem worldwide. However, the problem is under reported and underestimated in developing nations including Ethiopia. Moreover, limited research to date has been done to address the relationship between intimate partner violence during pregnancy and preterm births in developing nations including Ethiopia. This study aimed to assess the association between intimate partner violence during pregnancy and preterm births.

**Methods***:* Hospital based unmatched case control study design was employed on a sample of 138 cases and 276 controls from 1st February 2018 to 1st April 2018 in Amhara region, Ethiopia. The cases and controls were proportionally allocated in each hospitals based on the last one-year case flows. The outcome variable was measured by using confirmed Physician Diagnosis of prematurity. Standardized, structured and pretested questionnaire was used to collect data. The collected Data was entered using Epi-data 3.1 and was exported into SPSS version 20.0 statistical software for analysis. Independent variables with p-value less than 0.25 in the bivariate analysis were entered into multivariable logistic regression model with backward LR method. Statistical significance level was declared at p-value less than 0.05.

**Results:** the overall proportion of any Intimate Partner Violence (IPV) exposure during pregnancy was found higher among case groups than control groups (44.8% and 25% respectively). After adjustment: women experienced any IPV during pregnancy had 2.5 times higher odds of Preterm birth compared to those never experienced any IPV [ AOR=2.85: 95%CI 1.42-6.22]. Moreover, the likelihood ratio of PTB among women experienced emotional IPV was 6 times higher compared to those didn't experienced [AOR=3.05: 95%CI 1.35-6.91]. Other determinant factors such as; residence, maternal age, education level, ante natal care, previous adverse birth outcomes and medical problems during pregnancy were significantly associated with PTB.

**Conclusion:** The study revealed significant association between Intimate Partner Violence during pregnancy and preterm birth. Therefore, programs and strategies should be developed to prevent women violence during pregnancy at regional, zonal and district levels. Health care providers should have integrated IPV screening at routine ante natal care delivery settings. Moreover, longitudinal and qualitative studies are recommended to explore more evidence.



**Key words**: Intimate partner violence, pregnancy, preterm birth, Amhara region, Ethiopia

# 1. Introduction

## 1.1 Background

World Health Organization(WHO) defined preterm births as "a birth of new born happened before 37 completed weeks of gestations" [1, 2].

The prevalence of preterm birth varies throughout the globe. In 2016, more than 15 million babies are born before 37 completed weeks of gestations. Of these, more than 80% of preterm births happened between 32-37 weeks of gestation and 60-85% are found concentrated in Africa and South Asia [3-5]. The prevalence of preterm birth in Ethiopia ranges from 4.4% to 48.6%. As a result, preterm birth is public health problem for both developed and developing nations but the problem is devastating in the developing countries like Ethiopia [6-11].

Intimate Partner Violence (IPV) is a public health problem and human right violation and It is defined by the WHO as "physical, sexual, or psychological coercive act by a current or former partner or spouse of a woman" [12]. The global prevalence of any intimate partner violence among all ever-partnered women is 30%. Of these, more than 37% happened in African, Eastern Mediterranean and South-East Asia Regions [13, 14]. In Ethiopia, the prevalence of Intimate partner violence among ever married women ranges from 9.4% (Ethio-somali region) to 78% (Amhara region) [15-20].

The mechanism how violence during pregnancy results preterm births is not well understood. However, Some studies suggested that IPV during pregnancy results elevated levels of Corticotrophin Releasing Hormone (CRH)c due to stress, anxiety and depression which leads to premature activation of labor [21-24] and others agreed upon physical Violence during pregnancy results Post Truamatic Stress Disorder, anxiety and physical trauma upon abdomen, uterus, and membrane those lead to onset of premature labor prior to 37 completed weeks of gestation [25-27].

Globally, regionally as well as nationally different policies, strategies and programs have been tried in the past decades to prevent and improve the care of preterm births [28-31]. The cares include antenatal corticosteroid, antibiotic, kangaroo mother care, immediate intensive care unit and long term complex health services for PTB. Currently, the global community also

made commitment through the Sustainable Development Goals (SDGs) and Every Women and Every Child initiatives [32-34].

The government of Ethiopia also showed its commitment to improve the care for newborns and preterm births through inclusion of high impact life-saving neonatal interventions in its Hospitals. The study hospitals; Dessie Referral hospital, Debre Birhan Referral hospital and Felege Hiwot Referral Hospital also provide different interventions during pregnancy, labor, NICU and postnatal periods. Antenatal corticosteroids, provision of antibiotics, preterm labor care, neonatal resuscitation, continuous positive airway pressure, incubation and Kangaroo mother care are some of the interventions that are provided in the study Hospitals [34]. Beside these efforts, the role of intimate partner violence during pregnancy as cause of preterm births had given little due attention and the maternal cares given at health facilities do not include violence victims screening at all levels.

Therefore, this study was aimed to assess the effect of intimate partner violence on preterm delivery in Ethiopia especially in the study region.

## 1.2 Statement of the problem

Preterm birth is the major public health problem for both developed and developing nations but more than 60% of deaths due to prematurity found concentrated in Africa and South Asia. Moreover, prematurity is the leading cause of neonatal and the second cause of under-five mortality in the world [3, 35-37]. In Ethiopia, prematurity is the first cause of neonatal mortality and the fourth cause of under-five mortality and Ethiopia is 11$^{th}$ among 15 high PTB burden countries in the world [35, 38, 39].

Survivors of prematurity also suffer from long term or short term sequelle of preterm birth. Such as; breathing difficulties, feeding problems, effects on brain functions in later life, cerebral palsy, mental retardation, visual and hearing impairments, and poor prognosis. The family and the society also suffer from economic burden of preterm birth [5, 40, 41].

The systematic review and meta-synthesis conducted by WHO and South Africa Medical research center to assess the prevalence of intimate partner violence indicates that women who have been physically or sexually abused by their partners had 2.3 times risk of premature births [42].

Several factors have been found contributors of preterm delivery. Studies conducted across developing countries have found under-nutrition, low socio-economic status, devastating genitourinary infections, Hypertension during pregnancy, smoking, alcohol consumption, cervical incompetence, Being HIV positive, Diabetes mellitus, physical violence during pregnancy to be contributors of preterm deliveries[43-47]. But different researchers also argued upon the association between Intimate partner violence during pregnancy and preterm births [48-51].

In Ethiopia different strategies, health policies, and interventions have been tried in the past to reduce, to prevent and care preterm births but the rate of PTB is not reduced in the needed manner and still found higher than the WHO (2016) regional and national estimate of PTB (4.4-48.6% Versus 10-15%) [6, 11, 34, 38, 52-56]. As a result, exposure to intimate partner violence during pregnancy might be contributor for this high magnitude of PTB in the study region.

However, researches linking intimate partner violence during pregnancy to PTB have not been conclusive and are mainly cross-sectional studies. Consequently, how much PTB is attributable to violence during pregnancy remained an area in which strong evidence is lacking and Most

of the researches conducted to date were also conducted in developed countries. To the best of the researchers' knowledge, no study has been conducted to assess the association of intimate partner violence during pregnancy and Preterm birth. Thus, the researchers had investigated the effects of violence during pregnancy on Preterm delivery among women whose neonates admitted at the three governmental hospitals in Amhara region, Northwest Ethiopia.

Therefore, this study was intended to contribute to bridging the information gap, and subsequently the proportionate effect of intimate partner violence during pregnancy on Preterm birth in the study region and at national level.

## 1.3 Rationale of the study

In Ethiopia, different strategies, health policies, human right laws and interventions have been tried in the past decades to reduced PTB but the rate of PTB does not show a remarkable decline. Therefore, the results of this study may close the information gaps regarding the effect of violence on preterm deliveries which are main contributors of both neonatal, infant and under-five mortality in the study region and as well as in Ethiopia.

The findings of this study might help the Health Care Providers to integrate the violence victims screening in the routine services, provide capacity building trainings for TBAs and HEWs how to approach women with this problem at community level.

Furthermore, the findings from this study will help hospitals to see different ways to improve prevention and cares of preterm birth based on the major findings

The study also generates evidences for program designers and different stakeholders that work on prevention and care of preterm birth**.** Moreover, the program designers and stakeholders who are working on this area at regional level will design proper interventions based on the study findings such as identifying the victims by home to home campaign, mobilization of the society, awareness creation that will help to prevent and control violence against women. It will also provide adequate evidence to include victims screening in the Antenatal care services registration books and community based surveillances during manuals preparations.

It might be also used as base line for further researchers to generate more evidence on this area.

# 2. Literature Review

## 2.1 Over view and Magnitude of Violence

This study aims to assess the association between intimate partner violence during pregnancy and preterm births in government hospitals of Amhara region, Ethiopia.

Globally, more than 38% of all forms of violence against women are committed by intimate partners. In addition to intimate partner violence, nearly 7% of women report having been sexually assaulted by someone other than an intimate partner [57, 58].

A prevalence study conducted in Iran showed 56.3% of women declared to experience domestic violence during pregnancy. The study also revealed that Psychological violence was the most common form of violence against these women (51.3%) followed by physical violence (5%). The overall, Prevalence rate of premature labor was 37.7% among all women in this study, of which 63.3% of this rate belongs to abuse women[47].

The systematic review of African studies found that the prevalence of Intimate Partner violence (IPV) among pregnant women in Africa is high (15.7% to 57%) compared with developed nations and the study revealed that the major identified risk factors contributing for violence were being HIV Positive, history of previous violence, alcohol drinking and illicit drug use[59].

Multilevel census analysis of 10 years (2004-2013) was conducted to assess the association between violence and preterm birth and the findings showed that significance association between violence and preterm births. After adjusting for maternal age, race/ethnicity, education level, paternal presence, parity, adequacy of prenatal care, pregnancy complications, history of preterm birth, insurance and tobacco, alcohol, and drug use, census tracts with the highest level of violence had 1.5 odds of very preterm births, compared to census tracts with the lowest level of violence [60].

Prevalence study in Dare ‘salaam Tanzania found that the odds of Physical and/or sexual Intimate Partner Violence during pregnancy was 2.2-folds higher than non-pregnant periods. So the study concluded that IPV is more prevalent during pregnancy than during the postpartum periods [61].

Population based survey conducted in Amhara region found that the prevalence of domestic violence was 78.0%. About 73.3%, 58.4% and 49.1% of women reported different forms of psychological, physical and sexual violence, respectively [15].

In 2016, WHO estimated that the Preterm birth rate in Eastern-Africa ranges from 12.5% to 16%. Different Studies conducted in Ethiopia revealed that the prevalence of preterm birth ranges from 4.4% to 48.6% which is higher than the WHO regional and national estimate (10% to 15%) for Eastern Africa and Ethiopia. Ethiopia ranked 11$^{th}$ from the top 15 countries with high preterm birth burden countries in the world [5, 7, 8, 35] but limited studies conducted to show the association between domestic violence and adverse pregnancy outcomes (LBW, PTB, Still birth and SGA) in Ethiopia. Therefore, the central aim of this study is to assess effect of violence on preterm births.

### 2.1.1 Physical Violence

The prospective cohort study conducted in Iran showed that women experienced physical intimate partner violence during pregnancy are 1.9 fold at risk of having preterm births and/or premature rupture of membrane and are 2.3 times at risk of having low birth weight babies [62].

Population based survey conducted in Canada revealed Most dimensions of violence were associated with postpartum depression, particularly the combination of threats and physical violence starting before and continuing during pregnancy (Adjusted Odds Ratio = 4.1) and perpetrated by the intimate partner (AOR=4.3) but no statistically association was found between Violence and Preterm births [51].

In a longitudinal study conducted in Vietnam statistically significant association was found between exposure to physical violence during pregnancy and preterm birth (PTB) or low birthweight (LBW). After adjustment for age, education, occupation, BMI, hemoglobin level, previous adverse pregnancy outcomes, the pregnant women who were exposed to physical violence during pregnancy were 5 times more likely to have PTB and were six times more likely to give a child of LBW as compared to those who were not exposed to physical violence [63].

### 2.1.2 Sexual Violence

An Epidemiological review conducted in 2014 showed that women with a history of Childhood Sexual Assault (CSA) had 2.6 to 4.8-fold increased odds of PTB as compared with women without a history of CSA. Three other studies did not observe statistically significant differences in rates of PTB or mean gestational age at birth in relation to a history of CSA [64].

The prevalence study in India showed that One in three women (34.0 %) reported IPV, 4.8 % reported in-laws' violence (ILV), and 48.5 % reported Gender Based Household Maltreatment

(GBHM) during the peri-pregnancy period. After adjusting for other forms of abuse, IPV related to pain during intercourse (AOR = 1.79); ILV related to not receiving first trimester antenatal care (AOR = 0.49), and GBHM remained associated with premature rupture of membranes (AOR = 2.28), pain during intercourse (AOR = 1.60), and vaginal bleeding (AOR = 1.80) [43].

### 2.1.3 Psychological/ Emotional Violence

Longitudinal study conducted in Iran showed that nearly 70% of women reported PSV during pregnancy but The differences between the two groups in reference with pregnancy complication did not show statistical significance. The study found that Premature rapture of membrane was the only outcome that was independently associated with Psychological violence [48].

The narrative review based on WHO model in Iran showed that prevalence rates of preterm delivery in different cities of Iran ranges from 5.6% to 39.4%. The most common social factors in structural determinant were educational level of mother, and in intermediary determinants were Psychosocial factor (maternal anxiety and stress during pregnancy), Behavioral factor and Maternal circumstance (violation and trauma) and in Health system, lack of prenatal care which are the contributing factors for emotional stress[65].

Community based RCT in Washington DC revealed that Rates of adverse pregnancy and neonatal outcomes were high and did not differ significantly between subjects under Intervention Groups and Control Groups. In adjusted analysis, adverse Outcomes such as preterm birth, low birth weight, small for gestational age, NICU admissions and >2-day hospitalization of the infants were associated with pre-existing hypertension, diabetes, previous preterm birth (PTB), and late initiation of prenatal care, and STI but they were not significantly associated with active smoking, ETSE, depression, and Intimate Partner Violence [50].

### 2.1.4 Combined Violence Experience

The community based RCT conducted in Columbia revealed that IPV during pregnancy was associated with 1.64 times risk of PTB and 3-folds risk of VPTB. The occurrence of VPTB was significantly reduced in the intervention groups compared to the usual care group (OR=0.42) [45].

According to prospective cohort study of Tanzania, One-third (30%) of the women experienced IPV during pregnancy; 22.3% reported emotional, 15.4% sexual and 6.3% physical violence. In this study, Women exposed to physical IPV were 3 times more likely to have PTB (AOR = 2.9) and LBW (AOR = 3.2). Women with previous adverse pregnancy outcomes and exposure to physical IPV had a further increased 4.5 times risk of PTB and 4.8 times risk of LBW compared to those without previous history of adverse outcome. Even though both emotional and sexual violence has been found to have high magnitude than physical violence but they were not statistically associated with PTB [44].

Systemic review and meta-analysis with 50 studies were pooled ORs and the study found that the odds of PTB and LBW among women experienced Intimate Partner Violence was significantly associated (OR=1.91, and OR= 2.11 respectively), but the studies were at a large level of heterogeneity for both PTB & LBW ($I^2$ = 84% and 91%, respectively) and the association with SGA was less pronounced and marginally significant [14].

The systematic review and meta-analysis of 19 African studies found that the prevalence of IPV during pregnancy ranges from 2% to 57% (n = 13 studies) with meta-analysis yielding an overall prevalence of 15.23%. After adjustment for known confounders, five studies retained significant associations between HIV and IPV during pregnancy (OR1.48–3.10). Five studies demonstrated strong evidence that a history of violence is significantly associated with IPV in pregnancy and alcohol abuse by a partner also increases a woman's chances of being abused during pregnancy (OR 2.89–11.60). Other risk factors include risky sexual behaviors, low socioeconomic status and young age [59].

The case control study conducted in Peru revealed that prevalence of any form of IPV during pregnancy was 52.2% among cases and 34.6% among controls in the study area. Compared with those reporting no exposure to IPV during pregnancy, women reporting any exposure had a 2.1-fold increased risk of PTB and The association was attenuated slightly after adjusting for maternal age, pre-pregnancy weight, and other covariates by 2-folds. The study found that Emotional abuse in the absence of physical violence was associated with a 1.6-fold increased risk of PTB. On the other hand, the effect increased when the combined effect happened. Emotional and physical abuse during pregnancy was associated with a 4.7-fold increased risk of PTB [46].

Longitudinal study conducted in Washington DC found that Women who were victims of IPV were more likely to give birth prior prematurely and deliver low and very low birth weight infants. Women reporting reciprocal violence in the past year were more likely to drink, use illicit drugs, and experience environmental tobacco smoke exposure and were less likely to be very happy about their pregnancies. Women reporting any type of IPV were more likely to be depressed than those reporting no IPV. Women experiencing reciprocal violence reported highest levels of depression [66].

