



Domestic violence during COVID-19 pandemic among pregnant women registered for antenatal care and selected adverse pregnancy outcomes in Amhara region Ethiopia: Prospective cohort study design

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ABSTRACT

Back ground: Domestic violence during pregnancy is the most devastating but neglected problem in Amhara region. The newly introduced COVID-19 pandemic prevention and control strategies predispose for domestic violence during pregnancy and this in turn the risk for adverse pregnancy outcomes.

Objective: To assess the magnitude of domestic violence during COVID-19 pandemic among pregnant women and adverse pregnancy outcomes in Amhara region Ethiopia.

Methods: Both institution and community based prospective cohort study design was employed among 774 pregnant. The data were collected from may1/2021 up to march1/2021 by face to face interview using pretested and structured questionnaire. Binary logistic regression analysis was done. P value < 0.05 was used to declare statistical association.

Results: A total of 774 women were participated in the study. Domestic violence during COVID-19 pandemic among pregnant women was found to be 65.76% (61.1%–69%). The overall prevalence of adverse pregnancy outcomes was 9.7% with. Antenatal care visit number 3&above (AOR) = 0.6; 95% CI 0.4–0.8), unintended pregnancy (AOR = 2.2; 95% CI 1–4.6), no ambulance services (AOR = 1.5; 95% CI 1–2.2), not the primary decision maker for family planning use (AOR = 3.3; 95% CI 1.6–6.5), no health care provider support (AOR = 12; 95% CI 6.3–23) were statistically significant with domestic violence during pregnancy.

Conclusions: Domestic violence during COVID-19 pandemic was high in the study area. Giving emphasis for antenatal care visit 3& above, type of pregnancy, accessibility of ambulance services, decision maker for family planning service and health care provider support during antenatal care were area of interests that are important for tackling domestic violence during pregnancy.

Violence against women is an important public health issue and that needs response based on human right rationale.^{1,2} Domestic violence is any act of gender based violence which actuates psychological, physical and sexual harm. It is the hidden and neglected form of violence against pregnant women.^{3,4} There is a research question that needs covered timely “whether domestic violence among pregnant women exacerbated by the newly introduced COVID-19 or not and what will be the magnitude of selected adverse pregnancy outcomes during COVID-19 pandemic?”

Prevention and control strategies for COVID-19 directly or indirectly affect maternal health care services that are being provided during pregnancy. There is an evidence shows that more than 75% of the community follow the principle of frequent hand washing, 50% of the community a played the principle of physical distancing and the

principle of stay at home for the prevention of COVID-19 by avoiding social events that may lead for overcrowding.^{5,6} All the above listed principles as a prevention and control mechanisms of COVID-19 directly and in directly affect the health outcome of pregnant women.⁷ The first thing is that pregnancy related complications exacerbated and might lead for excessive magnitude of those adverse pregnancy outcomes and the second and the most challenging one is the principle of stay at home might be the predisposing factors for domestic violence as it is preferable time for those perpetrators. On the other hand great attention given for the prevention and control of COVID-19 directly affect the contact rate of pregnant women with their respective health care providers for their antenatal care follow-up and women might loss appropriate counseling service including how to keep themselves from those perpetrators and domestic violence might be exacerbated.

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There is evidence that shows Pregnant women during COVID-19 pandemic prohibited from full service of maternal continuum of care as they are highly influenced by programmatic interventions for the prevention of the novel corona virus.⁶ There is also additional evidences that show as there were limited counseling services especially on how to be prevented from harmful traditional practices during pregnancy and how to keep themselves from domestic violence either by their husband or intimates.⁸⁻¹⁰

After all pregnancy needs to be given a great attention as domestic violence become peak level due to increased vulnerability secondary to the influence of physiologic effect.¹ On the other hand once domestic violence happened during pregnancy it directly associated with adverse pregnancy outcomes like perinatal death. Domestic violence during pregnancy also associated with head and back pain, hyperemesis, pregnancy induced hypertension, antepartum hemorrhage and poor obstetric outcomes in general.^{11,12}

Different studies had tried to show the severity of the problem before the introduction of COVID -19. For instance an evidence done about domestic violence among pregnant women at Southeast Oromia region shows that 64.6% accounts for the overall domestic violence among pregnant women with the common type of violence was physical violence which accounts 44.1% and 39.1and23.7% accounted for psychological and sexual violence respectively.⁴ There is also a finding that had done in university of Gondar referral hospital which shows the overall magnitude of domestic violence was 58.7%, and emotional violence is the commonest one which accounts 57.8%.¹

Despite the aforementioned evidences that were done before the introduction of COVID-19, there is limited evidence that shows about the magnitude of domestic violence during pregnancy once after the introduction of COVID-19. There for the aim of this study was assessing the magnitude of domestic violence during COVID-19 pandemic and selected adverse pregnancy outcomes among pregnant women registered for antenatal care.

