

Assessing the relationship between intimate partner violence, externally-decided pregnancy and unintended pregnancies among women in slum communities in Mumbai, India

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ABSTRACT

Background India contends with a high rate of intimate partner violence (IPV), which is associated with unintended pregnancy and reflects low levels of women's decision-making control in relation to their reproductive health. Few studies from South Asia have examined the relationship between pregnancy decision-making, IPV and unintended pregnancy.

Aim This study examined associations between unintended (mistimed and unwanted) pregnancy, women's reports of pregnancy decided externally by husband or in-laws, and IPV, among a sample of married, postpartum women.

Methods Data from the 'Mechanisms for Relations of Domestic Violence to Poor Maternal and Infant Health in India' study were analysed. Descriptive comparisons between levels of unintended pregnancy were run on all major variables. Unadjusted and adjusted multinomial logistic regression analyses assessed women's reports of having externally-decided pregnancies and IPV victimisation in the year prior to pregnancy as factors in mistimed and unwanted pregnancies.

Results Mistimed and unwanted pregnancies were reported by 12.2% and 7.2% of women, respectively. Externally-decided pregnancies were reported by 8.8% of women. Some 29.4% of women reported experiencing physical and/or sexual IPV in the year prior to pregnancy. Women reporting externally-decided pregnancies were significantly more likely to have had mistimed pregnancies than intended pregnancies, as were women reporting IPV. Neither external pregnancy control nor IPV were associated with unwanted pregnancy.

Key messages

- ▶ India continues to experience high rates of unintended (mistimed or unwanted) pregnancy, and intimate partner violence (IPV) victimisation among wives.
- ▶ Wives in India also report having pregnancies decided externally by wives' husbands and/or in-laws ('externally-decided pregnancy'), which is reflected in low engagement of wives in family planning decision-making.
- ▶ Women reporting externally-decided pregnancies were significantly more likely to have had mistimed pregnancies than intended pregnancies, as were women reporting IPV.

Conclusions Women's exclusion from pregnancy decision-making and violence from husbands relate to their ability to time their pregnancies as they wish. The lack of significant association between external decision-making and IPV with unwanted pregnancy may be due to low reporting of unwanted pregnancy. The overall findings highlight the importance of integrating women's involvement in reproductive health decision-making and IPV reduction messaging in programming for the women's health sector.

INTRODUCTION

Globally, 40% of pregnancies in developing countries in 2012 were unintended, defined as pregnancies that were mistimed

or unwanted.¹ Half of these resulted in abortion, 13% ended in miscarriage, and 38% ended in an unplanned birth.² Understanding factors that increase women's risk for having unintended pregnancies is essential, as such pregnancies endanger the health of both women and children,²⁻⁴ and are often indicative of challenges in contraceptive access and use.³

Approximately 21% (3.3 million) pregnancies in India each year are unintended, and 31 million married women in India are at risk of unintended pregnancy.^{5,6} Such pregnancies are associated with poor infant and child health outcomes, such as unattended deliveries, infant and childhood mortality, and incomplete early childhood immunisation.⁷ Contraceptive access and knowledge in India is high due to the Indian government's provision of comprehensive family planning services and education since 1952.^{8,9} However, India's prevalence of unintended pregnancy has remained static for the last decade.^{10,11} Factors implicated in unintended pregnancy in India are multifaceted, and include a combination of structural factors (lack of education, poverty), social factors such as son preference¹² and gender-based violence (GBV).