A review study revealed as high as these rates are, the actual prevalence of IPV during pregnancy may be even higher due to reluctance of women to disclose IPV, especially during pregnancy. many studies have indicated certain women may be at increased risk of IPV during pregnancy due to socioeconomic status (SES), age, marital status, or minority status. As a result, IPV can be found the risk factor for LBW and PTB [25].

The review study assessed the effects of IPV on maternal health (e.g., insufficient or inconsistent prenatal care, poor nutrition, inadequate weight gain, substance use, increased prevalence of depression), as well as adverse neonatal outcomes (e.g., low birth weight [LBW]), preterm birth [PTB], and small for gestational age [SGA]) and finally confirmed as it is the leading cause of maternal and neonatal death [67].

## 2.2 Socioeconomic, Sociodemographic, Obstetric and Medical Factors

### 2.2.1 Socioeconomic and Sociodemographic Factors

A retrospective cohort study conducted in Canada revealed that the association between preterm birth and household income, housing tenure, and education by bivariable analysis. Following full adjustment, effects of unemployment (OR = 1.52) and one indicator of poor social support (OR = 1.17) remained significantly associated with PTB. The study conclude that, Unemployment and lack of social support are associated with higher risk of preterm births [68].

The prospective study conducted in Iran showed that some structural and intermediary determinants such as income and perceived stress had direct effect on preterm labor. The Path analysis showed that among structural factors, income had a direct effect, number of children (family size), as well as mother's education had the greatest overall effect on gestational age at birth respectively [69].

### 2.2.2 Obstetric and Medical Factors

The prevalence study conducted in Bahir Dar found that the prevalence of PTB was 11.7% and the identified factors of preterm births were; unplanned pregnancy, No ANC follow up, pregnancy interval less than 24 months, preeclampsia/eclampsia and rural residence [10].

A prospective cohort study conducted in Tikur Anbesa Teaching Hospital found that Out of 3424 deliveries conducted during the study period, Preterm delivery rate was 48.6% for all cases of Hypertensive Disorders of pregnancy (HDP) [11]

A Facility based Cross sectional study conducted in Hossana, southern Ethiopia found that PTB were significantly associated with Being government employee [AOR=4.5], lack of antenatal care [AOR=3.2], rural residence [AOR=3.5], hemoglobin<11 mg/dl [AOR=2.5], malarial infection [AOR=8.6], age<20 years [AOR=4.9], previous history of pregnancy complications [AOR=6.3] [70]

The prevalence study conducted in Debremarkos found that 11.6% from the total 422 mothers gave a preterm birth. Presence of chronic illness (AOR=4.5), problem in current pregnancy (AOR=2.9; 95% CI: 1.3, 6.7), premature rupture of membrane (AOR=6.2), low income <600 birr (AOR=2.6 ),has antenatal follow up (AOR=0.24), and hematocrit level <33 (AOR=7.2) were found to be significantly associated with preterm birth on the multi variate logistic regression [9].

An institution based cross-sectional study conducted in Gondar town health facilities showed that 4.4% from the total 540 mothers gave a preterm birth. The covariates of pregnancy induced hypertension (AOR 5.36) and being HIV positive (AOR 3.4) were found to be significantly associated with preterm birth [6].

Prevalence study conducted in Jimma Teaching Hospital found that the prevalence rate of preterm birth was 25.9%. Rural residency (P=0.010), Substance intake during pregnancy (P=0.049), History of adverse birth outcomes (PTB, LBW or still birth) (P=<0.001), Premature rupture of membrane ( P=<0.001), History of bleeding during pregnancy (P=<0.001), UTI during pregnancy (P=0.044), Hypertension during pregnancy (P=0.003), and Congenital abnormality of the new born (P=0.029) were determined as significant risk factors for preterm birth [7].

Multivariate analysis results of a case control study in Iran showed that abnormal amniotic fluid, premature rupture of membranes, double and multiple pregnancies, chronic hypertension, family history of premature birth, mothers age over 35 years, and cervical incompetence had significant (P<0.05) relationship with the premature births [71].

Case control study conducted in Egypt revealed that several maternal factors contribute for preterm deliveries. The identified factors were age < 20 years, nulli-parity, previous abortion and previous preterm birth, menses vaginal bleeding, a vaginal pH > 5, bacterial infections (Trichomonas vaginalis infection, Mycoplasma hominis infection, and any vaginal growth of Gram-negative bacilli) were significantly associated with Preterm Labor [72].

A prospective cohort study conducted in Brazil on 1229 women pregnant women has found that A total of 13.8% of the infants had LBW or were premature. Conditions associated with risk of low birth weight or prematurity were: History of previous prematurity birth ($p < 0.005$), smoked ($p < 0.001$), delivered by C/s ($p < 0.001$) and whose partners had a low educational level ($p < 0.008$). but no association has seen b/n domestic violence and LBW/preterm [73].

## 2.3. Behavioral and lifestyle related Factors

The community based cross-sectional study conducted in Bahir Dar revealed 34% of respondents consumed alcohol during pregnancy at least once per week."Tella", beer, and wine were the commonest kinds of alcohol beverages consumed by the pregnant mothers [74]

The prevalence study conducted in Eastern Sudan found that 251 (24.9%) and 270 (26.8%) women reported that they experience divorce threat and second marriage threat respectively due to domestic violence. In logistic regression model, husband's education (OR = 1.5), polygamous marriage (OR = 1.9), and husband's alcohol consumption (OR = 13.9) were significantly associated with domestic violence [75].

Prospective cohort study done in Maryland try to assess the factors contributing for adverse birth outcomes found that 19% of the sample reported intimate partner violence during their pregnancies and of the exposed women, 41% had at least one adverse neonatal outcome (PTB, LBW and/or SGA). Women experiencing intimate partner violence had a higher risk of marijuana use than the non-abused ($p < 0.01$). Experiencing intimate partner violence was associated with a four-fold increase in having a SGA neonate. Women who reported marijuana use had five times the odds of having a neonate classified as SGA and/or LBW [76].

A prevalence survey conducted in Amhara region revealed that Alcohol consumption by husband (AOR = 1.9), being pregnant (AOR = 2.1), low decision making power (AOR = 2.3) and low annual income (AOR = 1.9) were the main predictors of domestic violence [15].

## 2.4 Conceptual Framework

This framework shows the three main constructs of violence (physical, sexual and psychological/emotional) and other determinant factors of preterm births (**figure 1**).

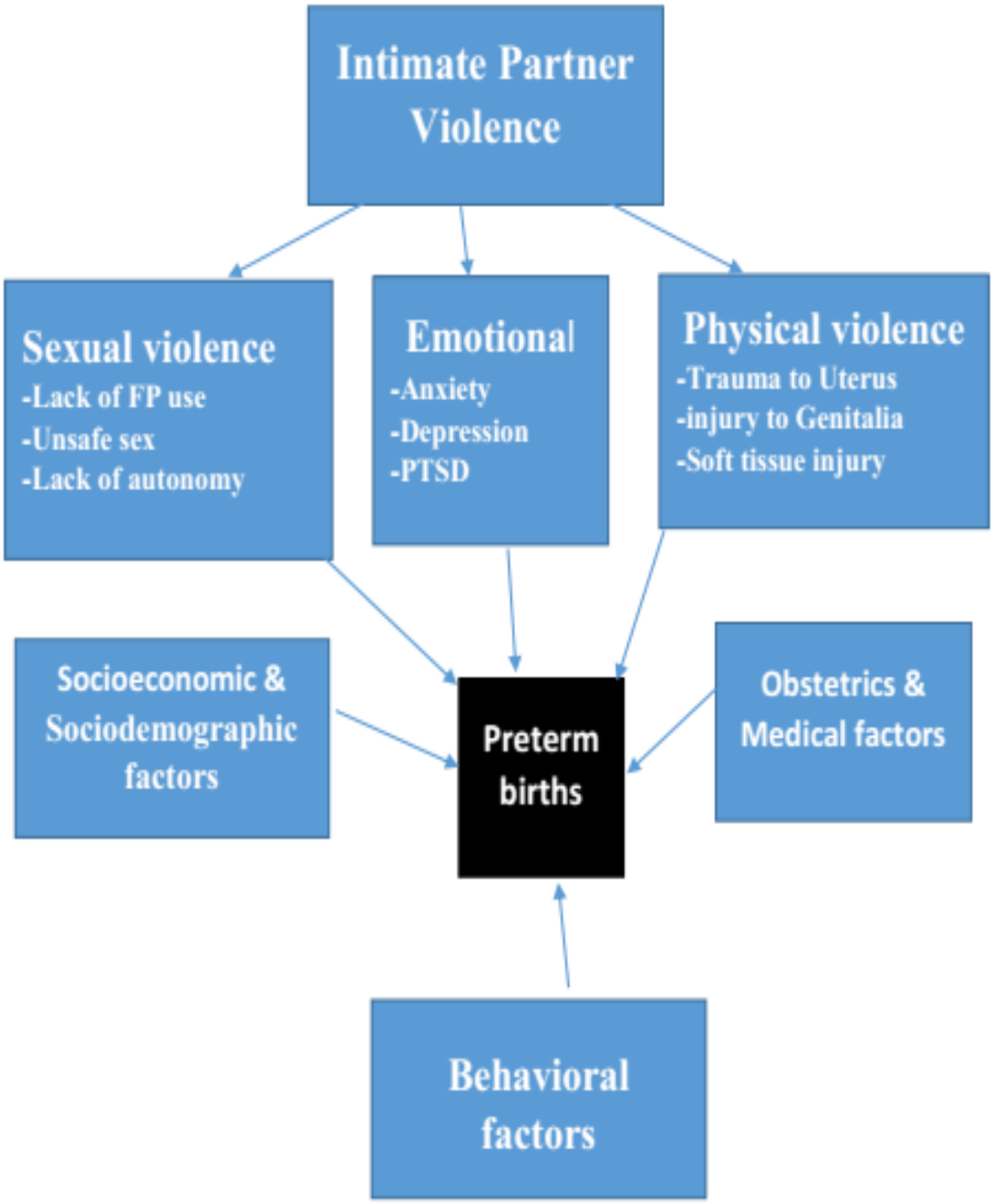


Figure 1:Conceptual framework of IPV and other factors with PTB (WHO: global regional and national estimate of violence against women, 2012) with some modification, 2018.

## Research Questions and Hypothesis

## Research question?

- Does intimate partner violence during pregnancy related with preterm births?

## Hypothesis

☒ There is no association between intimate partner violence during pregnancy and preterm birth.

# 3. Objective of the study

## 3.1 General Objective:

To assess the relationship of intimate partner violence during pregnancy as well as other pregnancy related factors with preterm births among mothers whose neonates admitted in Dessie referral, Debre Birhan referral and Bahir dar Felege Hiwot referral hospitals from 1st February 2018 to 1st April 2018, Amhara region, Ethiopia.

## 3.2 Specific Objectives:

1) To determine the association between intimate partner violence during pregnancy and preterm birth.
2) To assess the association between other determinant factors and preterm birth.

# 4. Methods and Materials

## 4.1 Study Setting and Study Period

The study was conducted in Amhara region, Ethiopia. According to the 2002 (EFY) Health and Health Related Indicators published by FMoH, Amhara region has a total of seventeen (17) government hospitals. Of these hospitals, the study was employed in the three purposely selected governmental hospitals (Namely Dessie, Debre Birhan and Bahir Dar Felege Hiwot referral Hospitals). The region consists of nine zones and it has a total population of more than 17 million. Of the total population, 15 million population resided in rural parts [77].

Dessie referral Hospital is located in Dessie town, south wollo zone, North-eastern Amhara region which is 401 Kms away from Addis Ababa and is the most visited referral center and teaching hospital for Wollo University and other private colleges in Dessie town.

Debre Birhan referral Hospital is found in Debre Birhan town, North Shoa Zone, North-eastern Amhara region which is 130 Kms away from Addis Ababa and is the referral center and teaching hospital for Debre Birhan University.

Felege Hiwot referral Hospital is located in Bahir Dar town, Northwest Amhara region which is 552 Kms away from Addis Ababa and used as the most visited referral center and teaching hospital for Bahir Dar University and other health science colleges in Bahir dar town.

All of the selected study hospitals provide NICU (Neonatal Intensive Care Unit), ANC, Delivery and Postnatal cares services as routine service and each of them serves for more than a million catchment population. All of them have Admission, ANC and delivery registration books.

The study was conducted from 1st February 2018 to 1st April 2018 for a total of two months.

## 4.2 Study design

Hospital-based unmatched case control study design was employed to assess the association of intimate partner violence during pregnancy and preterm births and other determinant factors of preterm births. The cases were mothers with singleton alive births between 28 and 36 completed weeks of gestations and their neonate admitted in NICU in the study hospitals during the study period and the controls were mothers with singleton alive births at 37 and above completed weeks of gestation and their neonate admitted in NICU for other medical reasons in the study hospitals. The cases and controls were determined based on gestational age which

was measured by confirmed diagnosis of physicians during admission with either Last menstrual period (LMP) or Ballard maturity examination.

## 4.3. Source and study population

### 4.3.1 Source population:

All mothers whose neonates admitted in public health facilities of Amhara region, Ethiopia

### 4.3.2 Study population:

All mothers whose neonates were admitted at Neonatal Intensive Care Unit (NICU) of Debre Birhan, Dessie and Bahir Dar Felege Hiwot referral hospitals from 1st February 2018 to 1st April 2018 were eligible for this study.

## 4.4 Eligibility criteria

### 4.4.1 Inclusion criteria

- All mothers with singleton Preterm neonates (neonates born between 28 and 36 completed weeks of gestational age) and their neonate admitted at NICU were included as **cases** in the study.
- All mothers with singleton term neonates (neonates born at and above 37 completed weeks of gestational age) and their neonate admitted at NICU for other medical reasons were included as **controls** in the study.

### 4.4.2 Exclusion criteria

- Re-admitted Neonates within the data collection period
- Induced termination of pregnancy for some medical reasons
- Women with difficulty of communication
- All Mothers whose neonate admitted but mothers were not present during data collection period for some reasons and
- All mothers who were seriouslly ill during study period

## 4.5 Sample size determination

Sample size was Calculated by using Epi info version 7.2.0.1 software by considering double population proportions formula. The researchers had taken proportion of exposure to any IPV during pregnancy among controls as 34.6%; Sixto E. Sanchez et al. , Peru [46] and the odds of PTB among women exposed to Itimiate partner violence compared to controls had taken as 1.91; Systematic review and meta-analysis of 50 studies [14].

By considering the basic Assumptions of: 80% power (**Z**β=0.84), 95% CI ($Z_{a/2}$=1.96), and r=2, the calculated Sample size becomes 125 cases and 250 controls. Mothers might not give consent due to adverse birth outcome and very sensitive and private nature of the exposure variable, so the investigators were added 10% to compensate Non- responses. As a result, the total Sample size becomes 138 cases and 276 controls.

**Table 1:** Summary of sample size determination based on the main independent variables, 2018

| **Variables** | **Assumptions** | **Studies** | **Sample size** | **10% NR** | **Final sample size** |
|---|---|---|---|---|---|
| Any IPV during pregnancy | P control =34.6% | Sanchez et al. , Peru [46] | 126 cases<br>251 controls | ***13 cases***<br>***25 controls*** | ***138 cases***<br>***276 controls*** |
| Pregnancy induced HTN | P control = 5.3%,<br>P case = 18.6% | Teklu S. , Addis Ababa [11] | 59 cases<br>117 controls | 6 cases<br>12 controls | 65 cases<br>129 controls |
| HIV during pregnancy | P control = 5.4%,<br>P case = 19.8% | Yoseph C., Oromia[78] | 53 cases<br>105 controls | 5 cases<br>11 controls | 58 cases<br>116 controls |
| Previous adverse birth outcomes | P control =10.2%,<br>P case = 35.3% | Geofrey N., Tanzania [44] | 29 cases<br>57 controls | 3 cases<br>6 controls | 32 cases<br>63 controls |

**Where:**

**Z**α/**2** = the percentile of standard normal distribution corresponding to the level of significance

$\mathbf{Z}_B$= the percentile of standard normal distribution corresponding the power of the study

**r** = ratio of controls to cases

**p1** = the proportion of exposure to IPV among the cases

**p2** = the proportion of exposure to IPV among the controls

**P1-p2**= the minimum meaningful difference of exposure proportion between cases and controls

**n** = the minimum sample size required for the study

## 4.7 Sampling techniques

The study was conducted in three referral hospitals of Amhara region, Ethiopia. Of the total hospitals (17) found in this region, 3 hospitals (Namely; Dessie Referral hospital =282 cases, Bahir Dar Felege Hiwot referral =555 cases, and Debre Birhan referral hospital =243 cases) were selected based on the last one-year case flows.

