

# Spousal physical violence against women during pregnancy

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**Objective** To determine the prevalence of physical violence during pregnancy and the factors associated with it.

**Design** A population-based, multicentre, cross sectional household survey.

**Setting** Rural, slum and urban non-slum areas of Bhopal, Chennai, Delhi, Lucknow, Nagpur, Trivandrum and Vellore, in India.

**Participants** A total of 9938 women who were 15 to 49 years of age and living with a child younger than 18 years old.

**Methods** Probability proportionate to size sampling of households was performed in three strata. Trained field workers administered a structured questionnaire. Women who reported domestic violence were asked about violence during pregnancy. Outcome variables included six violent behaviours: slap, hit, kick, beat, use of weapon and harm in any other way. Moderate to severe violence was defined as experience of any one or more of the following behaviours: hit, beat or kick. Odds ratios were calculated for risk and protective factors of violence during pregnancy using logistic regression.

**Main outcome measures** Physical spousal violence.

**Results** The lifetime experience, during pregnancy, of being slapped was 16%, hit 10%, beat 10%, kicked 9%, use of weapon 5% and harmed in any other way 6%. Eighteen percent of women experienced at least one of these behaviours and 3% experienced all six. The overall prevalence of moderate to severe violence during pregnancy was 13%. Logistic regression showed that the factors determining whether a woman experienced moderate to severe violence during pregnancy were: husband accusing wife of an affair (OR 7.1; 95% CI 5.1 to 9.8), dowry harassment (OR 4.1; 95% CI 2.8 to 6.1), husband having an affair (OR 3.7; 95% CI 2.8 to 4.8), husband being regularly drunk (OR 3.2; 95% CI 2.6 to 4.1), low education of husband (OR 2.8; 95% CI 1.4 to 5.6), substance abuse by husband (OR 2.6; 95% CI 1.3 to 5.5), no social support (OR 1.8; 95% CI 1.1 to 3.0), three or more children (OR 1.6; 95% CI 1.2 to 2.1) and household crowding (OR 1.1; 95% CI 1.0 to 1.2).

**Conclusion** In this study, 12.9% of women experienced moderate to severe physical violence during pregnancy. Suspicion of infidelity, dowry harassment, husband being regularly drunk and low education of husband were the main risk factors for violence during pregnancy.

## INTRODUCTION

Recently, domestic violence in developing countries, such as India, has been acknowledged as a common health problem with a prevalence rate of 20% to 60%.<sup>1</sup>

Reasons for such varying reports are due to varying definitions of violence and non-uniform methodologies. One large population-based study of physical domestic violence in India reported a prevalence estimate of 17% but the information was collected from men.<sup>2</sup> Our study from seven sites in India found the prevalence of moderate to severe physical violence to be 41%.<sup>3</sup> In developed countries, the reported prevalence of violence against women by an intimate partner ranges from 9.7% to 30%.<sup>4</sup>

The reported prevalence of violence during pregnancy ranges from 0.9% to 20%.<sup>5–9</sup> Studies have shown that 40% to 60% of women who have experienced violence in their lifetime have also experienced violence during pregnancy.<sup>9</sup> Martin *et al.*<sup>2</sup> found that 5.4–13% of 1990 men from five districts in Uttar Pradesh (a northern state in India) had acknowledged physically assaulting their wives during pregnancy. In a study on women attending an antenatal clinic in Nagpur (central India), physical violence was reported in the index pregnancy by 22%.<sup>10</sup>

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Several studies in developed countries have attempted to identify risk factors for physical violence during pregnancy. Some of the consistent findings are that women who are single,<sup>11–13</sup> young,<sup>11,14</sup> poor,<sup>11,14</sup> of high parity,<sup>11</sup> and who do not receive antenatal care<sup>5</sup> are more likely to experience physical violence during pregnancy. In addition, when the pregnancy is unintended or if she is unhappy about being pregnant, the woman is more likely to experience violence.<sup>13,15</sup>

The literature regarding protective and risk factors is mainly from developed countries.

This is the first population-based study of women in India about the magnitude, pattern and risk factors of violence during pregnancy.