Studies from India^{13,14} and other parts of South Asia¹⁵⁻¹⁷ indicate strong associations between forms of GBV, such as intimate partner violence (IPV), and unintended pregnancy. Existing research indicates that wives in India tend to have lower power in sexual decision-making than husbands,¹⁸⁻²⁰ which may be of even greater concern for wives contending with IPV, where power imbalances tend to be stronger.^{20,21} More than one-third (37%) of wives in India report having experienced physical or sexual IPV in their marriage.²² Further, within the Indian context, women's in-laws strongly influence the family planning decisions of couples.^{23,24} The elevated role of in-laws, who often live with married couples in India, also has implications for wives' experiences of IPV. For example, national data from India indicate that both men and women are more likely to agree that IPV victimisation of wives is justified if a wife disrespects her in-laws, and if she neglects her domestic duties, compared with other potential reasons that are advanced to justify violence such as the husband suspecting infidelity.²⁵ Physical violence by in-laws against their daughters-in-law (ILV) is also a concern.²⁶

Women contending with violence from husbands or in-laws or both face extreme forms of power imbalance within their homes. Analysis of nationally representative data from India shows that 10% of husbands believe that wives should have the lesser say in deciding how many children to have.²⁵ Such social norms are likely to contribute to the lack of wives' control over family planning decisions. However, it is not clear whether this 'externally-decided' lack of control over pregnancy decision-making is related to pregnancy intention, a woman's ability to plan her pregnancies as and when she chooses.

There is a paucity of literature surrounding women's involvement in pregnancy decision-making in relation to rates of unintended pregnancy. This article aims to build on the existing literature and fill research gaps by exploring the associations of IPV and externally-decided pregnancy with the outcomes of unintended pregnancy, whether mistimed or unwanted, among a sample of married women living in slum communities in Mumbai, India. We hypothesised that women contending with IPV and externally-decided pregnancies would be more likely to characterise their recent pregnancies as unintended.

METHODS

Study population

Data analysed for this study came from the 'Mechanisms for Relations of Domestic Violence to Poor Maternal and Infant Health in India' study. No additional data were collected separately for this study. Participants were mothers of infants (≤ 6 months) presenting for infant immunisation at urban health centres located in slum communities in Mumbai, India. Trained health centre nursing staff recruited women to participate between August and December 2008. Eligible women were aged 17-45 years. Screening and informed consent procedures were conducted in a private room in the health centre, by a trained female research staff member to avoid potential biases based on the researcher's sex. Research staff were also trained in interview techniques to avoid leading questions, and in building rapport to avoid bias.

No monetary incentives were provided for study participation. Research staff conducted 30-40 min quantitative survey assessments on maternal and child health concerns in Hindi. All study procedures were approved by the Institutional Review Boards of the Harvard School of Public Health and the National Institute for Research on Reproductive Health (NIRRH), Mumbai. Additional details on data collection are published elsewhere.²⁶⁻²⁸ Over the study period, 1830 women were recruited for participation; all women approached were known to be eligible based on their presentation for infant vaccinations. Sixty percent of the eligible women ($n/n=1108/1830$) agreed to meet privately with the NIRRH research staff member to learn more about the study; 94.6% of these ($n/n=1049/1108$) agreed to study participation, gave informed consent and completed the survey. Reasons for non-participation at all stages were due to time constraints.

Measures

All variables (unless noted) were taken from the National Family Health Survey-2,¹¹ a nationally representative survey developed for the Indian context. [Demographics assessed](#) included age and formal education of wives and husbands (wives were asked to indicate their own education history, and that of

their husbands in terms of years of education or if they had ever engaged in any formal education), monthly family income (continuously measured in rupees), family structure (nuclear or joint family (extended family living with the couple)), and religion. [Reproductive health assessments](#) included number of living children and modern spacing contraceptive use (for spacing prior to current child). This variable included condom, other modern spacing contraception (oral pills, intrauterine device, injectables), and none (no modern spacing contraceptive method). [Pre-pregnancy ILV](#) was measured by asking about violence (hitting, pushing, kicking, beating, slapping and/or burning) directed at participants by their in-laws during the year prior to the most recent pregnancy.²⁶

[Independent variables](#) of interest were IPV by husbands ('pre-pregnancy IPV'), and decision-making regarding their most recent pregnancy ('externally-decided pregnancy').