The cases were proportionally allocated to the 3 hospitals based on the previous report of the study hospitals. The data collectors assigned in each study hospitals interveied the eligible cases who visited the facility during the study period until the required sample size is met and for each eligible case, two consecutive controls were selected randomly and were interviewed by the same data collector. The mothers were interviewed as soon as their neonates admitted at NICU.

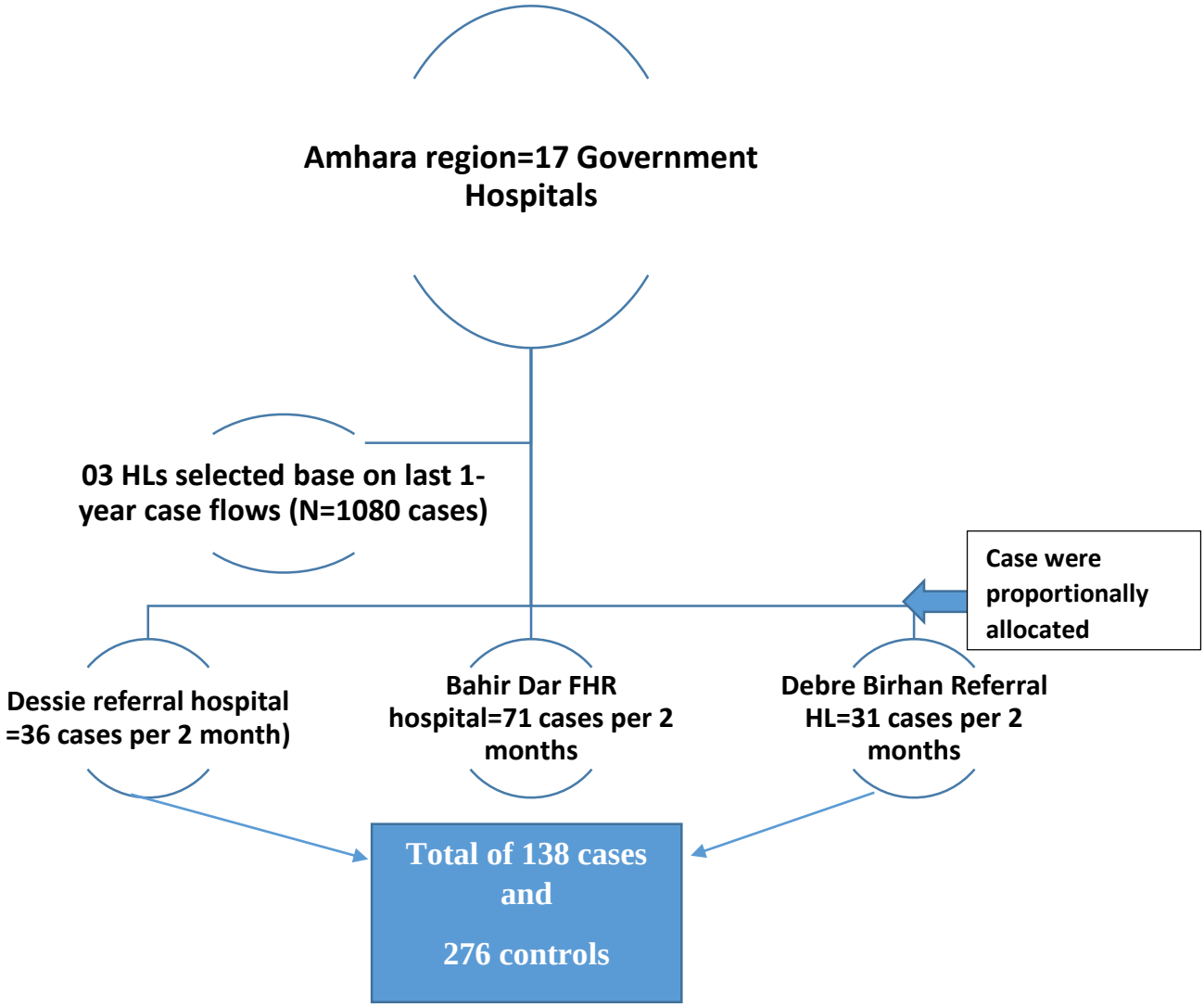


**Figure 2:** Schematic diagram of Sampling techniques, and proportional allocation of cases in the selected hospitals (N=414 cases and controls from the three hospitals), 2018

## 4.7 Study variables

### 4.8.1 Dependent variable

Preterm birth (babies delivered between 28 and 36 completed weeks of Gestation-yes/no) based on confirmed diagnosis of prematurity by physicians.

### 4.8.2 Independent variables

**I) The experience of IPV during pregnancy**;

Any IPV (physical or sexual or emotional)- (yes/no) and the three constructs of IPV; physical IPV- (yes/no), sexual IPV- (yes/no), and emotional IPV- (yes/no).

II) **Covariates**

Table **2**: List of confounding variables to be considered during analysis, 2018

| **A) Sociodemographic characters** | **Main Category** |
|---|---|
| Maternal age (in completed years) | 15-24<br>25-34<br>35-49 years |
| Respondent level of education | no formal education<br>primary school<br>secondary school<br>tertiary school |
| Religion | Muslim<br>Orthodox Christianity<br>Protestant, and Others |
| marital status | Single<br>Divorced<br>Widowed<br>Married |
| mother's occupation | House wife<br>Farmer<br>Civil servant<br>Merchant<br>Daily laborer<br>Student, and others |
| monthly household income | < 1500, 1500-2499, 2500-3499, ≥ 3500 ETB |
| family size | <5 and ≥5 |
| **B) Obstetric and medical factors** | Birth interval (<2 years, >=2 years),<br>Antenatal care<br>Number of ANC visits (<4 visists, >=4 visits)<br>History of Previous adverse birth outcomes<br>Hypertension during pregnancy (yes/no)<br>Nutritional status of mother (MUAC <21 cm, 21-22.9cm, MUAC ≥23cm)<br>HIV status (reactive/negative)<br>Any medical problems during pregnancy (yes/no) |
| **C) Substance use during pregnancy** | Cigarette smoking (yes/no)<br>khat chewing (yes/no)<br>alcohol consumption (yes/no),<br>husband smoke cigarette (yes/no)<br>husband alcohol consumption (yes/no). |

## 4. 8 Data collection tools and Techniques

### 4. 8.1 Data collection tools

The questionnaire regarding IPV was adopted from the Ethiopian Demographic and Health Survey [20] and WHO 2005 Multi-country study to assess women's health and violence against women [13] with some contextual modifications. The questionnaire contained of sociodemographic characters, obstetric factors, medical problems, substance use and experiences of IPV during the index pregnancy related questions.

The questionnaire was prepared with a total of 13 IPV related questions to assess the experience of women to the three constructs of IPV (physical, emotional and sexual) during pregnancy. We had prepared a total of 6 physical IPV related questions, 4 emotional IPV related questions, 3 sexual IPV related questions and other behavior control related questions to determine exposure of IPV upon women during this index pregnancy period.

Finally, we had ultimately able to classify participants as follows: never; physical abuse only, emotional abuse only, sexual abuse only, any abuse (physical or sexual or emotional abuse), and all forms of IPV (physical and sexual and emotional abuse).

### 4.8.2 Data Collection Procedures and techniques

The data was collected by face-to-face interview by using standardized, structured and pretested questionnaire. The same interviewer was used to interview both cases (preterm births) and the respective two consecutive controls (terms) to control information bias. The outcome variable (preterm birth) was comprise of women whose medical records indicated a physician or midwifery diagnosis of spontaneous prematurity births (delivered between 28 and 36 completed weeks of gestation). The Gestational age was measured by using confirmed diagnosis of prematurity by Physicians. The physicians confirmed the diagnosis of prematurity by using either LMP or Ballard maturity examination after admission into NICU. The mothers of both cases and controls were interviewed by the same interviewer in the separate room to ensure their privacy and to encourage their communication motives.

The weight of the newborns was measured within 15 minutes of admission by using calibrated balanced scale. Maternal nutritional assessment was made by using MUAC and the other medical and obstetrics conditions of the mother was assessed by using records, measurements and interviews. The interview and other vital measurements were done by six (two in each study hospitals) trained midwives or nurses who were working in NICU and those were assigned into two separate shifts in each study hospitals.

## 4.9 Data quality assurance

Standardized and structured questionnaire adopted from EDHS and WHO Multi-Country Study with some contextual modification was employed. The measurement tool was translated into local language (Amharic) and back to English version to keep its consistency.

Pre-testing of the questionnaire was done on 5% (21 participants) of mothers who gave births out of the three study Hospitals found in Amhara region (Woldia and Boru Meda District Hospitals).

Three days training was provided for data collectors about the objectives of the study, the highly sensitivity of the issue, confidentiality of responses, contents of questionnaires and how they approach the study subjects (cases and controls) in the similar way to minimize selection bias and the training was given by the experts on this area and the Principal investigator.

The data collectors were only female midwiferies or nurses by considering highly sensitivity and private nature of the questions (Intimate partner violence related).

## 4.10 Data management and Analysis

The data was checked for completeness and consistency and was entered into Epi data version 3.1 and cleaned again after data entry. The data was exported and analyzed by using SPSS version 20.0. Before doing any particular analysis activities, checking the assumptions, nature of the variables, frequencies, outliers and recoding of the variables was performed, and the descriptive statistics was presented by text, frequency tables, graphs, mean, median, and percentages.

Binary logistic regression analysis was done to evaluate the association of Preterm birth with each construct of intimate partner violence (physical violence, psychological violence and sexual violence) and other pregnancy related factors separately. Finally, those variables with p-value <0.25 were entered into the multivariable logistic regression models.

Multivariable logistic regression analysis was performed with backward Likelihood Ratio method and Hosmer-Lemeshow Goodness of fit-ness test to control the identified possible potential confounding variables.

The multivariable analysis model was done for two separate models; the first model was done for IPV during pregnancy and PTB to see the significant association of the three constructs of IPV and preterm birth, and the second model was done for other determinant factors such as, sociodemographic factors, and other maternal factors with the dependent variable (PTB). Furthermore, correlation between the independent variables was assessed to test

multicollinearity. Finally, the strength of association was measured by both crude and adjusted odds ratios with 95% confidence interval (CI) for exposure variables and outcome variable (PTB). Statistically significance level was declared at p-value < 0.05.

## 4.11. Operational definitions

**Preterm:** births between 28 and 36 completed weeks of gestations

**Term**: births at 37 and above completed weeks of gestations [79].

**Emotional IPV**: defined as mothers experienced any of the followings; have been insulted by your husband by using abusive language that made you feel bad, insulted infornt of others, have been scared or intimidated you on purpose, or have been threatened by your husband with an object such as a stick, belt, knife, gun etc. by a current partner/boyfriend during the index pregnancy [13].

**Physical IPV**: defined as mothers experienced any of the followings; being slapped or having something thrown at her that could hurt her, being pushed or shoved, being hit with a fist or something else that could hurt, being kicked, dragged, being choked or burnt on purpose, and/or being threatened with/actually having, a gun, a knife, or another weapon used on her by a current intimate partner during the index pregnancy [13].

**Severe Physical IPV**: defined as mothers experienced any of the followings; being hit with a fist or something else that could hurt, being kicked, dragged, being choked or burnt on purpose, and/or being threatened with/actually having, a gun, a knife, or another weapon used on her by a current intimate partner during the index pregnancy [13]

**Moderate physical IPV:** defined as mothers experienced any of the followings; being slapped or having something thrown at her that could hurt her and being pushed or shoved by a current intimate partner during the index pregnancy [13]

**Sexual IPV:** defined as mothers experienced any of the followings; being physically forced to have sexual intercourse when she did not want to, having sexual intercourse because she was afraid of what her partner might do, and/or being forced to do something sexual that she found humiliating or degrading to her by an intimate partner during the index pregnancy [13].

**Any Intimate Partner Violence**: Women who experienced at least one of the above offenses was classified as having "ever" experienced any IPV during the index pregnancy.

**Daily intake for alcohol, khat chewing, cigarette smoking:** Alcohol drinking, khat chewing, cigarette smoking for more than 4 days per week during pregnancy

**Weekly intake for alcohol, khat chewing, cigarette smoking:** Alcohol drinking, khat chewing, cigarette smoking for at least 4 days per month during pregnancy

**Undernourished mother:** Mother who have MUAC less than 23cm

**Adverse birth outcomes*:*** women experienced at least one of PTB, LBW, Abortion, still birth prior to this index pregnancy.

**Medical preoblems**: women experienced any medical problems confirmed by physicians during or prior to this pregnancy.

## 4.12 Ethical issues

Ethical approval was obtained from Research and Ethics Committee (REC) of School of Public Health, Addis Ababa University for appropriateness and scientific content of the study. The study was conducted in the selected hospitals after permission letter was obtained from Amhara region Health Bureau and EPHI, Bahr Dar branch. Participants was asked for informed verbal consent before participating in the study. They were provided with the information regarding the purpose, objective, procedures, potential risks and benefits of the study; they were also assured of strict confidentiality with regard to any information obtained from them. No personal identifiers were used and Verbal consent was taken after explaining the stated risk. There was no denial of health service for refusal to participate in the study. There was immediate linkage to the psychiatric clinic for those in need of counseling during interview. Each participant was assured it was strictly confidential and privacy during interview will be maintained. Each participant was assured as they have the right to refuse, ask any question that is not clear and to discontinue Interview at any time in between for any inconveniences.

## 4.13 Dissemination of results

The result of this study will primarily be submitted to the SPH, AAU as partial fulfillment of the degree of master's in Public Health Epidemiology and Biostatistics**.** The findings of the study will be distributed to the participating health facilities and different stakeholders through the appropriate channel. Action points will be developed together with responsible parties to make use of the conclusion & recommendation of the study. Publication in a scientific journal shall also be considered.

# 5. Results

In this unmatched case control study, from a total of 414 mothers whose neonates admitted in Dessie, Debre Berhan and Bahir Dar Felege Hiwot referral hospitals, 134 cases and 268 controls were included with the response rate of 97.1%. The power of this study estimated by Openepi version 11.65 with continuity correction is 81.82%.

