Intimate Partner Violence During Pregnancy And Risk Of Still Birth In Hospitals Of Tigray Region Ethiopia

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Abstract

Objective: The objective of this study is to assess intimate partner violence during pregnancy and its associated with still birth among postpartum mothers in Tigray region hospital. Results: The prevalence of still birth was 3.6 %. There was a statistically significant association between exposure to intimate partner violence during pregnancy and still birth. Pregnant women who were exposed to intimate partner violence during pregnancy were three times more likely to have still birth 3.3(95%CI: 1.1-9.7)) as compared to those who were not exposed. Other factor associated with still birth was low birth weight 16.7(95%CI:6-46).

Introduction

Intimate partner Violence (IPV) is defines as psychological, sexual and physical harm by her current or former partner [1]. Intimate partner violence is a public health problem at national and global level [2,3]. A multi-country assessment shows that 15% to 71 % of women experience physical, sexual or both violence at their lifetime[4]. Domestic violence is a common and accepted practice in both urban and rural part of Ethiopia. That said, an Ethiopian study elucidated that nearly three out of four (71%) women are subjected to IPV in their lifetime[5]. The prevalence of IPV among pregnant mothers ranged from 13.5% in Uganda to 2 % in Australia[6]. In addition to this a systemic review from African research stated that the overall prevalence of intimate partner violence during pregnancy ranges from 2.3% to 57.1%[7]. In Ethiopia, IPV during pregnancy was found to range from 4% (merely physical violence) to 8% (all forms of IPV)[8,5]. According to 2014 new born action plan global multi partner movement to end preventable still birth, The target was to reduce the magnitude of stillbirth to less than 12 per 1000 births [9]. A study undertaken in 157 countries revealed that the estimated stillbirth rate was 18.4/1000 births. Besides,
2.6 million stillborn babies were delivered in 2015. Almost all of the stillbirths (98%) were occurred in low and middle income countries[9]. Based on the Ethiopia demographic health Survey data 2016, perinatal mortality rate is 33 per 1000 pregnancies[8]. The risk of IPV is high among women of reproductive age and this is mainly attributed to changes in physical, social, emotional or financial needs during pregnancy. Therefore, pregnancy puts a woman at greater vulnerability to intimate partner violence [10]. Consequently, IPV during pregnancy worsens maternal condition and predisposes to adverse fetal and neonatal outcomes [11,12]. Nevertheless, some researchers concluded that there is a statistically significant association of IPV during pregnancy and stillbirth [3,13] whereas other study indicated no association[5]. This difference might be owing to the fact that many cases of IPV are being overlooked and underreported in Africa; however in our country there is lack data especially there is no data in study area in particular. Even though Ethiopia has designed different policies to avert the rate of still birth, yet it is still high. Having problem related to the prevalence of IPV and still birth, this research tries to assess the effect of IPV during pregnancy on still birth in Tigray region. Besides, findings of this research will aid to update the existing knowledge and will have tremendous contribution to policy makers in designing and outlining new strategies and policies.

Methods

Study design and setting

According to 2015 Tigray regional health bureau annual report there are a total of, one specialized hospital, 15 general hospitals, 22 primary hospitals, 204 health centersand 712 health posts and there are three private hospitals. There are 51 specialdoctors, 87 general practitioners, 3092 nurses, 792 midwives in the region. The study was conducted from November 2017- June 2018. Institutional based cross-sectional study was used.

Data collection
There are 41 hospitals (1 specialized hospital, 15 general hospitals, 22 primary hospitals and 3 private hospitals) which provide delivery service in the study area; health facilities were stratified in to private and public hospitals. Then 1 private hospital and 8 public hospitals were selected by simple random sampling technique. Participants from each selected health facilities were sampled by systematic. Afterwards, every 3rd postpartum women were included until the required sample size is reached. Besides, consecutive participant was included if the selected participant was not eligible. Average client load for each hospital was taken from 3 months’ client flow prior to data collection period and proportional allocation to each hospital was made based on their respective quarterly client flow. The required sample size of the study participants is determined by using Open EpInfo 3.03 software. The following assumptions are used while calculating the sample size. Study from Ethiopia about intimate partner violence during pregnancy and lowbirth weight 25.8% [14], 95% confidence interval, margin of error 5%, design effect of 2 and expected non response rate 10%. Based on this the calculated sample size is 648. Questionnaire was prepared first in English and then translated into Tigrigna and again back translated to English by language expert to keep the consistency of the questioners. Then data was collected through structured questioner from postpartum women and interviewer administered technique was used. Data on still birth was collected from chart and mothers. Outcomes of interest for this analysis pertained directly to neonatal outcomes, which was obtained through chart review within 72 hours of delivery. Birthweight (g) and gestational age (weeks) were taken directly from the chart.

