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Did the COVID-19 Pandemic Necessarily Escalate Intimate Partner Violence? Results from a National-level Survey in India *

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Abstract

It is inferred that the COVID-19 pandemic may have resulted in a spike in intimate partner violence (IPV). Recent empirical studies in this area provides mixed results from across the world, while analyses on the global south are scarce. In this study we investigate the effects of COVID-19 pandemic on possible physical, emotional, and sexual violence on women by their intimate partners in India. We analyze the household level National Family Health Survey data collected in 707 districts across India during 2019-2021 and compare the pre- and post-pandemic replies to the relevant IPV questions. Unlike some existing studies in other countries that use different measures of IPV, our findings suggest that women are less likely to report incidences of emotional or sexual (but not often physical) violence by their partners after the pandemic induced lockdown. This is driven mainly by the rural areas, and by the states with low gender equality. We conclude by discussing the possible reasons such as the male backlash channel for this result.

JEL Classification: D74; D91; F51; I15; Q34

Keywords: Survey; COVID-19; Pandemic; India; Intimate Partner Violence

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1. Introduction

The COVID-19 pandemic and its related economic crises have manifested a catastrophic effect on lives and livelihoods globally. The effects of significant fall in GDP growth and the loss of jobs have its impact both at the micro and macro levels (Fernandes, 2020; Barret and Chen 2021). However, some of the most serious impacts on the individual level, in particular the rise of Intimate Partner Violence (IPV), forced the United Nations to declare it a ‘shadow pandemic’.¹ IPV is broadly defined as abuse or aggression that occurs in a romantic relationship by one current or former partner to another (Nicolaidis and Paranjape, 2009). In this study we investigate the effects of COVID-19 pandemic on possible physical, emotional, and sexual violence on women by their intimate partners in India using a national level survey from the pre- and post-pandemic period.

Various research have confirmed that IPV witnessed a substantial spike during the COVID-19 pandemic compared to the pre-pandemic period. However, the degree and the nature of the effect varies across the globe. Piquero et. al (2021), using a systematic review and meta-analysis, show a significant increase in domestic violence post-lockdowns and the overall mean effect size is 0.66. In addition, the stronger effects are found when only US studies are considered. In contrast, Miller et al. (2022) fail to support the claims that shutdowns increased domestic violence in the USA and suggest caution before drawing inference or basing policy solely on data from calls to police. Similarly, Barbara et al. (2020) find a decrease in the number of women who sought assistance since the beginning of the COVID-19 outbreak in Italy. But it does not necessarily mean a decline in IPV as the pandemic-related restrictive measures reduced women's options of seeking help from anti-violence centers and/or emergency services as an unintended consequence.

The effect on IPV can be evaluated at the physical, verbal, and emotional level. Interestingly, the current emerging literature confirms that developed countries experience a higher level of verbal and emotional violence (Arenas-Arroyo et al., 2021; Graham et al., 2021; McCrary and Sanga, 2021; Neo et al., 2022). Hsu and Henke (2021) note that in developing countries, the impact of COVID-19 fall out on IPV has risen as high as 40% as compared to an average 10% increase in developed countries. Roman et al. (2023) find heterogeneous effects of COVID-19 quarantine on IPV in Brazil, suggesting that when domestic violence calls increased, protective services actions

¹ <https://www.unwomen.org/en/news/in-focus/in-focus-gender-equality-in-covid-19-response/violence-against-women-during-covid-19>

prevented domestic violence from escalating into more severe cases, such as assaults. Hence, the supply of protective services for women could explain why COVID-19 induced quarantine effects on domestic violence varied across populations. Agüero (2020) and Porter et al. (2021) show a significant increase in IPV during the pandemic in Peru. These findings also illustrate that unlike developed countries, the rise in IPV in developing countries is mostly related to physical violence.

Hence, the existing literature provides mixed results and shows a need for further investigation to evaluate the impact of the pandemic on IPV, especially for developing countries. It also highlights the need for the use other data than calls to police and support services. Moreover, there is limited analysis of the impact of pandemic and lockdown on IPV in India. To appreciate the Indian context, one would need to understand how the lockdown was implemented in India. Unlike other countries, the government decision for the countrywide lockdown in India was sudden and brutal. On March 24, 2020, at 8.00 pm, the Prime Minister announced that the country will be locked for three weeks in 4 hours. This ensued confusion, panic, and an enormous migration of migrant workers back home on foot. The country-wide lockdown was extended till May 18th, and later local lockdowns were imposed (see Ray and Subramanian (2022) details of nature and the impact of the lockdown on day-to-day life). Hence, a separate, thorough, analysis for India is required.

