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# Effect of Intimate Partner Violence on Pregnancy Outcomes

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## Abstract

**Background:** Intimate Partner Violence (IPV) is one of the serious but preventable public health problems. The study aimed to examine the effect of intimate partner violence on pregnancy outcomes in Nepal.

**Methods:** The study used secondary data from Nepal Demographic and Health Survey (NDHS) 2016, which is a nationally representative survey. The analysis of this study was curbed to currently married women aged 15-49 years who had participated in the intimate partner violence module (n=3562). Logistic regression analysis was used to assess the risk factors for pregnancy loss and abortion and examine extent to which these pregnancy outcomes are affected by intimate partner violence.

**Results:** More than one fourth (26%) of women experienced at least one form of violence from their husband in their lifetime. Among the women, who had been the victims of at least one form of violence from their husband, nearly a third of them (31%) experienced pregnancy loss, 6% experienced abortion, 1% of them experienced still birth and 2% experienced infant death. Multivariate analysis (Binary logistic regression) showed that women facing at least one form of violence from their husband were 1.5 times more likely to experience pregnancy loss and 1.7 times more likely to experience abortion than women who never experienced violence.

**Conclusion:** Intimate partner violence is entrenched in Nepalese society and social norms and gender roles seem to reinforce it. IPV can be considered as a major dictator of adverse pregnancy outcomes. So, addressing IPV at family, community, policy and implementation level is an effective remedy to diminish unpleasant pregnancy outcomes like pregnancy loss and abortion.

**Keywords:** Domestic violence; Reproductive health; Pregnancy; Community

## Background

Intimate partner violence (IPV) is one of the most common forms of violence against women and comprises physical, sexual, and emotional abuse and controlling behaviors by an intimate partner. IPV refers to any behavior within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship [1]. Intimate partner violence and sexual violence are the most ubiquitous forms of violence [2]. It is considered to be violations of women's human rights, including their rights to freedom from discrimination [3] to life, to integrity and security of the person [4] and to the highest attainable standard of health [5]. Intimate partner violence (IPV) subsists in all settings and among all socioeconomic, religious and cultural groups. The overwhelming global burden of IPV is endured by women [1]. Gender based violence (GBV) remains prevalent and deep-rooted in much of Nepali community, and intimate partner violence (IPV) as a subset of GBV remains little understood or explored. Indeed, the gender roles and responsibilities assigned to men and women make it difficult to conceptualize IPV as a problem and also fuels to perpetuate violence [6].

The effects of IPV on maternal and neonatal outcomes are multifaceted and largely preventable [7]. Sexual IPV was associated with increased risk of third trimester bleeding, emotional IPV with preeclampsia and physical IPV with both bleeding and preterm labor. Moreover, physical and sexual IPV increased the risk for induced abortion, whereas emotional IPV had a strong association with spontaneous fetal loss [8]. Women who had ever experienced IPV were 1.4 times more likely to report they had ever had a miscarriage compared with women who had never experienced violence and were 2.5 times more likely to report they had ever had an abortion [9]. Physical violence was associated with an increased risk of antepartum hemorrhage, intrauterine growth restriction and perinatal death [10].

In Nepal, social norms around masculinity, femininity, male guardianship of women and polygamy sturdily shape men and women's behavior and choices, and have a strong bearing on IPV. Men are accorded a superior social status and women's inferior status is largely unquestioned. Domestic violence is

also generally accepted as a means of controlling women and/or correcting a wife or girlfriend's behavior [6]. One of the biggest barriers to addressing IPV in Nepal is the lack of understanding of IPV as a separate issue from domestic violence. The notion of maintaining stability and respect for the family and the family name is so deeply internalized that it is never questioned. Unless people are willing to accept different notions of family welfare and to reconsider the gender roles assigned to men and women, separating the relationship between spouses from relationships between the couple and the rest of the family, it will be extremely difficult to address IPV, particularly at the local level [6].

The purpose of this study is to analyze the effect of intimate partner violence on pregnancy outcomes. This paper also aims to fill the knowledge gap in the literature regarding the violence and pregnancy outcomes. Although a few studies on abortion do exist, this type of research which analyzed the effect of intimate partner violence on four different kinds of pregnancy outcomes has not yet been undertaken in Nepal as far as our knowledge. The finding of this paper will also help reproductive health program planners and policy makers to understand the various factors influencing pregnancy outcomes including the effect of violence so as to implement reproductive health programs.