**Intimate partner violence**

Maternal exposure to IPV was determined through the question: “when you were pregnant for this child did your current partner or boyfriend do any of the following things to you? The lists of potential offences were as follows: Physical violence: slapped, pushed or
shoved, hit with fist or something else that could hurt her, beaten abdomen Choked or burnt on purpose, used or threatened to use knife, gun or weapon. Emotional violence: insult, humiliation intimidated on purpose, threatened to. Sexual violence: Forced into sexual intercourse when you did not want, had sexual intercourse when you did not want to because she was afraid of what partner might do, forced to do something sexual that you found degrading or humiliating.

**Stillbirth**

Is typically defined as fetal death at or after 28 weeks of pregnancy. It results in a baby born without signs of life.

**Data process and analysis**

Double data entry was done by using EPI Info 2008 and exported to SPSS version 20 software package for analysis. Experience of any physical, sexual or emotional violence was considered if a woman reported being exposed to at least one of the acts of violence exerted by her partner while she was a pregnant for current neonate. In preparation for bivariate and multivariable logistic regression, outcome variable was coded as dichotomous: still birth (1 = yes and 0 = no). To estimate the association between maternal exposure to intimate partner violence and risk of still birth, logistic regression analyses were performed and odds ratios (OR) with 95% confidence intervals (CI) were calculated. Multivariable logistic regression analysis was performed where intimate partner violence plus other covariates that could influence still birth such as age, educational level, occupation during pregnancy and alcohol intake were included. The degree of association between independent and dependent variables were assessed using odds ratio with 95% confidence interval. Permission letter was obtained from regional health office and was presented to selected hospitals. Confidentiality was assured that their responses will not in any way be linked to them. In addition, they were told they have the right not to
participate and withdraw from the study

Results

**Socio-demographic characteristics**

A total of 647 participants took part in this study with a response rate of 99.8%. Out of the total respondents, 458 (70.78%) of them were urban residents. The mean age of the respondents was 27 ± 6 years. Majority of respondents 530 (81.9%), were between ages 20 – 35 years old. Regarding marital status of the mothers, most 610 (94.28%) were married. Out of the participants, 301 (46.5%) were housewives (Table 1).

**Obstetrics characteristics of the participants**

Around one fourth, 155 (24%) of the women were delivered via cesarean section. Similarly, one fourth of the women (25%) had experienced premature rupture of membrane and 66 (10.2%) women’s pregnancy was complicated by hypertension. Again 35 (5.4%) women have antepartum hemorrhage (APH). From all women delivered in the study hospitals 611 (94.4%) women have antenatal care (ANC) follow up for their last baby. Furthermore, 42 (6.5%) postpartum women’s pregnancy was unwanted. Again 70 (10.8%) women were delivered before term and 120 (18.5) babies were low birth weight. The magnitude of still birth in this study was 23 (3.6%). Alongside with this; among the neonates born alive, around 82 (12.7%) of them had low (5th minute) Apgar score (Table 2).

**Types of intimate partner violence**

Pertaining to intimate partner violence, around 47 (7.3%) women experienced intimate partner violence during their last pregnancy in which 22 of them were subjected to physical violence, 39 of them experienced sexual violence and the remaining 8 women were subjected to psychological violence.

**Factors associated with still birth**

Statistical analysis was employed to see if IPV during pregnancy was associated
with stillbirth. As a result, there was a significant association between IPV during pregnancy and stillbirth. This is evidenced by the finding that women who were subjected to intimate partner violence during pregnancy are 3 times [95%CI] more likely to have stillborn baby than who did not experience IPV during pregnancy. In addition to this low birth weight also has significant association with still birth. Babies with low birth weight have 16.7(95%CI:(6-46)) times risk of still birth as compared with babies’ weight greater than or equal to 2.5kg. Having unwanted pregnancy and preterm birth were significant associated with still birth in bivariate analysis but is has no association in multivariate analysis (Table 3).