- ▶ [Pre-pregnancy IPV](#) was assessed by asking if the following forms of violence were perpetrated against them by participants' husbands during the year prior to the most recent pregnancy: (1) hitting, pushing, kicking, beating or slapping, (2) burning, (3) insisting on having sex against her will, and (4) forced sex against her will. If respondents reported 'yes' to experiencing any IPV behaviours in the year prior to pregnancy, responses were coded as 'yes' for the pre-pregnancy IPV variable (questions 1–3 are categorised as physical IPV, and questions 3–4 are categorised as sexual IPV).
- ▶ [Externally-decided pregnancy](#) This variable was based on a single question asking women 'Whose decision was it to have the most recent pregnancy?', with the following response categories: mainly respondent, joint decision, mainly husband, in-laws' family, and accidentally. These responses were dichotomised as follows: externally-decided pregnancy (mainly husband, in-laws' family), and not externally-decided (mainly respondent, joint decision, and accidentally). To test for co-linearity between IPV and externally-decided pregnancy decision-making, we conducted Spearman's rank-order correlation analysis; the two variables are weakly correlated and not co-linear ($r=0.05$, $P=0.10$).

[The outcome variable](#) for the present analysis assessed unintended pregnancy (for the most recent pregnancy). Participants were asked (in reference to the most recent pregnancy) if the pregnancy was 'wanted then', 'wanted later' or 'wanted never'. These response categories will be maintained but renamed as: mistimed ('wanted later'), unwanted ('wanted never') and intended ('wanted then').

Statistical analysis

Analyses for the present study excluded two women who did not answer questions on pregnancy intention, resulting in a final sample of 1047 women. Descriptive analyses (frequencies and proportions) were conducted on all demographic, reproductive health, and violence

variables. Pearson chi-square tests of independence, and analysis of variance (for continuous variables with the categorical variable outcome) were calculated to assess differences between all demographic and independent variables with the outcome of unintended pregnancy. Unadjusted multinomial logistic regression analyses were conducted to assess associations between each independent variable of primary interest (eg, IPV, decision-making around pregnancy) and the outcome of unintended pregnancy. The category of 'intended' was the referent group for the regression analyses. Odds ratios and 95% CIs were calculated to assess size and statistical significance of associations. All analyses were conducted using SPSS version 23 (IBM Corp, Armonk, NY, USA).

Patient and public involvement

Study participants ('patients') were not involved in the development of the research question, study design, recruitment to the study for the present analyses, as this study involves secondary data analysis of data collected in 2008. However, study participants were involved in the formative research phase of the larger MCH study. Full details on study participant involvement are published in a previous manuscript.²⁶

RESULTS

Demographic characteristics

[Table 1](#) presents demographic, marital, pregnancy and violence characteristics for the study population based on wives' pregnancy intent. Categories of pregnancy intention include: intended and unintended (mistimed or unwanted). The average age of wives was 24.6 (SD 4.4) years, and husbands were on average older, with a mean age of 29.1 (SD 5.1) years. Wives reporting unwanted pregnancies (and their husbands) tended to be slightly older relative to wives and husbands in other categories of pregnancy intention. The majority (58.9%, $n=618$) of the sample were Muslim, and 37.6% ($n=394$) were Hindu. Similar proportions of husbands and wives reported having some formal education. Women reported average monthly family income of 135.5 (SD 119.3) USD (converted from rupees to dollars, 2008). The majority (61.6%, $n=645$) of women lived in joint families; 38.4% ($n=402$) lived in nuclear family structures.

