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ATTITUDES AND NORMS ABOUT INTIMATE PARTNER VIOLENCE: WHAT MAKES WOMEN MORE IMPRESSIONABLE?

*Gaurav Dhamija, Mehreen Mookerjee, Manini Ojha, and
Sanket Roy*

ABSTRACT

This article evaluates the causal impact of average neighborhood attitudes justifying intimate partner violence (IPV) on own attitudes using nationally representative data from the fifth wave of the National Family Health Survey of India. The study utilizes exogenous variation in average exposure of neighborhood women to their parental IPV in a leave-one-out instrumental variable strategy to address endogeneity concerns in estimating peer influences. The study finds robust evidence that a 1 standard deviation increase in a woman's average neighborhood attitudes justifying IPV leads to a 0.36 standard deviation increase in her attitudes justifying the same. The article establishes the importance of peer influences on a woman's acceptance of IPV as justifiable, especially among the less educated, having no assets and bearing more daughters than sons, making them more impressionable. This underscores the need for enhanced implementation of policies targeting women's empowerment to arrest the perpetration of gender-biased social norms.

KEYWORDS

Neighborhood, domestic violence, social effects, attitudes, instrumental variable, India

JEL Codes:: C26, J12, J16

HIGHLIGHTS

- Social networks play a significant role in shaping attitudes toward IPV.
- Neighboring women's acceptance of IPV increases individual acceptance of IPV.
- Peer effects are strongest among less-educated and asset-poor women.

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- Evidence suggests that peer attitudes contribute to the persistence of IPV.
- Policies promoting women’s empowerment can challenge harmful social norms.

INTRODUCTION

With one in three women facing some kind of domestic violence by their intimate partners/husbands in their lifetime, there is growing consensus that violence against women is a public health concern of epidemic proportions (World Health Organization 2013, 2021). Thomas R. Simon et al. (2001), Rachel Jewkes (2002), Michelle J. Hindin (2003), Murray A. Straus (2004), Anastasia J. Gage (2005), Kiersten Blair Johnson and Maitreyi Bordia Das (2009), Olalekan Abdulrahman Uthman, Tahereh Moradi, and Stephen Lawoko (2009), William Sambisa et al. (2010), Lili Wang (2016), Mehreen Mookerjee, Manini Ojha, and Sanket Roy (2021) provide strong evidence that attitudes about what is an acceptable behavior pattern is a prominent predictor of the incidence of intimate partner violence (IPV). Within a cultural context, prevalent attitudes about IPV also become important predictors of individual attitudes toward IPV and, as such, may serve as risk factors for women to be victimized by IPV. The trouble with such attitudes is that living in societies that justify acts of violence as a partner’s right to abuse the woman when she deviates from what is considered socially acceptable often results in influencing beliefs about what is personally acceptable (Visaria 2000). With this in mind, we attempt to understand how exposure to gendered patterns in societal attitudes toward IPV, specifically about what is justifiable behavior, affects one’s own attitudes about IPV. Put differently, what we try to answer here is: if there are gendered patterns in the attitudes of women about the acceptability of IPV within their social network, to what degree does it make a woman impressionable about IPV being justified?

A lot has been written about the influence of social factors like behavior of peers and neighbors on individual behavior across various domains including education (Calvó-Armengol, Patacchini, and Zenou 2009; Sacerdote 2011; Fletcher 2015; Antecol, Eren, and Ozbeklik 2016; Feld and Zölitz 2017), the realms of alcohol, tobacco, or drug usage (Gaviria and Raphael 2001; McVicar and Polanski 2014; Fletcher and Ross 2018), consumption habits, income distribution (Moretti 2011; Grohmann and Sakha 2019; Roychowdhury 2019), and employment choices (Mota, Patacchini, and Rosenthal 2016).

Evidence also documents notable influences of peer attitudes, family and community values, and national norms on individual attitudes (Flood and Pease 2009; Ali and Naylor 2013; Herrenkohl and Jung 2016). We contribute to the literature on understanding how peer attitudes affect

individual attitudes toward IPV. Specifically, we estimate the causal effect of the average neighboring women's attitudes about IPV on a woman's own attitudes regarding IPV, thus capturing, to some extent, the idea of impressionability amongst women.

In general, factors that affect attitudes toward IPV primarily arise from creating a conflict between the reality and the notion of male superiority (male-backlash), exposure to impartial social networks, and exposure to non-conformist ideas through modern media and education (Rani, Bonu, and Diop-Sidibe 2004). Simultaneously, the concept of a "just world," where individuals believe that people receive what they deserve and the social systems affecting them are fair, legitimate, and justifiable (Kay, John, and Jost 2005), leads to perceiving a victim of violence as partly responsible for their plight (female-guilt). Prevailing social norms often compel women to take up gendered/inferior roles in the family, and this hegemony fosters an attitude of acceptance of IPV among women who internalize it as part of their daily lives (Biswas 2017; Biswas et al. 2017). In patriarchal setups like India, attitudes toward spousal violence can also inherently differ between genders owing to the diverse social conditioning of men and women. As such, Haimanti Bhattacharya (2016) argues that the samples of women and men ought to be treated as samples drawn from two different sub-populations. Drawing from this idea, we specifically consider the sub-population of women and the views of women regarding acceptance of IPV to answer our question. The fact that women may find any justification for accepting IPV and to the extent that women interact with other women living in their close proximity, neighbors are bound to influence their own acceptance of IPV. Since domestic violence is considered acceptable when there is willful (versus unintended) transgression of norms by the woman (Yount et al. 2013; Tsai et al. 2017; Reitmann et al. 2020), we assert that it is important to quantify the magnitude of the impact of one's peers' attitudes on own attitudes.

We utilize nationally representative data from the latest round of the National Family Health Survey (NFHS-5) conducted in 2019–21 for India. Using the module on domestic violence and couples data, we exploit the plausibly exogenous variation in the neighboring women's exposure to their parental violence as an instrument for average neighboring women's attitudes about IPV and estimate our desired causal effect on a woman's own attitudes about IPV. Similar to Mookerjee, Ojha, and Roy (2022), we define a peer group as the neighboring women residing in close geographical proximity to the respondent.

The results point to consistently large positive effects of peer attitudes on one's own attitudes about IPV. Our instrumental variable (IV) estimates show that a 1 standard deviation (SD) increase in average neighboring women's attitudes toward IPV leads to a statistically significant increase of 0.36 SD in the likelihood of a woman's own justification of IPV. Exploring

this further, we find evidence of notable heterogeneity in these effects. In particular, we find higher effects for less educated women and women who do not own any assets such as land or a house, indicative of the idea that less empowered women show greater acceptance of IPV when there is a willful deviation from the norm. We also explore heterogeneity by the gender composition of her children and observe greater effects for the subset of women with more daughters than sons. Once more, our finding suggests that this group perceives itself as partially accountable for its circumstances, affirming the existence of the phenomenon of female guilt. Examining the heterogeneity by caste, social group, religion, and region of India, we find larger peer influences among Muslims and women belonging to upper castes. Our results remain robust to different measures of our outcome variable, additional sample restrictions, and falsification tests. We also provide suggestive evidence that neighboring women's acceptance of IPV translates into a higher incidence of physical domestic violence at the neighborhood level, in line with Ursula Dibble and Murray A. Straus (2017) and Mookerjee, Ojha, and Roy (2021) and, as a result, leads to a change in an individual woman's justification of IPV. This suggests that gendered patterns in attitudes of peers about violence as a justifiable act impact the actual perpetration of violent behavior, in turn affecting a woman's own ideas about IPV.

That peer attitudes have such a consistent effect on one's own attitudes regarding IPV suggests an important but typically underresearched question about attitudes owing to the inherent difficulty in their measurement. Although we recognize that we do not alleviate the measurement concerns entirely, we provide new insights into the robust peer effects on individuals. This is important because, within patriarchal setups, the expectations to conform to regressive and gendered social norms and attitudes may lead to persistence of such norms. We shed light on these salient but commonly unobservable factors that may determine violence against women.

DATA

NFHS data

We utilize the fifth round of the National Family Health Survey (NFHS-5; 2021) of India conducted during 2019–21. As part of the global Demographic Health Survey (DHS) program, NFHS is a nationwide cross-sectional demographic health survey. It provides information on various topics such as population demographics, health and nutrition status, women empowerment, gender role attitudes, marital histories, domestic violence, and fertility preferences. It is conducted by the International Institute for Population Sciences (IIPS) in Mumbai administered under the

Ministry of Health and Family Welfare (MoHFW), Government of India.¹ The sample is drawn using stratified random sampling.

We utilize the couples module, which consists of one record for each couple, where the respondent is identified as the woman. This module encompasses data for married couples or cohabiting partners, where both individuals have declared their marital status to each other and have participated in individual interviews. The couples are interviewed for a subset of the households in NFHS-5, and the module consists of 57,693 observations, with women between the ages of 15 and 49 years and men between 15 and 54 years. We first restrict the data to only include households with a single couple; in other words, we drop all households that have more than one couple in them to exclude any within-household dynamics and capture between-household neighborhood effects. This reduces the sample to 49,983 observations, resulting in a 13 percent drop from the original sample. Second, we restrict our sample to women who are married only once to ensure that their responses pertain to their current union. This brings the sample to 49,175 observations, resulting in a further drop of 1.6 percent of the sample. Third, we only consider those clusters of households where the number of households in the cluster is at least greater than one. We do this because we define our neighborhoods as all the other households that belong to the same cluster for any household.² It further reduces our sample to 48,954 observations, a subsequent reduction of approximately 0.4 percent of the sample. Our analytical sample consists of 48,155 observations, accounting for some missing observations in variables.³

Attitudes regarding domestic violence as a justified behavior

Our outcome variables include questions that are asked of the women regarding their attitudes about whether beating the wife is justified in the following scenarios: if the wife (1) goes out without telling her husband; (2) neglects children; (3) argues with husband; (4) refuses sex; (5) does not cook food properly; (6) is unfaithful; and (7) is disrespectful. We code each response as taking the value 1 if their response is yes and 0 otherwise. We then create an indicator of acceptability of IPV, *AttitudesIPV*, such that it takes the value 1 if she justifies violence for any of the above cases and 0 otherwise, thus rendering our variable binary.

