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Intimate partner violence as a predictor of unintended pregnancy among married women: Evidence from National Family Health Survey-IV India

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***Abstract*---** Globally close to 85 million women face an unintended pregnancy every year. This study conducted among currently married women aged 15–49 years who had at least one childbirth in the five years preceding the survey (2,011 from Bihar and 3,331 from UP). Bivariate and stepwise multivariate logistic regression analyses were used for statistical analysis. Women who experienced spousal sexual violence were reported higher unintended birth. Prevalence of IPV was higher than national average in the study settings (50.2% Bihar; 40.1% UP), similarly, experience of unintended birth was also moderately higher in UP (15.4%) and Bihar (11.7%) Women on modern contraception had reported higher unintended births in UP ($p<0.00$). State specific provision of screening and treatment with in reproductive health care setting is mandated.

***Keywords*---**sexual violence, unintended birth, modern contraception.

Introduction

Domestic violence against women has been reported across the nations. However collection of formation on domestic violence is very challenging task, because in many societies women are live in poor socio-economic conditions, and violence against them, especially in the family environment has not been identified and in some cases, it is even justified as legitimate (Khoshemehry, Marin, Shamsi &

Hashiani, 2014). Further, the domestic violence is associated with underlying social, cultural, religious and gender norms and with the political instability (Nanda et al., 2012).

Intimate Partner Violence (IPV) remains the most prevalent form of violence against women (VAW) worldwide and World Health Organization (WHO) estimates that the global prevalence of physical and/or sexual intimate partner violence among all ever-partnered women was 30.0 percent. The prevalence was highest in the WHO African, Eastern Mediterranean and South-East Asia regions, where approximately 37 percent of ever-partnered women reported having experienced physical and/or sexual intimate partner violence at some point in their lives. It was lower in the high-income region and in the European & the Western Pacific Regions, where respectively 23 percent and 25 percent of ever partnered women reported lifetime intimate partner violence (WHO, 2013). South Asian societies has among the highest rates of intimate partner violence in the world, with one in three women reporting sexual and/or physical IPV, predominantly from a husband(WHO 2013a; Jejeebhoy, Santhya & Acharya, 2013; Decker et al., 2015) and almost 33 percent of Indian women have experienced IPV at some point in their marital life(IIPS and ICF, 2018).

Violence against women not only violate the rights of women and girls, but also limits their participation in society, and damages their health especially their reproductive health and well-being (WHO, 2013). Several research studies (Wang & Pillai, 2001; Garcia-Moreno, 2002; Ravishankar, Ramachandran & Subbiah, 2011; Mukanangana et al., 2014; Herrmann, 2014, García-Moreno et al., 2014; Kismodi, 2015) have shown that women who have experienced domestic violence has the negative health consequences and decreased well-being. It is also evident that the intimate partner violence have a strong association with abortion, foetal loss, and unintended pregnancy (Silverman et al., 2007; Chowdhary & Patel, 2008; Antai, 2011; Stockl et al., 2012; Pallitto et al., 2013; Zakar et al., 2016; Enu Anand et al., 2016; Acharya et al., 2019). Studies from the South Asian region (IIPS and ICF, 2018; 7, Salam, Alim & Noguchi, 2006; Gipson, Koenig & Hindin, 2008) also document that such IPV is associated with increased risk for unintended pregnancy. An analysis based on Demographic Health Survey (DHS) secondary data from 10 countries stated that women with history of intimate partner violence were 1.75 times more likely to terminate pregnancy than women not experiencing IPV (Hindin, Kishor & Ansara, 2008).

Globally close to 85 million women face an unintended pregnancy every year (Sedgh, Singh & Hussain, 2014), more than one in seven of these cases occurs in India (fp, 2018). In recent past, many researchers, Begum et al., (2010), Puri et al., (2011) Rahman et al., (2012), Shabnam and Mukherjee (2013), Bergmann and Stockman (2015), Raj and McDougal (2015) advocate that IPV is an independent covariate of unintended pregnancy. Ismayilova (2010) found that women who experienced IPV were more than twice the risk to abort their foetus in Azerbaijan and Moldova, whereas such women in Ukraine were nearly 5 times more likely to continue to unwanted live birth than women who did not ever experience physical and sexual violence from their husbands. Similarly, Stephenson and others (2016) observed that physical violence was associated with higher risk of induced

abortion and induced abortion was found to be leading to sexual and verbal violence at India.