1. Methods

1.1. Study design, area and period

Both community and institutional based prospective cohort study design was employed from May 1/2020 up to march 1/2021. The study was conducted in Amhara region which is the regional state in northern Ethiopia. Amhara region divided in to 13 zones and 180 weredas and there are about 3429 kebeles. According to the central statistical agency the region has the total projected population of 21.5 million. The region has a total of 80 hospitals among those 5 of them referral, 2 general and 73 of them primary. There are 847 health centers, and 3,342health posts.

1.2. Source population

All pregnant women who are registered for antenatal care services in Amhara region, northwest Ethiopia.

1.3. Study population

All pregnant women who are registered for antenatal care services in the selected weredas of Amhara region northwest Ethiopia.

1.4. Inclusion and exclusion criteria

All pregnant women who are registered for antenatal care services in the selected weredas were included and those who were not volunteers to participate were excluded from the study.

1.5. Sample size determination and sampling technique

The calculated sample size was 774. It was calculated by using a single population formula assuming that the magnitude of domestic violence during COVID-19 pandemic among pregnant women was 64.6 (4). Considering margin of error 5 and design effect of 2 and non-response rate of 10%.

$$n = \frac{(Z\alpha/2)^2 \times P(1 - P)}{(W)^2} = 351.4$$

$$= (351.4 + 35.14) \times 2 = 774$$

Multi stage systematic sampling technique was employed. From Amhara region 3 Zones were selected by simple random sampling technique and then from those selected zones 36 weredas were selected by stratified simple random sampling technique of those 2 referral hospitals, 1 general hospital, 5 primary hospitals, 10 health centers were included for our study.

Pregnant women who were registered for antenatal care were our study population. Those women selected by systematic random sampling technique and followed them until delivery irrespective of the outcome of their pregnancy either it could be Abortion, IUFD, still birth, early neonatal loss or it could be normal.

1.6. Study variables

1.6.1. Domestic violence during pregnancy: A pregnant woman with one of the three components (physical violence, sexual violence and or emotional violence).¹

Physical violence: A pregnant women considered to victim she should provide yes for 5 questions. 1. Pushed or shoved 2.Thrown at something that could hurt, 3. If a gun, knife or any other weapon was used against her 4. Hit with the fist or something else that could hurt; and 5. Kicked, dragged, beaten up, choked or burned on purpose.

Emotional violence: was defined as threatened with harm, humiliated or be little in front of others, being insulted or made to feel bad about one-self, intimidated or scared.

Sexual violence: A pregnant woman was considered to be victim if she was forced to have sexual intercourse against her will.

2. Adverse pregnancy outcome

The presence of at least one maternal or fetal/neonatal complication i.e., APH, hyperemesis gravidarum, PROM, PPH, preeclampsia, eclampsia, obstructed labor, oligohydramnios, polyhydramnios, low birth weight, stillbirth, macrosomia, malpresentation, meconium aspiration syndrome, prematurity, congenital malformation, puerperal sepsis, preterm delivery, and maternal death.¹³

2.1. Data collection instrument and procedure

Structured questioner which adapted from literatures was used. To maintain the consistency of the tool it was first prepared in English and then after it translated to Amharic local language. Finally the questioner prepared in Amharic language for the interest of easily understandability.

The questioner was pretested outside of the study area with 39(5%) of participants in order to check the language clarity and response. Finally correction on the arrangement of questioner was performed.

Five BSc midwives for data collection and three BSc midwife for supervision were assigned. Two day training given for the data collectors about how to collect and supervision were cascaded in a daily bases.

2.2. Data processing and statistical analysis

The data were checked for its completeness and then entered to EPI info version 7.2 and transferred to statistical package for social science (SPSS) for the analysis. Descriptive statistics was done. The data were presented using text, table and graph. A binary logistic regression model was fitted to determine the association between the outcome variable and explanatory variables.