Variable of interest

The main variable of interest is the neighboring women's attitudes regarding IPV as a justified behavior, *NeighAttitudes IPV*. We construct *NeighAttitudes IPV* by taking an average of IPV attitudes for all women belonging to the same cluster, except the respondent.

In other words, NeighAttitudes IPV measures the share of other women in the neighborhood (cluster), leaving out the woman herself, who consider IPV to be acceptable for at least one of the aforementioned reasons. Resultantly, the neighborhood variable lies between 0 and 1.

Selection of controls

Recognizing that all non-experimental economic research is vulnerable to omitted variable bias, as highlighted by Emily Oster (2019), we incorporate a wide array of meticulously selected comprehensive controls that are observable in our analysis (Shreemoyee, Roychowdhury, and Dhamija 2025). These include women’s characteristics, husband’s characteristics, household characteristics, and neighborhood characteristics. Woman-level controls include woman’s age (in years), age at cohabitation (in years), education (in completed years), current work status (yes/no), house/land ownership (yes/no), bank account (yes/no), mobile phone (yes/no), exposure to mass-media (yes/no), normal body mass index (BMI) (yes/no/missing) to incorporate a measure of her general health status, gender gap between children (difference in the number of sons and daughters), exposed to parental IPV (yes/no/missing), and the total number of years she has resided in the same location. Husband controls include age (in years), age at cohabitation (in years), education (in completed years), current work status (yes/no), house/land ownership (yes/no), and media exposure (yes/no). Household level controls include indicators for religion (Hindu/Muslim/Christian/others), social group (scheduled caste/scheduled tribe/other backward class/others/missing), wealth category (poor or rich), whether the household is male-headed (yes/no), age of the head (in years), household size, and indicator for the area of residence (rural/urban). Given that we are trying to estimate the effects of neighborhood women’s IPV attitudes on a woman’s own IPV attitudes, we also include the average of women, husbands, and household characteristics for the neighborhood as a set of controls in our analysis.

Descriptive patterns – Analytical sample

Table 1 provides the summary statistics for our analytical sample. Examining own and neighborhood attitudes about IPV, we note that 44 percent of the women and 44 percent of neighboring women, on average, believe that domestic violence is a justified behavior. Besides, an average woman has about 6.5 years of education and has 0.08 fewer daughters than sons. The mean age for women is approximately 33.9 years, and their average age at cohabitation is approximately nineteen years. Approximately 30 percent

Table 1 Descriptive statistics

<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Own Attitudes toward IPV (AttitudesIPV)				
Justifies IPV: Yes	0.44	0.50	0	1
Justifies IPV: No	0.56	0.50	0	1
Neighborhood Attitudes toward IPV (NeighAttitudes IPV)	0.44	0.34	0	1
Neighborhood Women Parents' Violence (NeighParentsIPV)	0.19	0.26	0	1
Woman's own characteristics				
Age (in years)	33.86	7.74	15	49
Age at Cohabitation (in years)	18.96	3.98	0	45
Years of Completed Education	6.50	5.13	0	20
Currently Working				
Yes	0.30	0.46	0	1
No	0.70	0.46	0	1
House/Land Ownership				
Yes	0.51	0.50	0	1
No	0.49	0.50	0	1
Bank Account				
Yes	0.81	0.40	0	1
No	0.19	0.40	0	1
Mobile Ownership				
Yes	0.55	0.50	0	1
No	0.45	0.50	0	1
Media Exposure				
Yes	0.53	0.50	0	1
No	0.47	0.50	0	1
Normal BMI				
Yes	0.41	0.49	0	1
No	0.57	0.50	0	1
Missing	0.02	0.14	0	1
Difference in number of sons and daughters	0.08	1.45	- 8	10

(Continued)

ATTITUDES AND NORMS ABOUT INTIMATE PARTNER VIOLENCE

Table 1 Continued.

<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Parents' Violence				
Yes	0.16	0.36	0	1
No	0.68	0.47	0	1
Missing	0.16	0.37	0	1
Duration of residence in current location (in years)	15.54	12.00	0	50
Husband's characteristics				
Age (in years)	38.53	8.17	15	54
Age at Cohabitation (in years)	23.49	4.79	0	53
Years of Completed Education	7.85	4.89	0	20
Currently Working				
Yes	0.91	0.29	0	1
No	0.09	0.29	0	1
House/Land Ownership				
Yes	0.82	0.39	0	1
No	0.18	0.39	0	1
Media Exposure				
Yes	0.57	0.49	0	1
No	0.43	0.49	0	1
Household characteristics				
Religion				
Hindu	0.76	0.43	0	1
Muslim	0.12	0.32	0	1
Christian	0.07	0.26	0	1
Other	0.05	0.22	0	1
Social Group				
Scheduled Caste (SC)	0.19	0.39	0	1
Scheduled Tribe (ST)	0.20	0.40	0	1
Other Backward Class (OBC)	0.38	0.49	0	1
Upper Caste (UC)	0.17	0.38	0	1
Missing	0.06	0.23	0	1
Wealth Category				
Poor	0.44	0.50	0	1
Rich	0.56	0.50	0	1

(Continued)

Table 1 Continued.

<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Male Headed Household				
Yes	0.93	0.25	0	1
No	0.07	0.25	0	1
Household head's age (in years)	45.42	12.73	14	95
Household Size	4.89	1.72	2	20
Residence Status				
Rural	0.75	0.43	0	1
Urban	0.25	0.43	0	1
<i>Observations</i>			48,155	

of the women are employed, 51 percent own a house or land, 81 percent have a bank account, 55 percent own a mobile phone, and approximately 53 percent have some media exposure and have stayed in the same location for 15.5 years. Looking at men's characteristics, we see that the average man has 7.8 years of education, has mean age of approximately 38.5 years, and the mean age at cohabitation is about twenty-three years. Additionally, 90 percent of the men are employed, 82 percent have land or house ownership, and approximately 57 percent have some media exposure in our sample.

Demographics at the household level suggest that 44 percent of the households in our analytical sample belong to the poorest and poor income category in terms of wealth index.⁴ Roughly 76 percent are Hindus, 12 percent Muslims, 7 percent Christians, and 5 percent belong to other religions. Approximately 19 percent of the households belong to the Scheduled Castes, 20 percent are Scheduled Tribes, 38 percent are Other Backwards Castes (OBCs), and about 17 percent belong to other social categories. Among households, 93 percent are male-headed, and 75 percent reside in rural areas, with the average age of the head of the household being 45 years and an average household size of approximately 4.89 members. The scatter plot of the percentage of women who justify IPV by average neighborhood attitudes toward IPV is shown in Figure 1.

EMPIRICAL FRAMEWORK

Estimation strategy

We use the following empirical specification to investigate the effect of neighborhood women's attitudes regarding IPV as a justified behavior on a

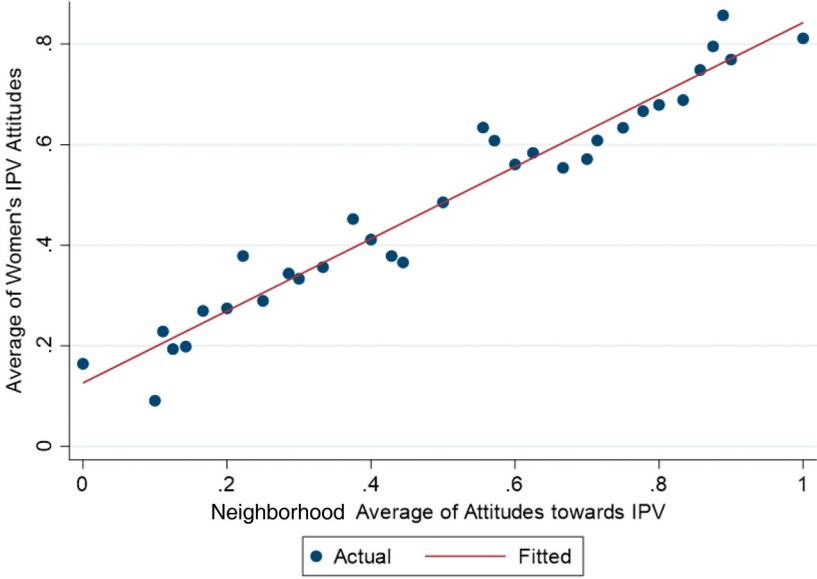


Figure 1 Relationship between the average of women's attitude toward IPV and average of neighborhood women's attitude toward IPV

Notes: We calculate the average of women's own attitude by every unique value of average neighborhood women's attitude toward IPV. Each scatter point depicts the combination of average of women's own attitude corresponding to each value of average neighborhood women's attitude toward IPV.

woman's own attitudes toward IPV:

$$\begin{aligned} \text{AttitudesIPV}_i = & \beta_0 + \beta_1 \text{NeighAttitudesIPV}_{-i} \\ & + \beta_2 \mathbb{X}_i + \beta_3 \tilde{\mathbf{N}}_{-i} + \lambda_d + \epsilon_i \end{aligned} \quad (1)$$

where AttitudesIPV_i refers to a woman's own attitudes about whether violence is a justified behavior; $\text{NeighAttitudesIPV}_{-i}$ denotes the average neighboring women's attitudes about whether IPV is justified (we construct a leave-one-out average of all neighboring women's attitudes, except woman i); $\mathbb{X}_i$ is the vector of woman-specific controls, husband's characteristics and household characteristics; $\tilde{\mathbf{N}}_{-i}$ is the vector of average neighborhood controls; λ_d denotes district dummies, and ϵ_i is the idiosyncratic error term. Our parameter of interest, β_1 , captures the effect of the neighboring women's IPV attitudes on a woman's IPV attitudes. All standard errors are clustered at the neighborhood level.⁵