Several studies, in India, documented that unintended birth is associated with lower maternal health care utilization and poorer infant health outcomes (Singh et al., 2012; Singh, Singh & Mahapatra, 2013) however, state specific research on associations of unintended pregnancy and intimate partner violence in India is very limited. Under this background, this study examine the association of intimate partner violence and incident of unintended births in Bihar and Uttar Pradesh, India.

Methodology

Data for this study retrieved from National Family Health Survey-IV which is a nationally representative survey conducted during 2015-16 (IIPS and ICF, 2018). This study, however, focuses only on two states namely Uttar Pradesh and Bihar. These two states have been selected not being the most populous states in India, (198 and 104 million respectively) they have reported more unintended births as that seen for India as a whole (9.1 vs. 15.4 and 11.8 respectively) and a much higher experience of IPV as well (33.3 vs. 38.3 and 45.2 respectively). Hence, analysing the data for these two states may offer state specific important insight into how to reduce the potential effects of an unintended pregnancy in India and guide to family planning programs on approaches that attend to IPV.

Sample population

In NFHS-IV, total households interviewed in Bihar was 97,661 and in UP was 76,233 households. Given the sensitivity of the questions, a subsample of women was selected for the violence module (one eligible woman per household). Totally 7,177 households in UP and 3,947 households in Bihar were covered the domestic violence module. The unit of analysis for this study were women aged 15–49 who gave birth to at least one child in the last 5 years preceding the survey and who had provided details on fertility preference pertaining to the child after the child was born (2,011 women from Bihar and 3,331 women from UP).

Measurement of Birth intentions (Outcome variable)

Measurement of pregnancy intention in the NFHS was based on a question to women aged 15-49 for every live birth in the five years before the survey: 'When you were pregnant with (name of the child) whether you wanted the pregnancy then, later or not at all?' Women reported whether their most recent birth/pregnancies was wanted at the time (planned birth), at a later time (mistimed birth), or not at all (unwanted birth). Women responding their last birth was mistimed or unwanted were merged and characterized as 'unintended birth' and those who responded wanted birth then were considered to have an 'intended birth'. The terms 'unintended pregnancy' and 'unintended birth' are interchangeably used in this study.

Measurement of IPV (Independent variables)

In NFHS-4, information was obtained from ever-married women on their experience of violence committed by their husbands. More specifically, violence committed by the husband for married women was measured by asking all married women if their husband ever did the following to them:

Emotional spousal violence: say or do something to humiliate you in front of others; threaten to hurt or harm you or someone close to you; insult you or make you feel bad about yourself
Physical spousal violence: push you, shake you, or throw something at you; slap you; twist your arm or pull your hair; punch you with his fist or with something that could hurt you; kick you, drag you, or beat you up; try to choke you or burn you on purpose; or threaten or attack you with a knife, gun, or any other weapon (in this paper, the emotional and physical violence were combined together as physical violence)
Sexual spousal violence: physically force you to have sexual intercourse with him even when you did not want to; physically force you to perform any other sexual acts you did not want to; force you with threats or in any other way to perform sexual acts you did not want to do it.

Data Collection

The analysis concentrated on four types of other covariates such as i) household characteristics ii) women's characteristics, iii) husband's characteristics and iv) fertility determinants variables. *Household characteristics* include place of residence (rural and urban), caste (SC, ST, OBC and Others), religion (Hindu and other than Hindu), and wealth index of households. The wealth index in NFHS was calculated using principal component analysis based on household's ownership of selected assets. Using these proxy indicators, the households were classified into five indices: the poorest, poorer, middle, richer, and the richest. The quintiles were later re-grouped into three categories for this analysis: poor (poorest and poorer), middle and rich (richer and richest) as has been suggested by Chakraborty et al. (2016). *Women Characteristics* include age group of the respondents (15-24, 25-34 and 35 and above), levels of education (no education, primary, secondary, higher), work force participation (participated and not participated), marital duration (0-4, 5-9, 10-19 and 20 and above years), and number of children ever born (1-2 children and 3 and above). *Fertility determinant covariates* include ever used modern contraceptive methods, ever used traditional contraceptive methods, ideal family size as per respondents wish (0-2 and 3 and above children)) and decision-making status (no/less/more). In the NFHS-IV, women were asked a few questions regarding their decision-making for health care, household purchases, and visits to family and friends. A score of '1' was assigned in cases where the woman decided on her own on the matters mentioned above and a score of '0' otherwise. The score of each woman was added to compute a decision-making index. Women who scored 1-2 were considered to have 'less decision-making status', and those who scored all three were considered as having 'more decision-making status'. Women who scored 0 were considered 'not participated in HH decisions'. *Husband related covariates* include levels of education (no education, primary, secondary, and higher), occupation

