

# Interpersonal Violence and Pregnancy Outcomes: A Retrospective Study of Women in India

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## Background

- Interpersonal violence (IPV) includes any physical, sexual, emotional, and economic abuse (World Health Organization, 2012).
- Globally, 35% of women have ever experienced physical and/or sexual intimate partner violence, or sexual violence by a non-partner (World Health Organization, 2013).
- Women with a history of violence are more likely to report having had an abortion, miscarriage, or stillbirth than those without such a history (Hindin et al., 2008).
- According to the 2005-2006 National Family Health Survey conducted across India, 40% of women experience some form of IPV, highlighting that women living in India are experiencing IPV at higher levels.

**We hypothesize that stillbirth, miscarriage, and abortion rates will increase in the presence of emotional or physical violence. We expect this increase to strengthen when considering the covariates of lower education levels, residing in a rural area, and younger age at delivery.**

## Methods

IPUMS-DHS Data:  
3605 women  
ages 15-49  
living in India

Excluded respondents with who had never been pregnant or had missing variables

3,605 respondents with response variables.

### INDEPENDENT VARIABLES

- National Family Health Survey
  - Having ever experienced physical violence
  - Having ever experienced emotional violence
- Demographic Information
  - Age Range
  - Education Level
  - Rural or Urban Residence

### STATISTICAL ANALYSIS

- Contingency Analysis
- Chi-square Tests
- Multinomial Logistic Regressions
- ANOVA Regressions

## Results

**Table 1.** Descriptive statistics for the 3,605 respondents.

	Overall		Urban		Rural	
	n	Proportion	n	Proportion	n	Proportion
Stillbirth	322	8.932%	89	7.80%	233	9.40%
Miscarriage	2148	59.584%	670	58.80%	1478	60.00%
Abortion	1135	31.484%	380	33.30%	755	30.60%
Physical Abuse Experienced During Pregnancy	191	5.298%	53	4.65%	138	5.60%
Emotional Violence During Pregnancy	617	17.115%	177	15.50%	440	17.80%
Age (15-19)	43	36.616%	10	0.78%	33	1.33%
Age (20-29)	2090	57.975%	631	56.0%	1459	59.0%
Age (30-49)	1472	40.832%	498	43.10%	974	38.90%
No Education	905	25.104%	171	15.0%	734	29.80%
Primary Education	540	14.979%	148	13.00%	392	15.90%
Secondary Education	1759	48.793%	598	52.50%	1161	47.10%
Higher Education	401	11.123%	222	19.50%	179	7.30%

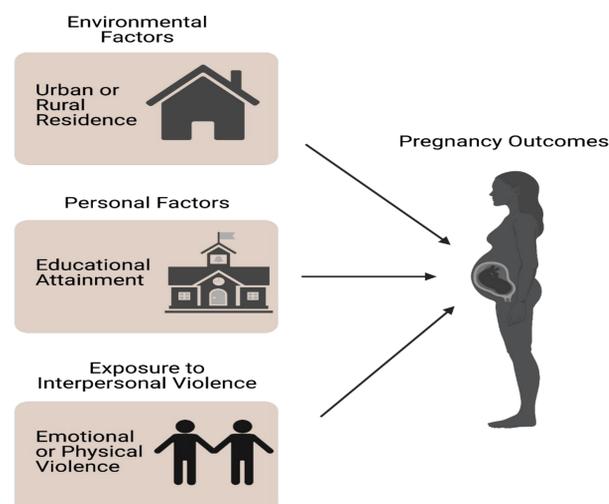
**Table 2.** The statistically significant findings for the 3,605 respondents using various statistical analyses.

Statistical Analysis Type	Residency	Type of IPV	Pregnancy Termination Type	P-value
One Way ANOVA	Overall sample	Emotional Violence During Pregnancy	Mean Probability of Any Type	0.0014*
	Rural	Emotional Violence During Pregnancy	Mean Probability of Any Type	0.0085*
Chi-Square Results	Rural	Physical Violence During Pregnancy vs None	Miscarriage	0.0054*
	Urban	Emotional Violence During Pregnancy vs None	Miscarriage	0.0452*
	Urban	Physical Violence During Pregnancy vs None	Abortion	0.0266*
	Rural	Physical Violence During Pregnancy vs None	Abortion	0.0162*
	Rural	Emotional Violence During Pregnancy vs None	Overall Type	0.0170*

## Conclusion

We identified increased miscarriage and abortion rates for urban and rural communities in the presence of emotional violence. Additionally, we identified increased miscarriage and abortion rates in rural communities in the presence of physical violence.

**This suggests that pregnancy termination type rates are influenced by the presence of IPV during pregnancy.**



## Discussion

### Miscarriage

- We found a significant relationship between the presence of physical violence and the proportion of women who experienced a miscarriage in rural areas

### Abortion

- We found a significant relationship between experiencing emotional violence and abortion rates for urban and rural communities.
- Our results showed a statistically significant relationship between education level and the proportion of women who reported an abortion.

### Stillbirth

- Our results showed a statistically significant relationship between education level and the proportion of women who reported a stillbirth.

### Additional Risk Factors

- Rural residency is a risk factor for IPV
- IPV can increase stress levels thus contributing to increased risks of miscarriage
- We suspect emotional violence could restrict women's access to contraception, leading to unwanted pregnancies and induced abortions
- Our results indicate differences between pregnancy termination outcomes in urban and rural areas, which could be attributed to different cultural and social perceptions. These results emphasize the importance of accounting for geographic location.
- When women's educational opportunities are increased, this functions as a protective factor
- Based on our results, we recommend intervention methods that take an individual community approach.

**This synergism between the biological and social spheres indicates that holistic approaches to public health interventions would be the most beneficial.**

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