Hosmer-Lemeshow goodness of test was done and the result was not significant. Adjusted odds ratio with 95% confidence interval was used to investigate both the strength and directions of the association between the explanatory variable and domestic violence.

3. Results

3.1. Socio-demographic characteristics of women and their husbands/partners

A total of 774 respondents were participated in the study with the mean age of 31.3 years± (SD = 7.3 years). All study participants were Amhara in Ethnicity with majority of them orthodox 642(82.9%) in religion and 619(80%) of them were married (Table 1).

Others* = divorced & widowed, others** = merchant and daily laborer.

Table 1
Socio-demographic characteristics of respondents and husbands/partners in Amhara region Ethiopia in 2021.

Variable	Frequency	Percentage
Age in year		
15-19	30	3.9
20-34	453	58.5
35-49	291	37.6
Marital status		
Married	619	80
Cohabiting	71	9.2
Separated	37	4.8
Single	24	3.1
Others*	23	2.9
Religion		
Orthodox	642	82.9
Protestant	12	1.6
Muslim	108	14
Catholic	12	1.5
Residency		
Rural	593	76.6
Urban	181	23.4
Educational status of women		
Has no formal education	534	69
Grade 1-8	67	8.7
Grade 9-12	84	10.9
College and above	89	11.4
Educational status of husband/partner		
Has no formal education	483	62.4
Grade 1-8	34	4.4
Grade 9-12	71	9.2
College and above	186	24
Occupational status of women		
Farmer	424	54.8
House wife	139	18
Privet employee	45	5.8
Government employee	87	11.2
Student	47	6.1
Others**	32	4.1
Average family monthly income		
≤1199	4	0.5
1200-2499	394	50.9
≥2500	376	48.6

Others* = divorced & widowed, others** = merchant and daily laborer.

3.2. Health care service related factors

Among all respondents 402(51.9%) of women were the primary decision maker for family planning use, and 385(49.7%) of the participants were the primary decision maker for attending antenatal care services. Majority 542(70%) of the participants can't easily access ambulance services for attending maternal health care services and 471 (60.9%) of the participants had responded as there was health care provider support during their antenatal care services.

3.3. Sexual and reproductive health related factors

Among respondents 413(53.4%) of Women were abused before pregnancy and 412(53.2%) of them have multiple sexual partner. Majority of the respondents 699(90.3%) of pregnancy was planned and wanted.

3.4. Prevalence of domestic violence during COVID-19 pandemic among pregnant women registered for antenatal care in Amhara region Ethiopia

The prevalence of domestic violence in this study was found to be 65.76% (95% CI 62.1%–69%) (Fig. 1).

Selected adverse pregnancy outcomes during COVID-19 pandemic among pregnant women who had registered for antenatal care in Amhara region Ethiopia.

Among 774 respondents who had registered for Antenatal care 75 (9.7%) of them had developed adverse pregnancy outcomes either abortion (3.9%), IUFD (2.6%), still birth (1.9%) or early neonatal loss (1.3%) (Fig. 2).

Factors associated with domestic violence during COVID-19 pandemic among pregnant women registered for antenatal care in Amhara region Ethiopia.

In multivariable analysis five variables number of antenatal care 3and above, unintended pregnancy, has no easily accessible ambulance service, women were not the primary decision maker for family planning services and absence of health care provider support during their antenatal care services were significantly associated with the outcome variable domestic violence during pregnancy.

Respondent with antenatal care visit 3&above(AOR = 0.6; 95% CI 0.4-0.8) times less likely victim of domestic violence as compared to women with antenatal care visit number 1&2. Women whose index pregnancy was unintended (AOR = 2.2; 95% CI 1-4.6) times more likely to be victim of domestic violence as compared to those whose pregnancy was intended. Women who didn't have access for ambulance services (AOR = 1.5; 95% CI 1-2.2) more likely victim of domestic violence as compared to women who can easily access ambulance service for

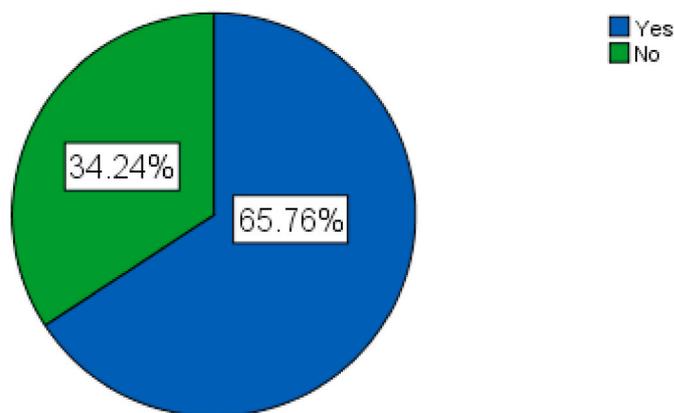


Fig. 1. The magnitude of domestic violence during COVID-19 pandemic among pregnant women who had registered for antenatal care in Amhara region Ethiopia 2021.