## METHODS

A population-based, cross sectional household survey was conducted at seven sites in six states across India. The IndiaSAFE research teams from the seven sites were based in medical colleges and universities within these states and were responsible for the study locally. Institutional Review Board approval was obtained at each study site.

This study was conducted at seven sites in India: Bhopal, Chennai, Delhi, Lucknow, Nagpur, Trivandrum and Vellore. Each study site conducted the survey in two of three possible strata (i.e. rural, urban slum and urban non-slum) classified according to the guidelines of the 1991 census of India. The sample size was estimated based on an assumed overall prevalence rate for each strata of 40% with a precision of  $\pm 2\%$ , 95% confidence interval and a 10% non-response rate. The minimum sample size needed in each stratum was 2845.

Each study site purposively selected potential blocks, localities or slums from which the Central Statistical and Data Management Center selected the final sample sites using census data of the population size, names of every village, slum and street within the block/locality. The Probability Proportional to Size method<sup>16</sup> was used to select 8–10 villages, slums or streets for the final rural and urban samples. This method is most useful when sampling units vary considerably in population size as it assures that larger units have a higher probability of getting into the sample compared with smaller units.

The field staff implemented a systematic strategy for selecting households throughout the sampling unit (i.e. village, slum or street in non-slum urban areas). When field staff encountered a residential building of more than three stories, one floor was randomly selected.

Our study eligibility criteria for a household was that it had at least one woman who was 15–49 years of age with at least one child (<18 years of age) residing at home. Almost all women were married and we did not exclude single mothers. Once the household was determined to be eligible, the field staff conducted a census of household members. If more than one woman met the eligibility criteria, the field staff applied a randomisation schedule to select one. The interview was conducted after obtaining a formal verbal informed consent. If the selected woman was not present or the time was inconvenient, an appointment for conducting the interview was arranged. The participation rate was: rural areas (90%), urban slums (76%) and urban non-slum (67%).

The main outcome variable was physical spousal violence, defined as 'any physical force or action of the husband towards the woman'. Six specific lifetime behaviours were assessed: slap (open hand); hit or punch (closed fist); kick, beat (repeated behaviours); use or threaten with weapon and harm in any other way (behaviours like pinching, pulling hair and shoving that the respondent felt did not fit into the specified acts of violence). Lifetime physical spousal violence ('ever') was assessed over a woman's entire married life using the above six indicator variables. Moderate to severe physical spousal violence was defined as the presence of at least one of the behaviours: hit, beat or kick.

During the household census assessment, the age of all household members was ascertained. The interview included items to assess the following social and economic indicators: number of rooms in the home, household appliances inventory, number of completed years of school for the woman and her husband and employment status of the woman and her husband. Household crowding was assessed by the number of household members enumerated from the household census divided by the number of rooms (excluding bathrooms). The interview contained questions about the woman's health and childhood: current physical health, mental health using the Self-Reported Questionnaire and childhood experience of family violence (i.e.

**Table 1.** Characteristics of the households according to whether woman experienced moderate to severe violence during pregnancy. Values are expressed as mean [SD] or mean difference (95% CI).

Characteristics	Not hit, beaten or kicked ( <i>n</i> = 7345)	Violence when not pregnant ( <i>n</i> = 1316)	Violence when pregnant ( <i>n</i> = 1277)	No violence vs violence when pregnant	Violence not pregnant vs violence when pregnant
Wife's age	31 [7.0]	32 [6.7]	31 [6.7]	0.1 (–0.3 to 0.5)	0.6 (0.1 to 1.1)
Husband's age	37 [7.7]	37.4 [7.9]	37 [7.8]	0 (–0.5 to 0.5)	0.7 (0.1 to 1.3)
Years married	12 [7.5]	13.6 [7.2]	13 [7.3]	–1.1 (–1.5 to 0.7)	0.3 (–0.3 to 0.9)
Crowding index	2.7 [1.6]	2.9 [1.6]	3.2 [1.8]	–0.5 (–0.6 to 0.4)	–0.3 (–0.4 to 0.2)
Appliances	4.5 [3.0]	2.9 [2.4]	2.6 [2.4]	1.9 (1.7 to 2.1)	0.3 (0.1 to 0.5)