## 5.1 Participants Sociodemographic and socioeconomic characteristics:

Mothers in cases and controls had similar median age and age at first marriage (27 and 20 years respectively). Of the total participants, 60.4% of mothers in case groups were resided in rural compared to 31.7% mothers in control groups. Similar proportion of mothers in cases and controls were currently married (96.3% and 98% respectively). When compared the highest completed educational level attended by mothers, higher proportion of mothers in cases were illiterate compared to mothers in controls (44.8% and 17.9% respectively). Similar proportion of mothers in case and control groups were housewives (53.7% and 50.4% respectively). The average monthly household income was similar for both cases and controls (median=3000.00 ETB) **(Table 2).**

**Table 3**: Sociodemographic characters of participants whose new born admitted at Dessie, Debre Birhan and felege-Hiwot referral hospitals, Amhara region, Ethiopia, 2018.

| Predictor variables | | Cases N (%) | Controls N (%) | statistics ($X^2$), P-value |
|---|---|---|---|---|
| **Age** | | | | |
| | 15-24 | 38 (28.4) | 81 (30.2) | X2=1.58, |
| | 25-34 | 78 (58.2) | 162 (60.4) | P>0.05 |
| | 35-49 | 18 (13.4) | 25 (9.3) | |
| **Residence** | | | | |
| | Urban | 53 (39.6) | 183 (68.3) | X2=30.42, |
| | Rural | 81 (60.4) | 85 (31.7) | P<0.001 |
| **Marital status** | | | | |
| | Currently Married | 129 (96.3) | 263 (98.1) | X2=1.28, |
| | Currently Unmarried | 5 (3.7) | 5 (1.9) | P>0.05 |
| **Religion** | | | | |
| | Orthodox | 81 (60.4) | 126 (47.0) | X2=6.76, |
| | Muslim | 52 (38.8) | 137 (51.1) | P<0.05 |
| | Others$^{++}$ | 1 (0.7) | 5 (1.9) | |
| **Education level of mother** | | | | |
| | Illiterate | 60 (44.8) | 48 (17.9) | X2=32.99, |
| | Primary | 35 (26.1) | 106 (39.6) | P<0.001 |
| | Secondary | 21 (15.7) | 66 (24.6) | |
| | Tertiary | 18 (13.4) | 48 (17.9) | |
| **Educational level of husband** | | | | |
| | Illiterate | 56 (41.8) | 31 (11.6) | X2=49.91, |
| | Primary | 27 (20.1) | 76 (28.4) | P<0.001 |
| | Secondary | 25 (18.7) | 97 (36.2) | |
| | Tertiary | 26 (19.4) | 64 (23.9) | |
| **Main occupation of mother** | | | | |
| | Housewife | 72 (53.7) | 135(50.4) | X2=1.26, |
| | Farmer | 24 (17.9) | 45 (16.8) | P>0.05 |
| | Merchant | 14 (10.4) | 27 (10.1) | |
| | Others$^{+}$ | 24 (17.9) | 61 (22.8) | |
| **monthly income (in ETB)** | | | | |
| | < 1500 ETB | 21 (15.7) | 49 (18.3) | X2=16.04, |
| | 1500-2499 | 44 (32.8) | 43(16.0) | P<0.01 |
| | 2500-3499 | 25 (18.7) | 51 (19.0) | |
| | ≥ 3500 ETB | 44 (32.8) | 125 (46.6) | |
| **Total family size** | | | | |
| | < 5 | 192 (71.6%) | 88 (65.7%) | X2=1.51, |
| | ≥ 5 | 76 (28.4%) | 46 (34.3%) | P>0.05 |

Key: **"*Others*$^{+}$"** include student, daily labor, self-employee and **"*Others*$^{++}$"** protestant,

### *5.2:* The Obstetric History and other medical conditions of participants

Of the total 402 alive singleton births admitted during the study period at the three study hospitals, 134 (33.3%) of the neonates were preterm births. In this study, higher proportion of cases were low birth weight babies compare to controls (98.5% and 3.7% respectively). In this study, higher proportion of mothers in case had short birth space (less than 2 years) compared to mothers in controls (33.8% and 17.8% respectively). Slightly lower proportion of mothers in cases than controls had ANC follow up for this index pregnancy ((91.0% and 97.8%) and lower proportion of mothers in cases had at least four and above ANC visits compared to mothers in controls (34.3% and 77.2% respectively). Furthermore, Mothers in case groups had nearly double exposure proportion of previous history of adverse birth outcomes (i.e. PTB, LBW, Still birth and abortion) compared to mothers in control groups (27.6% and 13.8% respectively) **(Table 3).**

**Table 4**: The reproductive health and other medical conditions of mothers whose new born admitted at Dessie, Debre Birhan and felege-Hiwot referral hospitals, Amhara region, Ethiopia, 2018

| Predictor variables | | Cases N (%) | Controls N (%) | Statistics ($X^2$), P-value |
|---|---|---|---|---|
| **Weight of new born (in gram)** | | | | |
| | < 2500gm | 132 (98.5) | 10 (3.7) | X2=351.24, P<001 |
| | ≥ 2500gm | 2 (1.5) | 258 (96.3) | |
| **Nutritional status of Mother (in MUAC)** | | | | |
| | SAM | 7 (5.2) | 3 (1.1) | X2=7.14, P<0.05 |
| | Moderate | 12 (9.0) | 34 (12.7) | |
| | Normal(≥ 23 cm) | 115 (85.8) | 231 (86.2) | |
| **Birth interval for this pregnancy** | | | | |
| | < 2 years | 26(33.8) | 23 (17.8) | X2=6.75, P<0.01 |
| | ≥ 2 years | 51 (66.2) | 106 (82.2) | |
| **ANC follow up** | | | | |
| | Yes | 122 (91.0) | 262 (97.8) | X2=9.42, P<0.01 |
| | No | 12 (9.0) | 6 (2.2) | |
| **Gestational Age at ANC initiation** | | | | |
| | <4 months | 45 (36.9) | 127 (48.5) | X2=4.52, P<0.05 |
| | ≥ 4 months | 77 (63.1) | 135 (51.5) | |
| **Number of ANC visits** | | | | |
| | < 4 visits | 88 (65.7) | 61 (22.8) | X2=70.51, P<0.001 |
| | ≥ 4 visits | 46 (34.3) | 207 (77.2) | |
| **Hypertension during pregnancy** | | | | |
| | Yes | 29 (21.6) | 28 (10.4) | X2=9.19, P<0.01 |
| | No | 105 (78.4) | 240 (89.6) | |
| **HIV Status of the mother** | | | | |
| | Reactive | 4(3.0) | 12 (4.5) | X2=0.52, P>0,05 |
| | Non-reactive | 130 (97.0) | 256 (95.5) | |
| **Medical problems during this pregnancy** | | | | |
| | Yes | 52 (38.8) | 21 (7.8) | X2=57.65, P<0.001 |
| | No | 82 (61.2) | 247 (92.2) | |
| **Previous Adverse birth outcomes** | | | | |
| | Yes | 37 (27.6) | 37 (13.8) | X2=11.33, P<0.01 |
| | No | 97 (72.4) | 231 (86.2) | |

## 5.2.1 Types of previous adverse birth outcomes

Of the total participants who had ever history of adverse birth outcomes; higher proportion of mothers in cases had previous experience of Preterm birth outcomes compared to mothers in control groups (43.2% and 10.8% respectively) and slightly higher proportion of women in case groups had previous experience of abortion compared to control groups (56.83% and 54.1% respectively) **(Figure 2)**.

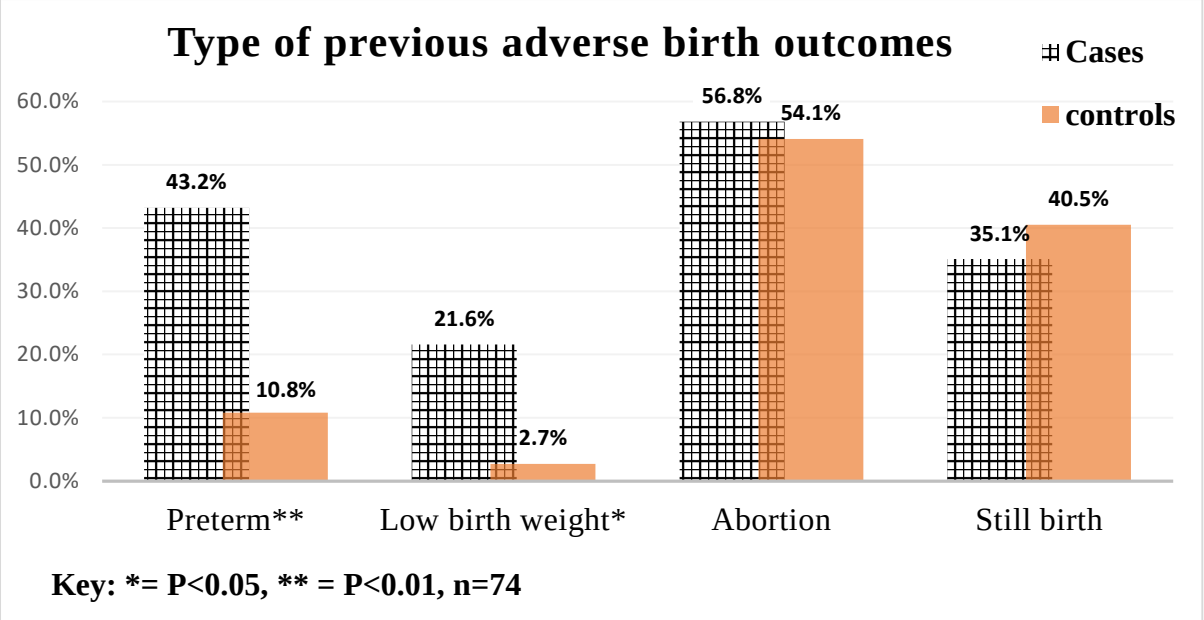


**Figure 3**: Type of previous adverse birth outcomes mother experienced in her life time, Amhara region, Ethiopia, 2018

### 5.2.2. Types of medical problems during pregnancy

Of the total mothers who had experienced medical problems during pregnancy; higher proportion of cases had history of DM compared to control groups (46.2% Vs 4.8% respectively) **(Figure 3).**

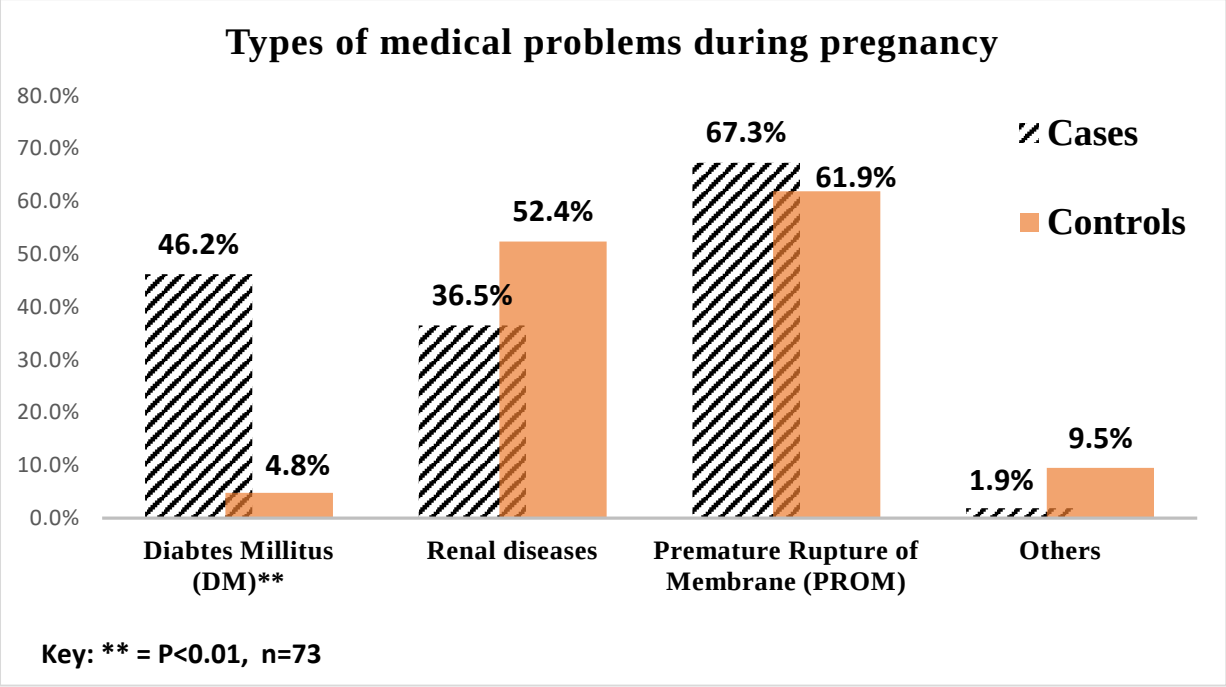


**Figure 4:** Types of medical problems mothers encountered during or prior to this index pregnancy, Amhara region, Ethiopia, 2018

### *5.3.* Substance use during pregnancy

Of the total participants; Similar proportion of mothers in cases and in control groups were chewing khat at least once during pregnancy period (18.7%), higher proportion of mothers in case groups than mothers in control groups were consuming alcohol containing drinks at least once during pregnancy period (52.2% and 40.3% respectively) and the most commonly taken local alcohol type by mothers in case groups was “Tella”. Regarding husbands; higher proportion of fathers of cases than fathers of controls were alcohol consumers [57.3% and 39.9%] **(Table 4).**

**Table 5:** The behavioral and lifestyle related characters of mothers whose new born admitted at Dessie, Debre Birhan and felege-Hiwot referral hospitals, Amhara region, Ethiopia, 2018

| Predictor variables | | Cases N (%) | Controls N (%) | Statistics (X2), P-value |
|---|---|---|---|---|
| **Mother chewing khat during pregnancy** | | | | |
| | Yes | 25 (18.7) | 50 (18.7) | X2=0.01, P>0.05 |
| | No | 109 (81.3) | 218 (81.3) | |
| **Frequency of khat intake** | | | | |
| | Daily | 3 (11.1) | 1 (1.1) | $X^{2*}$ =7.04, P<0.05 |
| | At least once Per week | 13 (48.1) | 37 (40.7) | |
| | Occasionally | 11 (40.7) | 53 (58.2) | |
| **Mother drink Alcohol during pregnancy** | | | | |
| | Yes | 70 (52.2) | 108 (40.3) | X2=5.16, P<0.05 |
| | No | 64 (47.8) | 160 (59.7) | |
| **Frequency of alcohol intake** | | | | |
| | Daily | 4 (5.7) | 4 (3.7) | $X^{2*}$ =14.99, P<0.01 |
| | At least once Per week | 28 (40.0) | 29 (26.6) | |
| | At least once per fortnight | 24 (34.3) | 68 (62.4) | |
| | Occasionally | 14 (20.0) | 8 (7.3) | |
| **Mother smoke cigarette** | | | | |
| | Yes | 2 (1.5) | 1 (0.4) | X2=1.51, p>0.05 |
| | No | 132 (98.5) | 267 (99.6) | |
| **Husband currently chewing khat** | | | | |
| | Yes | 38 (28.4) | 105 (39.2) | X2=4.56, P<0.05 |
| | No | 96 (71.6) | 163 (60.8) | |
| **Husband currently smoke cigarette** | | | | |
| | Yes | 5 (3.7) | 11 (4.1) | X2=0.033, P>0.05 |
| | No | 129 (96.3) | 257 (95.9) | |
| **Husband currently drink Alcohol** | | | | |
| | Yes | 77 (57.5) | 107 (39.9) | X2=11.06, P<0.01 |
| | No | 57 (42.5) | 161 (60.1) | |

Key:

$X^{2*}$ ➔ fisher exact test for those cells less than 5 or for those subtotals less then 20,

**occasionally**➔ taking substance at holy day time or for entertainment purposes

## 5.4. Intimate partner Violence during pregnancy

The overall proportion of experience of any Intimate Partner Violence (IPV) during pregnancy was higher among mothers in case groups compared to mothers in control groups [44.8% and 25.0% respectively] and the higher proportion of women with cases were experienced all forms of IPV compared to women in control groups [12.7% and 4.1% respectively].

Of the total mothers involved in this study; the exposure proportion of emotional IPV among mothers in case groups were found higher compared to mothers in control groups [32.8% and 13.4% respectively] and the higher proportion of women in case groups than control groups were experienced physical IPV [17.2% and 7.5% respectively]. Moreover, the higher proportion of mothers in case groups were experienced Sexual IPV compared to mothers in control groups [24.6% and 15.3% respectively] **(Table 5).**

**Table 6:** Experience of Intimate partner violence during pregnancy among mothers whose new born admitted at Dessie, Debre Birhan and felege-Hiwot referral hospitals, Amhara region, Ethiopia, 2018

| Predictor variables | | Cases N (%) | Controls N (%) | Statistics (X2), P-value |
|---|---|---|---|---|
| **Emotional IPV** | | | | |
| | Yes | 44 (32.8) | 36 (13.4) | $X^2$= 21.09, P<0.001 |
| | No | 90 (67.2) | 232 (86.6) | |
| **Physical IPV** | | | | |
| | Yes | 23 (17.2) | 20 (7.5) | $X^2$= 8.80, P<0.01 |
| | No | 111 (82.8) | 248 (92.5) | |
| **Classification of physical IPV** | | | | |
| | No IPV | 112 (91.0) | 255 (95.1) | $X^{2*}$=7.51, P<0.05 |
| | Moderate | 8 (6.0) | 13 (4.9) | |
| | Severe | 4 (3.0) | 0 (0.0) | |
| **Sexual IPV** | | | | |
| | Yes | 33 (24.6) | 41 (15.3) | $X^2$=5.18, P<0.05 |
| | No | 101 (75.4) | 227 (84.7) | |
| **Any IPV during pregnancy** | | | | |
| | Yes | 60 (44.8) | 67 (25.0) | $X^2$=9.18, P<0.01 |
| | No | 74 (55.2 | 201 (75.0) | |
| **All forms of IPV** | | | | |
| | Yes | 17 (12.7) | 11 (4.1) | $X^2$ =10.15, P<0.01 |
| | No | 117 (87.3) | 257 (95.9) | |
| **Physical or Sexual IPV** | | | | |
| | Yes | 38 (28.4 | 50 (18.7) | $X^2$=4.92, P<0.05 |
| | No | 96 (71.6) | 218 (81.3) | |
| **Physical or Emotional IPV** | | | | |
| | Yes | 47 (35.1) | 39 (14.6) | $X^2$=22.37, P<0.001 |
| | No | 87 (64.9) | 229 (85.4) | |

**Key:** $X^{2*}$-Fisher exact, **Any IPV** during pregnancy represents "Physical or emotional or sexual IPV" and **All forms of IPV** expressed "Physiscal and emotional and sexual IPV".