Discussion

This study revealed that the magnitude of intimate partner violence during their last pregnancy was 7.3%. This result is higher than the study done in city of New York City (3.7%) [15]. But it is lower than study done in Tanzania (30%), Vietnam (32.5%) and Ethiopia Hosanna (23%) [16,12,5]. These disparities in the reported prevalence rates might be attributed to study area and methodology difference. In this study the prevalence of still birth was found to be 3.6%. This finding is similar with the findings from Tanzania and Zimbabwe, where 3.5% and 5.6% of women had still birth respectively [17,18]. But this study finding is higher than study conducted in central Vietnam (0.097%) and 2014 newborn action plan (1.2%) [19, 9]. This difference might probably be accounted by study area difference or difference inaccessibility to prenatal or emergency obstetric care services. In contrary, reports from EDHS 2016 showed that perinatal mortality rate was 33 per 1000 pregnancies. However, EDHS report included early neonatal death, which is not assessed in this study. Besides, this study was employed in general hospitals which also provides services to referred cases [8]. This study found that IPV has significant association with still birth. This finding is inline with a research done in Latin America and Caribbean region in which women subjected to IPV during pregnancy increased the risk of stillbirth.
when compared with women who were not subjected to IPV [3]. Moreover, study from residents of Vancouver British Columbia, supported this study, women exposed to physical violence were eight times more likely to experience perinatal death [13]. Similarly, another study done in Columbia, South Carolina and California indicated that women experienced IPV during pregnancy increased the risk of stillbirth [20, 21]. Different studies signposted that IPV has significant association with stillbirth. Due to the fact that women who exposed to IPV affect the woman both physically and mentally and can lead to stillbirth either by directly (trauma) or indirectly mechanisms (decrease nutritional intake due to angry). In this study still birth has association with low birth weight. Babies delivered with low birth weight increased the risk of still birth by sixteen times. This finding is supported by research done in north Tanzania and peri-urban District in Ghana; being low birth weight increase the risk of still birth by more than nine times [17, 22]. Fetus with low weight may have a high risk of death due to their immature respiratory system [17].

Conclusions And Recommendations

This study showed that still birth was high and intimate partner violence during pregnancy has significant association with increased risk of still birth. Federal minister of health should design a protocol to prevent and screen intimate partner violence during pregnancy to reduce still birth.

Recommendation

Every health professional working with maternal health should screening pregnant mother for IPV.

Declarations

Ethics approval and consent to participate
An ethical approval for the study was obtained from Mekelle University College of health science health research ethics review committee. The study subjects provided written consent to participate in the study after receiving information about the purpose of the study, risks and benefits, and their rights. For under age participants provided written consent from their parents.

**Availability of data and material**
The data available and possible submit as needed

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**Consent for publication**
Not applicable

**Competing interests**
There is no competing of interest for this research.

**Authors’ contribution**
KZG: participated in title selection, proposal development, tool development and data collection and analysis manuscript writing.

SW: participated in title selection, proposal development, tool development and data collection and analysis manuscript writing.

MM: participated in proposal development, data collection and manuscript writing

**References**
1. Intimate Partner Violence: Definitions. November 25 2014 [cited, http://www.cdc.gov/violencepreven 2015 April 7]; Available from:, Tion/intimatepartnerviolence/definitions.html. Intimate partner violence.

2. Women. VA. 2014 Available from: Www.who.int/mediacentre/factsheets/fs239/en/.

3. Han A, Stewart DE. Maternal and fetal outcomes of intimate partner violence associated with pregnancy in the Latin American and Caribbean region. Int J Gynecol Obstet [Internet]. 2014;124(1):6-11. Available from: http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=emed12&NEWS=N&AN=2013818897

4. Garcia-Moreno C, Jansen HA, Ellsberg M HL, CH W. Domestic Violence against Women Study Team. Prevalence of intimate partner violence: findings from the WHO multi-country study o women’s health and domestic violence. Lancet. 2006;368:1260-9.

5. Laelago T, Belachew T, Tamrat M. Effect of intimate partner violence on birth outcomes. Afr Health Sci. 2017;17(3):681–9.

6. Karen M Devries, Sunita Kishor HJ, 687 African Health Sciences Vol 17 Issue 3, September 2017, Heidi Stöckl, Loraine J Bacchus CG-M, Watts C. Intimate partner violence during pregnancy: analysis of prevalence data from 19 countries. Reprod Health Matters. 2010;18(36):158-70.