## Methods

The study used secondary data from the Nepal Demographic and Health Survey (NDHS), 2016, a nationally representative sample survey. The primary objective of the 2016 NDHS is to provide up-to-date estimates of basic demographic and health indicators. The NDHS provides a comprehensive overview of population, maternal, and child health issues in Nepal. The study protocol was approved by the Nepal Health Research Council and the ICF Macro Institutional Review Board in Calverton, Maryland, USA. All respondents had provided verbal informed consent to be interviewed prior to data

collection. The survey was carried out under the aegis of the Population Division of the Ministry of Health and Population. For this study, we used publicly available dataset from the website of NDHS.

Interviews were completed for 12,862 women of reproductive age. The analysis of this paper is confined with currently married women aged 15-49 years who had participated in the intimate partner violence module (n=3562). Detail methodology and questionnaire used in the survey can be found in the published report of Nepal Demographic and Health Survey [11].

The major dependent variables of this paper are four adverse pregnancy outcomes: pregnancy wastage, still birth, abortion and infant death. The Statistical Package for Social Science (SPSS 24.0 for Windows) software was used to analyze the data.

## Results

This study found that two-fifth (40%) of the women was aged 35 years or above while nearly a fourth (23%) of them was youth aged less than 25 years. Slightly higher percentages of women (42%) were uneducated as compared to those who had completed secondary or above education (39%). Around one-third of the women each had none/one child (30%) and two children (29%). Majority of the married women were Hindus (86%) followed by Buddhists (5%). More than one-third of the women each had moderate autonomy (34%) and high autonomy (38%) in household decision. Higher percentages of women resided in urban areas (60%) in comparison to rural areas (40%). Slightly more than three-fifth (61%) of women was currently working. Slightly higher percentages of women belonged to rich wealth index (41%) in comparison to poor wealth index (38%). Similarly, slightly more than half (51%) of women were currently using any FP methods (**Table 1**).

**Table 1** Background characteristics of married women.

Background characteristics	%	N
Age group		
Less than 25 years	23.4	832
25-34	37	1318
35 or above	39.6	1412
Education		
No education	41.9	1491
Primary	18.7	667
Secondary or above	39.4	1404
Ethnicity		
Brahmin/Chhetri	30.2	1076
Janajati	35.8	1274

Dalit	13.4	479
Other	20.6	734
Total children		
None/one	29.6	1053
Two	28.5	1017
Three	17.5	623
Four or more	24.4	869
Religion		
Hindu	86.3	3076
Buddhist	5.2	187
Muslim	4.9	174
Kirat/Christian	3.5	125
Women's autonomy in household decision		
No autonomy	28.7	1021
Moderate autonomy (involved in 1-2 issues)	33.5	1193
High autonomy (involved in all 3 issues)	37.8	1348
Place of residence		
Urban	59.9	2133
Rural	40.1	1429
Currently working		
No	39.1	1392
Yes	60.9	2171
Wealth index		
Poor	37.6	1341
Middle	21.2	756
Rich	41.1	1465
Current use of FP		
Not use	48.6	1733
FP user	51.4	1830
Total	100	3562

**Table 2** Experience of different forms of violence among married women.

Different forms of violence	%	N
Physical violence by husband		
No	77.2	2750
Yes	22.8	812
Emotional violence by husband		
No	87.7	3124
Yes	12.3	438

Sexual violence by husband		
No	93	3311
Yes	7	251
At least one violence from husband		
No	73.7	2624
Yes	26.3	938
Total	100	3562

**Table 2** illustrates the prevalence of different types of violence among married women by their husband. It is appalling to note that nearly one fourth (23%) of married women experienced physical violence from their husbands. Similarly, more than one-tenth (12%) and just about one-tenth (7%) women experienced emotional and sexual violence respectively. It's again unsightly to note that more than one fourth (26%) of women experienced at least one violence from their husband in their lifetime.