(agriculturalist, Professional/clerical/Sales/services and skilled and unskilled) and habit of alcohol consumption (yes and No).

Statistical analysis

Chi-square test (Pearson's x^2) was used to assess the association of Intimate Partner Violence (Physical and sexual violence) and other covariates with unintended pregnancy. Multivariate binary logistic regression analysis was used to derive adjusted effects of IPV and other independent variables on unintended pregnancy. Multi-collinearity of the independent variable was checked before running multivariate models. Odds ratios were calculated for each study state using three different models. In the first model, ever experience of physical and sexual violence were included to assess the gross effects of IPV (physical and sexual) on unintended last birth. In the second model, covariates, related to women's fertility intention (ever used modern contraception, traditional contraception, ideal family size and respondent's decision-making status), were included along with first model covariates. Finally, in the third model, the net and gross effects of IPV and other covariates on unintended birth were analysed using a stepwise logistic regression model. In this model, along with variables included in the first and second models, the socio-demographic characteristics of the women and their husbands were included. In all the three models, the outcome variable, i.e. unintended last birth, was assigned a value of '1' and '0' to those who reported otherwise. Odds ratios and 95% confidence intervals were presented in the results. Domestic violence weights from NFHS 2016 were applied during the analyses.

Results

Profile of the study population

Overwhelming majority of the respondents in the study states (Bihar and Uttar Pradesh) were resided at rural areas (87.4% and 75.4% respectively), and vast majority belonged to Hindu religion (83.0% and 78.3% respectively). The share of young population (15-30 age-group) was much higher than older population (35 and above age group) in both the study states (86% vs. 14% in each state). The mean age of the sample population was not much differed between two study states (27.7 for Bihar and 28.2 for UP). Just around one-fifth of women in each of the study state were involved in work force. Mean CEB was almost same for Bihar and UP (2.98 and 2.97 respectively), similarly the mean marital duration also not differed between the study states (9.6 and 9.3 years respectively).

Majority of the women in the study settings were illiterates, however, UP women (43.0%) were reasonably better than Bihar women (56.2%). A wide variation noticed between two study states in terms of wealth index. Significantly a higher proportion of UP respondents belonged to rich WI category (25.4%) than Bihar respondents (9.1%). With respect to husbands' educational attainment, UP was much better than Bihar (Higher education: 12.7% and 8.2% respectively), however, proportion of husband's engaged in Professional/Sales/Services sector was slightly better in Bihar (29.6%) than UP (25.85). More than one-third of the husband have the habit of alcohol drink in Bihar (36.7%) whereas this proportion

was about one-fourth for UP (25.5%). The proportion of ever used contraception was moderately high among UP women than Bihar women. While looking the proportion of ever used modern contraception, UP recorded nearly double compare to Bihar (43.7% vs. 24.6%). It is also noticed that the practice of traditional contraception was used high in UP (33.7%) than in Bihar (1.7%). Overall, UP respondents' socio-economic and fertility indicators were relatively much better than Bihar respondents.