7. Shamu S, Abrahams N, Temmerman M M, A ZC. Systematic Review of African Studies on Intimate Partner Violence against pregnant Women: Prevalence and Risk Factors. PLoS One. 2011;6(3):e17591.

8. Survey H. Ethiopia. 2016.

9. Blencowe H, Cousens S, Jassir FB, Say L, Chou D, Mathers C, et al. National, regional, and worldwide estimates of stillbirth rates in 2015, with trends from 2000 : a systematic analysis. Lancet Glob Heal [Internet]. 2015;4(2):e98-108. Available from:
10. Gazmararian JA, Lazorick S, Spitz AM, Ballard TJ S LE, JS. M. Prevalence of violence against pregnant women. JAMA. 1996;275:1915–20.

11. Silverman JG, Decker MR, Reed E RA. Intimate partner violence around the time of pregnancy: association with breastfeeding behavior. J Womens Heal. 2006;15:934–40.

12. Hoang TN, Van TN, Gammeltoft T, Meyrowitsch DW, Thuy HNT, Rasch V. Association between intimate partner violence during pregnancy and adverse pregnancy outcomes in Vietnam: A prospective cohort study. PLoS One. 2016;11(9).

13. Janssen PA, Holt VL, Sugg NK, Emanuel I, Critchlow CM, Henderson AD. Intimate partner violence and adverse pregnancy outcomes: A population-based study. 2003;

14. Demelash H, Nigatu D, Gashaw K. A Case-Control Study on Intimate Partner Violence during Pregnancy and Low Birth Weight, Southeast Ethiopia. 2015;2015.

15. Lane SD, Koumans EH, Wojtowycs M. Effects of intimate partner violence on pregnancy trauma and placental abruption. 2010;

16. Sigalla GN, Mushin D, Meyrowitsch DW, Manongi R, Rogathi JJ, Gammeltoft T, et al. Intimate partner violence during pregnancy and its association with preterm birth and low birth weight in Tanzania: A prospective cohort study. PLoS One. 2017;12(2):1–14.

17. Chuwa FS, Mwanamsangu AH, Brown BG, Mahande J. Maternal and fetal risk factors for stillbirth in Northern Tanzania: A registry-based retrospective cohort study. 2017;1–10.

18. Feresu SA, Harlow SD, Welch K, Gillespie BW. BMC Pregnancy and Childbirth. Incidence of stillbirth and perinatal mortality and their associated factors among women delivering at Harare Maternity Hospital, Zimbabwe: a cross-sectional retrospective analysis. 2005;12:1-12.
19. Thi H, Giang N, Pozza SB, Tran HT. Stillbirth and preterm birth and associated factors in one of the largest cities in central Vietnam. 2018;1–7.

20. Coker AL, Sanderson M, Dong B. Partner violence during pregnancy and risk of adverse pregnancy outcomes. Paediatr Perinat Epidemiol. 2004;18(4):260–9.

21. El Kady D, Gilbert WM, Xing G, Smith LH. Maternal and neonatal outcomes of assaults during pregnancy. Obstet Gynecol. 2005;105(2):357–63.

22. A. Alhassan, L. A. Ayikai, H. Alidu VNY. Stillbirths and associated factors in a peri-urban District in Ghana. J Med Biomed Sci. 2016;5(1):23–31.

Tables
Table: 1. Socio-Demographic characteristics of respondents, Tigray, North, Ethiopia, 2018
| Variable                  | Frequency | Percent |
|---------------------------|-----------|---------|
| Residence                |           |         |
| Urban                     | 458       | 70.78%  |
| Rural                     | 189       | 29.22%  |
| Age                       |           |         |
| ≤19                       | 50        | 7%      |
| 20-34                     | 530       | 8%      |
| ≥35                       | 67        | 1%      |
| Religion                  |           |         |
| Orthodox                  | 581       | 89.8%   |
| Muslim                    | 66        | 10.2%   |
| Educational Status        |           |         |
| Unable to read & write    | 108       | 1.6%    |
| Read and write            | 44        | 6.8%    |
| Primary education         | 175       | 27.8%   |
| Secondary education and college | 211 | 3.3% |
| Diploma and above         | 109       | 1.7%    |
| Marital Status            |           |         |
| Married                   | 610       | 94.3%   |
| Single                    | 37        | 5.7%    |
| Occupational status       |           |         |
| Housewife                 | 301       | 47.8%   |
| Merchant                  | 71        | 11.1%   |
| Farmer                    | 127       | 19.6%   |
| Private employee          | 42        | 6.5%    |
| Governmental employee     | 95        | 14.7%   |
| Others                    | 11        | 1.7%    |