It is discouraging to note that over a quarter (26%) of married women had experienced pregnancy wastage. Similarly, it cannot be shirked that 5% of women experienced abortion and a total of 42 (1%) and less than one percent (n=27, 0.8%) women experienced infant death and still birth respectively.

**Table 3 Ever experienced of pregnancy wastage, abortion, still birth and infant death by married women.**

	%	N
<b>Experienced of pregnancy losses</b>		
No	74.4	2652
Yes	25.6	911
<b>Experienced of abortion</b>		
No	95.1	3389
Yes	4.9	173
<b>Experienced of still birth</b>		
No	99.2	3535
Yes	0.8	27
<b>Experienced of infant death</b>		
No	98.8	3521
Yes	1.2	42
<b>Total</b>	100	3562

**Table 3** illustrates the bivariate analysis of experience of violence and pregnancy outcomes and other background characteristics. It is dismaying to note that among the women who had experienced physical violence by their husband, nearly a third (30%) women experienced pregnancy wastage, 6% experienced abortion, nearly 2% experienced infant death and 1% experienced still birth. Similarly, among the women who had been the victims of emotional violence from their husband, a third of women (33%) experienced pregnancy wastage, nearly a tenth (8%) experienced abortion and 2% of women each experienced still birth and infant death. Likewise, while analyzing the experience of sexual violence and pregnancy outcomes, it was found that among those who experienced sexual violence, nearly two-fifth (39%)

experienced pregnancy wastage, just more than a tenth (11%) experienced abortion, 2% experienced still birth and 3% experienced infant death. In the similar way, among the women who had experienced at least one forms of violence from their husband, nearly a third of them (31%) experienced pregnancy wastage, 6% experienced abortion, 1% of them experienced still birth and 2% experienced infant death.

The analysis of background characteristics and pregnancy outcomes showed that higher percentage of women (30%) aged 35 or above experienced pregnancy wastage than age group 25-34 (28%) and women aged less than 25 years (14%). Comparatively higher percentage of women aged 25-34 years (7%) experienced abortion in comparison to women aged less

than 25 years (4%) and 35 years or above (3%). Similarly, experience of still birth was found higher in the age group 25-34 years (1.2%) while experience of infant death was comparatively higher in the age group less than 25 years (2%). It was found that slightly higher percentage (29%) of uneducated married women experienced pregnancy wastage in comparison educated ones. But in case of experience of abortion it was higher among educated women, 6% each among those attaining primary education and secondary or above education. Experience of still birth and infant death was higher among uneducated women (1% each).

In regards to caste/ethnicity, experience of pregnancy wastage (29%) and abortion (7%) was slightly higher among Brahmin/Chhetri women in comparison to other castes. Similarly, experience of pregnancy wastage had direct relation with number of children, with comparatively higher percentage (31%) of pregnancy wastage experienced by women having four or more children. Likewise abortion, still birth and infant death were experienced slightly more by women having three children i.e., 6%, 1% and 3% respectively.

More than a third (35%) of Christian women experienced pregnancy wastage while nearly a tenth (9%) of them experienced abortion. It was found that women's level of autonomy in household decision making had no major difference in experience of pregnancy wastage, still birth and infant death. But it was surprising to note that experience of abortion was found twice (6%) among women with high level of autonomy in comparison to women with no autonomy (3%) in household decisions. Likewise, there was no noteworthy difference in experience of any adverse pregnancy outcomes resulted due to place of residence, working status of women, their wealth index and FP use status.

From the bivariate analysis, it was found that women who were the victims of physical violence by their husband were more likely to experience pregnancy wastage and infant death which was also statistically significant. Significantly higher percentages of women facing emotional violence from their

husbands were more likely to experience pregnancy wastage (33%), abortion (7.8%), still birth (1.6%) and infant death (2.1%). Similarly, same implies to sexual violence as well: women facing sexual violence were significantly more likely to experience pregnancy wastage, abortion, still birth and infant death. Those women who encountered at least one form of violence from their husband had significantly higher risk of experiencing pregnancy wastage, abortion and infant death. In regards to age group, older women were significantly more likely to experience pregnancy wastage, women aged 25-34 were more likely to experience abortion (6.7%) and still birth (1.2%) than other age groups. Similarly women aged less than 25 years significantly had higher risk of experiencing infant death.