The causal interpretation of β_1 hinges on the assumption that, given the comprehensive set of controls and the district fixed effects incorporated in the regression, there are no omitted variables correlated with both

AttitudesIPV_i and NeighAttitudesIPV_{-i}. It also necessitates that causality not run from our outcome variable, AttitudesIPV_i to NeighAttitudesIPV_{-i}. We acknowledge the potential source of endogeneity due to the presence of unobservable factors at the group level (highlighted by Manski 1993; Sacerdote 2001) that could influence both an individual's actions and those of their neighbors. Such influences might stem from underlying social norms that are not directly observable but affect the behavior of households within the same neighborhood. Additionally, empirical models of social interactions often encounter identification challenges, as the coefficient β_1 reflects endogenous peer effects (discussed by Manski 1993; Brock and Durlauf 2001), making it challenging to ascertain whether an individual's decision is causing or being influenced by the decisions of their reference group. Moreover, there could be a bias in the relationship between neighborhood characteristics and outcomes due to selection into neighborhoods. A systematic spatial selection process may exist, rendering the reference groups endogenous. These potential sources of endogeneity may restrict the ability of a simple ordinary least squares (OLS) estimation to provide an unbiased and consistent estimate of neighboring women's IPV attitudes. Thus, we follow an instrumental variable (IV) estimation strategy to alleviate such concerns and address the unobserved group-level characteristics that could jointly determine AttitudesIPV_i and NeighAttitudesIPV_{-i}.

Instrumental variable estimation

We estimate a two-stage IV model, which is specified as follows:

$$\begin{aligned} \text{NeighAttitudesIPV}_i = & \alpha_0 + \alpha_1 \text{NeighParentsIPV}_{-i} \\ & + \alpha_2 \mathbb{X}_i + \alpha_3 \bar{\mathbb{N}}_{-i} + \gamma_d + \eta_i \end{aligned} \quad (2)$$

$$\begin{aligned} \text{AttitudesIPV}_i = & \beta_0 + \beta_1 \text{NeighAttitudesIPV}_{-i} \\ & + \beta_2 \mathbb{X}_i + \beta_3 \bar{\mathbb{N}}_{-i} + \lambda_d + \epsilon_i \end{aligned} \quad (3)$$

The first stage is given by Equation (2), and Equation (3) is the structural equation.

The average neighborhood women's IPV attitudes, NeighAttitudesIPV_i, is instrumented by NeighParentsIPV_{-i}, the average exposure of women in the neighboring households to parental IPV in their natal family. Specifically, we create a binary variable that takes a value 1 for a woman if she reports having witnessed her father physically abuse her mother and 0 otherwise. We then construct our instrument, NeighParentsIPV_{-i} as the average exposure to parental IPV, over all the neighboring women, leaving out the respondent. The distribution of the neighborhood average of attitudes toward IPV and the neighborhood average of exposure

to parental IPV for our analytical sample is presented in Figure 2. As above, X_i is the vector of woman, husband, and household level characteristics; $\tilde{N}_{-i}$ is the vector of average neighborhood controls, and γ_d or λ_d denote district dummies. We use two-stage least squares (TSLS) estimation and cluster standard errors at the neighborhood level.⁶

Validity of instrument

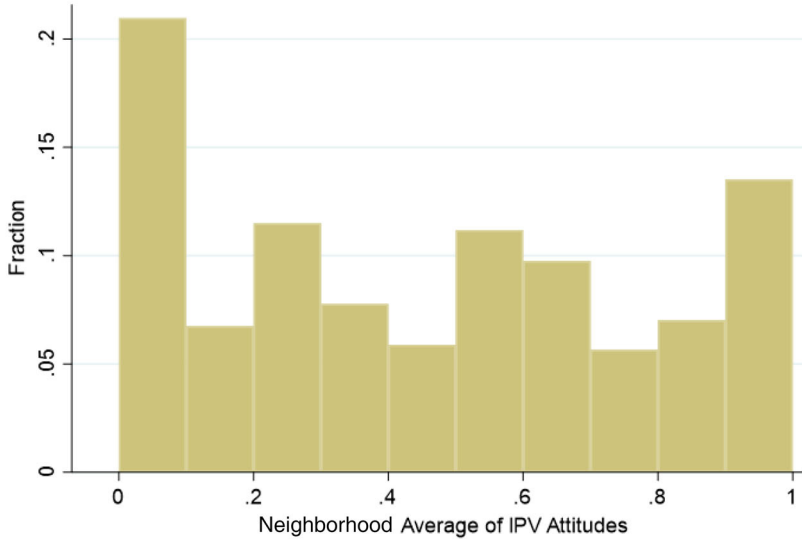
Before we conduct our estimations, we ought to examine whether average neighborhood women’s exposure to their parental IPV serves as a valid instrument for average neighborhood women’s IPV attitudes. To begin with, we note that the average neighborhood exposure to parental IPV is strongly correlated with average neighborhood IPV attitudes. Figure 3 shows a strong positive correlation between our IV and the main variable of interest.

Table 2 presents the results of the first-stage regressions based on Equation (2). In column (1), we regress $\text{NeighAttitudesIPV}_{-i}$ on $\text{NeighParentsIPV}_{-i}$ with no controls and find a strong positive coefficient of 0.381 between them. This coefficient is statistically significant at the 1 percent level of significance, and the F -statistic for the regression specification is 945.17. As we move from columns (2) to (4), we subsequently extend the set of controls to include woman, husband, and household level characteristics in column (2), neighborhood characteristics in column (3), and district fixed effects in column (4). Columns (2) to (4) show that our instrument, $\text{NeighParentsIPV}_{-i}$, continues to be a strong predictor of average neighborhood attitudes toward IPV, that is, $\text{NeighAttitudesIPV}_{-i}$. The coefficient continues to be statistically significant at 1 percent, and tests of weak and under-identification are rejected.⁷

Further, we argue that our instrument, average neighboring women’s exposure to parental IPV, does not have a direct impact on our outcome variable, a woman’s own attitudes toward IPV. The reason for this is twofold. First, there is a temporal dimension at play here with a woman usually experiencing parental IPV within her natal family either during her formative years or prior to her marriage and subsequent relocation for marriage. Second, given the prevailing cultural norms in India, it is common for a woman to move from her natal family to live with her husband after marriage (Mookerjee, Ojha, and Roy 2022) as such, making it unlikely that a woman’s IPV attitudes would be directly influenced by the exposure of neighboring women to their parental IPV that occurred prior to their marriage.

However, two scenarios could pose challenges to the validity of our instrument. First, the cohabitation of a married woman and her parents

a. Variable of Interest



b. Instrumental Variable

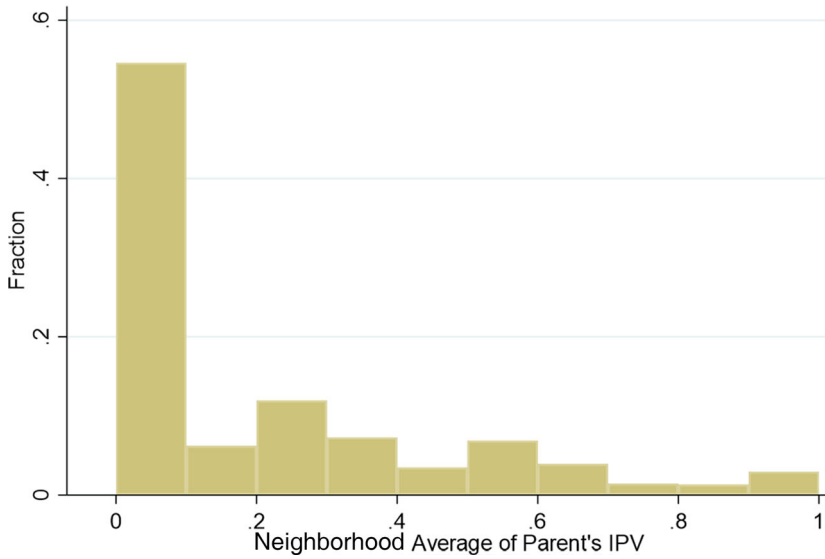


Figure 2 Distribution of average neighborhood attitudes toward IPV and average exposure of women in the neighboring households to parental IPV

within the same neighborhood could result in them being immediate neighbors. In such instances, the average neighborhood women's exposure to parental IPV may directly influence a woman's IPV attitudes. Analyzing a sample of 34,000 married women from the India Human Development Survey (IHDS) 2012, Esha Chatterjee and Sonalde Desai (2021) present compelling evidence that this is unlikely to be a cause for concern in our case since, on average, 81.3 percent of women relocated to a different village or town post-marriage. Nevertheless, as a robustness check, we restrict our sample to households with no daughters living away to alleviate this concern further. This eliminates the potential scenario where a married daughter and her parents live in close proximity within the same neighborhood.⁸

Second, there is a possibility that a married woman and her current neighbor resided in the same neighborhood prior to her marriage. In such cases, they would have been neighbors both prior to and following marriage. This would violate the exclusion criterion, as the exposure of her current neighboring women to inter-parental violence could also directly influence her IPV attitudes. This is because she may have been exposed to the inter-parental violence of her current neighboring women even before her marriage. Mookerjee, Ojha, and Roy (2022) offer suggestive evidence that this is not likely a concern in the Indian setting. Relying