In a descriptive study Kumar and Anupama (2022) show a steady 14%-30% rise in violence against women during the COVID-19 pandemic in India. Likewise, using online surveys before and during the pandemic, Pal et al. (2021) find a possible surge in IPV. In contrast to the other studies, Banerjee and Mishra (2023) use the National Family Health Survey data in India and find that the reported experience of several types of spousal violence actually declined compared to the pre-COVID period. They cover the COVID-19 induced lockdown period by applying multi-level logistic regression technique. However, this does not allow them to obtain casual estimates of the pandemic induced lockdown. For identification, they use states surveyed in phase two during the pandemic (January 2020 to April 2021) as those exposed to the pandemic and the states surveyed from phase one, pre-pandemic period (June 2019 to January 2020). This is the only study that uses such a data. However, given that the lockdown in India started only from March 25, 2020, this study is unable to estimate the sole impact of lockdown effect on IPV. Moreover, the level of gender equality is considered as a channel to identify the impact of lockdown on IPV which might dilute the effect of COVID-19 induced lockdown on IPV.

To overcome these gaps in the literature, the current study contributes to the existing literature by assessing the causal effect of the first wave of COVID-19 pandemic on IPV at an aggregated level using NFHS-5 data over the period 2019 to 2021 across 707 districts in India. In doing so, our focus is based on several considerations. We list those below.

First, we consider the households surveyed in phase two only after the lockdown, those who were exposed to the lockdown effects and classify the households surveyed before the lockdown as those unexposed. Also, we only consider the districts where the survey was conducted both before and after the first wave of the pandemic. Using this strategy, we are able to obtain a cleaner treated household group and a comparable control group.

Second, we conduct an event study analysis to ensure that the effects on IPV are causally linked with the lockdown and time trends and not influenced by other factors. Moreover, apart from simple OLS regressions, we also use double difference regressions to obtain the causal estimates.

Third, a month-long national-lockdown in India during the first wave of COVID-19 resulted in an unprecedented reverse migration to rural areas (Saha et al., 2022) which can have implications to the changes in IPV on women in rural areas. Consequently, we examine the effects on IPV for both rural and urban areas to identify if the implications are similar across these two areas.

Fourth, we analyze the effects of gender equality to investigate if states with differing gender equality indices have different roles in affecting violence behavior on women. Finally, to investigate the effects on IPV and whether ‘male backlash channel’ (Luke and Munshi, 2011 – that indicates males are more violent to their working female partner than non-working ones) has any influence, we investigate IPV for women separately according to their employment status.

Our findings suggest that women are less likely to report incidences of IPV after the pandemic induced lockdown, which is consistent with the fact that developing countries exhibit a higher rate of physical IPV (Chowdhury and Karmakar, 2023). This effect is driven mainly by the rural areas of the country, and by the states with low gender-equality, possibly due to (reverse) male backlash.

The rest of the paper is structured as follows. The next section discusses literature, while Section 3 provides the data description. The empirical strategy and results are provided in Section 4 and Section 5, respectively. Section 6 concludes.

2. The effect of COVID-19 and lockdown on IPV: existing literature

Literature on the effects of the COVID-19 pandemic on IPV is still emerging. A broader survey of literature by Chowdhury and Karmakar (2023) on the interrelationship between the pandemic and conflict behavior find an overall increase in IPV due to a rise of spillover effect of mandatory work-from-home policies, where work conflicts result in a spillover of aggressive behavior at the household level. They argue that the pandemic's effects on individual conflict behavior cannot be isolated, with significant spillovers between household, work, and identity-related aspects. The study notes that global lockdowns led to economic distress, contributing to domestic violence and IPV. Developed countries show higher rates of verbal and emotional violence, while developing countries exhibit a higher incidence of physical violence. Work-from-home policies during the lockdown emerge as a key factor influencing the rise in IPV. Comparing the evidence from previous pandemics, Peterman et al. (2020) also argue that social and economic disruptions caused by pandemics can feed to violence against women and children due to increased stress, financial strain, and social isolation, exacerbating the existing patterns of violence and create new ones. The potential protective factors identified to mitigate the risk of violence during pandemics are social support networks and access to resources. They argue that policymakers and service providers should prioritize these protective factors.