Table 1
Percent distribution of respondents who given birth in last 5 years by ever experience of Intimate Partner violence and unintended birth in the study states of India

Experience of IPV	Women who given at least one birth in last 5 years			
	Bihar		UP	
	Number	Percentage	Number	Percentage
Life time experience of				
Physical violence	976	48.5	1293	38.8
Sexual violence	309	15.4	291	8.7
Life time experience of any form of IPV (Physical + Sexual)	1010	50.2	1335	40.1
Most recent birth				
Intended	1775	88.3	2819	84.6
Unintended	236	11.7	512	15.4

Prevalence of intimate partner violence

Table 1 presents the prevalence of intimate partner violence and unintended last birth among women who had at least one childbirth in the last 5 years of the survey in the study states. The prevalence of physical violence was the highest in Bihar (48.5%), followed by UP with 38.8 percent. The prevalence of physical violence was considerably high in Bihar compare to national average of physical violence (33.0%). Similarly it is moderately high in UP. Nearly one in ten women (8.7%) reported to have ever experienced sexual violence from their husband in Uttar Pradesh and this proportion for Bihar was nearly doubled (15.4 percent). The prevalence of sexual violence was slightly higher than national average in Bihar and it was more than two and half times in UP (6% vs. 9 % and 15% respectively). Overall, about half of the Bihar women (50.2%) experienced any one form of intimate partner violence (physical or sexual) in their life time and this proportion for Uttar Pradesh was 40 percent thus highlighting that this proportion is higher than national average in both study states. The divergences of incidence of spousal violence between two different states might be due to difference among the study populations' socio-economic settings.

Prevalence of unintended last birth

Of the total 2,011 women in Bihar, little over one in ten women (11.7 percent) reported unintended birth and out of 3,331 women in UP, 15.4 percent reported

their last birth was unintended. Overall, the rate of unintended last birth was high in Uttar Pradesh compare to Bihar and also this rate was higher than national average of unintended birth (9.0%) in both study states. The respondents in Uttar Pradesh were more likely to experience unintended pregnancy than Bihar women might be chances of contraceptive failure, or contraceptive discontinuation and use of less reliable traditional methods.

Table 2
Association between the independent characteristics and unintended last births:

Respondents Characteristic	BIHAR		UTTAR PRADESH	
	% of Unintended births	Total no. of women	% of Unintended births	Total no. of women
HOUSEHOLD CHARACTERISTICS				
Place of Residence				
Urban	14.5	262	13.4	820
Rural	11.3	1749	16.0	2511
χ^2	NS		NS	
Religion				
Hindu	11.8	1669	15.3	2609
Other than Hindu	11.4	342	15.8	722
χ^2	0.834*		NS	
Caste				
ST	13.6	59	11.8	51
SC	10.4	450	18.3	880
OBC	11.6	1194	14.4	1856
Others	14.0	308	14.2	544
χ^2	NS		8.152*	
Wealth Index				
Poorer	12.4	1587	16.7	1888
Middle	11.6	241	16.1	596
Richer	6.0	183	11.9	847
χ^2	6.497*		10.486**	
RESPONDENTS CHARACTERISTICS				
Age				
15-24	9.5	589	13.3	827
25-34	11.2	1135	14.5	2074
35+	18.5	287	23.5	430
Mean Age	27.71	(SD.5.591)	28.18	(SD. 5.137)
χ^2	15.704***		25.679***	
Educational Level				
Illiterates	11.9	1130	17.2	1432
Primary	10.3	234	15.4	448

Secondary	13.0	546	14.8	1102
Higher	6.9	101	9.5	349
χ^2	NS		13.554**	
Occupational Status				
Not in work force	11.5	1622	14.3	2639
In work force	12.9	389	19.5	692
χ^2	NS		11.497**	
Marital Duration				
0-4	8.2	367	11.7	715
5-9	9.4	742	13.3	1154
10-19	14.9	781	17.3	1283
20+	16.5	121	29.1	179
Mean	9.60	(SD. 5.539)	9.34	(SD. 5.575)
χ^2	18.298***		40.287***	
Children Ever Born				
1-2 Children	6.8	887	9.6	1580
3 and above	15.7	1124	20.6	1751
Mean CEB	2.98	(SD.1.652)	2.97	(SD.1.747)
χ^2	37.860***		76.409***	
HUSBAND'S CHARACTERISTICS				
Husband's Literacy Level				
Illiterates	11.7	710	17.7	736
Primary	11.7	282	16.0	474
Secondary	13.1	852	15.5	1694
Higher	4.9	164	10.0	422
χ^2	9.087*		12.749**	
Husband's Occupational Status				
Agriculture	10.7	720	15.3	1098
Prof./Clerical/Sales/Service	11.3	595	11.8	861
Skilled and Unskilled	13.2	696	17.6	1372
χ^2	NS		13.648**	
Alcohol use of husband				
No	11.6	1273	14.2	2480
Yes	11.9	738	18.9	851
χ^2	NS		11.062**	
FERTILITY VARIABLES				
Participation in HH decision				
No participation	10.5	516	17.3	653
Less Participation (1-2 decisions)	13.6	469	17.7	745
More Participation (all 3 decisions)	11.5	1026	13.8	1933