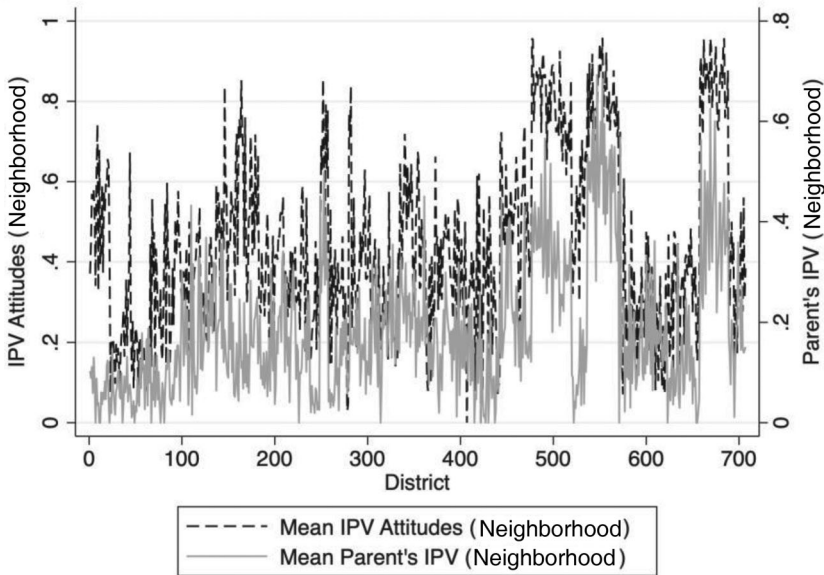


Figure 3 First-stage correlation between average neighborhood attitudes toward IPV and average neighborhood exposure to parental IPV

Table 2 First-stage analysis: Estimates of the effect of woman's neighborhood exposure to parental IPV on neighborhood attitudes toward IPV

	<i>Neighborhood Attitudes toward IPV</i>			
	(1)	(2)	(3)	(4)
Neighborhood Exposure to Parental IPV	0.381***	0.317***	0.278***	0.133***
	(0.012)	(0.011)	(0.011)	(0.011)
Observations	48,155	48,155	48,155	48,155
Woman's Characteristics	No	Yes	Yes	Yes
Spousal Characteristics	No	Yes	Yes	Yes
Household Characteristics	No	Yes	Yes	Yes
Neighborhood Characteristics	No	No	Yes	Yes
District FE	No	No	No	Yes
First-Stage <i>F</i> -Statistic	945.17	816.34	601.57	152.19
Kleibergen-Paap rK-LM Statistic	684.89	697.76	534.42	148.14
R-squared	0.106	0.133	0.048	0.059

Notes: Estimation via OLS regression analysis. The outcome variable is average neighborhood attitudes toward IPV. Standard errors (in parentheses) are clustered at the neighborhood level. ***, **, * denote significance at the 1, 5, and 10 percent levels, respectively.

on IHDS conducted in 2004, they ascertain the variability in travel time from a woman's current residence to her natal family's location within the neighborhood. A lower average neighborhood standard deviation of travel time indicates that a higher proportion of currently neighboring women were also neighbors before marriage, as their natal families are likely located nearby. Conversely, a higher value of the neighborhood standard deviation of travel time suggests that currently neighboring women originated from geographically distant locations, providing evidence of greater spatial heterogeneity in their pre-marital residential locations. Their findings reveal that the average neighborhood standard deviation of travel time between a woman's current residence and her natal family is 3.72 h (equivalent to a driving distance of approximately 150–200 km). While we recognize that this does not entirely alleviate the concern, this is indicative of it not being a significant issue.

RESULTS

Baseline results

Table 3 presents the OLS and IV-TSLS results of the effect of average neighboring women's IPV attitudes on a woman's own attitudes about IPV in columns (1)–(4) and (5)–(8), respectively. Columns (1) to (4) present the estimates with the set of controls sequentially extended. Column (1) captures the initial association between average neighborhood attitudes and women's own attitudes with no controls. The association is statistically significant at the 1 percent level of significance. As we move across to columns (2)–(4), we add the woman, husband, and household level characteristics in column (2), neighborhood characteristics in column (3), and district fixed effects in column (4). Adding comprehensive controls to our specifications reduces the magnitude of the association. However, we continue to find a statistically significant effect of neighboring women's attitudes on a woman's own attitudes. Column (4) shows that 1 percentage point (pp) increase in the neighborhood average of women justifying IPV increases a woman's own likelihood of justifying IPV by 0.41 pp. In terms of standard deviations (SD), it means 1 SD increase in $\text{NeighAttitudesIPV}_{-i}$ is positively associated with a 0.28 SD increase in the likelihood of woman's justification of IPV.⁹ Overall, the OLS estimates suggest that the effect of average neighborhood attitudes on a woman's own attitudes is positive.

We present the IV-TSLS estimates in columns (5) to (8) in the same progression as our OLS specifications. Based on the specification in which we do not include any controls, we find that a 1 pp increase in the neighborhood average of women who justify IPV leads to a 0.91 pp increase in the likelihood of a woman's justification attitude toward IPV. As before, we observe a fall in the magnitudes of coefficients as we progress from column (5) to (8). Upon inclusion of woman, spousal, and household level characteristics in column (6), the marginal effect of $\text{NeighParentsIPV}_{-i}$ on AttitudesIPV_i is 0.78 pp. Once we also include neighborhood characteristics, the estimate changes marginally: 1 pp increase in the average neighborhood attitudes causes a 0.77 pp increase in the probability of a woman's justification of IPV. Our most preferred IV specification, including the district fixed effects, is column (8) and shows that a 1 pp increase in the neighborhood average of women who justify IPV leads to a 0.53 pp increase in the likelihood of a woman's justification attitude toward IPV. In other words, 1 SD increase in $\text{NeighAttitudesIPV}_{-i}$ causes a 0.36 SD increase in the likelihood of a woman's justification of IPV. The effect continues to be statistically significant at the 1 percent level of significance.¹⁰

Table 3 OLS and IV analysis: Estimates of the effect of woman’s neighborhood attitudes toward IPV on her own attitudes toward IPV

	Woman’s Own Attitudes toward IPV							
	OLS				IV-TSLS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Neighborhood Attitudes toward IPV	0.662*** (0.006)	0.620*** (0.006)	0.606*** (0.007)	0.411*** (0.010)	0.914*** (0.010)	0.778*** (0.020)	0.771*** (0.023)	0.525*** (0.055)
Observations	48,155	48,155	48,155	48,155	48,155	48,155	48,155	48,155
Woman’s Characteristics	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Spousal Characteristics	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Household Characteristics	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Neighborhood Characteristics	No	No	Yes	Yes	No	No	Yes	Yes
District FE	No	No	No	Yes	No	No	No	Yes
First-Stage F-Statistic					945.17	816.34	601.57	152.19
Kleibergen-Paap rK-LM Statistic					684.89	697.76	534.42	148.14

Notes: Estimation in columns (1)–(4) and (5)–(8) via OLS and IV-TSLS regression analysis, respectively. Standard errors (in parentheses) are clustered at the neighborhood level. ***, **, * denote significance at the 1, 5, and 10 percent levels, respectively.

EXTENSIONS

Disaggregated outcome variable

The NFHS includes information on women's attitudes about whether beating the wife is justified in seven different situations as described earlier. We code each response as taking the value 1 if their response is yes and 0 otherwise. Instead of creating an indicator of acceptability of IPV, here, we estimate the effect of neighboring women's attitudes about IPV on a woman's own attitudes toward IPV for each of the seven scenarios.

Table 4 presents the results. In columns (1) through (7), we find a consistently positive and statistically significant effect of neighboring women's attitudes about IPV on one's own attitudes about violence for each scenario, namely, if the wife travels without informing family members; neglects children; argues with husband; refuses to have sex; burns the food; is unfaithful; is disrespectful, respectively. The magnitude of impact ranges from 0.11 pp in the event that she refuses to have sex to 0.415 pp if the woman is disrespectful. Our instrument fares well on the diagnostic tests.

Alternative measures of outcome variable

Our baseline analysis uses a binary indicator to measure the acceptability of attitudes among women. However, this binary indicator does not capture the intensity of acceptability of attitudes. As an alternative measure, following Bilge Erten and Pinar Keskin (2018), we use two indexes to measure the intensity of acceptability of attitudes among women.

As a first alternative, we create a z-score for each of the seven cases using the mean and standard deviation and then construct a continuous outcome variable using the sample averages of these z-scores. We denote this as $\text{Average} - z - \text{AttitudesIPV}$. Table 5 presents the results. We note that a 1 pp increase in $\text{NeighAttitudesIPV} - i$ leads to a 0.58 SD units increase in $\text{Average} - z - \text{AttitudesIPV}$.

Further, by construction, $z - \text{AttitudesIPV}$ assigns equal weight to each attitude variable regardless of gravity of reason for justifying IPV. The gravity of reasons to justify IPV may vary considerably across these variables. Therefore, as a second alternative, we introduce $\text{Inversely} - \text{Weighted} - z - \text{AttitudesIPV}$, which captures the gravity of reasons to justify IPV by assigning the inverse of the covariance matrix of the z-scores of these attitude variables. This index assigns a higher (lower) weight to reasons that are observed less (more) frequently in our analytical sample. Column (2) of Table 5 shows that a 1 pp increase in the neighborhood average of women leads to a 0.59 SD units increase in $\text{Inversely} - \text{Weighted} - z - \text{AttitudesIPV}$.