Pregnancy characteristics, intention and violence

The majority (80.5%, $n=843$) of women characterised their most recent pregnancy as 'intended'. The remaining 19.5% ($n=204$) of women reported unintended pregnancies, with 12.2% ($n=128$), and 7.3% ($n=76$) reporting mistimed and unwanted pregnancies, respectively. The majority of the women (73.2%, $n=766$) reported not using any modern spacing contraception prior to the conception of their most recent pregnancy. In terms of pregnancy-decision making, 8.8% ($n=92$) reported that the decision to

Research

Table 1 Sociodemographic profiles of women by pregnancy intention living in urban slum communities in Mumbai, India (n=1047)

Variable	Total (n=1047) (n (%))	Intended (80.5%, n=843) (n (%))	Unintended pregnancies (19.5%, n=204)		Test†‡ (P values)
			Mistimed (12.2%, n=128) (n (%))	Unwanted (7.3%, n=76) (n (%))	
Wives' age (mean, SD, range)	24.6, 4.4, 17–45	24.3, 4.2, 17–40	24.2, 4.2, 17–37	28.6, 4.9, 20–45	0.9† (0.59)
Husbands' age (mean, SD, range)	29.1, 5.1, 18–55	28.8, 4.9, 18–55	28.7, 4.9, 20–45	33.0, 5.3, 22–46	0.9† (0.58)
Religion					8.7‡ (0.07)
Hindu	394 (37.6)	331 (39.3)	41 (32.0)	20 (26.3)	
Muslim	617 (58.9)	479 (56.8)	84 (65.6)	54 (71.1)	
Other religion	36 (3.4)	31 (3.7)	3 (2.3)	2 (2.6)	
Wives' formal education					1.00‡ (0.61)
No	165 (15.8)	129 (15.3)	24 (18.8)	12 (15.8)	
Yes	882 (84.2)	714 (84.7)	104 (81.3)	64 (84.2)	
Husbands' formal education					6.25‡ (0.04)*
No	130 (12.4)	105 (12.5)	10 (7.8)	15 (19.7)	
Yes	917 (87.6)	738 (87.5)	118 (92.2)	61 (80.3)	
Income (mean, SD, range)	135.5, 119.3, 21.3–1066.1	140.6, 127.4, 21.3–1066.1	123.1, 81.4, 32.0–533.0	100.3, 57.7, 32.0–383.8	0.8† (0.86)
Family structure					
Joint family	645 (61.6)	537 (63.7)	77 (60.2)	31 (40.8)	
Nuclear family	402 (38.4)	306 (36.3)	51 (39.8)	45 (59.2)	15.6‡ (<0.001)*
Number of children (mean, SD, range)	1.0, 1.2, 0–7	0.8, 1.0, 0–6	1.4, 1.1, 0–7	2.6, 1.2, 1–5	14.3‡ (<0.001)*
Modern spacing contraception (prior use)					
Condom use	126 (12.0)	92 (10.9)	19 (14.8)	15 (19.7)	34.5‡ (<0.001)*
Other modern spacing contraception	155 (14.8)	105 (12.5)	26 (20.3)	24 (31.6)	
None	766 (73.2)	646 (76.6)	83 (64.8)	37 (48.7)	
Externally-decided pregnancy decision					67.7‡ (<0.001)*
Yes	92 (8.8)	47 (5.6)	35 (27.3)	10 (13.2)	
No	955 (91.2)	796 (94.4)	93 (72.7)	66 (86.8)	
Physical and/or sexual IPV, pre-pregnancy					24.6‡ (<0.001)*
Yes	308 (29.4)	219 (26.0)	56 (43.8)	33 (43.4)	
No	739 (70.6)	624 (74.0)	72 (56.3)	43 (56.6)	
Physical violence from in-laws (ILV), pre-pregnancy					1.9‡ (0.38)
Yes	44 (4.2)	32 (3.8)	7 (5.5)	5 (6.6)	
No	1003 (95.8)	811 (96.2)	121 (94.5)	71 (93.4)	

Figures in bold represent statistically significant results.

*P<0.05.

†F-statistic.

‡Pearson chi-square.

IPV, intimate partner violence.

have the most recent pregnancy was externally-decided (7.1%, n=74 decided by husband; 1.7%, n=18 decided by in-laws). The majority (91.2%, n=955) reported that the decision was *not* externally-decided (4.1%, n=43 decided by wives; 76.5%, n=801 jointly with husbands, 10.6%, n=111 accidental).