## 5.5. IPV During Pregnancy and other factors associated with PTB

To evaluate the association between maternal exposure to IPV during pregnancy and preterm birth, bivariate logistic regression analysis was performed with odds ratios (OR) and 95% confidence intervals. The predictor variables with p-value less than 0.25 in the bivariate logistic regression analysis model were entered into the multivariable logistic regression analysis model to control the influence potential confounding variables. Before running the final model, correlation between the independent variables was checked. The multivariable logistic regression model was done with forward-likelihood ratio method. Moreover, during adjustment, the model fitness was checked by Hosmer-Lemeshow model fit-ness test.

After adjustment was made for maternal residence, maternal education level, maternal age, birth spacing (interval), number of antenatal care visits for this birth, previous history of adverse birth outcomes, current maternal and husband alcohol consumption: Women who had experienced any Iintimate Partner Violence during pregnancy had 3 times higher odds of PTB compared to those who didn't experienced any IPV during pregnancy [AOR=2.85: 95%CI 1.42-6.22].

After adjustment was made for maternal residence, maternal education level, maternal age, Birth spacing prior to the current birth, Number of antenatal care visits, previous history of adverse birth outcomes, current maternal and husband alcohol consumption, Physical IPV during pregnancy and Sexual IPV during pregnancy: Women who had experienced emotional IPV had 3 times higher odds of PTB compared to those who didn't experienced Emotional IPV during pregnancy [AOR=3.05:95% CI 1.35-6.91]. However, the statistically significant association between physical IPV and PTB was refuted after it was adjusted for maternal residence, maternal education level, maternal age, Birth spacing prior to the current birth, Number of antenatal care visits, previous history of adverse birth outcomes, current maternal and husband alcohol consumption, Physical IPV during pregnancy and Sexual IPV during pregnancy [AOR = 0.50: 95% CI 0.14-1.85]. Similarly, the statistically significant association between sexual IPV and PTB was refuted after adjustment was made for maternal residence, maternal education level, maternal age, Birth spacing prior to the current birth, Number of antenatal care visits, previous history of adverse birth outcomes, current maternal and husband alcohol consumption, Physical IPV during pregnancy and emotional IPV during pregnancy [AOR=0.39: 95% CI 0.09-1.67]

Furthermore, after adjustment was made for covariates; women having less than 4 ANC visits had 7-folds higher odds of PTB compared to those having at least four and above ANC visits during pregnancy [AOR=7.17: 95%CI 3.57-14.41]. The odds of PTB among women resided

in rural parts was 4 times higher compared to women resided in urban [AOR=3.61: 95%CI 1.77-7.34]. The likelihood ratio of PTB among women with short birth interval (less than 2 years) was 2-folds higher compared to those had longer birth interval [AOR=2.26: 95%CI 1.09-5.05 2.24]. Moreover, the odds of PTB among women experienced previous history of adverse birth outcomes was 2 times higher compared to those women didn't have previous history of adverse birth outcomes [AOR=2.30: 95% CI 1.12-4.72]. However, maternal education level, maternal age, maternal alcohol consumption during pregnancy and paternal alcohol consumption were not associated with PTB after adjustment was made for selected covariates (**Table 7**).

**Table 7:** Multivariable analysis of the association between IPV during pregnancy and PTB among mothers whose neonates admitted at Public hospitals, Amhara region, Ethiopia, 2018.

| **Main exposure variables** | | **Model 1 AOR (95%CI)** | **Model 2 AOR (95%CI)** | **Model 3 AOR (95%CI)** | **Model 4 AOR (95%CI)** | **Final model AOR (95%CI)** |
|---|---|---|---|---|---|---|
| **Any IPV** | ***Yes*** | 2.55 [1.22, 5.32]* | -- | -- | -- | 2.85 [1.42, 6.22]* |
| | ***No*** | 1.00 | -- | -- | -- | |
| **Emotional IPV** | ***Yes*** | -- | 3.05 [1.35,6.91]** | -- | -- | -- |
| | ***No*** | | | 1.00 | | |
| **Physical IPV** | ***Yes*** | -- | -- | 0.50 [0.14, 1.85] | -- | -- |
| | ***No*** | | | -- | 1.00 | |
| **Sexual IPV** | ***Yes*** | -- | -- | | 0.39 [0.09, 1.67] | |
| | ***No*** | -- | -- | -- | 1.00 | |
| **maternal residence** | ***Rural*** | 3.12 [1.51,6.44]** | 3.33 [1.62,6.88]** | 3.33 [1.62,6.88]** | 3.33 [1.62,6.88]** | 3.61 [1.77,7.34]*** |
| | ***Urban*** | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **maternal education level** | Illiterate | 2.39[0.64, 8.92] | 3.26 [0.83,12.73] | 3.26 [0.83,12.73] | 3.26 [0.83,12.73] | |
| | Primary | 1.65 [0.43, 6.38] | 2.25 [0.56,9.17] | 2.25 [0.56,9.17] | 2.25 [0.56,9.17] | |
| | Secondary | 2.38[0.58, 9.83] | 2.96 [0.69,12.62] | 2.96 [0.69,12.62] | 2.96 [0.69,12.62] | |
| | Tertiary | 1.00 | 1.00 | 1.00 | 1.00 | |
| **maternal age** | ***15-24*** | 0.66[0.15, 2.81] | 0.72 [0.16,3.13] | 0.72 [0.16,3.13] | 0.72 [0.16,3.13] | |
| | ***25-34*** | 1.90[0.73, 4.95] | 1.94 [0.74,5.09] | 1.94 [0.74,5.09] | 1.94 [0.74,5.09] | |
| | ***>=35*** | 1.00 | 1.00 | 1.00 | 1.00 | |
| **Birth spacing** | ***< 2 years*** | 2.24[1.01,5.04]* | 2.28[1.01,5.15] | 2.28[1.01,5.15] | 2.28[1.01,5.15] | 2.26 [1.09,5.05]* |
| | ***>=2 years*** | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Number of antenatal care visits** | ***< 4 visits*** | 6.46[3.17, 3.16] | 6.95[3.40,14.19] | 6.95[3.40,14.19] | 6.95[3.40,14.19] | 7.17 [3.57,14.41]*** |
| | ***>= 4 visits*** | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **previous adverse birth outcomes** | ***Yes*** | 2.23[1.07,4.63]* | 2.47[1.18,5.16] | 2.47[1.18,5.16] | 2.47[1.18,5.16] | 2.30 [1.12,4.72]* |
| | ***No*** | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **maternal alcohol consumption** | ***Yes*** | 0.56 [0.16, 1.87] | 0.56[0.17, 1.84] | 0.56[0.17, 1.84] | 0.56[0.17, 1.84] | |
| | ***No*** | 1.00 | 1.00 | 1.00 | 1.00 | |
| **husband alcohol consumption** | ***Yes*** | 2.36 [0.69, 8.09] | 3.03[0.89, 10.22] | 3.03[0.89, 10.22] | 3.03[0.89, 10.22] | |
| | ***No*** | 1.00 | 1.00 | 1.00 | 1.00 | |
| | | N=9, $R^{2=}$39.9% | N=11, $R^{2=}$43.3% | N=11, $R^{2=}$43.3% | N=11, $R^{2=}$43.3% | *N=5*, $R^{2=}$41.1% |

***Key:*** COR= Crude odds ratio, AOR= Adjusted Odds ratio, IPV= Intimate partner violence, * p<0.05, ** P<0.01, *** P<0.001, n= number of predictor variable in the model.

**Model 1** ➔ effect of any IPV on PTB after adjusted for maternal residence, maternal education level, maternal age, Birth spacing prior to the current birth, Number of antenatal care visits, previous history of adverse birth outcomes, maternal and husband alcohol consumption.

**Model 2** ➔ effect of Emotional IPV on PTB after adjusted for maternal residence, maternal education level, maternal age, Birth spacing prior to the current birth, Number of antenatal care visits, previous history of adverse birth outcomes, current maternal and husband alcohol consumption, Physical IPV during pregnancy and Sexual IPV during pregnancy.

**Model 2** ➔ effect of Physical IPV on PTB after adjusted for maternal residence, maternal education level, maternal age, Birth spacing prior to the current birth, Number of antenatal care visits, previous history of adverse birth outcomes, current maternal and husband alcohol consumption, emotional IPV during pregnancy and Sexual IPV during pregnancy.

**Model 4** ➔ effect of Sexual IPV on PTB after adjusted for maternal residence, maternal education level, maternal age, Birth spacing prior to the current birth, Number of antenatal care visits, previous history of adverse birth outcomes, current maternal and husband alcohol consumption, Physical IPV during pregnancy and emotional IPV during pregnancy.

**Final Model** ➔ effect of any IPV on PTB after adjusted for maternal residence, Birth spacing prior to the current birth, Number of antenatal care visits, and previous history of adverse birth outcomes.

## 6. Discussion

Unmatched case control study design was employed to assess the association of Intimate Partner Violence (IPV) during pregnancy and Preterm birth (PTB) and to determine other associated factors of Preterm birth.

This study found statistically significant association between intimate partner violence during pregnancy and Preterm birth. Moreover, other determinant factors such as; maternal residence, birth spacing, number of ante natal care visits and history of previous adverse birth outcomes were found significantly associated with PTB.

The proportion of exposure to any intimate partner violence among women in case groups was higher compared to the women in the control groups [44.8% and 25% respectively]. This is similar with a case control study conducted in Peru [52.2% and 34.6% respectively] [46] and a cohort study done in Tanzania [44].

Likelihood ratio of PTB among women experienced any intimate partner violence during pregnancy was 3 times higher compared to those women never experienced any intimate partner violence during this index pregnancy. This finding is in lined with a Systematic review and meta-analysis done on 50 studies [14], the randomized control trial conducted among Columbian women to assess the effect of IPV on PTB [45], and study done in Virgnia [67]. But this finding is not supported by a case control study conducted in Victoria, Australia [80]. This could be explained by differences in the measurement of both the exposure variable and the outcome variable i.e the present study had used WHO multi-country study assessment tool to measure violence against women and the Australia study used National survey violence assessment tool. This might be subjected to the discrepancy between the two studies.

This study found that the odds of PTB among women experienced emotional IPV during pregnancy was found 3 times higher compared to those women did not experience emotional IPV during pregnancy. Emotional violence during pregnancy (Maternal stress) has direct effect on the hypothalamus-pituitary and adrenal (HPA) axis that elevates levels of CRH and ACTH [21-24] which in turn increases the premature production of cortisol and estrogine both has direct impact on premature activation of labor. The findings of this study has stronger association compared with the others studies. The results is in lined with a Systematic review and meta-analysis done on 50 studies [14], and the randomized control trial conducted among Columbian women to assess the effect of IPV on PTB [45]. However, this finding is not supported by a longitudinal study conducted in Iran which indicates there is no significant

association between psychological violence and PTB [48] and the study done in Tanzania [44]. The discrepancy could be explained by differences in the specific criteria used to measure emotional IPV could contribute to the rate differences between the present study and Iran study (i.e. we had used WHO multi-country study assessment tool against women violence but the Iranian study had used the national survey violence assessment tools) and small sample size in the present study. Sociocultural variations across the study settings could also explained the variability.

Though there was strong association between exposure of physical intimate partner violence during pregnancy and Preterm births in the bivariate analysis model, it's statistically significant association with PTB was refuted after adjusted for covariates. This finding is in lined with study done among Canadian women to see the effect of violence on birth outcomes [51] and study done to assess effect of domestic violence on premature birth [73]. The result is not supported by a longitudinal study conducted in Tanzania [44], prospective study conducted in Peru [46] and study conducted in Vietnam [63]. Furthermore, exposure to Physical violence during pregnancy has been suggested to have effect on premature delivery in the form of physical trauma upon the abdomen, uterus and Post trauma induced stress which leads to premature onset of labor related to either direct impact or Corticotrophin releasing hormone (CRH) [25-27]. The discrepancy could be explained by study design, discrepancy in physical IPV measurement tool and small sample size in the present study compared to the other studies conducted with larger sample sizes.

Women experienced Sexual intimate partner violence during pregnancy was found more than 2-folds risk of PTB in the bivariate analysis but its statistically significant association with PTB was refuted after adjustment. This finding is supported by the study conducted in Tanzania [44]. However, the result is not supported by an Epidemiologic review done on six studies [64] and the prospective study conducted in Washington DC [66]. This might be explained by diefferences in Sexual IPV measurement tool, high sensitivity and highly private nature of the measurement tools used in sexual IPV which might lead to compromised self-responses in developing nations like Ethiopia compared to developed nations which in turn underestimated the findings.

Furthermore, women having less than four ANC visits had 7-folds higher odds of PTB compared to those having at least four and above ANC visits during this index. This result is consistent with the study done in Debre Markos town public Health facilities, Northwest

Ethiopia [9] and the study conducted in Negist Elene Mohammed memorial general hospital in Hosanna Town, south west of Ethiopia [70]. Women without ANC follow up are not aware of the available health services and don't get any counseling about danger sign of pregnancy, risky behaviors, what to do and don't do. Therefore, these women are at high risk of adverse birth outcomes and pregnancy related complications compared to those have ANC follow up.

The odds of Pretem birth among women with short birth interval (less than 2-years interval) prior to this index pregnancy was 2-folds higher compared to women having longer birth interval prior to this index pregnancy. WHO recommended 2-years birth interval before attempting the next pregnancy in order to reduce the risk of adverse maternal, perinatal and infant outcomes. This finding is in lined with the study done in Bahir Dar Felege Hiwot referral hospital, North West Ethiopia [10]. This could be explained by mothers with short birth interval are not physiologically, physically, economically and psychologically well prepared to grow and accept the next coming new born, so they are at higher risk of adverse birth outcome compared to those women having longer birth interval.

The likelihood ratio of preterm birth among women experienced previous history of adverse birth out comes (PTB, LBW, Still birth, abortion) was found 2-folds higher compared with those didnot have history of previous adverse birth outcomes. This finding is in lined with the study conducted in Jimma, Southwest Ethiopia [7], the study conducted in Gondar University Hospital, Northwest Ethiopia [8], a prospective cohort study done in Tanzania [44], a case control study conducted in west Iran [71], the cohort study conducted in Brazil [73]. This could be explained by possible risk of recurrence in successive pregnancies once women experienced previous history of adverse birth outcomes and those women who faced adverse birth outcomes in the past may developed stress due to their bad outcomes which is biologically plausible to be determinant of PTB.

The study indicated that odds of PTB among mothers who resided in rural were found 4-folds higher compared to women from urban residence which is consistent with the study conducted in Jimma Specialized teaching hospital, South west Ethiopia [7] and the study conducted in Felehiwot Referral Hospital, Bahir Dar North West Ethiopia [10]. This might be linked to poor accessibility, availability, and utilization of health care services among women resided in the rural community compared with the urban resided women.

The study revealed that there is no statistically significant association between maternal educational level and PTB. This result is not in lined with findings of the study done in Iran

[69], and case-control study conducted among Egyptian women [72]. This discrepancy could be explained by most of the study participants resided in rural area and the sample of exposure is not proportional compared to other studies conducted in Iran and Egypt.

The study indicated that there is no association between maternal age and PTB. This finding is consistent with the study done in Iran [71] and the prospective cohort multicenter study conducted in US [81]. On the other hand, the finding is not supported by the study conducted in Egypt [72] and longitudinal cohort study done in Canada [82]. This discrepancy might be explained by the differences in classification of age groups (i.e 10-years interval in the present study and half of decades in the other studies), lower age group women are less active in health care seeking behavior and engaged in many mal-behavioral acts like substance use compared to older age group women.

Moreover, the study revealed that there is not found statistically significant association between alcohol consumption during pregnancy and PTB. The finding is consistent with a prospective study conducted in South Africa which revealed that Alcohol consumption did not have a significant effect on the incidence of preterm birth [83]. However, this finding is not supported by the study conducted in Jimma Specialized Hospital, South west Ethiopia [7]. The discrepancy can be explained by the under-report of alcohol consumption by women in in the northern part of Ethiopia due to the fear of stigmatization and impact of sociocultural grounds, small sample size in the present study compared to the women in Jimma, southwest Ethiopia.

# 7. Strength and limitation of the study

## 7.1 Strength of the study

Employing case control study design may be appropriate to assess the association between maternal experience of Intimate partner Violence (IPV) during pregnancy and Preterm birth (PTB). Although case controls would not show temporal relationship unlike cohort studies, this study could show better association between IPV during pregnancy and PTB compared with few simple cross sectional studies conducted in Ethiopia. Therefore, case control is choice of design to study rare outcomes like preterm birth.

Selection and information bias which are feared in most of case control studies have been minimized through sticking to protocol in selection of cases and controls and same interviewer was used to interview both cases and controls which depicts that bias less likely to occur in this study. Therefore, this study paves a way and expected to generate valid baseline information.