**Table 2.** Prevalence of different kinds of violent behaviours ( $N = 9938$ ). Values are expressed as  $n$  (%).

Type of violence	Overall	When not pregnant	Even when pregnant
Any physical violence	4079 (41)	2301 (23)	1778 (18)
Slap	3953 (40)	2329 (23)	1624 (16)
Beat	2025 (20)	1013 (10)	1012 (10)
Hit	2014 (20)	1044 (11)	970 (9.8)
Kick	1718 (17)	824 (8.3)	894 (9.0)
Threaten with weapon	972 (9.8)	457 (4.6)	515 (5.2)
Harmed in other way	1075 (11)	438 (4.4)	637 (6.4)

harsh physical punishment and witnessing their fathers beating their mothers). Emotional social support from four sources (natal family, friends, husband and others) was ascertained. Social support was classified as none if absent in all four sources, low if present in one or two sources and high if present from three or four sources. Dowry harassment was defined as harassment of the woman by the husband or his family after the marriage for more money or material goods.

The standardised instrument and field methods were pilot tested in India.<sup>17</sup> After obtaining informed verbal consent, trained graduate level social workers interviewed women in their homes maintaining privacy by using *a priori* strategies. These included scheduling a mutually convenient time of interview, selecting a secluded room in the house or going to another more private site as well as use of dummy interview schedules if the interview was disturbed by an inquisitive or hostile adult. The average duration of an interview was 35–45 minutes.

Data were double-entered, locally and centrally at the Statistical Coordinating Centre using Visual Foxpro 6.0. Univariate descriptive statistics and bivariate analyses (ANOVA and  $\chi^2$ ) used SPSS version 11.0. Logistic regression (forward stepwise method) was performed using variables that were hypothesised to be relevant *a priori*: crowding index (continuous variable), appliances (continuous variable), social support, witnessed violence during childhood, experienced violence during childhood, husband's alcohol use. Variables that reached significance at a 10% level in univariate analysis were also included in the initial model: number of children, education of wife, employment of wife, dowry harassment, education of

husband, employment of husband, substance abuse by husband, extramarital affairs of husband, husband accusing wife of an affair and gambling. Two models were constructed. The first compared women who experienced moderate to severe violence during pregnancy with those who experienced it only when not pregnant. The second compared women who experienced moderate to severe violence during pregnancy with those who did not report moderate to severe violence at all. The Hosmer Lemeshow test was used to assess the goodness of fit and the Nagelkerke  $R^2$  was used to determine the proportion of the variation of the dependent variable explained by the final model.

## RESULTS

In this study, 9938 women were interviewed of whom 4079 (41%) said they had experienced some form of physical violence by their husbands. Moderate to severe violence (hit, kicked or beaten) was experienced by 1316 (13%) only when not pregnant and 1277 (13%) experienced these even when pregnant.

The overall mean age of the women was 31 years (SD 6.9). The women had been married on average 12.5 years (SD 7.4). Woman's age, husband's age and duration of marriage were similar in women who reported violence and among those who did not. Women who experienced violence during pregnancy resided in the most crowded homes (crowding index mean 3.2; SD 1.8) while those who did not report violence lived in the least crowded homes (crowding index 2.7; SD 1.6). Women who reported violence during pregnancy had the least number of appliances in the home (2.6; SD 2.4), while those who reported no violence at all had the most number of appliances (4.5; SD 3.0) (Table 1).

Overall, 16% of women said they had been slapped, 10% reported being hit, 10% experienced being beaten and 9% admitted to having been kicked during pregnancy.

Any one of the six violent behaviours were experienced by 1148 (11.6%), any two by 432 (4.4%), any three by 268 (2.7%), any four by 247 (2.5%), any five by 139 (1.4%) and all six by 67 (0.7%). In this study, 41% of women who ever reported being slapped, 48% of those who reported being hit, 50% of those who were beaten and 52% of women who reported being kicked experienced these violent behaviours in pregnancy (Table 2).