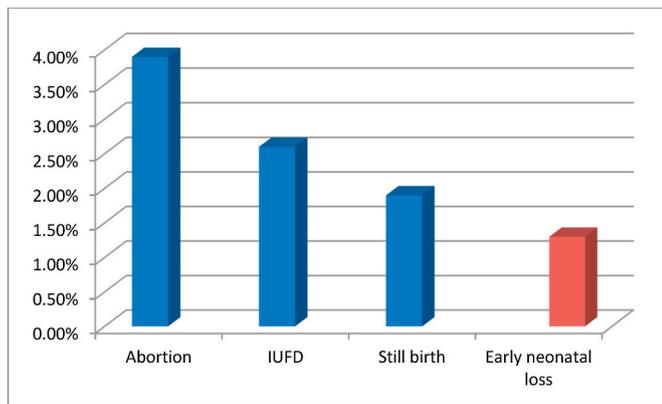


Fig. 2. Selected adverse pregnancy outcomes during COVID-19 pandemic among pregnant women who had registered for antenatal care in Amhara region Ethiopia 2021.

maternal health care services. Women who were not the primary decision maker for family planning services (AOR = 3.3; 95% CI 1.7–6.6) more likely victim of domestic violence as compared to women who are the primary decision maker for having family planning service. Women without health care provider support during their antenatal care follow up (AOR = 12; 95% CI 6.3–23) more likely victim of domestic violence as compared to respondents with health care provider support during antenatal care follow up (Table 2).

AOR: adjusted odds ratio CI: confidence interval COR: crude odds ratio, NA: Not have association 1: reference category, ** = 0.001 < p < 0.05, *** = p < 0.001.

The effect of domestic violence on selected adverse pregnancy outcomes during COVID19 pandemic among women registered for ante natal care in Amhara region Ethiopia 2021.

Table 2
Bivariable and multi variable logistic regression analysis of factors associated with domestic violence during COVID-19 pandemic among pregnant women registered for antenatal care in Amhara region Ethiopia.

Variables	Domestic violence		COR 95% CI	AOR 95% CI
Residency rowhead				
Rural	143	38	2.3(1.5–3.4)***	NA
Urban	366	227	1	1
Multiple sexual partner rowhead				
Yes	339	73	5.2(3.7–7.2)***	NA
No	170	192	1	1
Number of ANC rowhead				
1&2	347	56	1	1
3&above	162	209	0.2(0.1–0.3)***	0.6(0.4–0.8)***
Abuse before pregnancy rowhead				
Yes	343	70	5.7(4.1–8)***	NA
No	166	195	1	1
Pregnancy type rowhead				
Unintended	64	11	3.3(1.7–6.4)***	2.2(1–4.6)***
Intended	445	254	1	1
Ambulance service rowhead				
No	405	137	3.6(2.6–5)***	1.5(1–2.2)**
Yes	104	128	1	1
Decision maker for ANC services rowhead				
Other than women	186	203	5.6(4–7.9)***	NA
Women were the primary decision maker	323	62	1	1
Decision maker for family planning use rowhead				
Other than women	325	47	8.2(5.6–11.7)**	3.3(1.7–6.6)***
Women were the primary decision maker	184	218	1	1
Health care provider support during ANC rowhead				
No	289	13	25(14–45)***	12(6.3–23)***
Yes	220	251	1	1

AOR: adjusted odds ratio CI: confidence interval COR: crude odds ratio, NA: Not have association 1: reference category, ** = 0.001 < p < 0.05, *** = p < 0.001.

Women who experienced domestic violence at any time of pregnancy (RR = 1.6; 95% CI 1–2.6)***times higher risk of developing either abortion, intrauterine fetal death, still birth or early neonatal loss as compared to those participants who had no exposure to domestic violence during their pregnancy state.

4. Discussion

Covid-19 pandemic had influenced directly the magnitude of domestic violence and indirectly also the magnitude of selected adverse pregnancy outcomes had increased.