An online survey by Arenas-Arroyo et al. (2021) in Spain finds that lockdowns were the greater cause of increased violence against women than economic stress as forced cohabitation significantly intensifies the psychological violence. Similarly, Graham et al. (2021) report that lockdowns and work-from-home policies in the US play crucial distractions in maintaining the balance between work and home life and specially create more pressures on women with children than women without children. Similar results are also found by Neo et al. (2022) in Singapore where the COVID-19 pandemic resulted in higher work-family conflict for women. Kulik and Ramon (2021) and Marchetta and Champeaux (2021) highlight that imbalance between work and home has impacted the spousal relationship and there is a need for equality in sharing household work in France. Luetke et al. (2020) find a sharp increase in emotional and verbal abuse during the lockdown among various types of IPV measures.

Joseph et al. (2020) claim that the imposition of lockdown and travel restrictions have caused domestic zones to become breeding grounds for IPV. Abusive individuals may use the restrictions to exert power over the vulnerable people especially women, restricting access to essential commodities, etc. The enduring exposure of vulnerable persons to abusive individuals and the difficulty in communication due to social restrictions in the present scenario have caused a constraint for the victim to cope with this situation or obtain support (World Health Organization, 2020). Nair and Banerjee (2021) mention that domestic abuse and IPV have increased due to chronic entrapment, overcrowding in families, enhanced substance use, distorted relationship dynamics, travel restrictions, and reduced healthcare access, coercive sexual practices have also been on the rise. In line with this, Leslie and Wilson (2020) document the pandemic's impact on police calls for service for domestic violence in the US and find a 7.5% increase in such calls during March through May of 2020. The effects are more concentrated during the first five weeks after social distancing has been started mainly due to an increase in family isolation, unemployment, and economic stress. Interestingly, the effect is not driven by any particular demographic group; rather it appears to be driven by households without a previous history of domestic violence. However, these are not universal, as Barbara et al. (2020) find the opposite in Italy. This decrease in the number of women seeking assistance since the beginning of the COVID-19 outbreak might be due to a negative consequence of the pandemic-related restrictive measures.

In the developing world, where women face multiple challenges of poverty, gender-based violence, and discrimination compounded by inadequate legal protection augment the conflict situation further by the COVID-19 pandemic. Both Agüero (2020) and Porter et al. (2021) find an increase in IPV due to the pandemic in Peru. Similarly, Bhalotra et al. (2021) find that in Brazil both male and female job losses, independently, lead to large and pervasive increases in IPV.

Tripathi et al. (2023) find that economic instability and social and cultural norms of India ignited psychological abuse against women during the pandemic. The number of monthly complaints of dowry death, dowry harassment and protection of women against domestic violence reflect on increased registered complaints in the post lockdown period in the year 2020. There also are surveys that indicate a surge in IPV against women in India (Kumar and Anupama, 2022; Pal et al., 2021). Ravindran and Shah (2023) show that in India domestic violence complaints increase more in districts with the strictest lockdown rules. Das et al. (2020) analyse this pandemic as 'twin

public health emergencies’, combining health threat from COVID-19 and physical abuse along with mental threat on women from domestic violence, and find a spike on IPV.

Results from the developing countries are also not conclusive. Banerjee and Mishra (2023) observe a decline in the experience of several types of spousal violence during the COVID-19 pandemic compared to the pre-COVID period in India. They argue that the negative effects may be because during this pandemic period almost all the Indian families faced health ailments, coupled with unemployment, loss of income and other uncertainties. The struggle for their livelihood may have reduced the violence at home. Alternatively, during pandemic period due to mobility restrictions husbands were also staying at home and the women may have underreported the experience of violence to the interviewers in the presence of their spouses as still more than 76% of women have reported in NFHS-5 round that they are afraid of their husbands.

The above discussions suggest at most broad inconclusive results. It also points out that the literature is rather thin especially in the developing countries like India. It is also important to explore data that are not completely reliant on calls for assistance to police and other services. We fill in this gap by using a nationwide survey data from India that has the feature of pre- and post-pandemic outcomes on questions related to IPV. We exploit such features to contribute appropriately to the literature. The next section discusses the data description used in this study.