Table 4 Extensions – disaggregated outcome variable: IV estimates on woman’s attitudes toward IPV perpetrated due to each of the seven reasons

Woman’s Own Attitudes toward IPV for various reasons							
	<i>Travels without informing (1)</i>	<i>Neglects children (2)</i>	<i>Argues with husband (3)</i>	<i>Refuses to have sex (4)</i>	<i>Burns the food (5)</i>	<i>Unfaithful (6)</i>	<i>Disrespectful (7)</i>
Neighborhood Attitudes toward IPV	0.224*** (0.067)	0.228*** (0.068)	0.220*** (0.068)	0.111** (0.055)	0.200*** (0.061)	0.234*** (0.068)	0.415*** (0.068)
Observations	48,088	48,111	48,057	48,006	48,089	48,040	48,088
First-Stage F-Statistic	519.93	522.35	521.25	512.85	521.02	518.35	520.83
Kleibergen-Paap rK-LM Statistic	508.27	510.65	509.64	501.69	509.38	506.87	509.2

Notes: Estimation via IV-TSLS regression analysis. The outcome variable in column (1) is a binary variable measuring woman’s attitudes toward IPV. Column (2) has a categorical variable (TotalAttitudesIPV) as the outcome variable, which captures the total number of reasons for which a woman justifies IPV. Both the specifications use a redefined measure of a neighborhood women’s attitudes toward IPV – *MedianNeighAttitudesIPV*. Specifically, we reconstruct the neighborhood-level IPV attitudes by calculating the median number of reasons for justifying IPV among women in the same cluster, excluding the focal woman. We control for woman, spousal and household level characteristics, neighborhood characteristics, and district fixed effects. Woman-level controls include woman’s age, age at cohabitation, education, current work status, house/land ownership, bank account, mobile phone, exposure to mass-media, indicator for normal BMI, gender gap between children, exposed to parental IPV, and the years of residence in the current location. Spousal controls include age, age at cohabitation, education, current work status, house/land ownership, and media exposure. Household level controls include indicators for religion, social group, wealth category, whether the household is male-headed, age of the head, household size, and indicator for the area of residence. Neighborhood characteristics include the cluster mean of women, husbands, and household characteristics. Standard errors (in parentheses) are clustered at the neighborhood level. ***, **, * denote significance at the 1, 5, and 10 percent levels, respectively.

Table 5 Extensions – alternative outcome variable: IV estimates of the effect of woman’s neighborhood attitudes toward IPV on her own attitudes toward IPV

	<i>Woman’s Own Attitudes toward IPV</i>	
	<i>Average z-AttitudesIPV (1)</i>	<i>Inversely Weighted z-AttitudesIPV (2)</i>
Neighborhood Attitudes toward IPV	0.582*** (0.113)	0.587*** (0.113)
Observations	48,155	48,155
Woman’s Characteristics	Yes	Yes
Spousal Characteristics	Yes	Yes
Household Characteristics	Yes	Yes
Neighborhood Characteristics	Yes	Yes
District FE	Yes	Yes
First-Stage <i>F</i> -Statistic	516.37	510.3
Kleibergen-Paap rK-LM Statistic	504.32	498.88

Notes: Estimation via OLS analysis. Standard errors (in parentheses) are clustered at the neighborhood level. ***, **, * denote significance at the 1, 5, and 10 percent levels, respectively.

ROBUSTNESS

Falsification analysis

Our baseline results reveal a large positive and statistically significant effect of average neighborhood women’s IPV attitudes on a woman’s own IPV attitudes. So far, our neighborhoods consist of all households living in the same cluster of households provided in NFHS-5. Now, we show that such a result is not obtained from considering any randomly assigned neighborhood. With this test, we validate the strength of the neighborhood attitudes about IPV on how impressionable a woman in that neighborhood is by ruling out the presence of such effects within randomly generated neighborhoods. Specifically, we randomize the neighborhood clusters of each woman while ensuring that the number of women assigned to each neighborhood equals the average neighborhood size in our baseline. Then we re-estimate our specification and repeat it 100 times. We randomly assign a different neighborhood to each woman in the 100 replications.

We find no significant impact of a randomly assigned neighborhood’s attitudes regarding IPV on a woman’s own attitudes 93 percent of the times measured at the 5 percent level significance. To be precise, we are unable to reject the null that the effect of neighborhood attitudes is equal to zero, seven out of 100 times. Figure 4 plots the *t*-statistics obtained corresponding to the coefficient of neighborhood attitudes from the 100 replications. This falsification test demonstrates that repeated estimations with random

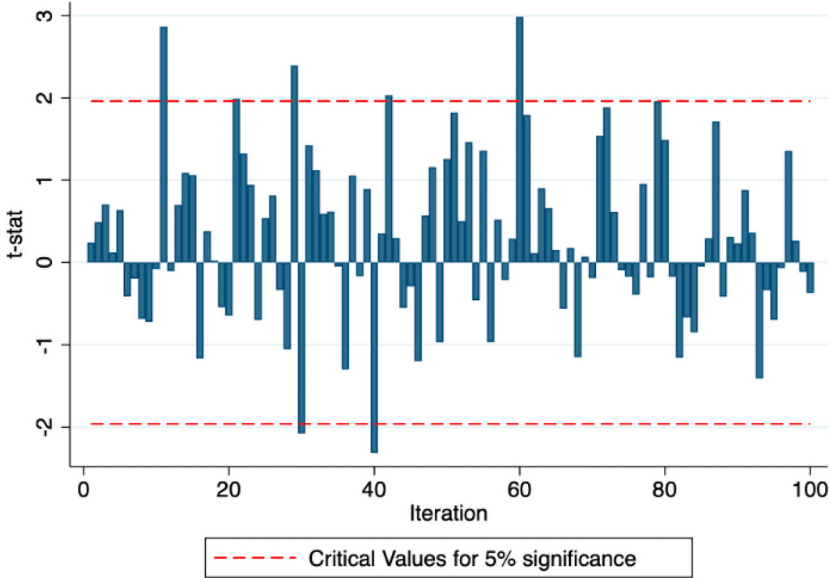


Figure 4 Falsification analysis using random neighborhoods

Notes: The figure illustrates the t -statistics of the effect of neighborhood attitudes justifying IPV on own attitudes. These test statistics are obtained from 100 iterations of our preferred two-stage least squares estimation but using randomly assigned neighborhoods for women.

assignments of neighborhood clusters do not yield statistically significant results similar to our baseline model.

Additional sample restrictions

Respondent as the head, wife of head, or daughter-in-law of head: To further support the identification of our analysis through our IV, we consider only those households where the respondent is either the head, the wife of the head, or the daughter-in-law of the head of the household. We do this to restrict the sample to only such households where the respondent is living with her parents-in-law and not her own parents. This reduces the sample to 47,154 observations. We present the results from our preferred specification with woman, spousal, household, neighborhood level characteristics, and district fixed effects in column (1) of Table 6. Our result remains quantitatively and qualitatively unchanged.

No daughters living away: As an additional check for the validity of our IV, we restrict our sample to families who do not have any daughters living away to exclude any case who may have married daughters living in the same neighborhood. This brings our sample to 41,057 households. Column

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Table 6 Robustness analysis – sample restrictions: IV estimates of the effect of woman’s neighborhood attitudes toward IPV on her own attitudes toward IPV

	<i>Woman’s Own Attitudes toward IPV</i>		
	<i>Head, Spouse or Daughter-in-Law of Head (1)</i>	<i>No Daughters Living Away (2)</i>	<i>Large Neighborhoods (3)</i>
Neighborhood Attitudes toward IPV	0.526*** (0.056)	0.490*** (0.063)	0.536*** (0.059)
Observations	47,154	41,057	39,495
Woman’s Characteristics	Yes	Yes	Yes
Spousal Characteristics	Yes	Yes	Yes
Household Characteristics	Yes	Yes	Yes
Neighborhood Characteristics	Yes	Yes	Yes
District FE	Yes	Yes	Yes
First-Stage F-Statistic	149.23	137.43	115.6
Kleibergen-Paap rK-LM Statistic	145.38	134.31	112.75

Notes: Estimation via IV-TSLS regression analysis. Column (1) restricts the sample to respondents who are the head, spouse, or daughter-in-law of the head. In separate analysis, Columns (2) and (3) restrict the sample to households where no daughter is living away and households residing in neighborhoods with at least six households in the neighborhood, respectively. Standard errors (in parentheses) are clustered at the neighborhood level. ***, **, * denote significance at the 1, 5, and 10 percent levels, respectively.

(2) of Table 6 presents the result. We find that a 1 pp increase in the neighborhood average attitudes causes a 0.49 pp increase in the probability of a woman’s justification of IPV.

Large neighborhoods: In our baseline, neighborhood size ranges from two to eleven, with an average of 6.2 households. To minimize the error in the measurement of neighborhood attitudes about IPV, we restrict our sample to omit neighborhoods with fewer than six households in a neighborhood. This reduces our sample to 39,495 observations. Column (3) of Table 6 shows that our result is robust to this sample restriction as well.

Including multi-couple households

In our preferred specification, we exclude households with multiple couples from our analysis to eliminate potential violations of the exclusion restriction inherent in our identification strategy. Including such households would result in peers of women from these households encompassing not only women from other households in the neighborhood but also peers within the same household. Such direct intrahousehold pathways can undermine the validity of our instrument, as it no longer exclusively captures exogenous variation in neighborhood-level peer effects. By excluding households with multiple couples, we mitigate these confounding intrahousehold dynamics and preserve the integrity of the causal estimates derived from our leave-one-out instrumental variable approach.

However, there may be concerns that by only looking at unique couple households our sample is not representative of the population and hence this might lead to selection bias with disproportionate weight given to women living in single couple households. Additionally, we lose around 13 percent of the sample while restricting our analysis to unique couple households only. To address such concerns, we test the sensitivity of our estimates by (a) constructing our main treatment variable, “neighborhood women’s attitudes” before excluding multiple couple households, (b) constructing our main treatment variable, “neighborhood women’s attitudes” as well as our instrument, “neighborhood exposure to parental IPV” before excluding multiple couple households, and (c) by including multiple couple households into our analysis. The results have been presented in Table 7. Columns (1)–(3) present the results when we restrict the sample to unique couple households. Column (1) presents our baseline result for ease of comparison. In column (2), our main explanatory variable is constructed before we restrict the sample, and in column (3), both the main explanatory variable and the IV are constructed before restricting the sample, respectively. Column (4) presents the estimates including multiple couple households. Our results remain robust to these changes.