## 7.2 Limitation of the study

The first limitation might by linked to recall bias linked to difficulty of remembering the exact Last menstrual period (LMP) during diagnosis and remembering substance use during pregnancy periods. However, to solve the problem related to LMP recall we have designed other alternatives called Ballard maturity examination.

The second limitation might be related with using hospital based controls which may be very similar with cases except being free of caseness. This may underestimate the real differences of cases and controls

The third limitation might be subjected to inclusion of only singleton alive births and exclusion of terminated pregnancies for some medical reasons may under estimate the effect of some predictors related with medical conditions like Hypertension.

# 8. Conclusion and Recommendation

## 8.1 conclusion

The study revealed statistically significant association between intimate partner violence during pregnancy and preterm births.

Furthermore, this study found maternal residency, birth interval, number of ante natal Care visits, and experience of previous adverse birth outcomes were found to be other contributing factors of preterm births.

## 8.2 Recommendation

Health care providers should integrate IPV victims screening services during pregnancy in all maternal health care services especially at ANC delivery settings. Therefore, training of health care providers in identifying and treating IPV victims during the perinatal period is critical.

The causes of Intimate Partner Violence (IPV) are complex and often it is the result of individual, familial, community and societal factors. Moreover, Programs and strategies should be implemented at regional, Zonal and district levels to integrate Violence victims screening at community levels and providing interventions that are culturally based and responsive to those populations at greatest risk of IPV.

Running programs and strategies at regional, zonal and district levels should have focused on hard to reach areas in terms of accessibility, availability and utilization of ANC services to be inclusive of women resided rural community.

Health care professionals should give due attention for early detection of mothers with previous adverse birth outcomes. Therefore, early treatment for medical problems during or prior to pregnancy and reassurance of women with previous bad birth outcome are crucial to improve the health of the mothers as well as the new born babies.

Furthermore, longitudinal cohort and qualitative studies are recommended to explore the underlying causes and to establish temporal relationship between IPV and PTB.

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# 10. ANNEX

## *Annex I: PARTICIPANT INFORMATION SHEET*

## Dear participants

My name is ……I am here on the behalf of Mr. Abay Woday who is a master's student in Addis Ababa university school of public health in department of Preventive medicine (Epidemiology and Biostatistics unit). He is working his thesis on the effect of maternal Violence during pregnancy on preterm birth. Prior to this I will be explaining information about the study and requesting you to participate in the study.

**Purpose:** To identify the effect of maternal Violence during pregnancy on preterm birth.
**Benefit**: This study will help to know the effect of maternal Violence during pregnancy and for improving the health of victim mothers during pregnancy further more to prevent preterm birth and consequence of preterm birth. Mothers with violence victim will be linked to the psychiatric clinic for more counseling and care.
**Harm**: The study will take time of you and may have a little discomfort while remembering the occasion happening to you but does not have any risk.
**Confidentiality and right of participant:** All the responses given by you and results obtained will be kept confidential using coding system whereby no one will have access to your response. Without permission from you and legal body, any part of this study will not be disclosed to third person. You are not expected to give your name or phone number. Your participation in this research is voluntary. You have full right to refuse to a question that you don't want to answer and withdraw from the participation at any time if you don't wish to continue. There will not be any negative consequence and benefit because of participating and not participating on the study. However, your participation on this study is very important for achievement of the study. We hope you will participate in the study for the sake of the benefit of the research result.
**Duration of the interview**: This interview will take approximately 30 – 40 minutes.

- You can ask any question during the interview.
- Have you any question regarding the aim and content of the interview?

Are you willing to participate on the study?
If you are willing to participate in this study, please sign the agreement form
Address: Mob +251-9-11-37-68-50 or E-mail: abaywoday@yahoo.com

## *Annex II: INFORMED CONSENT*

I have read this form or it has been read to me in the language I understand. I understand that I can discontinue the interview without any problem. Therefore

1) I agree to participate

2) I refuse to participate

If the participant agrees to participate, skip to the next page.

If no, skip to the next participant by writing short reasons for refusal below.

……

Name of investigator: Abay Woday Tadesse

Address: Mob +251-9-11-37-68-50

E-mail: abaywoday@yahoo.com

Supervisor address Tel …….

Date of interview …….

Time started: …….

Time completed: …….

Name of data collector:……

Checked by:

Supervisor Name: …… Sig……

## *Annex III: English version Questionnaire:*

Abay W, Negussie D, Abigiya W. Assessment of relationship between Violence during pregnancy and Preterm births among mothers gave births in Amhara Regional States Government hospitals, North Eastern Ethiopia, 2018.

Contact address of the Principal investigator: abaywoday@yahoo.com
Cell phone: (+251) 0911376850/0965065298)

## Identification related information

Data collector's Name: _____ Signature: _____Date_____
Supervisor's Name: _____ Signature: _____
Questionnaire Code No_____MRN: _____ Hospital Name: _____

**Part I: Now, I am going to ask some questions about your Background (socio-demographic and Socioeconomic) information that is very important to the study.**

| ID code | Questions | Code of variables | Skip |
|---|---|---|---|
| 101. | How old are you in complete years? | _____ (in completed years) | |
| 102. | Where is your place of residence? | 1. Urban<br>2. Rural | |
| 103. | What is your marital status? | 1. married /live together/<br>2. divorced<br>3. widowed<br>4. single | |
| 104. | How old were you when you get your first marriage? | _____ (in completed years) | |
| 105. | What is your religion? | 1. Orthodox<br>2. Muslim<br>3. Protestant<br>4. Other(specify)_____ | |
| 106. | Do you read and write simple sentences with any language you speak? | 1.Yes<br>2. No ← | Skip to Q110 |
| 107. | What was the highest level of education you have attended? | 1. Grade ……<br>2. Informal (X)…… ☐ | |
| 108. | Do your husband read and write simple sentences with any language he speaks? | 1.Yes<br>2. No ← | Skip to Q112 |
| 109. | What was the highest level of education your husband / partner has attended? | Grade ----------<br>Informal (X) ---------- ☐ | |
| 110. | What is your main Occupation? | 1. Housewife<br>2. Farmer<br>3. merchant | |

| | | | |
|---|---|---|---|
| | | 4. Government employee<br>5. NGOs employee<br>6. Engaging small business/Micro<br>7. Others (Specify)_____ | |
| 111. | What is your husband's main Occupation? | 1. Farmer<br>2. merchant<br>3. Government employee<br>4. NGOs employee<br>5. Engaging small business/Micro<br>6. Others (Specify)_____ | |
| 112. | What is your household monthly income on Average? | ……..(in Ethiopian birr) | |
| 113. | What is your monthly income on Average that you contribute for the house hold? | ……..(in Ethiopian birr) | |
| 114. | What is your total Family size (including extended families)? | _____(in number) | |

**Part II: Now, I would like to ask some questions regarding to Your obstetrics and medical conditions in the last 12 months (Obstetric and Medical conditions).**

| Code | Questions | Code of variables | Skip |
|---|---|---|---|
| 201. | How many times you become pregnant including this pregnancy? (Gravidity) | _____(put in number) | |
| 202. | By How many years' interval you get this pregnancy? | 1._____ In completed months<br>22. I don't know | |
| 203. | Did you have ANC follow up for this pregnancy? | 1. Yes<br>2. No ← | Skip to Q212 |
| 204. | What was the gestational Age of foetus when you start ANC follow up? | 1. _____in months or<br>2. _____in Weeks<br>3. I don't remember | |
| 205. | Where you start your ANC? | 1. Health post<br>2. Health center<br>3. Government Hospital<br>4. Private hospital<br>5. Private clinic<br>6. NGOs clinic<br>7. Other (specify)_____ | |
| 206. | How many times you visit health facilities for ANC? | _____ (put in number)<br>22.I don't remember | |
| 207. | Have you told any danger symptoms of pregnancy during your ANC visits? | 1. Yes<br>2. No ← | Skip to Q216 |
| 208. | Have you told as you had any medical problems in the last 12 months related to this pregnancy? | 1. Yes<br>2. No ← | |

| | | | |
|---|---|---|---|
| | | | Skip to Q218 |
| 209. | If your answer is yes for Q213, Which medical problems? (**multiple response possible**) | 1. DM<br>2. Renal problem<br>3. Cardiac problem<br>4. Liver problem<br>5. Others (specify)_____ | |
| 210. | Do you have History of Adverse birth outcomes before this pregnancy? (Abortion, Low birth weight, Preterm birth, Small for gestational age or Still birth) | 1. Yes<br>2. No ← | Skip to Part III |
| 211. | If your answer is yes for Q218, which one of the followings? (**multiple response possible)** | 1. Preterm birth<br>2.. Low birth weight<br>3.. Abortion<br>4.. Still birth<br>5.. other (specify)…… | |

**Part III: Now, I would like to ask some questions regarding to the lifestyle you have in the last 12 months (Behavioral conditions of both mother and husband).**

| ID | Questions | Code of variables | Skip |
|---|---|---|---|
| 301. | Have you ever chewed Khat? | 1. Yes<br>2. No ← | Skip to Q305 |
| 302. | Have you chewed Khat in the last 9 months? | 1. Yes<br>2. No | |
| 303. | How often do you chew khat? | 1. Every day<br>2. At least once Per week<br>3. At least once Per fortinight<br>4. Occationally<br>5. Not at all | |
| 304. | Have you ever smoke cigarette? | 1. Yes<br>2. No ← | Skip to Q308 |
| 305. | Have you smoke cigarette in the last 9 months? | 1. Yes<br>2. No | |
| 306. | How often do you smoke? | 1. Every day<br>2. At least once Per week<br>3. At least once Per fortinight<br>4. Occationally<br>5. Not at all | |
| 307. | How many cigarettes you smoke per day? | _____(in number) | |
| 308. | Have you drink Alcohol? | 1. Yes<br>2. No ← | Skip to Q312 |

| | | | |
|---|---|---|---|
| 309. | Have you drink Alcohol in the last 2 weeks? | 1. Yes<br>2. No | |
| 310. | Which type of alcohol? (**multiple response possible)** | 1. Tella<br>2. Beer<br>3. Wine<br>4. Teji<br>5. Other (specify)_____ | |
| 311. | How often you drink alcohol? | 1. Every day<br>2. At least once Per week<br>3. At least once Per fortinight<br>4. Occationally<br>5. Not at all | |
| 312. | Does your husband chewing Khat? | 1. Yes<br>2. No ← | |
| 313. | How often does he chew khat? | 1. Every day<br>2. At least once Per week<br>3. At least once Per fortinight<br>4. Occationally<br>5. Not at all | |
| 314. | Does your husband smoke cigarette? | 1. Yes<br>2. No ← | |
| 315. | How often does he smoke cigarrette? | 1. Every day<br>2. At least once Per week<br>3. At least once Per fortinight<br>4. Occationally<br>5. Not at all | |
| 316. | Does your husband drink Alcohol? | 1.Yes<br>2. No ← | Skip to Q316 |
| 317. | If yes Q315, How often does (did) he get drunk? | 1.Every day<br>2. At least once Per week<br>3. At least once Per fortinight<br>4. Occationally<br>5. Not at all | |
| 318. | Who is the head of the household? | 1. Husband<br>2. Wife<br>3. Both | |
| 319. | Who should decide on the household matters in your family? | 1. Husband<br>2. Wife<br>3. Both equally | |
| 320. | Who is the decision maker on contraceptive utilization for spacing or limiting size of the family? | 1. Mainly Wife<br>2. Mainly husband<br>3. joint decision(both | |
| 321. | Is there social norm that support wife violating in your community? | 1.Yes<br>2. No ← | |

| | | | |
|---|---|---|---|
| | | | Skip to Part IV |
| 322. | If yes Q321, please mention some of them? | 1_____<br>2_____<br>3_____ | |

## Part IV: the three constructs of Violence against pregnant women

**Now I would like to ask you questions about some other important aspects of a woman's life. You may find some of these questions very personal. However, your answers are crucial for helping to understand the condition of women in Ethiopia. Let me assure you that your answers are completely confidential and will not be told to anyone and no one else in your household will know that you were asked these questions. The questions are mainly focusing on types of violence that women are commonly experienced during their life time and pregnancy period.**

### *Section –1: Physical violence against pregnant women:*

**Q401:** Now if you will permit me, I need to ask some questions about your relationship with your husband. Does/did your husband or other person ever done/act the following upon you within the **last 9 months**: [(*People often use some force in a relationship - grabbing, pushing, shaking, hitting, kicking, slapped, pulled her hair, shoved, hit with fist or something else, dragged or beaten her up, choked etc). Has your husband or other person ever used force on you for any reason?]*

| | | | |
|---|---|---|---|
| 401.1. | Has he Push or shoved you, or shake your hands? | 1. Yes<br>2. No | |
| 401.2. | Has he slapped you or thrown something at you that could hurt you? | 1. Yes<br>2. No | |
| 401.3. | Has he Punch or hit you with his fist, or twist your arm or with something that could hurt you? | 3. | |
| 401.4. | Has he Kick you, drag or beaten you? | 1. Yes<br>2. No | |
| 401.5. | Has he tried to Attack you with a knife, gun, or other type of weapon? | 1. Yes<br>2. No | |
| 401.6. | Have you scalded or burnt purposefully by your husband? | 1. Yes<br>2. No | |
| 401.7. | Did the following ever happen because of something your husband did to you? | 1. You had bruises and aches<br>2. You had any injury/ broken bone<br>3. Trauma to your abdomen/genitalia<br>4. Other/specify_____ | See above Qs |
| 401.8. | Was there any of your property deliberately damaged when your husband used force against you even if the incident was not very serious? | 1. Yes<br>2. No<br>22. Can't remember | |
| 401.9. | How often any of the above offenses happen to you in the last nine months? | 1. Every day<br>2. At least once per week<br>3. At least once per month<br>4. Once during pregnancy period<br>5. Not at all | |

| | | | |
|---|---|---|---|
| 401.10. | Does any of the above listed violations are/were committed by other persons (friends, relatives, strangers…etc) upon you within the last 9 months? | 1. Yes<br>2. No | |
| 401.11. | If yes Q401.10, who made this offenses? | 1. Mother in law<br>2. Father in law<br>3. Stranger<br>4. Others (specify)_____ | |

***Section-2: Psychological violence Against pregnant women related question*:**

**Q402.** Now, I am going to ask you about some situations which happen to some women. Please tell me; Does/did your husband or other person ever done the following upon you within the last 9 months:

| | | | |
|---|---|---|---|
| **Q402**.1. | Have you ever been insulted by your husband using abusive language that made you feel bad about yourself? | 1. Yes<br>2. No | |
| **Q402**.2. | Have you ever been threatened by your husband with an object such as a stick, belt, knife, gun, or other type of weapon etc.? | 1. Yes<br>2. No | |
| **Q402**.3. | Have you ever been ignored or shown indifference by your husband? | 1. yes<br>2. No | |
| **Q402**.4. | Has he belittled or humiliated you in front of other people? | 1. Yes<br>2. No | |
| **Q402**.5. | Have you ever been denied by your husband on your basic personal needs? | 1. Yes<br>2. No | |
| **Q402**.6. | Have you ever been intentionally not involved by your husband on decision making in the family? | 1. Yes<br>2. No | |
| **Q402**.7. | Has he done things to scare or intimidate you on purpose? | 1. Yes<br>2. No | |
| **Q402**.8. | Does your husband has been tried to harm or injured anything or anyone you love? | 1. Yes<br>2. No | |
| **Q402**.9. | How often any of the above offenses happen to you in the last nine months? | 1. Every day<br>2. At least once per week<br>3. At least once per month<br>4. Once during pregnancy period<br>5. Not at all | |
| **Q402**.10. | Does any of the above listed violations are/were committed by other persons (friends, relatives, strangers…etc) upon you within the last 12 months? | 1. Yes<br>2. No | |
| Q401.11 | If yes Q401.10, who made this offenses? | 1. Mother in law<br>2. Father in law<br>3. Stranger<br>4. Others (specify)_____ | |