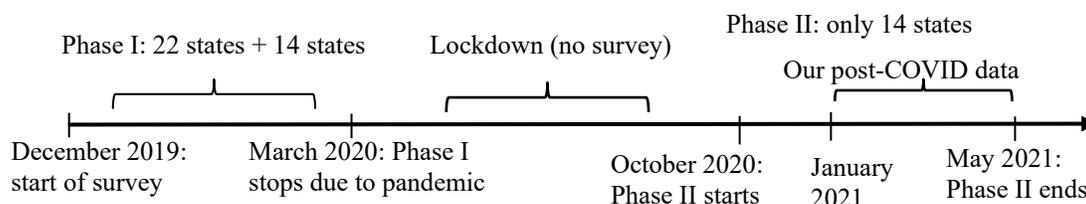
3. Data description

To investigate the COVID-19 lockdown and its effects on women experience by their IPV, we employ data from the fifth round of National Family Health Survey (NFHS-5) by the Ministry of Health and Family Welfare, Government of India. This large-scale survey started in 1992 and over the years was conducted 5 times in rural and urban areas. It is representative at the national, state and district level. It collects data on socioeconomic and demographic household characteristics such as caste affiliation, household composition and asset possession, among others. It also collects individual level information such as marital status, age and education.

The survey has a distinctive characteristic since it gathers comprehensive data about the autonomy of women aged between 15 to 49 years who reside in the households. This information covers various aspects of family relationships such as the woman's capacity to make decisions about healthcare and household purchases, how the husband treats his wife in public, and the woman's

views on domestic violence, among other topics. The NFHS-5 survey was conducted from June 2019 to May 2021 and it collected information from 636,699 households across 707 districts.

Figure 1. Timeline for the NFHS-5 survey (not to scale)



One of the key and unique aspects of the NFHS-5 survey is that it was conducted entirely before the COVID-19 pandemic outbreak in only 22 of the surveyed states (see Fig. 1). However, in the 13 states, a portion of the survey has taken place from December 2019 to March 2020, just before the pandemic's outbreak.² It was then put on hold due to the nationwide lockdown imposed in India on March 25, 2020, and resumed in October 2020 until May 2021.³ Further details about the states surveyed and the time period that the survey was conducted are presented in Table 1.

Table 1. Details of NFHS-5 survey by states and time period.

Survey time period	List of states
Survey was completed by 2019 (June 2019 to December 2019)	Andhra Pradesh, Assam, Bihar, Dadra & Nagar Haveli, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Ladakh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Telangana, Tripura, West Bengal.
Survey was completed before the first wave of the pandemic (June 2019 to March 2020)	Andaman & Nicobar Islands, Jammu & Kashmir, Lakshadweep.
Survey was conducted partly before the first wave (November 2019 to March 2020) and remaining after the first wave (October 2021 to May 2021) of the pandemic: Our analysis data	Arunachal Pradesh, Chhattisgarh, Haryana, Jharkhand, Madhya Pradesh, National Capital Region & Delhi, Odisha, Puducherry, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand.

Hence, some households were surveyed before the lockdown and remained unexposed to it, while the rest were exposed to the COVID-19 related lockdown. Within these states, 57 districts had a combination of pre-pandemic and post-first surveyed households. This turns out to be a natural experiment within the survey data and enables one to exploit it to investigate the causal effects of

² These states are Punjab, Uttarakhand, Haryana, Delhi and National Capital Region, Rajasthan, Uttar Pradesh, Arunachal Pradesh, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh, Tamil Nadu and Pondicherry.

³ In Chandigarh, the whole survey was conducted in 2021.

the pandemic on the questions answered in the survey. Consequently, we focus solely on the sample of households from these 57 districts.

4. Empirical strategy and variables

As discussed above, we exploit the variation in the timing of the survey and identify those households surveyed post COVID-19 outbreak and compare them with those surveyed before. We use the information collected from the women on IPV experience to estimate the effects of the lockdown. Following Das and Biswas (2023), the regression model is estimated as:

$$Y_{ihds} = \alpha + \beta \cdot Post\ COVID_{hds} + \gamma X_{ihds} + \delta M_{hds} + \mu_d + \varepsilon_{ids} \quad (1)$$