HETEROGENEITY ANALYSIS

To examine the heterogeneity in the effect of neighboring women’s attitudes about IPV on an individual woman’s own attitudes, we estimate models where we interact $\text{NeighAttitudesIPV}_{-i}$ with subgroup indicators. We instrument both the endogenous variables, $\text{NeighAttitudesIPV}_{-i}$ and its interactions with these subgroup indicators with NeighParentsIPV_i and $\text{NeighParentsIPV}_{-i}$ interacted with binary subgroup indicators. This offers us deeper insights into the circumstances under which women are

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Table 7 Robustness analysis – IV estimates of the effect of woman’s neighborhood attitudes toward IPV on her own attitudes toward IPV: with and without multiple couple households

	<i>Woman’s Own Attitudes toward IPV IV-TSLS</i>			
	(1)	(2)	(3)	(4)
Neighborhood Attitudes toward IPV	0.525*** (0.055)	0.543*** (0.059)	0.522*** (0.057)	0.560*** (0.049)
Observations	48,155	48,155	48,155	55,856
Woman’s Characteristics	Yes	Yes	Yes	Yes
Spousal Characteristics	Yes	Yes	Yes	Yes
Household Characteristics	Yes	Yes	Yes	Yes
Neighborhood Characteristics	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes
Multiple Couples per household	No	No	No	Yes
First-Stage <i>F</i> -Statistic	152.19	149.96	154.41	665.56
Kleibergen-Paap rK-LM Statistic	148.14	146.12	150.6	645.78

Notes: Estimation in columns (1) to (4) via IV-TSLS regression analysis. Columns (1) to (3) restrict the sample to unique couples per household. However, in column (2), “Neighborhood Attitudes toward IPV” (treatment variable) is constructed before excluding the multiple couples from analysis. In column (3), “Neighborhood Attitudes toward IPV” (treatment variable) as well as “Neighborhood Exposure to Parental IPV” (instrumental variable) are constructed before excluding the multiple couples from analysis. Column (4) includes multiple couples per household. The outcome variable is woman’s attitudes toward IPV. It is a binary variable that takes a value of 1 if a woman justifies IPV. Both the columns include woman, spousal, household level, neighborhood characteristics, and district fixed effects. Woman-level controls include woman’s age, age at cohabitation, education, current work status, house/land ownership, bank account, mobile phone, exposure to mass-media, indicator for normal BMI, gender gap between children, exposed to parental IPV, and the years of residence in the current location. Spousal controls include age, age at cohabitation, education, current work status, house/land ownership, and media exposure. Household level controls include indicators for religion, social group, wealth category, whether the household is male-headed, age of the head, household size, and indicator for the area of residence. Neighborhood characteristics include the cluster mean of women, husbands, and household characteristics. Standard errors (in parentheses) are clustered at the neighborhood level. ***, **, * denote significance at the 1, 5, and 10 percent levels, respectively.

more susceptible to considering IPV as acceptable behavior. By including these interaction terms, we go beyond estimating an average treatment effect and instead assess how neighborhood influence operates differently across subsamples. Each interaction term captures the differential effect

of $\text{NeighAttitudesIPV}_{-i}$ on own attitudes for the relevant subgroup and identifies whether the influence of neighbors' attitudes is stronger or weaker for those subsamples. We believe this is of special relevance in the Indian context, where structural factors such as religion, caste, gender norms, and economic status can shape both the strength of social networks and the extent to which individuals internalize neighborhood norms. We examine the heterogeneous effects by women's characteristics and household-level characteristics. Women's characteristics include education, employment, ownership of assets, access to media, ownership of mobile phone, and gender composition of her children. Household characteristics include wealth index, household size, social group, religion, and area of residence. We present the results in Tables 8 and 9.

That said, a key concern in estimating the heterogeneity in the effects of neighboring women's attitudes about IPV on an individual woman's own attitudes is the possibility of selection into neighborhoods based on sociodemographic characteristics, which could confound the observed relationships. For instance, highly educated or high-asset women may reside in the same cluster, driving the heterogeneity in the effects of neighboring women's attitudes about IPV. To mitigate this, our models include controls for neighborhood-level sociodemographic composition, such as average education and asset ownership. These controls help in accounting for compositional differences across neighborhoods and strengthen the identification of peer effects.¹¹

Woman-level characteristics

By woman's education: Given the important role that education plays in empowering a woman (Hanmer and Klugman 2016), it is worthwhile to evaluate whether education can potentially make her less susceptible to prevailing community attitudes about IPV and societal pressures. We define our education indicator as more educated (years of education more than the seven [median] years in the sample) and less educated (years of education less than or equal to seven years). Column (1) in Table 8 reports our estimates on the interaction term. We find a negative statistically significant coefficient on the interaction term showing that more educated women are less influenced by their peers' attitudes. Specifically, for more educated women, the effect of average neighborhood attitudes justifying IPV is reduced by 0.075 units, implying that a 1 pp increase in $\text{NeighAttitudesIPV}_{-i}$ leads to a 0.48 pp increase in own attitudes justifying IPV.

By woman's employment status: Complementing education, a woman's labor force participation is also documented as a way to promote her empowerment and well-being (Lenze and Klasen 2017). Amartya Sen (1999) documents the capability approach wherein work constitutes an

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Table 8 Heterogeneity analysis – by woman characteristics

	<i>Woman's Own Attitudes toward IPV</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
Neighborhood	0.557***	0.542***	0.561***	0.536***	0.519***	0.481***
Attitudes toward	(0.057)	(0.056)	(0.056)	(0.057)	(0.057)	(0.061)
IPV	(0.043)					
Neighborhood	− 0.075*					
Attitudes toward						
IPV*High						
Education						
Neighborhood						
Attitudes toward		− 0.060				
IPV*Employment		(0.042)				
Neighborhood			− 0.076*			
Attitudes toward			(0.045)			
IPV*Ownership of						
Assets						
Neighborhood				− 0.024		
Attitudes toward				(0.042)		
IPV*Access to						
Mobile						
Neighborhood					0.013	
Attitudes toward					(0.048)	
IPV*Access to						
Media						
Neighborhood						0.071*
Attitudes toward						(0.042)
IPV*Gender						
Composition of						
Children						
Observations	48,155	48,155	48,155	48,155	48,155	48,155
Woman's	Yes	Yes	Yes	Yes	Yes	Yes
Characteristics						
Spousal	Yes	Yes	Yes	Yes	Yes	Yes
Characteristics						
Household	Yes	Yes	Yes	Yes	Yes	Yes
Characteristics						
Neighborhood	Yes	Yes	Yes	Yes	Yes	Yes
Characteristics						
District FE	Yes	Yes	Yes	Yes	Yes	Yes

(Continued)

integral part of a woman's well-being and empowerment. Thus, we evaluate heterogeneous effects of neighborhood attitudes on one's own attitudes justifying IPV by a woman's current employment status. Column (2) in Table 8 presents the results, and we note that for women who are not currently working (our reference group), a 1 pp increase in neighborhood

Table 8 Continued.

	<i>Woman's Own Attitudes toward IPV</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
First-Stage <i>F</i> -Statistic (Treatment Variable)	77.43	77.3	80.19	76.77	78.37	76.59
First-Stage <i>F</i> - Statistic (Treatment Variable*Characteristic)	373.84	409.99	333.83	376.99	274.36	420.18
Kleibergen-Paap rK-LM Statistic	146.99	148.00	145.45	146.78	145.13	147.96

Notes: Estimation via IV-TSLS regression analysis. The outcome variable is woman's attitudes toward IPV. It is a binary variable that takes a value of 1 if a woman justifies IPV. We use binary variables and their interactions with the "Neighborhood Attitudes toward IPV" to measure the heterogeneity in separate specifications. In column (1), we use women's years of education (= 1 if higher than median years of education, that is, seven years and 0 if less than or equal to median years of education) and its interaction with "Neighborhood Attitudes toward IPV." In column (2), we use employment status (= 1 if working and 0 otherwise) and its interaction with "Neighborhood Attitudes toward IPV." In column (3), we use the ownership of house or land (= 1 if yes and 0 otherwise) and its interaction with "Neighborhood Attitudes toward IPV." In column (4), we use the access to mobile (= 1 if yes and 0 otherwise) and its interaction with "Neighborhood Attitudes toward IPV." In column (5), we use exposure to television, radio, or newspaper (= 1 if yes and 0 otherwise) and its interaction with "Neighborhood Attitudes toward IPV." In column (6), we use gender composition of children (= 1 less than or equal number of sons compared to daughters and = 0 if higher sons compared to daughters) and its interaction with "Neighborhood Attitudes toward IPV." In addition to these variables, all the columns include woman, spousal, and household level characteristics, neighborhood characteristics, and district fixed effects. Woman-level controls include woman's age, age at cohabitation, education, current work status, house/land ownership, bank account, mobile phone, exposure to mass-media, indicator for normal BMI, gender gap between children, exposed to parental IPV, and the years of residence in the current location. Spousal controls include age, age at cohabitation, education, current work status, house/land ownership, and media exposure. Household level controls include indicators for religion, social group, wealth category, whether the household is male-headed, age of the head, household size, and indicator for the area of residence. Neighborhood characteristics include the cluster mean of women, husbands, and household characteristics. Women characteristics used in the heterogeneity analysis were included once to avoid perfect collinearity. Specifically, employment status is omitted from the women's characteristics in column (2), asset ownership in column (3), access to mobile in column (4), and media exposure in column (5). Standard errors (in parentheses) are clustered at the neighborhood level. ***, **, * denote significance at the 1, 5, and 10 percent levels, respectively.