***Section-3: Sexual violence Against pregnant women related questions:***

**Q403**. Now if you will permit me, I need to ask some more questions about your relationship with your husband. Does/did your husband ever the following within the last **9 months?**

| | | | |
|---|---|---|---|
| Q403.1. | When you know your husband has a disease that can be sexually transmitted, can you refuse to have intercourse with him beyond his desire? | 1. Yes<br>2. No | |
| Q403.2. | Have you ever physically forced by your husband to have sex when you did not want to? | 1. Yes<br>2. No | |
| Q403.3. | Have you ever intentionally denied or avoided sex by your husband? | 1. Yes<br>2. No | |
| Q403.4. | Did you ever have sexual intercourse when you didn't want because you were afraid of What he might do? | 1. Yes<br>2. No | |
| Q403.5. | Has he forced you to do something sexual that you found degrading or humiliating? | 1. Yes<br>2. No | |
| Q403.6. | How often any of the above offenses happen to you in the last nine months? | 1. Every day<br>2. At least once per week<br>3. At least once per month<br>4. Once during pregnancy period<br>5. Not at all | |
| Q403.7. | Does any of the above listed violations happen to you are/were committed by other persons (friends, relatives, strangers…etc)? | 1. Yes<br>2. No | |
| Q403.8 | If yes Q401.10, who made this offenses? | 1. Mother in law<br>2. Father in law<br>3. Stranger<br>4. Others (specify)_____ | |

**Q501**. You can give additional remark and comments regarding to violence against women.

_____

_____

## Part V: Questions to be filled from medical records or by Measurement

501. What is your Gestational age at birth? (**based on LMNP or see card for physician Diagnosis or see ultrasound result)** _____ (put In completed weeks)
502. What is the Weight of the new born at birth (**measure or see cards**) _____ (put in grams)
503. What is the Weight of the mother at birth (**measure**) _____ (in grams)
504. What is the height of the mother at birth (**measure**) _____ (**in centimeters**)
505. What is the MUAC of the mother at birth (**measure**) _____ (**in centimeters**)
506. What is the current BP of mother? (Measure or see card?_____//_____mmHg
507. What is the current sero status of mother? (Test or see card?_____(R/NR)

**Thank You!**

# Annex IV: Amharic Version Questionnaire (የአማርኛ መጠይቆች)

**<u>የጥናቱ ርዕስ፡</u>** በእርግዝና ወቅት እናቶች በሚደርስባቸው ጥቃት የተነሳ በህፃኑ ያለ እድሜ መወለድ ላይ ያለው ተፅዕኖን ለማጥናት በአማራ ክልል ሆስፒታል በሚወዱዱ እናቶች ላይ በ2010ዓ/ም ይካሄዳል፡፡

1. **ለጥናት ተሳታፊዎች መረጃና የስምምነት ፎርም/ሰነድ**

   1.1. **<u>ለጥናት ተሳታፊዎች መረጃ ፎርም/ሰነድ</u>**

ጤና ይስጥልኝ! ስሜ----------ነው፣እዚህ የተገኘሁት አቶ አባይ ወዳይን በመወከል ሲሆን፣ እርሱም በአዲስ አበባ ዩኒቨርሲቲ በህብረተሰብ ጤና የሁለተኛ ዲግሪውን በመማር ላይ ይገኛል፡፡የዚህ ትምህርቱ አካል የሆነ ጥናት የሚያደርግ ሲሆን ይኸውም እናቶች በእርግዝና ጊዜያቸው ሳሉ ከትዳር አጋራቸው በሚደርስባቸው ጥቃት የተነሳ በህፃኑ ያለ እድሜው መወለድ ላይ የሚያስከትለውን ተፅዕኖ ያጠናል፡፡ ስለሆንም በቅድሚያ ስለ ጥናቱና ስለ እርስዎ ድርሻ እንደሚከተለው በማብራራት እጀምራለሁ፡፡

**የጥናቱ ዓላማ፡-** እናቶች በእርግዝና ጊዜያቸው ሳሉ ከትዳር አጋራቸው በሚደርስባቸው ጥቃት የተነሳ በህፃኑ ያለ እድሜው መወለድ ላይ የሚያስከትለውን ተፅዕኖ ምን እንደሆነ መለየት

**ጥቅም፡-** የጥናቱ ውጤት በእናቶች ላይ በሚደርስ ጥቃት የተነሳ የሚከሰቱ የጤና እክሎችን እና የህፃናትን ያለ እድሜ መወለድ ለመቀነስ የሚጠቅም ይሆናል፡፡ እርስዎም የዚህ ጥናት አካል በመሆንዎ ከፍተኛ አስተዋፅኦ ያደርጋሉ፤ በመጠይቁ ወቅት ችግር ካጋጠመዎት በሆስፒታሉ የስነ ልቦና ባለሞያዎች እገዛ ይደረግለዎታል። ከዚህ ውጪ ግን የገንዘብም ሆነ ሌላ የሚያገኙት ቀጥተኛ ጥቅም የለም፡፡

**የጉዳት ሥጋት፡-** የዚህ ጥናት አካል በመሆንዎ የሚደርስብዎት ምንም አይነት ጉዳት የለም፡፡ ምናልባት የሚያሰታውሱት መጥፎ ትዝታ ሊረብሽዎት ይችል ይሆናል፤ ከዚህ በተጨማሪ ጥያቄዎችን ለመመለስ ከ30-40 ደቂቃ ያክል ልንወስድብዎት እንችላለን፡፡

**የጥናቱ መረጃ ምስጢራዊነት፡-** እርስዎ የሚሰጡት ምላሽ ሁሉ በምስጢር የሚያዝና ለሌላ ሰው ተላልፎ የማይሰጥ ይሆናል፡፡ ስምዎም ሆነ የስልክ ቁጥርዎ አይመዘገብም፡

**የጥናቱ ተሳታፊዎች መብት፡-** በጥናቱ መሳተፍ የእርስዎ ፈቃድ እስከሆነ ድረስ ብቻ ነው፡፡ በጥናቱ ሲሳተፉ መመለስ የማይፈልጉትን ጥያቄ መዝለልና እንዲሁም በፈለጉት ሰዓት ጥናቱን አቋርጠው የመውጣት መብትዎ የተጠበቀ ነው፡፡

ጥያቄ ካለዎት በየትኛውም ሰዓት ማንሳት የችላሉ፡፡እንዲሁም ከዚህ በታች በተገለፀው አድራሻ የጥናቱን አድራጊ ማናገር ይችላሉ፡፡ እንግዲህ ከላይ ያነሳሁልዎትን ሀሳቦች ከግንዛቤ አስገብተው በጥናቱ ስለመሳተፍዎ ያለዎትን ውሳኔ ከዚህ ቀጥሎ ባለው ፎርም ላይ ይገልፁልኝ ዘንድ በትህትና እጠይቅዎታለሁ፡፡

የጥናቱ አድራጊ፡- አባይ ወዳይ

ስልክ፡ +251911 376850

ኢሜል፡ abaywoday@yahoo.com

**1.2. <u>የስምምነት ውሳኔ መስጫ ፎርም</u>**

ከዚህ በላይ ያለውን መረጃ አንብቤና በሚገባኝ ቋንቋ ተገልፆልኝ፤የጥናቱ ዓላማ፣ጥቅም፣ጉዳትና ምስጢራዊነት የተረዳሁ ሲሆን በጥናቱ ስለመሳተፌም ያለምንም ግፊት በራሴው ፍላጎት የሚከተለውን ወስኛለሁ፡፡

1.በጥናቱ ለመሳተፍ ወስኛለሁ (ወደ ሚቀጥለው ፎርም ይለፉ)

2.በጥናቱ ለመሳተፍ አልተስማማሁም (ሌላ የጥናት ተሳታፊ ጋር ይሂዱ)

**የጥናት አድራጊው ስም፡-** አባይ ወዳይ

**አድራሻ፡-** ስልክ፡ +251911 376850

ኢሜል፡ abaywoday@yahoo.com

ይህ ቃለ መጠይቅ የተደረገበት ቀን----------

የተጀመረበት ሰዓት---------- ያለቀበት ሰዓት----------

የመረጃ ሰብሳቢው ስም----------

ይህን ቃለ መጠይቅ የመረመረው የትናቱ ተቆጣጣሪ ስም----------

ፊርማ----------

**የአማርኛ መጠይቆች**

**<u>የጥናቱ ርዕስ፡</u>** በእርግዝና ወቅት እናቶች በሚደርስባቸው ጥቃት የተነሳ በህፃኑ ያለ እድሜ መወለድ ላይ ያለው ተፅዕኖን ለማጥናት በአማራ ክልል ሆስፒታል በወለዱ እናቶች ላይ በ2010ዓ/ም ይካሄዳል፡፡

የጥናቱ መሪ አድራሻ፡- አባይ ወዳይ፡ ስልክ፡- +251-9-11-37-68-50 ኢሜል፡ abaywoday@yahoo.com

**<u>የጥናቱ መግቢያ ቅፅ፡</u>**

የመረጃ ሰብሳቢው ስም----------ፊርማ----------ቀን----------

የጥናቱ ተቆጣጣሪ ስም----------ፊርማ----------ቀን----------

የመጠይቁ ኮድ----------የህፃኑ/የእናቱ/ ካርድ ቁጥር ---------- የሆስፒታሉ ስም----------

**<u>ክፍል አንድ፡-</u> የኢኮኖሚያዊ እና የማህበራዊ ሁኔታን የተመለከቱ ጥያቄዎች**

| መ.ቁ | ጥያቄዎች | የጥያቄዎች መለኪያዎች/ምላሾች | እለፍ |
|---|---|---|---|
| 101. | እድሜዎት በሙሉ ዓመት ስንት ነዉ? | ----------(በዓመት) | |
| 102. | የት ነው የሚኖሩት? | 1. ከተማ<br>2. ገጠር | |
| 103. | የጋብቻ ሁኔታ ምን ይመስላል? | 1. ያገባች/አብረው የሚኖሩ/<br>2. የተፋታች<br>3. ባለቤትዋ በሞት የተለያት<br>4. ያላገባች | |
| 104. | መጀመሪያ ትዳር የያዙት፣ በስንት ዓመት እድሜዎት ነበር? | ---------- (በዓመት ) | |
| 105. | የምን ሀይማኖት ተከታይ ነዎት? | 1. ኦርቶዶክስ<br>2. ሙስሊም<br>3. ፕሮቴስታንት<br>4. ሌላ(ይገለፅ) ---------- | |
| 106. | በማንኛዉም በሚናገሩት ቋንቋ፤ ቀላል ዓረፍተ ነገሮችን ማንበብ እና መፃፍ ይችላሉ? | 1. አዎ<br>2. አልችልም ← | Skip to Q108 |
| 107 | የተከታተሉት ከፍተኛ የትምህርት ደረጃ ስንት ነዉ? | 1. _____(ክፍል)<br>2. መደበኛ ያልሆነ (X) .... ☐ | |
| 108. | ባለቤትዎ በማንኛዉም በሚናገሩት ቋንቋ፤ ቀላል ዓረፍተ ነገሮችን ማንበብ እና መፃፍ ይችላሉ? | 1. አዎ<br>2. አይችልም ← | Skip to Q110 |
| 109. | ባለቤትዎ የተከታተሉት ከፍተኛ የትምህርት ደረጃ ስንት ነዉ? | 1. _____(ክፍል)<br>2. መደበኛ ያልሆነ (X) ..... ☐ | |
| 110. | የእርስዎ ዋና ስራ ምንድ ነው? | 1. የቤት እመቤት<br>2. ገበሬ<br>3. ነጋዴ<br>4. የመንግስት ሰራተኛ<br>5. መንግስታዊ ያለሆነ ድርጅት ሰራተኛ<br>6. ጥቃቅንና አነስተኛ ድርጅት<br>7. ሌላ (ይገለፅ)---------- | |
| 111. | የባለቤትዎ ዋና ስራ ምንድ ነው? | 1. ገበሬ<br>2. ነጋዴ<br>3. የመንግስት ሰራተኛ<br>4. መንግስታዊ ያለሆነ ድርጅት ሰራተኛ<br>5. ጥቃቅንና አነስተኛ ሰራተኛ<br>6. ሌላ (ይገለፅ)---------- | |
| 112. | በአማካኝ የቤተሰቡ የወር ገቢ ምን ያህል ነዉ? | ----------(በኢትዮጵያ ብር ይገለጽ) | |
| 113. | አጠቃላይ የቤተሰቡ ብዛት ስንት ነው? **(አብሮ የሚኖር ዘመድን ጨምሮ)** | ----------(በቁጥር ይገለጽ) | |

**<u>ክፍል-ሁለት፡</u> እርግዝናንና ወሊድን እንዲሁም አጠቃላይ የጤና ሁኔታን የተመለከቱ ጥያቄዎች**
አሁን ደግሞ ስለ እርግዝናና ወሊድ እንዲሁም ስለ አጠቃላይ የጤና ሁኔታ ልጠይቅዎት እወዳለሁ።

| ተ/ቁ | ጥያቄዎች | መለኪያ | እለፍ |
|---|---|---|---|
| 201. | በእድሜዎ ስንት ጊዜ ነፍሰ ጡር ሆነው ያውቃሉ? (የአሁኑን ጨምሮ) | ----------(በቁጠር ይገለጽ) | |
| 202. | ይህን ህጻን በምን ያህል ጊዜ ልዩነት ነው የወለዱት? (**ከዚህ በፊት ከነበረው እርግዝና ጋር ሲነፃፀር**) | 1----------(በወራት ይገለጽ) | |
| 203. | ለዚህ ህጻን የቅድመ_ወሊድ ክትትል አድርገው ነበር? | 1. አዎ<br>2. የለም ← | ወደ **208** ይለፉ |
| 204. | የቅድመ_ወሊድ ክትትል ማድረግ የጀመሩት እርግዝናዎ ስንት ወር ሲሆነው ነበር? | 1. ------- (በወር ይገለጽ)<br>22. አላስታውስም | |
| 205. | የቅድመ_ወሊድ ክትትል የጀመሩት የት ነበር? | 1. ጤና ኬላ<br>2. ጤና ጣቢያ<br>3. የመንግስት ሆስፒታል<br>4. የግል ሆስፒታል<br>5. መንግስታዊ ያልሆነ ክሊኒክ<br>6. ሌላ(ይገላፅ)---------- | |
| 206. | ለቅድመ_ወሊድ ክትትል ብቻ ስንት ጊዜ ሀኪም ቤት ሄደዋል? | ----------(በቁጥር) | |
| 207. | በእርግዝና ክትትሉ ወቅት አደገኛ ስለሚባሉ ምልክቶች የምክር አገልግሎት አግኝተው ነበር? | 1. አዎ<br>2. የለም | |
| **208.** | ባለፉት **9 ወራት** ውስጥ ከእርግዝና ጋር የተያያዙ የጤና እክሎች/ችግሮች/ ገጥሞዎት ነበር? | 1. አዎ<br>2. የለም ← | ወደ **210** ይለፉ |
| 209. | ለጥያቄ 209 መልሱ አዎ ከሆነ; የትኞቹ የጤና እክሎች/ችግሮች/ አጋጠመዎት?<br>(**ከአንድ በላይ መመለስ ይቻላል**) | 1. ስኳር በሽታ<br>2. የኩላሊት በሽታ<br>3. የልብ በሽታ<br>4. የጉበት በሽታ<br>5. ሌላ(ይገላፅ)---------- | |
| **210.** | ከዚህ እርግዝና በፊት በነበሩት እርግዝናዎች የገጠመዎት ጥሩ ያለሆነ የእርግዝና ውጤት ነበር? | 1) አዎ 2) የለም | |
| 211. | ለጥያቄ211 መልሱ አዎ ከሆነ; የትኞቹ ገጠመዎት? (**ከአንድ በላይ መመለስ ይቻላል**) | 1. 9 ወር ሳይሞላው መወለድ<br>2. የህፃኑ ክብደት ትንሽ መሆን<br>3. ዉርጃ<br>4. ህፃኑ ሲወለድ መሞት<br>5. ሌላ(ይገለፅ)---------- | |

***<u>ክፍል ሶስት፡</u>* ከእናኗር ዘይቤና የግል ባህርያት ጋር የተያያዙ ጥያቄዎች**

| መ.ቁ | ጥያቄዎች | መልስ | ይለፍ |
|---|---|---|---|
| 301. | በህይወት ዘመንዎ ጫት ቅመው ያውቃሉ? | 1. አዎ<br>2. አላቅውም ← | ወደ **304** ይለፉ |
| 302. | ባለፉት **9 ወራት** ውስጥ ጫት ቅመው ያውቃሉ? | 1. አዎ<br>2. የለም | |
| 303. | ባለፉት 30 ቀናት ውስጥ ለስንት ቀናት ጫት ቅመዋል? | 1. ---------- (በቀናት ይገለፅ)<br>2. አንድም ቀን ቅሜ አላቅም | |
| **304.** | በህይወት ዘመንዎ ሲጋራ አጭሰዉ ያውቃሉ? | 1. አዎ<br>2. አላቅም ← | ወደ **308** ይለፉ |
| 305. | ባለፉት **9 ወራት** ውስጥ ሲጋራ አጭሰዋል? | 1. አዎ 2. የለም | |
| 306. | ባለፉት **9 ወራት** ውስጥ በየስንት ጊዜው ሲጋራ ያጨሳሉ? | 1. በየቀኑ<br>2. በሳምንት አንድ ጊዜና ከዛ በላይ<br>3. በሁለት ሳምንት አንድ ጊዜና ከዛ በላይ | |