Here, Y_{ihds} is the outcome variable which takes the value of 1: if woman i , from household h , district d , and state s suffered from emotional, physical, or sexual violence from the husband in the last 12 months prior to the survey, and 0 otherwise (more details are provided later in this section). The variable, $Post\ COVID_{hds}$ takes the value of 1 if the household is surveyed post the outbreak (period: January 2021 to May 2021) and if the survey was conducted before, it assumes the value of 0 (period: December 2019 to March 2020). The vector of individual and household characteristics that are correlated with IPV is given by X_{ihds} and M_{hds} . μ_d is the vector of time invariant district level fixed effects. To note here that we have not incorporated state fixed effects separately as the districts lie within states and hence are subsumed within the district fixed effects. The random error term is given by ε_{ids} . The standard errors are clustered at the level of date of survey level. In Eq. 1, β captures the estimate average effect of exposure to the first COVID-19 induced lockdown on IPV against women, controlling for the potential confounders.

To ensure that these effects are causally linked with the lockdown and time trends, we do an event study analysis. The equation that we estimate for this is given as follows:

$$Y_{ihds} = \alpha + \sum_{\tau=-m}^n \beta_{\tau} time_{ihds\tau} + \gamma X_{ihds} + \delta M_{hds} + \mu_d + \varepsilon_{ids} \quad (2)$$

In the above equation, $time_{ihds\tau}$ indicates the weekly time period dummy for households surveyed in the τ^{th} week. Depending on the date of survey, τ is the number of weeks before the survey was halted for those conducted prior to the lockdown and the number of weeks starting from the day the survey was resumed for those conducted after the lockdown. If τ takes the value of

$[-m, -(m - 1), \dots, 0, 1, 2 \dots n]$. We consider m weeks before the lockdown and n 10-day periods post resumption of the survey. More specifically, m is the week which is farthest from the date on which the survey was halted and similarly, n is the week which is farthest from the date when the survey was started after the halt.⁴ We consider the reference week as the one just before the lockdown, after which the survey stopped and hence assumes the value of 0. The dummy variable, $time_{ihdst\tau}$ assumes the value 1 if household, i from household, h , district, d and state, s was surveyed on the τ^{th} week. The above regression elucidated in Eq. 2 allows us to compare the marginal effects during the weeks leading up to the lockdown and the weeks thereafter after the survey resumes. β_{τ} is the vector of the weekly regression coefficients for the corresponding τ . The other notations in the regression remain the same as those in Eq. 1.

In the above strategy, we only consider the districts where the survey was conducted both before and after the first wave of the pandemic. We did not consider those where the survey was administered exclusively either before or after the outbreak. A simple regression as outlined in Eq. 1 using the latter group of districts may yield biased estimates because of differential characteristics of the districts surveyed before and after the first wave. In other words, despite the lockdown being exogenous, the districts surveyed before having distinctive characteristics to those surveyed after and hence cannot be a credible counterfactual. Accordingly, we employ an alternative estimation strategy, where exogenous variation in the timing of the survey is exploited. Those districts surveyed post the first wave outbreak can be exposed to the pandemic and hence form the ‘treated’ group. Those districts where the entire surveyed was administered before the outbreak are the ‘control’ ones. Next, to account for the existing difference between the treated and the control group in absence of the pandemic, we use the NFHS-4 survey (fourth round) conducted in 2015-16 and then estimate the double difference (DD) regression (Das and Biswas, 2023).⁵ In particular, we estimate the following regression:

$$Y_{ihdst} = \alpha + \beta \cdot (T_{ds} * NFHS5_t) + \rho \cdot T_{ds} + \delta \cdot NFHS5_t + \gamma X_{ihdst} + \sigma_s + \varepsilon_{ihdst} \quad (3)$$

In the above equation, T_{ds} assumes the value of 1 if the corresponding district in which household, h is located is surveyed in NFHS-5 after the first wave outbreak and 0 otherwise. $NFHS5_t$ takes

⁴ Since the survey was halted on March 22, 2020, successive 10-day time period is taken prior to this day. Post first wave, the survey resumed in these districts again from January 13, 2021. Therefore, for post first wave households, 10-day time periods have been taken starting from this date.