Likewise, education had a significant association with experience of pregnancy wastage and abortion, where women with no education (29%) had higher risk of experiencing pregnancy wastage than with primary (26%) or secondary (21.5%) education. Similarly, women with primary education (6.4%) had significantly higher risk of experiencing abortion. Ethnicity had a significant association with pregnancy wastage, abortion and still birth. Total number of children also had a significant association with pregnancy wastage and infant death, more the number of children, higher the risk of experiencing pregnancy wastage and infant death. In regards to autonomy in household decisions, pregnancy wastage was significantly higher in women with moderate autonomy (28%), abortion in women with higher autonomy while infant death was significantly higher in women with no autonomy. Place of residence was also found to have significant association with still birth and infant death: rural women had a higher risk in comparison to urban women. Significantly higher percentages of working women (5%) experienced abortion than non-working women (4%) while the relationship was inverse in case of infant death. Likewise wealth index had a significant association with pregnancy wastage and FP use status had significant association with still birth and infant death (Table 4).

**Table 4** Experience of violence by pregnancy wastage among married women.

	Experienced of pregnancy losses		Experienced of abortion		Experienced of still birth		Experienced of infant death		Total N
	No	Yes	No	Yes	No	Yes	No	Yes	
Physical violence	***		ns		ns		*		
No	75.8	24.2	95.4	4.6	99.4	0.6	99	1	2750
Yes	69.7	30.3	94.3	5.7	98.8	1.2	98.2	1.8	812
Emotional violence	***		**		*		*		
No	75.5	24.5	95.5	4.5	99.4	0.6	99	1	3124
Yes	67	33	92.2	7.8	98.4	1.6	97.9	2.1	438
Sexual violence	***		***		*		*		
No	75.4	24.6	95.6	4.4	99.3	0.7	98.9	1.1	3311

Yes	61.3	38.7	88.7	11.3	98.1	1.9	97.4	2.6	251
At least one form of violence	***		*		ns		*		
No	76.5	23.5	95.6	4.4	99.4	0.6	99	1	2624
Yes	68.8	31.2	93.9	6.1	98.8	1.2	98.2	1.8	938
Age group	***		**		**		***		
Less than 25 years	86.2	13.8	95.7	4.3	99	1	97.7	2.3	832
25-34	71.7	28.3	93.3	6.7	98.8	1.2	98.7	1.3	1318
35 or above	70	30	96.5	3.5	99.8	0.2	99.6	0.4	1412
Education	***		***		ns		ns		
No education	70.8	29.2	96.8	3.2	99	1	98.7	1.3	1491
Primary	74	26	93.6	6.4	99.6	0.4	99	1	667
Secondary or above	78.5	21.5	94.1	5.9	99.3	0.7	98.9	1.1	1404
Ethnicity	**		**		**		ns		
Brahmin/Chhetri	71.1	28.9	93.2	6.8	99.2	0.8	98.8	1.2	1076
Janajati	78.3	21.7	96.1	3.9	99.8	0.2	99	1	1274
Dalit	72.9	27.1	94.8	5.2	99.5	0.5	98.2	1.8	479
Other	73.6	26.4	96.5	3.5	98.2	1.8	98.9	1.1	734
Total Children	***		ns		ns		**		
None/one	81.6	18.4	95.3	4.7	98.9	1.1	99.6	0.4	1053
Two	73.8	26.2	95.1	4.9	99.5	0.5	98.8	1.2	1017
Three	70.2	29.8	94.2	5.8	98.8	1.2	97.4	2.6	623
Four or more	69.5	30.5	95.6	4.4	99.7	0.3	98.9	1.1	869
Religion	ns		ns		na		ns		
Hindu	74.7	25.3	95.2	4.8	99.1	0.9	98.8	1.2	3076
Buddhist	78.5	21.5	94.1	5.9	100		99.4	0.6	187
Muslim	71.5	28.5	97.8	2.2	100		98.7	1.3	174
Kirat/Christian	65.4	34.6	91.1	8.9	100		99.1	0.9	125
Women's autonomy in household decision	*		**		ns		*		
No autonomy	77.1	22.9	97.1	2.9	99.3	0.7	98.2	1.8	1021
Moderate autonomy (involved in 1-2 issues)	72.4	27.6	94.8	5.2	99.2	0.8	98.9	1.1	1193
High autonomy (involved in all 3 issues)	74.3	25.7	93.9	6.1	99.3	0.7	99.3	0.7	1348
Place of residence	ns		ns		*		**		
Urban	74.8	25.2	94.9	5.1	99.5	0.5	99.3	0.7	2133
Rural	73.9	26.1	95.4	4.6	98.8	1.2	98.1	1.9	1429
Currently working	ns		*		ns		**		
No	74.4	25.6	96	4	99	1	98.2	1.8	1392
Yes	74.5	25.5	94.6	5.4	99.4	0.6	99.2	0.8	2171