χ^2	NS		8.641*	
Ideal no. of children				
0-2	12.0	861	14.8	1619
3+	11.6	1150	15.9	1712
χ^2	NS		NS	
Modern Contraception use (Ever)				
No	11.7	1517	13.4	1877
Yes	11.7	494	17.9	1454
χ^2	NS		12.506***	
Traditional Contraception use (Ever)				
No	11.7	1977	13.2	2207
Yes	11.8	34	19.7	1124
χ^2	NS		24.014***	

The relationship between background characteristics and unintended last birth was examined using bivariate analysis and statistical significance was assessed using Pearson's x2 test. In Bihar, the unintended last birth was statistically significant with religion, wealth index, and husband' literacy level at 5% level, while age of respondents, marital duration and number of children ever born was strongly associated with unintended last birth at 1% level. All other variables not shown any association with unintended last births.

In Uttar Pradesh, the age of respondents, marital duration, total number of children even born, ever used modern contraception, and ever used traditional contraception shown a strong significant association at 1% level with unintended last birth. Wealth Index, caste, respondent's educational level, occupation, and participation in household decision, husband's educational level, occupational status, and alcohol drinking habits also shown significant association at 5% level with unintended births in Ultra Pradesh. Other remaining variables (residence, religion and ideal family size) were not found significant association.

Table 3
Association between IPV (Physical and Sexual) and unintended last births

Ever Experience of IPV	% of Unintended birth	χ^2 value	(95% CI)
Bihar			
Ever Experienced Physical	12.4	0.803 NS	(0.863-1.486)
Ever Experienced Sexual	17.2	10.342**	(1.232-2.398)
UP			
Ever Experienced Physical	18.6	17.351***	(1.236-1.806)
Ever Experienced Sexual	28.9	44.614***	(1.884-3.255)

The relationship between IPV and unintended pregnancy was examined using bivariate analysis and statistical significance was assessed using Pearson's x2 test. In Uttar Pradesh, little lesser one-fifth of women (18.6%) who had experienced physical violence from their husbands had experienced unintended last births and more than one-fifth of women (28.9%) who had ever experienced intimate partner sexual violence had experienced unintended last births. Both physical and sexual violence is statistically significant at 1% level with unintended last births in Ultra Pradesh. In Bihar the sexual violence alone shown a significant association with unintended last births at 5% level. Overall, it is witnessed from the table that the intimate partner sexual violence is alone shown a statistical association with unintended last births both in Bihar and Uttar Pradesh.

Effect of Intimate partner violence on unintended last birth

Three multivariate logistic regression models was carried out separately for Bihar and Uttar Pradesh to examine adjusted effect of intimate partner violence on unintended pregnancy. In the first model, the physical and sexual violence were included and in the second model, ever used modern contraception methods, ever used traditional contraception methods, decision making status and perceived ideal family size variables were included to find out the adjusted effect on unintended birth. In model 3, the step-wise logistic regression analysis was carried out to identify the factors associated with unintended last births. Odds ratios were calculated for each state separately using three different models. The odds ratios of unintended last birth and other control variables are presented in Table 4.

Table 4
Odds of unintended last birth by selected characteristics of the respondent in the study states of India

Covariates	BIHAR			UTTAR PRADESH		
	Model 1 AOR (95% CI)	Model 2 AOR (95% CI)	Model 3 AOR (95% CI)	Model 1 AOR (95% CI)	Model 2 AOR (95% CI)	Model 3 AOR (95% CI)
Physical Violence	NS	NS	NS			NS
Not experienced (ref.)						
Yes	0.965 (0.718-1.298)	0.964 (0.716-1.298)		1.272* (1.039-1.558)	1.228* (0.999-1.509)	
Sexual Violence						
Not experienced (ref.)						
Yes	1.748** (1.216-2.512)	1.757** (1.220-2.532)	1.652** (1.173-2.327)	2.196*** (1.642-2.937)	2.114*** (1.571-2.845)	2.177*** (1.634-2.900)
Modern Contraception		NS	NS			
Never Used (ref.)						