⁵ NFHS 4 survey was conducted in 6,01,509 households from 640 districts.

the value 1 if the household, h was surveyed in NFHS-5 and 0 for NFHS 4. The vector of individual and household characteristics related to IPV is given by X_{ihdst} . We also incorporate state fixed effects given by σ_s . The random error term is represented by ε_{ihdst} and they are clustered at the district level. The coefficient of the interaction term ($T_{ds} * NFHS5_{ihdst}$), β gives us the estimate of the first wave on IPV incidence. In Eq. 3, like Eq. 1, we do not use district fixed effects as we use only those districts where the entire survey is conducted either before the start of pandemic or after the first wave. Hence, district dummies would be correlated with the T_{ds} if we include both.

We have three outcome variables: suffered from emotional violence, suffered from physical violence, and suffered from sexual violence in the last 12 months. Following Dhanaraj and Mahambare (2021), we create these three indicators using the set of questions explicitly asked in the NFHS survey (see Appendix-I). Each of these three indicators is coded as 0 if the response to any of the corresponding questions is either “no” or “yes, but not in the last 12 months”. The indicator takes a value 1 when the answer is either “often” or “sometimes”. Because our dependent variables are binary, we run a linear probability model (LPM). While LPM estimates are easier to interpret, other specifications such as probit do not change the qualitative results.

We use several household and individual level covariates in the regression model after controlling for age and education of the woman. We also account for her caste: whether she belongs to the Scheduled Tribe (ST), Scheduled Caste (SC), Other Backward Castes (OBC) and Upper Castes (UC), and her religion. Information on household size, and number of children under five years of age within the households are included. Additionally economic characteristics through five categories of asset possession (ranging from poorest to richest), access to improved toilets, and clean fuel for cooking are controlled for. Residence dummy based on rural or urban area and district fixed effects have been incorporated as well. Finally, we also include heterogeneity in terms of her bargaining power within home with two variables: whether she resides in a state with higher or lower gender equality, and whether she is employed or not.

Table A2 in Appendix-II presents a basic summary of the changes in IPV within the sampled households. It provides the proportion of females that faced emotional, physical or sexual violence among the socio-economic groups – before and after the pandemic induced lockdown. We also report if such before-after difference is significant. The descriptive statistics show that overall, there is a fall in IPV across all the three categories from the pre-first COVID lockdown to post

lockdown. Unlike the existing literature, across some of the socio-economic groups, we also find a fall in exposure to IPV. These provide the basis of our regression analyses.

5. Results

In this section we first report the linear probability model and the event studies regression results and discuss the causal effects of the pandemic on the IPV. We then analyze the effects of time trends on IPV and show that our results are free of such time trend confounds. As discussed earlier, we then focus on the heterogeneous effects of various demographic and social factors such as the rural urban areas, and on the level of women employment and gender equality on IPV.

5.1. Effects of COVID-19 induced lockdown

Table 2 presents the regression results using Eq. 1 displaying the estimates for the likelihood of the wife suffering from emotional, physical, and sexual violence by her husband in the last 12 months prior to the survey. In the first set of regressions, no covariates apart from district dummies (columns 1-3) have been used. In the next set of (our preferred specification) regressions, we have included all the covariates (columns 4-6).

The results show that the coefficients for post-COVID lockdown are negative and significant at the conventional level (with one exception) indicating that a woman is significantly less likely to report suffering from emotional or sexual violence by the husband after the COVID-19 induced lockdown. On an average, the probability of her being exposed to emotional violence reduces by 3 percentage points and for sexual violence, it reduces by 1.8 percentage points. We, however, do not observe any discernible changes in physical violence. It is important to note here that education of women is a key correlate that is highly associated with physical violence as evident from Table 2. Once education is incorporated in the regression, we do not observe a significant change in prevalence of physical violence which is observed after the first phase in column (2). With more than 6,000 observations in each of these analyses, these results contrast quite heavily with what is observed in the developed countries, or with data from police calls.

Table 2. Effect of COVID-19 induced lockdown on emotional, physical, and sexual violence