Wealth index	*		ns		ns		ns		
Poor	73	27	95.5	4.5	99.2	0.8	98.6	1.4	1341
Middle	78.1	21.9	96	4	99	1	98.7	1.3	756
Rich	73.9	26.1	94.3	5.7	99.4	0.6	99.1	0.9	1465
Current use of FP	ns		ns		**		**		
Not use	73.8	26.2	95.7	4.3	98.8	1.2	98.3	1.7	1733
FP user	75	25	94.6	5.4	99.7	0.3	99.3	0.7	1830
Total	74.4	25.6	95.1	4.9	99.2	0.8	98.8	1.2	3562

Note \*\*\*Significant at  $p < 0.001$ ; \*\*:  $p < 0.01$  and \*:  $p < 0.05$ ; Ns: Not significant in Chi-square test; na: not applicable to perform chi-square.

Logistic Regression analysis shows that experience of violence was found an important predictor of experience of pregnancy losses and abortion. Women facing at least one violence from their husband were more likely to experience pregnancy wastage (adjusted OR=1.47) and abortion (adjusted OR=1.66). Education of women had an inverse relationship with experience of pregnancy losses as women with secondary or above education were less likely to experience it (adjusted OR=0.79) while the scenario was reverse in case of abortion where women with primary education and secondary or above education (adjusted OR=2.22 and 2.13 respectively) were two times more likely to experience abortion in comparison to uneducated women. In regards to ethnicity, Janajatis (aOR =0.61), other castes (adjusted OR=0.67) and Dalits (adjusted OR=0.76) were less likely to experience pregnancy losses than Brahmin/Chhetri. Similarly, in case of abortion, other castes and Janajatis were less likely to experience it (aOR=0.52 and 0.51 respectively).

Total number of children had a positive significant relationship with pregnancy losses. Women having two or more children were more likely to experience pregnancy losses (aOR=1.87 for two children, aOR=1.82 for 3 children and aOR=1.59 for four/more children). Similarly, Hindus were less likely to experience abortion (aOR=0.59) than non-Hindus. It was astonishing to note that women with moderate autonomy in household decisions were more likely to experience pregnancy losses (aOR=1.31). Likewise autonomy was found to have positive relationship with abortion as women with higher autonomy had more abortion practices (aOR=1.63 and 1.94 in moderate and high autonomy respectively). It was found that middle class women were less likely to experience pregnancy losses than poor women (aOR=0.77). Use of family planning had an inverse relation with pregnancy losses as currently FP users were less likely to experience pregnancy losses (aOR=0.79) (Table 5).

**Table 5** Adjusted odds ratio (aOR) from logistic regression model of experiencing pregnancy losses and abortion by experience of violence and other characteristics

Selected predictors	Experienced of pregnancy losses			Experienced of abortion		
	aOR	95% CI		aOR	95% CI	
		Lower	Upper		Lower	Upper
<b>At least one form of violence from husband</b>						
No (ref.)	1			1		
Yes	1.47***	1.23	1.74	1.66**	1.18	2.34
<b>Education</b>						
No education (ref.)	1			1		
Primary	0.92	0.74	1.14	2.22***	1.42	3.46
Secondary or above	0.79*	0.64	0.99	2.13**	1.34	3.39
<b>Ethnicity</b>						
Brahmin/Chhetri (ref.)	1			1		
Janajati	0.61***	0.5	0.75	0.51**	0.34	0.76
Dalit	0.76*	0.59	0.98	0.82	0.5	1.34