Ever Used		0.972 (0.707-1.336)			1.487*** (1.226-1.803)	1.448*** (1.188-1.766)
Traditional Contraception		NS	NS			
Never Used (ref.)						
Ever Used		0.922 (0.319-2.662)			1.696*** (1.394-2.062)	1.682*** (1.377-2.053)
Ideal Family Size		NS	NS		NS	
0-2 children (ref.)						
3 and above		0.939 (0.712-1.238)	0.656** (0.487-0.883)		1.061 (0.875-1.288)	0.690** (0.556-0.857)
Participation in HH decision		NS	NS			
No participation (ref.)						
Less Participation		1.349 (0.916-1.988)			0.946 (0.713-1.254)	0.949 (0.712-1.266)
More Participation		1.172 (0.830-1.655)			0.768* (0.600-0.982)	0.733* (0.570-0.943)
Place of Residence			NS			NS
Urban (ref.)						
Rural						
Religion			NS			NS
Hindu (ref.)						
Other than Hindu						
Caste			NS			NS
ST (ref.)						
SC						
OBC						
Others						
Wealth Index			NS			NS
Poorer (ref.)						
Middle						
Richer						
Age			NS			
15-24 (ref.)						
25-34						0.638** (0.483-0.845)
35+						0.985 (0.685-1.416)
Literacy Level			NS			NS
Illiterates (ref.)						

Primary						
Secondary						
Higher						
Occupational Status			NS			NS
Not in work force (ref.)						
In work force						
Marital Duration			NS			NS
0-4 (ref.)						
5-9						
10-19						
20+						
Children Ever Born						
1-2 Children (ref.)						
3 and above			2.979*** (2.022-4.389)			2.904*** (2.229-3.782)
Husband's Literacy Level			NS			NS
Illiterates (ref.)						
Primary						
Secondary						
Higher						
Husband's Occup. Status			NS			NS
Agriculture (ref.)						
Prof/Cler/Sales/Servic						
Skilled and Unskilled						
Alcohol use of husband			NS			NS
No (ref.)						
Yes						
-2 Log likelihood	1444.954	1442.440	1383.308	2815.270	2771.081	2672.800

Model 1: The gross effect of sexual violence on unintended births in UP showed a statistical significance in the first model (Table 4). Similarly, a statistical significance association was noticed between sexual violence and unintended births in Bihar. Women who experienced sexual violence were more likely to report an unintended birth (OR=1.748 $p<0.05$, 95% CI =1.216-2.512) compared to those who did not experience sexual violence and at the same time physical violence not shown any significant association with unintended birth in Bihar.

In UP, the respondents who experienced sexual violence were at 2.2 times higher risk to report an unintended birth (AOR=2.196; $p<0.001$, 95% CI=1.642–2.937) compared to those who did not experience sexual violence. Physical violence was also significantly associated with unintended births in the first model at UP

(AOR=1.272; p<0.195% CI=1.039–1.558). Overall, women who experienced the sexual violence is more likely to report an unintended birth compare to women who experienced the physical violence in both the study states.

Model 2: In this second model, covariates, related to women's fertility intention (ever used contraception, ideal family size and her decision-making status), were included along with first model covariates. Sexual violence alone shown statistical significance with unintended births among Bihar women (AOR=1.757; p<0.05, 95% CI=1.220–2.532) in model 2 (all other variables not shown any significant association).

On contrast, except ideal family size variable all other variables shown a statistical significant association with unintended birth in UP. The gross effect of physical, sexual violence, ever used modern contraception, ever used traditional contraception and household decision (model 2) showed statistical significance on unintended births in UP. Women who experienced physical and sexual violence were more likely to report an unintended birth in UP (AOR=1.288, p<0.1; AOR=2.114, p<0.001, respectively) compared to those who did not experience physical and sexual violence. Respondents who used any modern contraception method in UP were at 1.5 times higher risk to report an unintended birth (AOR=1.487; p<0.001, 95% CI=1.226-1.803) compared to those who never used any modern method of contraception. Whereas, women who used any traditional contraception method were at 1.7 times higher risk to report an unintended birth (AOR=1.696; p<0.001, 95% CI=1.394-2.062) compared to those who never used any traditional method of contraception. Unintended birth was less likely among women who had more household decision power than the counterparts (AOR=0.768; p<0.1, 95% CI=0.600-0.982) in UP.