**Table 3.** Prevalence of violence during pregnancy by stratum. Values are expressed as  $n$  (%).

	Overall ( $n = 9938$ )	Rural ( $n = 3611$ )	Urban slum ( $n = 3155$ )	Urban non-slum ( $n = 3172$ )
Slap	1624 (16)	676 (19)	643 (20)	305 (10)
Hit	970 (10)	409 (11)	398 (13)	163 (5)
Beat	1012 (10)	469 (13)	353 (11)	190 (6)
Kick	894 (9)	356 (10)	399 (13)	139 (4)
Weapon	515 (5)	223 (6)	208 (7)	84 (3)
Other	637 (6)	234 (7)	323 (10)	80 (3)

The prevalence of these violent experiences during pregnancy varied by location (stratum) as shown in Table 3. For all six behaviours, women in non-slum urban areas reported the least amount of violence. Women in rural and urban slums reported almost double the amount of violence reported by the urban non-slum women.

In the univariate analysis, violence during pregnancy was more common as the duration of marriage increased,

**Table 4.** Logistic regression analysis for moderate to severe violence during pregnancy. Values are expressed as odds ratio (95% CI).

Factor	Pregnancy violence/ non-pregnancy violence	Pregnancy violence/ no violence
<b>Husband's age</b>	0.98 (0.97 to 0.99)	
<b>Appliances</b>		0.9 (0.87 to 0.95)
<b>Crowding index</b>	1.1 (1.07 to 1.19)	1.1 (1.02 to 1.15)
<b>Education</b>		
Wife		
0–5		1.1 (0.50 to 2.39)
6–12		0.7 (0.34 to 1.59)
Over 12*		
Husband		
0–5		2.8 (1.43 to 5.63)
6–12		2.7 (1.37 to 5.14)
Over 12*		
Children		
3 or more		1.6 (1.19 to 2.13)
2		1.4 (1.02 to 1.80)
1*		
<b>Social support</b>		
None	2.0 (1.20 to 3.17)	1.8 (1.07 to 3.01)
Some	1.4 (1.09 to 1.74)	1.6 (1.23 to 1.97)
High*		
<b>Witness violence</b>		
Yes		1.5 (1.24 to 1.86)
No*		
<b>Dowry harassment</b>		
High	2.2 (1.54 to 3.0)	4.1 (2.78 to 6.06)
Some	1.4 (1.05 to 1.78)	1.8 (1.39 to 2.40)
None*		
<b>Husband drunk</b>		
Regular	1.5 (1.16 to 1.83)	3.2 (2.55 to 4.10)
Occasional	1.2 (0.91 to 1.48)	1.3 (1.01 to 1.60)
Teetotaler*		
<b>Substance abuse</b>		
Yes		2.6 (1.25 to 5.53)
No*		
<b>Husband has affair</b>		
Yes	1.8 (1.40 to 2.22)	3.7 (2.83 to 4.79)
No*		
<b>Husband accuses wife</b>		
Yes	2.0 (1.56 to 2.55)	7.1 (5.09 to 9.77)
No*		

\* Reference group.

number of children and the crowding in the house increased but these could just be the effect of more pregnancy experiences. Violence during pregnancy was significantly more when there were fewer household appliances. Violence during pregnancy was significantly associated with illiteracy of women, employment of women, dowry harassment after marriage, absent or poor social support, witnessing father beating mother during one's childhood and having experienced harsh physical punishment during childhood.

The results of multivariate logistic regression analysis are shown in Table 4. Only the variables that remained in the final stepwise logistic regression model are shown. Husband being drunk regularly (OR 3.2; 95% CI 2.6 to 4.1), husband having an affair (OR 3.7; 95% CI 2.8 to 4.8), dowry harassment (OR 4.1; 95% CI 2.8 to 6.1) and husband accusing the wife of having an extramarital affair (OR 7.1; 95% CI 5.1 to 9.8) were the strongest risk factors for violence during pregnancy compared with women with no violence at all. Other significant risk factors were low education of husband (OR 2.8; 95% CI 1.4 to 5.6), substance abuse by husband (OR 2.6; 95% CI 1.3 to 5.5), no social support (OR 1.8; 95% CI 1.07 to 3.0), three or more children (OR 1.6; 95% CI 1.2 to 2.1) and household crowding (OR 1.1; 95% CI 1.02 to 1.15). The model was a good fit as shown by the Hosmer and Lemeshow test (significance 0.384) and 42% of the variation could be explained by the final model.