Approximately one-third (29.4%, n=308) of women reported experiencing physical and/or sexual IPV in the year prior to pregnancy. Violence from in-laws was

low for this population, with 4.2% (n=44) reporting ILV in the year prior to pregnancy.

Significant differences across groups of pregnancy intention (intended, mistimed, unwanted) were seen for husbands' formal education, where women reporting no formal education of their husbands were most likely to report an unwanted pregnancy (P=0.04); family structure, with women living in joint family most likely to report having an intended pregnancy

Table 2 Unadjusted and adjusted multinomial logistic regression: associations between physical and/or sexual intimate partner violence (year prior to pregnancy), and externally-decided pregnancy with unintended (mistimed, unwanted) pregnancy in urban slum communities in Mumbai, India (n=1047)

Variable	n (%)	OR (95% CI)	AOR† (95% CI)
Externally-controlled decision-making (n=92)			
Mistimed pregnancy	35 (38.0)	6.37 (3.92 to 10.38)*	6.00 (3.52 to 10.21)**
Unwanted pregnancy	10 (10.9)	2.57 (1.24 to 5.31)*	2.17 (0.90 to 5.20)
Intended pregnancy (Ref.)	47 (51.1)	–	–
Physical and/or sexual IPV, pre-pregnancy (n=308)			
Mistimed pregnancy	56 (18.2)	2.22 (1.51 to 3.25)*	1.94 (1.28 to 2.94)**
Unwanted pregnancy	33 (10.7)	2.19 (1.35 to 3.53)*	1.45 (0.82 to 2.55)
Intended pregnancy (Ref.)	219 (71.1)	–	–

Figures in bold represent statistically significant results.

† Adjusted for demographics and marital factors (wives' age, education, and caste/religion, husbands' age and education, family's monthly income, number of living children, family structure, and modern spacing contraception), and primary independent variables (externally decided pregnancy decision-making, and IPV).

*p<0.05

**p<0.001.

IPV, intimate partner violence; Ref., reference category.

(P<0.001); number of children, where greater number of children was associated with having an unwanted pregnancy (P<0.001); modern spacing contraception, where women reporting never using any method of modern spacing contraception were most likely to report having an intended pregnancy (P<0.001); externally-decided pregnancy, where women reporting externally-decided pregnancies were most likely to report having a mistimed pregnancy (P<0.001); and IPV, where most women reporting experiences of IPV reported having mistimed pregnancies (P<0.001).

Associations between externally-decided pregnancy and IPV with pregnancy intention

Table 2 presents unadjusted and adjusted associations between externally-decided pregnancy, and physical and/or sexual IPV with our multinomial outcome of unintended (mistimed, unwanted) pregnancy, with a reference category of intended pregnancy. In the unadjusted regression models, women reporting externally-decided pregnancies were significantly more likely to report having mistimed pregnancies (OR 6.37, 95% CI 3.92 to 10.38), and women reporting pre-pregnancy IPV were also more likely to report having a mistimed pregnancy (OR 2.22, 95% CI 1.24 to 3.25). These associations persisted in the adjusted models after controlling for demographic, marital and pregnancy covariates to predict women having mistimed pregnancies (externally decided pregnancy AOR 6.00, 95% CI 3.52 to 10.21; IPV AOR 1.94, 95% CI 1.26 to 2.94). While significant associations between external pregnancy decision and unwanted pregnancy (OR 2.57, 95% CI 1.24 to 5.31), and IPV and unwanted pregnancy (OR 2.19, 95% CI 1.35 to 3.53) were observed in the unadjusted models, these associations did not persist after controlling for all covariates in the adjusted regression models. Significant covariates

in the adjusted model to assess mistimed pregnancy included total number of living children, and male education. Significant covariates in the adjusted model to assess unwanted pregnancy included total number of living children, female education, condom use, and other modern spacing contraceptive use.