Model 3: Final model (for Bihar) showed that women who experienced sexual violence were at 1.6 times higher risk to report an unintended birth (AOR =1.625; p<0.05, 95% CI =1.173–2.327) compared to those who did not experience sexual violence. Women reporting ideal family size to be more than equal to three were 35% less likely to have unintended births' than < 3 family size (AOR = 0.656; p<0.05, 95% CI = 0.487–0.883). Women who had CEB more than equal to three were at 3.0 times higher risk to report an unintended birth (AOR =2.979; p<0.001, 95% CI = 2.229–4.389) compared to those who had 1-2 CEB. Other remaining variables not shown any significant association with unintended birth at Bihar.

Whereas in UP, women who experienced sexual violence were at 2.2 times higher risk to report an unintended birth (AOR=2.177; p<0.001, 95% CI=1.634–2.900) compared to those who did not experience sexual violence. Women who used any traditional method of contraception were at 1.7 times higher risk to report an unintended birth (AOR=1.682; p<0.001, 95% CI=1.377–2.053) compared to those who did not used any method of contraception. Similarly, women who used any modern method of contraception were more likely to have unintended births than never used any of modern methods (AOR = 1.448; p<0.001, 95% CI =1.188–1.766). Women in higher age group were less likely to report unintended birth than women in young age group (15-24) (AOR = 0.638 p<0.05). The odds of unintended birth decreased as the levels of participation in household decision

increased (AOR=0.949, for less participation and AOR=0.733, p<0.05 for more participation in household decision). Women who had CEB more than equal to three were at 3.0 times higher risk to report an unintended birth (AOR=2.904; p<0.001, 95% CI=2.229–3.782) compared to those who had 1-2 CEB. Other remaining variables not shown any significant association with unintended birth at UP.

Discussion

The present study is different from earlier studies in many ways. Several earlier studies, in India, have focused mostly on socio-economic factors and processes associated with domestic violence or unintended pregnancy and very few studies focused on associations of IPV with unintended pregnancy that too at national level. However, this analysis principally focused by state specific on physical & sexual violence and processes associated with unintended births in two different socio-economic and demographic settings in India. Here, this paper examines the association of intimate partner violence (physical and sexual violence) and other covariates with unintended pregnancy among women who have had at least one child birth in the last 5 years in the states of Bihar and Uttar Pradesh by using NFHS-IV information.

The occurrence of sexual violence (15.4%) by intimate partner over the lifetime in Bihar state is significantly higher than Moldova women (3%) aged 20-24 years (25) and Colombian youths (6%) aged 13–24 years (39), but it is moderately close to Malawi (13%), Bolivia (14%), and Kenya (15%) and is lower than among youths (26%) aged 20–24 years in Bangladesh (Hindin, Kishor & Ansara, 2008). The occurrence of sexual violence (8.7%) by intimate partner over the lifetime in Uttar Pradesh state is co-exist with many of the low and middle income countries (Gomez, 2011).

The occurrence of physical violence by intimate partner over the lifetime in Bihar (48.5%) and UP (38.8%) is close Ethiopia (48.7%) and Tanzania provinces (46.7%) reported by WHO (García-Moreno et al., 2005) and reports from other South Asian countries indicate similarly high rates of lifetime and past-year physical IPV (Fikree Fariyal et al., 2005; Panda Pradeep & Bina Agarwal, 2005; UNIFEM, 2006). Peru and Rwanda indicated that the prevalence of physical violence ranges from 19-29% (WHO, 2006). The divergences of incidence of physical violence might be due to difference among the study populations' socio-cultural settings.

The percentage of births that are unplanned (wanted later and not wanted at all) at the time was 14.0 percent among of women who delivered in last 5 years in the selected study states and it ranged between 15.4 percent among Uttar Pradesh women and 11.7 percent among Bihar respondents. The proportion of unintended pregnancy among women in both the study states who gave birth in last 5 years considerably lower than previous national estimates (21% NFHS-III, 2005-06) for women of reproductive age but was significantly higher than recent national estimates (8.8% NFHS IV, 2015-16). The proportion of unintended births in the selected study states are quite higher than the rest of Indian states may be a factor leading women not to seek abortion services whenever a pregnancy is unintended or it indicates higher demand for family planning program in these

states. In addition, the marginal differences in proportion of unintended birth in Bihar and UP could be partly due to differences in unmet need for family planning and exposure to family planning messages and partly due to discontinuation or failure of contraceptive methods.