Other	0.67**	0.53	0.87	0.52*	0.3	0.89
<b>Total Children</b>						
None/one (ref.)	1			1		
Two	1.59***	1.27	1.98	0.98	0.64	1.51
Three	1.82***	1.39	2.37	1.31	0.79	2.17
Four or more	1.87***	1.44	2.44	1.24	0.72	2.12
<b>Religion</b>						
Non-Hindu (ref.)	1			1		
Hindu	0.82	0.65	1.03	0.59*	0.37	0.96
<b>Women's autonomy in household decision</b>						
No autonomy (ref.)	1			1		
Moderate autonomy (involved in 1-2 issues)	1.31*	1.07	1.59	1.63*	1.03	2.58
High autonomy (involved in all 3 issues)	1.1	0.9	1.35	1.94**	1.24	3.03
<b>Place of residence</b>						
Urban (ref.)	1			1		
Rural	1.03	0.87	1.22	1.15	0.81	1.62
<b>Currently working</b>						
No (ref.)	1			1		
Yes	0.91	0.77	1.08	1.26	0.89	1.78
<b>Wealth index</b>						
Poor (ref.)	1			1		
Middle	0.77*	0.61	0.96	0.95	0.59	1.52
Rich	1.11	0.92	1.35	1.22	0.82	1.81
<b>Current use of FP</b>						
Not use (ref.)	1			1		
FP user	0.79**	0.67	0.93	1.21	0.87	1.69
Constant	0.38***			0.024***		
Cox & Snell R Square	0.032			0.017		
-2 Log likelihood	3934.4			1326.4		
Note *** Significant at p<0.001; **: p<0.01 and *: p<0.05 ref: Reference category						

## Discussion

The prevalence of at least one type of intimate partner violence among currently married women in the current study was 26% which is consistent with the finding from another study in Ethiopian which the prevalence of IPV was 23% [12]. Our study identified intimate partner violence (IPV) as a major predictor of pregnancy loss (adjusted OR=1.47) which is also supported by other studies: a study in Tanzania (2012) which stated that women experiencing IPV were 1.6 times more likely to report pregnancy loss [13], a study in Bangladesh which found that women experiencing violence from husbands were

more likely to report a pregnancy loss in the form of miscarriage, induced abortion, or stillbirth [14].

Our study showed that 5% of the women experienced abortion but the prevalence of abortion in another similar study in Southern Ethiopia was 17% which is quite higher than our study [15]. In this study, abortion was found significantly associated with experience of intimate partner violence (adjusted OR=1.66) which is in line with other similar studies; WHO multi-country study (2013) which revealed that exposure to IPV had increased odds of abortion [16], a study in Bangladesh where physical IPV showed a significant increased risk for abortion [12] and other studies in Italy (2015) and



Nigeria (2011) and Tanzania (2012) [13,17,18]. Our study found that increase in educational level of the women also increased the risk for abortion (adjusted OR=2.22 for primary and 2.13 for secondary education; which is also consistent with the study in China (2015) that identified lower educational level as a protective factor for abortion [19] but contradicted by another study in Southern Ethiopia (2014) which revealed that respondents who completed primary school were less likely to have induced abortion [15]. Studies conducted among rural women in four Indian states [20] and in Bangladesh [21] also found that physical violence had significantly higher odds of reporting a subsequent induced abortion.

## Conclusion

The prime findings of the study revealed that more than one fourth (26%) of the married women experienced pregnancy loss and 5% of them experienced abortion which cannot be overlooked. The prevalence of at least one type of violence was again found to be one of the major predictor of both pregnancy loss and abortion after controlling other socio-demographic characteristics. Other socio-demographic factors significantly associated with pregnancy loss were education, total number of children, women's autonomy, wealth index and current FP use status. Likewise in case of abortion, the risk was found to be higher with educational level and increasing women's autonomy in household decisions. Hence, the necessity of various interventions focusing on eliminating intimate partner violence (IPV) can be inferred from the study so that further adverse effects including the effect on women's reproductive health outcomes resulting from IPV can be minimized.

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