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|---|---|---|---|
| | | 4. አልፎ አልፎ<br>5. በፍፁም አጭሽ አላቅም | |
| 307. | በቀን ምን ያህል ሲጋራ ያጨሳሉ? | ---------- (በቁጠር ይገለፅ) | |
| **308.** | በህይወት ዘመንዎ አልኮል ጠጥተዉ ያዉቃሉ? | 1. አዎ<br>2. የለም ← | ወደ **312** ይለፉ |
| 309. | ባለፉት **9 ወራት** ውስጥ አልኮል ጠጥተዋል? | 1. አዎ 2. የለም | |
| 310. | የትኞቹን የአልኮል ዓይነት ይጠቀማሉ? (**ከአንድ በላይ መልስ ይቻላል**) | 1. ጠላ<br>2. ቢራ<br>3. ወይን<br>4. ጠጅ<br>5. ሌላ(ይገለፅ)------- | |
| 311. | ባለፉት **9 ወራት** ውስጥ በየስንት ጊዜው አልኮል ይጠጣሉ? | 1. በየቀኑ<br>2. በሳምንት አንድ ጊዜና ከዛ በላይ<br>3. በሁለት ሳምንት አንድ ጊዜና ከዛ በላይ<br>4. አልፎ አልፎ<br>5. በፍፁም ጠጥቼ አላቅም | |
| **312.** | ባለቤትዎ ጫት ይቅማሉ? | 1. አዎ 2. የለም | |
| 313. | ባለቤትዎ በየስንት ጊዜው ይቅማሉ? | 1. በየቀኑ<br>2. በሳምንት አንድ ጊዜና ከዛ በላይ<br>3. በሁለት ሳምንት አንድ ጊዜና ከዛ በላይ<br>4. አልፎ አልፎ<br>5. በፍፁም ቅሞ አያቅም | |
| **314.** | ባለቤትዎ አልኮል ይጠጣሉ? | 1. አዎ 2. የለም | |
| 315. | በየስንት ጊዜው ባለቤተዎ ይጠጣሉ? | 1. በየቀኑ<br>2. በሳምንት አንድ ጊዜና ከዛ በላይ<br>3. በሁለት ሳምንት አንድ ጊዜና ከዛ በላይ<br>4. አልፎ አልፎ<br>5. በፍፁም ጠጥቶ አያቅም | |
| 316 | ባለቤትዎ ሲጋራ ያጨሳሉ? | 1. አዎ 2. የለም | |
| 317 | ባለቤትዎ በየስንት ጊዜው ያጨሳሉ? | 1. በየቀኑ<br>2. በሳምንት አንድ ጊዜና ከዛ በላይ<br>3. በሁለት ሳምንት አንድ ጊዜና ከዛ በላይ<br>4. አልፎ አልፎ<br>5. በፍፁም አጭሶ አያቅም | |
| 318 | የቤተሰቡ ዋና አስተዳዳሪ/መሪ/ ማነው? | 1) ሚስት 2) ባል 3) ሁለቱም | |
| 319. | በዋና ዋና ቤተሰብ ጉዳይ ላይ ማነው የሚወስነው? | 1) ሚስት 2) ባል 3) ሁለቱም | |
| 320. | በቤተሰብ ምጣኔ አገልግሎት አጠቃቀም ጉዳይ ላይ ማነው የሚወስነው? | 1) ሚስት 2) ባል 3) ሁለቱም | |
| 321. | በማህበረሰባችሁ የሴቶችን ጥቃት የሚደግፍ ልማድ አለ? | 1. አዎ 2. የለም | |
| 322. | ለ320 አዎ ከሆነ፥ እስኪ ዋና ዋና የሚባሉትን ይግለጹልኝ | 1_____<br>2_____<br>3_____<br>4_____ | |

## ***ክፍል-አራት: በነብሰ ጡር እናቶች ላይ የሚደርሱ የጥቃት ዓይነቶችን የተመለከቱ ጥያቄዎች***

በሀገራችን ተጨባጭ ሁኔታ *በነብሰ ጡር እናቶች ላይ የሚፈፀሙ የተለያዩ የጥቃት ዓይነቶችን* አሉ። ፈቃድዎ ከሆነ ከባለቤትዎ ጋር ስላለዎ አጠቃላይ ግንኙነት መጠየቅ እፈልጋለሁ፡፡ ይህ ጥናት የሴቶችንና የጨቅላ ህፃናትን ጤና ለማሻሻል ትልቅ ሚና የሚጫወት ሲሆን የሚነግሩኝ ነገር ሁሉ በኔና በእርስዎ መካከል በሚስጥር የሚቀር ይሆናል። ይኸውም ባለቤትዎ ባለፉት **9 ወራት** ውስጥ ከዚህ በታች የተገለፁትን የጥቃት ዓይነቶች አድርሰውበዎት ከሆነ እባክዎን ምንም ሳይደብቁ ሁሉንም ይግለፁልኝ።

**ንዑስ ክፍል 1. *በነብሰ ጡር እናቶች ላይ የሚፈፀሙ* አካላዊ ጥቃቶችን የተመለከቱ ጥያቄዎች**

| ተ/ቁ | ጥያቄዎች | መልስ | ይለፍ |
|---|---|---|---|
| 401.1 | በእርግዝናዎ ጊዜ በባለቤትዎ በሀይል ተገፍትረው፣አላግባብ ተጨብጠው ያውቃል? | 1. አዎ 2. የለም | |
| 401.2 | ባለቤትዎ በዚህ እርግዝና በጥፊ መመታት ወይም የሆነ ነገር ተወርውሮብዎት ያውቃል? | 1. አዎ 2. የለም | |
| 401.3 | ባለቤትዎ ባለፉት 9 ወራት ውስጥ በቦክስ መመታት፣ የመጠምዘዝ ወይም በሌላ ነገር መቶዎት ያውቃል? | 1. አዎ 2. የለም | |
| 401..4 | ባለቤትዎ ቢላዎ፣ ጠብመንጃ፣ ወይም ሌላ የጦር መሳሪያ አደጋ መዞብዎት ያውቃል? | 1. አዎ 2. የለም | |
| 401.5 | ባለቤትዎ ሆን ብለው የማቃጠል ወይም የማነቅ አደጋ አድርሰውብዎት ያውቃሉ? | 1. አዎ 2. የለም | |
| 401.6 | ባለቤትዎ በርግጫ/በካልቾ መቶዎት፡ ደብድቦዎት ወይም ጎትቶዎት ያውቃል? | 1. አዎ 2. የለም | |
| 401.7 | በባለቤትዎ አካላዊ ጥቃት ምክንያተ ከሚከተሉት ውስጥ የደረሰብዎት ጉዳት አለ? (**ከአንድ በላይ መልስ ይቻላል**) | 1. የሰውነት መቁሰልና ማበጥ<br>2. የአጥንት መሰበር አደጋ<br>3. የመራቢያ አካል ጉዳት<br>4. የሆድ እቃ ጉዳት<br>5. ሌላ(ይገለፅ)----- | |
| 401.8 | ባለፉት 9 ወራት ውስጥ ባለቤትዎ ከላይ የተጠቀሱትን የአካላዊ ጥቃቶች በየስንት ጊዜው ይፈፅሙበዎት ነበር? | 1. በየቀኑ<br>2. ቢያንስ በሳምንት ውስጥ አንዴ<br>3. ቢያንስ በወር ውስጥ አንዴ<br>4. ቢያንስ በዚህ 9 ወር አንዴ<br>5. ምንም አልተፈፀመብኝም | |
| 401.9 | ከላይ ከተጠቀሱት የጥቃት ዓይነቶች ውስጥ በሌላ ሰው ማለትም በጓደኛ. በዘመድ፣በእንግዳና በሌሎች በእርስዎ ላይ ባለፉት 9 ወራት የተፈፀሙ አሉ? | 1. አዎ 2. የለም | |
| 401.10 | ለጥያቄ 4019 መልስዎ አዎ ከሆነ, ማነው ጥቃት የፈጸመብዎት? | 1. ሴት አማቴ<br>2. ወንድ አማቴ<br>3. በእንግዳ ሰው<br>4. ሌላ (ይገለጽ) _____ | |

**ንዑስ ክፍል 2**: ***<u>በኑብሰ ጡር እናቶች ላይ የሚፈፀሙ ስነ_ልቦናዊ ጥቃቶችን የተመለከቱ ጥያቄዎች</u>***

| ተ/ቁ | ጥያቄዎች | መልስ | ይለፍ |
|---|---|---|---|
| 402.1 | *ባለቤትዎ ባለፉት 9 ወራት ውስጥ በመጥፎ ቃላት ሰለሰደበዎት ራስዎን እስኪጠሉ መጥፎ ሰሜት ተሰምትዎት ያውቃል?* | 1. አዎ 2) የለም | |
| 402.2 | *ባለቤትዎ ባለፉት 9 ወራት ውስጥ እንደ ዱላ፣ቀበቶ፣ቢላዋ፣ ጠብመንጃ ወይም ሌላ የጦር መሳሪያ በመጠቀም አስፈራርተዎት ያውቃሉ?* | 1. አዎ 2) የለም | |
| 402.3 | ባለቤትዎ ችላ እንዳለዎት ተሰምቶዎት ያውቃል? | 1. አዎ 2) የለም | |
| 402.4 | *ባለፉት 9 ወራት ውስጥ ባለቤትዎ በሰው ፊት አሸማቀዎት ወይም አሳፋሪ ቃላት ተናግሮዎት ያውቃል?* | 1. አዎ 2) የለም | |
| 402.5 | ባለፉት 9 ወራት ውስጥ ባለቤትዎ ሆን ብሎ መሰረታዊ ፍላጎትዎን እንዳይፈጽሙ ከልክሎት ያውቃል? | 1) አዎ 2) የለም | |
| 402.6 | ባለፉት 9 ወራት ውስጥ ባለቤትዎ ሆን ብሎ በቤሰብዎ ጉዳይ ውሳኔ እንዳይሰጡ ከልክለዎት ያውቃል? | 1 አዎ 2) የለም | |
| 402.7 | *ባለቤትዎ ባለፉት 9 ወራት ውስጥ ሆን ብሎ አሳዝኖዎት ወይም አበሳጭቶዎት ያውቃል?* | 1 አዎ 2) የለም | |
| 402.8 | ባለቤትዎ ሆን ብለው ቤተሰብዎን፣ዘመድዎን ወይመ ሌላ የሚዎዱትን ነገር ለመጉዳት ዝተውብዎት ያውቃሉ? | 1) አዎ 2) የለም | |
| 402.9 | ባለቤትዎ ከላይ የተጠቀሱትን የሥነ_ልቦናዊ ጥቃቶች በየስንት ጊዜው ይፈፀሙበዎት ነበር? | 1. በየቀኑ<br>2. ቢያንስ በሳምንት ውስጥ አንዴ<br>3. ቢያንስ በወር ውስጥ አንዴ | |

| | | | |
|---|---|---|---|
| | | 4. ቢያንስ በዚህ 9 ወር አንዴ<br>5. ምንም አልተፈፀመብኝም | |
| 402.10 | ከዚህ በላይ ከተዘረዘሩት የጥቃት ዓይነቶች ውስጥ ባለፉት 9 ወራት በሌላ ሰው ማለትም በጓደኛ፣በዘመድ፣በእንግዳ ወይም በሌላ ሰው እርስዎ ደርሶብዎት ያውቃል? | 1. አዎ<br>2. የለም | |
| 402.11 | ለጥያቄ 4019 መልስዎ አዎ ከሆነ, ማነው ጥቃት የፈጸመብዎት? | 1. ሴት አማቴ<br>2. ወንድ አማቴ<br>3. ሌላ እንግዳ ሰው<br>4. ሌላ (ይገለጽ) _____ | |

**ንዑስ ክፍል 3: *<u>በነብሰ ጡር እናቶች ላይ የሚፈፀሙ ፆታዊ ጥቃቶች (ከግበረ ስጋ ግንኙነት ጥቃት) ጋር የተያያዙ ጥያቄዎች</u>***

| ተ/ቁ | ጥያቄዎች | መልስ | ይለፍ |
|---|---|---|---|
| 403.1 | ባለቤትዎ በግብረ ስጋ ግንኙነት የሚተላለፍ በሽታ እንዳለበት ቢያውቁና ሳይታከም ግንኙነት ማድረግ ቢፈልግ ይፈቅዱታል? | 1. አዎ 2) የለም | |
| 403.2 | ባለቤትዎ እርስዎ ሳይፈልጉ ግብረ ስጋ ግንኙነት እንዲያደርጉ አስገድደዎት ያውቃሉ? | 1. አዎ 2) የለም | |
| 403.3 | ባለቤትዎ ሆን ብለው የእርስዎን የግብረ ስጋ ግንኙነት ፍላጎት ከልክለዎት ያውቃሉ? | 1. አዎ 2) የለም | |
| 403.4 | ፍላጎት ሳይኖርዎት ባለቤትዎ የሆነ ነገር ያደርገኛል ብለው በመፍራት ግብረ ስጋ ግንኙነት አድርገው ያውቃሉ? | 1. አዎ 2) የለም | |
| 403.5 | በባለቤትዎ ያልተለመደ (አሳፋሪ) ነው ብለው የሚስቡትን ዓይነት የግብረ ስጋ ግንኙነት እንዲያደርጉ አስገድዶዎት ያውቃሉ? (በአፍ; በፊንጢጣ ወዘተ) | 1. አዎ 2) የለም | |
| 403.6 | ከላይ የተጠቀሱት ***<u>ፆታዊ</u>*** ጥቃቶች በየስንት ጊዜው ይፈፀሙበዎት ነበር? | 1. በየቀኑ<br>2. ቢያንስ በሳምንት ውስጥ አንዴ<br>3. ቢያንስ በወር ውስጥ አንዴ<br>4. ቢያንስ በዚህ 9 ወር አንዴ<br>5. ምንም አልተፈፀመብኝም | |
| 403.7 | ከዚህ በላይ ከተጠቀሱት ጥቃቶች በሌላ ሰው ማለትም በጓደኛ፣ በዘመድ፣ በእንግዳና በሌሎች ተፈፅሞብዎት ያውቃል? | 1. አዎ<br>2. የለም | |
| 403.8 | ለጥያቄ 403.7 መልስዎ አዎ ከሆነ, ማነው ጥቃት የፈጸመብዎት? | 1. በባለቤቴ ወንድም<br>2. በወንድ አማቴ<br>3. በእንግዳ ሰው<br>4. ሌላ (ይገለጽ) _____ | |

ክፍል 5: *<u>በመለካት ወይም ከካርድ ላይ የሚሞሉ ጥያቄዎች</u>*

**501. ህፃኑ ሲወለድ የነበረው የእርግዝና እድሜ ስንት ነው?**

( ከ *LMP በመነሳት ተቆጥሮ ፤ ከካርድ ላይ የሀኪም ዲያግኖሲስ/የአልትራሳውድ ውጤት በማየት የሚሞላ)* = _____(በሳምንት ይገለጽ)

**502. ህፃኑ ሲወለድ የነበረው ክብደት ስንት ነበር?**

(*ካርድ ታይቶ ወይም ተለክቶ የሚሞላ) =_____(በግራም ይገለጽ)*

503. እናቱ ህፃኑ ሲወለድ የነበራት ክብደት ስንት ነበር?

**(ተለክቶ *የሚሞላ)*=_____*(በኪሎ ግራም ይገለጽ)p***

504. እናቱ ህፃኑ ሲወለድ የነበራት ቁመት ስንት ነበር?

*(ተለክቶ የሚሞላ)=_____(በሴንቲ ሜትር ይገለጽ)*

**505. እናቱ ህፃኑ ሲወለድ የነበራት MUAC ስንት ነበር?**

*(ተለክቶ የሚሞላ)=_____(በሴንቲ ሜትር ይገለጽ)*

**506. የእናቲቱ የግፊት መጠን ህፃኑ ሲወለድ ስንት ነበር?**

*(ተለክቶ / ካርድ ታይቶ የሚሞላ)= _____//_____ (በሚሜ ሜርኩሪ ይገለጽ))*

**507. የእናቲቱ የኤችአይቪ ሁኔታ ህፃኑ ሲወለድ ምን ነበር?**

*(ተለክቶ / ካርድ ታይቶ የሚሞላ)=_____(ኔጋቲቭ/ፖዘቲቭ ተብሎ ይገለጽ)*

**ለትብብሮት ከልብ አመሰግናለሁ!**