The results found a strong association between unintended pregnancy and ever experience of intimate partner sexual violence among UP and Bihar (AOR=2.2, 95% CI= 1.634–2.900; AOR=1.7, 95% CI=1.173–2.327) women who gave childbirth in the last 5 years and the results are consistent with those of earlier studies (Silverman et al., 2007; Hindin, Kishor & Ansara, 2008; Gomez 2011; Pallitto & O'Campo, 2004; Stephenson & Koenig, 2008; Cripe et al., 2008; Raihana et al., 2012; Elouard et al., 2018). Findings of this study indicate that women (in Bihar and UP) who experienced sexual violence have significantly higher chances of unintended pregnancy irrespective of their education, household-wealth, and many other important socio-demographic factors.

The study results found an association between IPV, use of contraception and unintended births. Unintended birth among women who experienced intimate partner sexual violence can occur as a result of denial of condom use by husband and/or women's inability on condom negotiation and/or over dominance in sexual decision making process by their husband, access to and use of contraceptives (Gomez 2011; McFarlane et al., 2015; Silverman et al., 2011).

A strong association is evident from the study settings that women who ever used modern contraception are more likely to report unintended births in UP (AOR=1.5, $p<0.001$, 95% CI=1.226–1.803) and the result is consistent with those of earlier studies (Begum et al., 2010; Shabnam & Mukherjee, 2013; Raihana et al., 2012). Black et al., (2010) reported that the majority of unintended or unplanned births are the result of either contraceptive discontinuation or contraceptive failure. In addition, Allsworth et al., (2013) also documented that the IPV is associated with more rapid discontinuation of contraception leading to unintended pregnancy outcome. Contrary to these findings (Black et al., 2010; Allsworth et al., 2013), results from Bihar state do not document a significant association between modern or traditional contraceptive and unintended births in Bihar.

The chances of failure of traditional contraceptive methods are high and may give rise to unintended pregnancies (Taft, Powell & Watson, 2015). Many research studies (Raj & McDougal, 2015; Miller et al., 2010; Curtis Evens & Sambisa, 2011) also reported that the births that followed contraceptive failure are most likely to be considered unintended pregnancies. Thus, it is possible that partner's sexual or physical violence may lead to contraceptive discontinuation or failure, resulting in unintended births. The current study results also co-exist with those findings that women who ever used traditional contraception are more likely to report unintended births in UP (AOR=1.7, $p<0.001$, 95% CI=1.377–2.053). It is certain that the consistence use of contraception reduces the likelihoods of unintended pregnancy, but the contraception practise may be associated with incidence of spousal violence and other factors.

This study has a few **limitations**. Intimate partner violence (physical, emotional and sexual) is a self-reporting measure which may be fail to report as it is, moreover, it is a very sensitive issue to disclose with others. Another major issues is that the recall bias may lead to under-reporting or over-reporting while sharing the experiences of spousal violence. During the survey, the retrospective measure of unintended birth is applied to collect the information on unintended births which is greatly affected by post-birth rationalization of pregnancy and maternity happiness, which may lead to under-reporting or over-reporting of an unintended birth outcome. This study did not focused those women who may have had an unintended pregnancy that resulted in miscarriage or induced abortion.

Conclusion

The results of current study contributes toward a better understanding of how experiencing intimate partner violence especially the sexual violence controls women's aptitude to achieve their reproductive intentions and it is also predictable that unintended birth may occur due to chances of contraceptive failure or contraceptive discontinuation. This necessitates a state specific provision of comprehensive sexual and reproductive health services in general and provision of screening, counselling and treatment for spousal violence within reproductive health care setting in particular. Some promising violence prevention intervention strategies and subsequent adoption of long-term and non-terminal methods of contraception have the potential to further decrease levels of unwanted fertility.

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Self-Declaration

I, hereby declare that the article is an original one and unpublished elsewhere.

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