In this research the magnitude of adverse pregnancy outcome either abortion, intrauterine fetal death, still birth or early neonatal loss is 9.5%. The risk of developing selected adverse pregnancy outcomes among pregnant women victim of domestic violence 1.6 times higher as compared to those women without domestic violence during pregnancy.

The magnitude of domestic violence during COVID-19 pandemic among pregnant women registered for ante natal care is 65.76%. This finding is slightly higher than evidence done at south east Oromia region which was the magnitude of domestic violence 64.6%.⁴ And also our study finding is higher than the recent study that conducted at university of Gondar referral hospital which the magnitude of domestic violence among pregnant women was 58.7(1). This variation is could be due to the introduction of COVID-19 as the principles of prevention and control directly affect the current situation of perpetrators and even it also affects maternal health care services that could be provided during pregnancy and domestic violence might be exacerbated in our study as compared to the previous findings.

Regarding the factors associated with domestic violence all the factors directly linked with maternal health care services. Those factors are number of antenatal care, health care provider support during antenatal care, pregnancy type whether intended or unintended, Ambulance services and decision maker for family planning service.

Pregnant women with antenatal care visit 3&above 0.6 times less likely to be victim of domestic violence as compared to pregnant women with antenatal care visit 1&2. The possible explanation could be the higher the number of the antenatal care visit directly associated with full service of maternal continuum of care especially the counseling part for prevention of one self from perpetrators during pregnancy.

Pregnant woman with the pregnancy was un intended 2.2 times more likely victims of domestic violence during pregnancy as compared to pregnant woman her pregnancy was intended. The possible explanation could be woman whose pregnancy was not planned mostly associated with diminished power to influence the interest of violators.¹⁴ On the other hand those women with unintended pregnancy never seek care for the positive outcome of pregnancy and easily exposed to perpetrators.¹⁵

Respondents who can't easily access ambulance for attending maternal health care services 1.5 times more likely victim of domestic violence during pregnancy as compared to pregnant women who can easily access ambulance for attending maternal health care services. The possible explanation could be a pregnant woman who didn't have access of ambulance services she might lack complete maternal health care services which is important for the positive outcome of pregnancy including how to be prevented from domestic violence during pregnancy.^{16,17}

Pregnant women who were not the primary decision maker for family planning use 3.3 times more likely to be victim of domestic violence during pregnancy as compared to women who were the primary decision maker for family planning use. The possible explanation could be mostly women who didn't have decision making power for family planning services their pregnancy associated with un wanted or

unplanned there for they are negligent for their pregnancy and their health seeking behavior for their pregnancy is downed.^{14,18,19}

Pregnant women without health care provider support during their antenatal care follow up 12 times more likely to be victim of domestic violence during pregnancy as compared to respondents with health care provider support during antenatal care follow up. The possible explanation could be most women with the presence of health care provider support during their antenatal care visit associated to attend the recommended maternal health care services during pregnancy and domestic violence during pregnancy becomes less.²⁰

4.1. Strength and limitation

As there are sexual and reproductive health related variables the study prone to social desirability bias for this we have used data collectors from different site. As the study was prospective follow up the risk of adverse pregnancy outcomes well studied.

5. Conclusions

This study clearly showed that domestic violence during COVID-19 pandemic among pregnant women registered for antenatal care is high and domestic violence is the risk factor for adverse pregnancy outcomes.

Antenatal care visit 3&above, women were not the primary decision maker for family planning use, unintended pregnancy, when do not have access ambulance service for attending maternal health service and absence of health care provider support during antenatal care service were positively associated with domestic violence.

Ethical approval and consent to participate

Ethical clearance was obtained from the institutional review board (IRB) of university of Gondar. A formal later of approval was obtained from Amhara regional health bureau. The purpose of the study was explained for the study participants and written informed consent was obtained from each study participants.

Consent for publication

N/A.

Availability of data and material

The data set used and analyzed during the current study is available from the corresponding author on the reasonable request.

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The funder had no role in the design of the study and collection, analysis and interpretation of data and in writing the manuscript.

Authors' contributions

'M A'. Wrote the proposal, analyzed the data, drafted the paper and prepared the manuscript.

Declaration of competing interest

The author has declared that there is no competing of interests.

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Abbreviations

ANC	Ante Natal Care
AOR	Adjusted Odds Ratio
COR	Crude Odds Ratio

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