When comparing women who reported violence during pregnancy with those who experienced violence only when not pregnant, dowry harassment (OR 2.2; 95% CI 1.5 to 3.0), husband accusing wife of having an extramarital affair (OR 2.0; 95% CI 1.6 to 2.6), no social support (OR 2.0; 95% CI 1.2 to 3.2) were the important risk factors. This model had a Hosmer and Lemeshow value of 0.6 and 12% of the variation could be explained by the model.

## DISCUSSION

The prevalence of physical violence during pregnancy in India is similar to rates reported in most other studies from the West. In China, 4.3% of 631 pregnant women said they were physically abused during their pregnancy.<sup>18</sup> In a smaller study from Pakistan, 34% of 150 women interviewed experienced intimate partner violence of whom 15% reported abuse during pregnancy.<sup>19</sup> Prevalence rates of violence during pregnancy, in the literature, range from 0.9% to 20.1%. Such wide variations could be explained by differing definitions of violence and methods of assessment. In this study, only those women who reported physical violence were specifically asked whether they had experienced the violence during pregnancy. In this study, we specifically analysed only six violent behaviours, namely, slap, hit, beat, kick, use of weapon and harm in any other way. In real life, violent behaviours do not necessarily fall into neat categories and women may experience other

types of violence. The specific behaviours assessed in this study are the most commonly used in the literature on violence against women.

Because our sample size was large, many of the variables were statistically significant in the univariate analysis. To determine the meaningful factors associated with violence, multivariate logistic regression was used. The forward stepwise logistic regression model being most conservative was used for this analysis. It was assumed that violence during pregnancy was a more severe form of violence than violence when not pregnant. The adjusted odds ratios give a measure of risk for violence during pregnancy compared with women who have experienced violence when not pregnant and also to women who did not report any violence. Limitations of the study are that only those who reported lifetime physical violence were asked about violence during pregnancy. It is theoretically possible that some women may have admitted to this if asked specifically about it even though they had not admitted to violence in general. It is likely that violence was under reported (especially in urban non-slums), as women are likely to suppress this information for various reasons.

The main strengths of the study are that it is population based, the structured interview schedule was piloted after several focus group discussions with women and men in the community and the interviewers were qualified and trained to elicit sensitive information.

This study was not designed to assess adverse pregnancy outcomes such as antepartum haemorrhage, preterm labour or fetal loss. These are likely to be increased as a result of physical violence.<sup>20</sup> Neither was this study designed to evaluate the effect of pregnancy on the pattern of domestic violence. Studies of domestic violence during pregnancy are inconclusive in terms of the pattern of domestic violence during the perinatal period, that is, whether pregnancy offers women protection from domestic violence, or whether women are more vulnerable to domestic violence during pregnancy. Unintended pregnancy,<sup>21</sup> low contraceptive use<sup>22</sup> and pregnancy terminations<sup>23</sup> are associated with violence.

Although the American College of Obstetricians and Gynecologists recommended routine screening for all women and developed guidelines for screening,<sup>24</sup> only about 10% of physicians actually follow this advice.<sup>25</sup> Women who are experiencing violence at home may be too scared or embarrassed to seek direct help. Because women make several visits to health facilities during their reproductive years, screening for violence by health workers could help these women. At present, no effective intervention other than referral for counselling and shelters are available. This is one area that requires research.

Similar to other countries, domestic violence in India has long remained a closeted phenomenon. This study provides additional evidence that it is prevalent worldwide and should be recognised as an issue of clinical and public

health importance. This study highlights some of the risk and protective factors for violence against women and hopefully will lead on to interventions to prevent women from being battered in their own homes.

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