Table: 2. Obstetrics characteristics of respondents, Tigray, North, Ethiopia, 2018
| Variable                  | Frequency | Percentage |
|--------------------------|-----------|------------|
| Mode of delivery         |           |            |
| Vaginal                  | 492       | 76         |
| C/S                      | 155       | 24         |
| PROM                     |           |            |
| Yes                      | 162       | 25         |
| No                       | 485       | 75         |
| Hypertension             |           |            |
| Yes                      | 66        | 10.2       |
| No                       | 581       | 89.8       |
| APH                      |           |            |
| Yes                      | 35        | 5.4        |
| No                       | 612       | 94.6       |
| ANC follow up            |           |            |
| Yes                      | 611       | 94.4       |
| No                       | 36        | 5.6        |
| Still birth              |           |            |
| Yes                      | 23        | 3.6        |
| No                       | 624       | 96.4       |
| Apgar score              |           |            |
| Less than 7              | 82        | 12.7       |
| greater than or equal to 7| 565       | 87.3       |
| Pregnancy wanted         |           |            |
| Yes                      | 605       | 93.5       |
| No                       | 42        | 6.5        |
| Preterm delivery         |           |            |
| Yes                      | 70        | 10.8       |
| No                       | 577       | 89.2       |
| Low birth weight         |           |            |
| Yes                      | 120       | 18.5       |
| No                       | 527       | 81.5       |

Table:3. Bivariate and multivariate logistic regression analyses of still birth by socio demographic variables, obstetrics related variables and intimate partner violence during pregnancy
| Variables                      | Still birth | COR(95% CI) | AOR(95% CI) |
|-------------------------------|-------------|-------------|-------------|
| Marital status                |             |             |             |
| Marriage                      | 20          | 590         | .38(0.109-1.35) |
| Single                        | 3           | 34          | 1:00        |
| Resident                      |             |             |             |
| Urban                         | 13          | 445         | .52(0.22-1.2) |
| Rural                         | 10          | 179         | 1:00        |
| Religion                      |             |             |             |
| Orthodox                      | 21          | 560         | 1.2(0.27-5.2) |
| Muslim                        | 2           | 64          | 1:00        |
| Age                           |             |             |             |
| >19                           | 4           | 46          | 1.37(0.32-5.7) |
| 20-35                         | 15          | 515         | .45(0.14-1.4) |
| >35                           | 4           | 63          | 1:00        |
| IPV                           |             |             |             |
| Yes                           | 6           | 41          | 5(1.87-13.4) |
| No                            | 17          | 583         | 1:00        |
| Hypertension                  |             |             |             |
| Yes                           | 2           | 64          | .83(0.19-3.6) |
| No                            | 21          | 560         | 1:00        |
| APH                           |             |             |             |
| Yes                           | 3           | 32          | 2.77(0.78-9.8) |
| No                            | 20          | 592         | 1:00        |
| PROM                          |             |             |             |
| Yes                           | 4           | 158         | .62(0.2-1.8) |
| No                            | 19          | 466         | 1:00        |
| Habit of alcohol intake       |             |             |             |
| Never                         | 13          | 346         | 1.04(0.45-2.4) |
| Sometimes                     | 10          | 278         | 1:00        |
| Pregnancy wanted              |             |             |             |
| Yes                           | 19          | 586         | 1:00        |
| No                            | 4           | 38          | 3.24(1.05-10) |
| ANC follow up                 |             |             |             |
| Yes                           | 22          | 589         | 1.3(0.17-9.9) |
| No                            | 1           | 35          | 1:00        |
| Birth weight                  |             |             |             |
| >=2.5kg                       | 5           | 522         | 1:00        |
| <2.5kg                        | 18          | 102         | 18.4(6.6-50.7) |
| Gestational age               |             |             |             |
| >=37 week                     | 13          | 564         | 1:00        |
| <37 week                      | 10          | 60          | 7.23(3-17)  |