acceptance of IPV leads to a 0.54 pp increase in a woman's likelihood of accepting IPV. The negative coefficient on the interaction term shows that the peer effect is smaller for women who are employed, although not statistically significant. Thus, we conclude that employed women are not significantly less influenced by neighboring women's attitudes toward IPV relative to the unemployed. In other words, peer effects remain similar regardless of employment status, indicating that economic participation

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Table 9 Heterogeneity analysis – by household characteristics

	<i>Woman's Own Attitudes toward IPV</i>				
	(1)	(2)	(3)	(4)	(5)
Neighborhood	0.508***	0.508***	0.481***	0.669***	0.555***
Attitudes toward IPV	(0.057)	(0.064)	(0.061)	(0.089)	(0.061)
Neighborhood	0.054				
Attitudes toward IPV*Household Size: Large	(0.052)				
Neighborhood		0.030			
Attitudes toward IPV*Wealth: Poor		(0.047)			
Neighborhood			0.222***		
Attitudes toward IPV*Religion: Muslim			(0.074)		
Neighborhood			0.018		
Attitudes toward IPV*Religion: Others			(0.085)		
Neighborhood				– 0.216***	
Attitudes toward IPV*Social Group: OBC				(0.081)	
Neighborhood				– 0.212**	
Attitudes toward IPV*Social Group: SC				(0.083)	
Neighborhood				– 0.266***	
Attitudes toward IPV*Social Group: ST				(0.097)	
Neighborhood					– 0.036
Attitudes toward IPV*Residence: Rural					(0.035)
Observations	48,155	48,155	48,155	45,447	48,155
Woman's Characteristics	Yes	Yes	Yes	Yes	Yes

(Continued)

alone does not substantially reduce the influence of neighborhood norms on IPV acceptance.

By woman's asset ownership: Another critical factor recognized to shape a woman's empowerment and agency is her possession of physical assets (Mishra and Sam 2016; Amir-ud Din, Naz, and Ali 2024), specifically, a

Table 9 Continued.

	<i>Woman's Own Attitudes toward IPV</i>				
	(1)	(2)	(3)	(4)	(5)
Spousal Characteristics	Yes	Yes	Yes	Yes	Yes
Household Characteristics	Yes	Yes	Yes	Yes	Yes
Neighborhood Characteristics	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes
First-Stage <i>F</i> -Statistic (Treatment Variable)	76.78	78.26	51.92	32.78	76.40
First-Stage <i>F</i> -Statistic (Treatment Variable*Characteristic)	278.66	315.38	54.82	172.56	245.35
First-Stage <i>F</i> -Statistic (Treatment Variable*Characteristic)	-	-	58.21	165.31	-
First-Stage <i>F</i> -Statistic (Treatment Variable*Characteristic)	-	-	-	52.39	-
Kleibergen-Paap rK-LM Statistic	147.97	141.37	140.63	122.46	148.01

Notes: Estimation via IV-TSLS regression analysis. The outcome variable is woman's attitudes toward IPV. It is a binary variable that takes a value of 1 if a woman justifies IPV. We use binary variables and their interactions with the "Neighborhood Attitudes toward IPV" to measure the heterogeneity in separate specifications. In column (1), we use household size (= 1 if higher than median number, that is, five and 0 if less than or equal to median number) and its interaction with "Neighborhood Attitudes toward IPV." In column (2), we use wealth status (= 1 if poor and 0 otherwise) and its interaction with "Neighborhood Attitudes toward IPV." In column (3), we use the religion (= 0 if Hindu, = 1 if Muslim, and = 2 otherwise) and its interaction with "Neighborhood Attitudes toward IPV." In column (4), we use the social group (= 0 if UC, = 1 if OBC, = 2 if SC, and = 3 if ST) and its interaction with "Neighborhood Attitudes toward IPV." In column (5), we use residence (= 1 if rural and 0 otherwise) and its interaction with "Neighborhood Attitudes toward IPV." In addition to these variables, all the columns include woman, spousal, and household level characteristics, neighborhood characteristics, and district fixed effects. Woman-level controls include woman's age, age at cohabitation, education, current work status, house/land ownership, bank account, mobile phone, exposure to mass-media, indicator for normal BMI, gender gap between children, exposed to parental IPV, and the years of residence in the current location. Spousal controls include age, age at cohabitation, education, current work status, house/land ownership, and media exposure. Household level controls include indicators for religion, social group, wealth category, whether the household is male-headed, age of the head, household size, and indicator for the area of residence. Neighborhood characteristics include the cluster mean of women, husbands, and household characteristics. Household characteristics used in the heterogeneity analysis were included once to avoid perfect collinearity. Specifically, wealth status is omitted from the household characteristics in column (2), religion dummies in column (3), social group dummies in column (4), and residence in column (5). Sample size in column (4) reduces due to exclusion of missing observations on social group. Standard errors (in parentheses) are clustered at the neighborhood level. ***, **, * denote significance at the 1, 5, and 10 percent levels, respectively.

house or land. We wish to evaluate heterogeneous effects among women who do not own any house or land either solely or jointly with their husband versus those who have either sole or joint ownership of a house or land. We do so by interacting our main explanatory variable *NeighAttitudesIPV* with a binary indicator of a woman's asset ownership. Column (3) in Table 8 reports our estimates. In line with our earlier findings, we estimate that a 1 pp increase in average neighborhood IPV attitudes leads to a 0.485 pp increase in own IPV attitudes for a woman having asset ownership, whereas the impact is 0.56 pp for a woman who does not. This is suggestive of the fact that ownership of assets may increase a woman's independence, reducing her reliance on neighbors or community norms for setting her own views.

By woman's access to media: Following the result on physical asset ownership, we explore whether access to mobile phones and exposure to media (television, radio, or newspaper) can impact the degree to which peers can influence a woman. Intriguingly, there can be two contradictory effects here. First, access to mobile phones and media exposure can potentially lead to more networking effects, which may mean greater peer influence. On the other hand, access to mobile phones and media exposure are also correlated with more education, empowerment, and agency of a woman, and, as such, provide her access to more qualified information. Columns (4) and (5) in Table 8 present our findings for access to mobile and media, respectively. From column (4), we find that for women who do not have access to a mobile phone (our reference group), a 1 pp increase in *NeighAttitudesIPV*—*i* leads to a 0.54 pp increase in a woman's own acceptance of IPV. For women with a mobile phone, the neighborhood effect is slightly lower by 0.024, thus resulting in a total effect of 0.51 pp. However, since this interaction is not statistically significant, we interpret this difference with caution. This suggests that while having a mobile phone may offer some exposure to alternative norms or information, it does not appear to mitigate the impact of neighborhood norms. From column (5), we note that for women without media access (our reference group), a 1 pp in the share of neighboring women who accept IPV leads to a 0.519 pp increase in the woman's own likelihood of accepting IPV. For women with media access, the estimated additional effect is 0.013, but this is not statistically significant. Neighborhood influence is similarly strong for both groups, perhaps suggesting that exposure to information via media is not sufficient to weaken the effect of neighborhood norms or that peer effects remain strong despite access to alternative information.

By gender composition of children: Son preference is a pressing social concern in the Indian context with well-established linkages between the gender composition of children and a woman's bargaining position in her marriage, her exposure to IPV, and also female guilt (Javed and Mughal

2019; Weitzman 2020). As such, we believe it is of particular importance to evaluate whether there is any difference in the degree of impressionability of a woman who has more sons than daughters and vice versa. Column (6) in Table 8 reports our results. Here, we define gender composition of children as 1 if the woman has less than or equal number of sons compared to daughters and 0 otherwise. Thus the benchmark group is a woman who has more sons than daughters. We find a positive and statistically significant effect on the interaction term, implying that for women with more daughters than sons, a 1 pp increase in average neighborhood IPV attitudes leads to a 0.55 pp increase in own attitudes justifying IPV. The impact is lower at 0.48 pp for women who have more sons. These findings align with the established literature on female guilt (Das Gupta et al. 2003), wherein women who do not bear a sufficient number of sons or have more daughters tend to feel a sense of guilt and responsibility. Consequently, they may strive to be more compliant with their spouse and readily accept or internalize regressive and gendered attitudes.

Household-level characteristics

By household size: We also document the differential effect of neighborhood IPV attitudes on a woman's own IPV attitudes by household size. We define a binary indicator for household size as women belonging to households having more than five (median household size in sample) members and those in households smaller than five members. From column (1) of Table 9, we find that a 1 pp increase in average neighborhood IPV attitudes leads to a 0.51 pp (0.56 pp) increase in own attitudes justifying IPV for a woman belonging to a smaller household (larger household). However, the coefficient on the interaction term is not statistically significant, implying that the effect does not differ significantly by household size. That is, women in both small and large households appear to be equally responsive to prevailing neighborhood norms regarding IPV.

By wealth index: Similarly, we examine if there is any substantial difference between women belonging to poor versus non-poor households. We define a household as "Poor" if the wealth index of that household is below the median wealth index. Households whose wealth index is greater than or equal to the median are categorized as "Non-Poor." Our primary goal is to evaluate whether women belonging to poor households are more impressionable than women belonging to non-poor households. From column (2), we find evidence that influence of neighboring women's attitudes does not differ substantially between poor and non-poor households.

By religion: Religion is of particular significance in the Indian context, owing to the diverse belief structures and practices associated with each

of them. We segregate women into three categories, Hindu and Muslim being the most populous in India, and aggregate all other women into a third category as “Others.” Column (3) of Table 9 reports the results. We note that women belonging to Muslim households are more strongly affected by their neighbors’ attitudes than Hindu women, indicating that Muslim households exhibit stronger community ties. In contrast, the interaction term for women from other religions is 0.018 and not statistically significant, indicating that peer effects for this group do not differ from those observed among Hindu households. Extant literature also documents that Muslim women in India are less empowered and have lower agency (Sanu 2018) relative to other communities.