DISCUSSION

This article presents findings to understand associations between gendered inequities of health (ie, externally-decided pregnancy and IPV) and unintended pregnancy. The current study illustrates that women having externally-decided pregnancies are approximately six times more likely to have mistimed pregnancies, and women experiencing IPV are almost two times more likely to have mistimed pregnancies. Further, our findings indicate that the strength of the relationship between having an externally-decided pregnancy and having a mistimed pregnancy is stronger than the significant relationship between IPV and mistimed pregnancies. This finding is significant given the push for integration of IPV counselling and screening within family planning services in India, and is consistent with existing literature indicating that husbands often have greater decision-making power than wives over reproductive health decisions within marriage.^{23 29}

The unadjusted analyses in our study revealed that both forms of gendered inequities (externally-decided pregnancy and IPV) were associated with women reporting mistimed and unwanted pregnancies. However, on controlling for covariates and including both forms of inequity in models, only associations predicting mistimed pregnancies remained significant. The current finding that IPV is associated with women's reports of having mistimed pregnancies is consistent with prior research conducted in India.¹³ However,

no studies to date have examined the construct of pregnancy decision-making in relation to unintended pregnancy in India. Among women reporting externally-decided pregnancies, while 37% also reported experiencing IPV, 63% of women did not. This indicates that efforts to reduce unintended pregnancies through screening and intervention around IPV alone will not capture the majority of women who suffer from lack of reproductive autonomy.

Although no significant associations were found between having externally-decided pregnancies or IPV and having unwanted pregnancies, it is important to note that both categories of the covariate of modern spacing contraception in the year prior to pregnancy were significantly associated with *unwanted* pregnancy in the adjusted model. Women using modern spacing contraception were more likely to report having unwanted pregnancies, even after adjusting for demographic and marital factors. Almost half of those who had unwanted pregnancies reported using some form of modern method of contraception. Using a method of contraception implies that women are trying to avoid pregnancy, so if a pregnancy occurred despite using family planning methods, it is logical that a resulting pregnancy may be characterised as unwanted. In addition, a considerable proportion of women who reported not having pregnancies that were externally-decided, described the pregnancy as 'accidental,' which may be indicative of lack of effective use of family planning methods. These findings indicate the need to understand why women who are using contraception are at relatively high risk for unwanted pregnancy. It is possible that women's use of contraception may not have been correct or consistent.

The difference in results for mistimed and unwanted pregnancy is important to consider. Given the low reporting of unwanted pregnancy in our sample (7.3%), it is possible that the analyses were underpowered, making significant associations difficult to detect, although there was sufficient power across the categories to conduct a multinomial regression analysis (all cell sizes > 10 cases).³⁰ Study participants may also have contended with consistency bias in characterising a pregnancy as mistimed or unwanted when bringing the resultant infant in to receive immunisations. Despite these factors, the proportion of women reporting unintended pregnancies in our sample mirrors Indian national estimates for unintended pregnancy.⁶ Gipson⁴ and others⁷ have shown that existing literature on consequences of unintended pregnancies globally reports inconsistent results between pregnancies that are mistimed and unwanted (similar to the results of our study). Further research should be conducted to better understand how differences in pregnancy intention relate to external pregnancy decision-making and other gender inequities.

The results of the present study must be considered with additional limitations. Given that the study

involves analysis of cross-sectional data, causal relationships between IPV, wives' externally-decided and unintended pregnancies should not be made. Social desirability bias may have resulted in under-reporting of unintended pregnancy (especially unwanted pregnancy) as well as IPV. In addition, women were asked to characterise their pregnancy intention retrospectively, and this assessment may have differed from that at the time of conception, resulting in recall bias. Finally, the results of this study characterise the relationship between specific gendered inequities of reproductive health and unintended pregnancies among wives in urban slum communities in Mumbai, India and should not be generalised to other populations, or even other general urban settings in Mumbai or India.

Family planning health services offer an important opportunity to address gendered inequities of health, such as IPV and women's autonomy in family planning. The findings from this study suggest the need for consideration of these issues in both health screening and in interventions to reduce unintended pregnancies among married couples in India.

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