By social group: Next, we study the heterogeneity in peer effects by different social groups in India. We define our reference group to be women belonging to the Upper Caste (UC), and three other indicators for Other Backward Class (OBC), Scheduled Castes (SC), and Scheduled Tribes (ST), respectively. From column (4), we find a positive and significant impact of neighborhood attitudes justifying IPV on own attitudes justifying IPV across all the social groups. Among upper-caste women, the effect is of the order of 0.669, indicating a strong and statistically significant relationship between neighboring women’s acceptance of IPV and an individual woman’s own attitudes. The interaction terms for all other caste groups (OBC, SC, and ST) are negative and statistically significant with the net effect being 0.453, 0.457, and 0.403 pp, respectively. The effect of neighboring women’s attitudes remains positive and similar for both OBC and SC. For ST women, the neighborhood effect is the weakest. The strength of neighborhood effects consistently declines as we move from upper caste to more marginalized groups. This could be reflective of differing levels of social integration, and caste-based network homophily (Maharatna 2000; Mitra 2008). Our findings are consistent with the idea that caste continues to play an important role in the patterns of social interaction and spread and acceptance of cultural norms in India (Munshi and Rosenzweig 2006).

By residence: Finally, we examine the heterogeneity in peer effects by the place of residence defined by urban and rural. While the effect is positive and statistically significant for both urban and rural women, there is no substantial difference in the influence of neighboring women’s IPV attitudes between them.

CONCLUSION

Our article adds to two strands of literature. The first strand deals with attitudes toward violence against women and the various theories that are well-documented to explain the existence of tolerant attitudes. Second, we add to the literature on peer influences and establish the role of

social networks and peers' attitudes on one's own acceptance of IPV. Our work builds on the premise of the normalization theory, which suggests that women are conditioned to justify male violence within an intimate relationship as normal and is predominantly motivated by the social learning theory that says that individuals learn and adopt behaviors they observe among their peers (Bandura and Walters 1963; Bandura 1972; Okenwa-Emegwa, Lawoko, and Jansson 2016). Given that social norms and gender roles in majorly patriarchal societies are learnt within social groups, it is crucial to estimate the magnitude of peer influences in this regard. To this end, we empirically evaluate the causal impact of a woman's peers' attitudes justifying IPV on her own attitudes.

The main empirical challenge in identifying a causal impact arises from potential endogeneity stemming from the presence of group-level unobservables that may affect both the individual and her neighbors. Secondly, models of peer influences suffer from identification issues attributable to reverse causality wherein it is difficult to disentangle whether an individual's decision is the cause or the effect of her peers' actions. Furthermore, potential self-selection into neighborhoods could also bias traditional estimates. To address such empirical concerns, we utilize exogenous variation in neighboring women's exposure to their parental IPV as an instrument for average neighborhood attitudes justifying IPV. Our findings suggest that a 1 pp (1 SD) increase in a woman's average neighborhood attitudes justifying IPV leads to a 0.53 pp (0.36 SD) increase in the likelihood that the woman herself will justify IPV. We find that such peer influences are stronger for the less educated women, women who do not own any physical assets, and for those bearing more daughters than sons. We also find evidence of significant heterogeneity in peer effects by religion and caste groups.

While we find a consistently robust relationship between neighboring women's attitudes about IPV being justified and an individual woman's attitudes thereof, giving us an indication of the degree to which women are affected by their social peers, the findings of this article are best understood in the light of its limitations. First, our analysis does not consider men's attitudes regarding IPV, although important in the context of intramarital violence. While we can provide suggestive evidence of peer and cross-gender effects of men's attitudes, our IV would not satisfy the exclusion restriction in the case for men. This is because, unlike women who typically migrate for marriage, most men remain in close proximity to their natal households (Fulford 2013).¹² Thus, neighboring men's exposure to their parental domestic violence would not serve as a valid IV and would not provide us causal estimates. Second, the use of secondary data limits our ability to account for all factors that may shape attitudes toward IPV. The NFHS includes only a restricted set of attitudinal questions, primarily focused on normative beliefs about women's roles

within the household, such as if the wife (1) goes out without telling her husband, (2) neglects children, (3) argues with husband, (4) refuses sex, (5) does not cook food properly, (6) is unfaithful, and (7) is disrespectful. It does not capture whether the justification for wife-beating varies by woman's employment or education status, or the husband's alcohol use. As a result, we are unable to explore how these situational factors may influence attitudes toward IPV. Third, given that our analysis is based on the face-to-face interviews in NFHS data, the responses particularly related to attitudes about IPV or the incidence of IPV may suffer from measurement error and, as such, may exhibit systematic misreporting of attitudes justifying IPV as opposed to self-administered questionnaires. Often, variables like attitudes suffer from social desirability bias, and we cannot speak to the extent to which the responses are guided by the need to conform to what is socially desirable (Dhar, Jain, and Jayachandran 2022). Fourth, utilization of cross-sectional data inherently limits our ability to track temporal changes explicitly. However, the IV approach enables us to estimate the local average treatment effect (LATE) for women whose variation in neighborhood attitudes justifying IPV is driven by our instrument-neighborhood exposure to parental IPV. Therefore, while our identification strategy mitigates endogeneity concerns, readers should interpret the results with this limitation in mind. Lastly, the lack of information in the NFHS on the level of interaction between a woman and her neighbors within the same cluster constrains our ability to explicitly establish evidence based on direct contact or the frequency of their interactions, although we provide some suggestive evidence that the influence of neighbors' attitudes is stronger in more stable, long-settled communities which is consistent with the presence of stronger neighborhood or peer effects, as reported in the Online Appendix.¹³

That said, our article provides new insights into social effects of attitudes about IPV and records the important degree of influence a woman's peers have on her own attitudes regarding IPV. The pattern that emerges in our findings underscores the close association between a woman's agency, empowerment, and her susceptibility to the influence of her peers. As such, to arrest the perpetration of gender-biased social norms, our results highlight the importance of formulation and implementation of policies targeted toward women's empowerment through improvement in female school enrolment, continuing education, and fair access to resources.

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NOTES

- ¹ The data for this study are publicly available but owned by the Demographic and Health Surveys (DHS) Program. The fifth round of National Family Health Surveys of India is available at: <https://dhsprogram.com/methodology/survey/survey-display-541.cfm>.
- ² A cluster refers to a primary sampling unit (PSU) or a segment of a PSU selected for data collection in the NFHS. Each cluster consists of 100–125 households. In every selected rural and urban cluster, 22 households are randomly selected for interview. In rural areas, these PSUs are generally villages, while in urban areas, they are census enumeration blocks (CEBs). Distance between households within CEBs can vary based on local urban planning and population density. While there is no precise measurement provided for how far apart houses are in clusters in rural and urban areas under NFHS-5, the distance can vary significantly based on local conditions.
- ³ Specifically, we drop missing observations in the outcome variable (345 observations $\sim$ 0.7 percent (345/48,954) of initial sample), age of the household head (6 obs $\sim$ 0.01 percent), neighborhood averages of women who justify IPV (10 obs $\sim$ 0.02 percent), exposure to parental IPV (358 obs $\sim$ 0.7 percent), and normal body mass index (BMI; 80 obs $\sim$ 0.1 percent).
- ⁴ Our measure of wealth is based on the wealth index provided by DHS, which is a standardized measure of household economic status in a given survey. The DHS divides households into the poorest, poorest, middle, richer, and richest.
- ⁵ We also cluster the standard errors at both the district and state levels as robustness checks and present the results in the Online Appendix.
- ⁶ To ensure the robustness of our main results obtained using the IV-TSLS approach, we also employ IV-Probit estimation. The findings from the IV-Probit estimation are consistent with our main results.
- ⁷ To further validate our instrument, we have also checked the monotonicity condition by estimating our first stage for various subsamples of women (such as working/not

working, more/less educated, owning/not owning assets, and belonging to different social groups, religions, and household types). This discussion and the associated results have been reported in Tables A1 and A2 in the Online Appendix. We find a consistently positive and significant relationship between our instrument and neighborhood attitudes toward IPV, demonstrating that the instrument satisfies the monotonicity condition.

- ⁸ See the “Robustness” section below for the results of this robustness check.
- ⁹ The effect of a 1 SD increase in $\text{NeighParentsIPV} - i$ is equal to $(\text{Coefficient}) * (\text{StandardDeviationof NeighParentsIPV} - i) / (\text{StandardDeviationof AttitudesIPVi})$. The standard deviations of $\text{NeighParentsIPV} - i$ and AttitudesIPVi are available in Table 1.
- ¹⁰ Following the evidence in the literature that attitudes are a strong predictor of the actual incidence of violence (Jewkes 2002; Sambisa et al. 2010; Mookerjee, Ojha, and Roy 2021), we also present suggestive evidence that actual incidence of physical domestic violence is a potential mechanism of our impacts. We include this discussion in the Online Appendix.
- ¹¹ We also find within-neighborhood variation in these characteristics, such as, the mean of the high education and asset ownership indicators is 0.49 and 0.51, respectively, with average within-neighborhood variances of 0.20 and 0.16. This suggests that neighborhoods are not perfectly homogeneous, supporting the plausibility of identifying neighborhood effects beyond selection. Nonetheless, we caution that while these controls and within-neighborhood variation reduce the risk of bias, they may not fully eliminate all sources of selection, and estimates should be interpreted with appropriate care.
- ¹² Across India, three-quarters of women have migrated away from their place of birth by the age of 21, almost all on account of marriage, whereas only 15 percent of Indian men ever move away from their place of birth (National Sample Survey Office 2012); Employment, Unemployment and Migration Survey: 64th Round and Indian Human Development Survey 2004–05 (Desai and Vanneman 2008).
- ¹³ See Online Appendix.

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