	(1) Emotional violence	(2) Physical violence	(3) Sexual violence	(4) Emotional violence	(5) Physical violence	(6) Sexual violence
Post-COVID lockdown	-0.033*** (0.012)	-0.032** (0.014)	-0.021*** (0.007)	-0.030*** (0.011)	-0.021 (0.014)	-0.018** (0.007)
Age				0.0001 (0.001)	-0.001 (0.001)	-0.001 (0.0004)
Caste (Ref. SC)						
ST				0.006 (0.020)	0.007 (0.021)	0.000 (0.015)
OBC				-0.007 (0.010)	0.001 (0.014)	-0.011 (0.008)
Upper caste				-0.002 (0.010)	-0.002 (0.014)	-0.015* (0.008)
Religion (Ref. Hindu)						
Muslims				0.008 (0.016)	-0.007 (0.022)	0.008 (0.011)
Others				-0.017 (0.021)	0.010 (0.029)	-0.011 (0.012)
Education in single years				-0.003*** (0.001)	-0.006*** (0.001)	-0.002** (0.001)
Household size				0.003 (0.002)	0.004 (0.003)	0.002 (0.001)
Number of children under 5 years of age				-0.007 (0.006)	0.001 (0.008)	-0.005 (0.004)
Improved toilet				-0.015 (0.013)	-0.009 (0.018)	-0.001 (0.009)
Clean fuel usage				0.011 (0.011)	0.024* (0.014)	0.009 (0.006)
Wealth index (Ref. Richest- group 5)						
Group 1 Poorest				-0.027* (0.014)	-0.068*** (0.021)	-0.015 (0.010)
Group 2				-0.039** (0.017)	-0.105*** (0.023)	-0.037*** (0.011)
Group 3				-0.064*** (0.020)	-0.098*** (0.027)	-0.036*** (0.012)
Group 4				-0.085*** (0.023)	-0.175*** (0.030)	-0.048*** (0.013)
Rural areas				-0.011 (0.010)	-0.022 (0.015)	-0.008 (0.008)
State FE				Yes	Yes	Yes
Constant	0.113*** (0.005)	0.237*** (0.007)	0.052*** (0.003)	0.174*** (0.026)	0.384*** (0.039)	0.112*** (0.022)
Observations	6,714	6,714	6,714	6,425	6,425	6,425
R-squared	0.034	0.086	0.027	0.044	0.106	0.036

Note: Marginal effects from Linear Probability Regression model are presented along with standard errors clustered at PSU level given in parenthesis. *** p<0.01, ** p<0.05, * p<0.1.

Table 3 shows the DD regression estimates for the three indicators of IPV we consider. The results indicate similar findings to what we observe from Table 2. We find a significant decline in emotional or sexual violence by husbands after the first lockdown. However, unlike the earlier results, we also find a decrease in incidence of physical violence by close to 4 percentage points. Importantly, the magnitude of the negative effect of emotional or sexual violence remains similar at around 2.8 and 1.9 percentage points. Therefore, we argue that post the COVID-19 induced first wave and the lockdown, we find a discernible decrease in incidence of IPV on average even when we consider those districts, which were surveyed entirely before or after the lockdown. Importantly, we find a significant reduction in physical violence here, which was not observed in Table 2. Therefore, it can be argued that the reduction in emotional and sexual violence after the first wave is substantially prominent though it is weaker with respect to physical violence. Figures generated from the event study lend a clearer picture of this aspect.

Table 3. Estimates from Difference-in-Difference regression

	(1) Emotional violence	(2) Physical violence	(3) Sexual violence
Post-COVID lockdown survey*NFHS-5 ($T_{ds} * NFHS5_{ihdst}$)	-0.028*** (0.010)	-0.039** (0.015)	-0.019*** (0.007)
Covariates	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes
Observations	50,191	50,191	50,191
R-squared	0.019	0.042	0.012

Note: Marginal effects from Linear Probability Regression model are presented along with standard errors clustered at district level given in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

As discussed earlier, these results are not in support of many reports published from several countries indicating a remarkable increase in the cases of IPV during the COVID-19 emergency (see Nduna and Tshona, 2020; Shalu, 2020; Lyons and Brewer, 2022; Chowdhury and Karmakar, 2023). Even for India, Pandit (2020) reports that 47.2% of total cases received by the National Commission of women in India were linked to domestic violence during April and May 2020 while there was a decline in sexual offenses of other nature. However, our results are consistent with Barbara et al. (2020) who find an opposite trend using data collected from Italian Service. Moreover, Banerjee and Mishra (2023) using NFHS-5 data find similar result of decline in violence during the COVID-19 pandemic.

A probable reason for such a decline might be the unique situation in India, that loss of jobs, lack of state support and thereby reduction in the interspousal differences lead to a decrease in the IPV. During the COVID-19 pandemic women were laid off and they did not get their jobs back after unlocking, and the unemployed status could have reduced the backlash among husbands. This possibility will be discussed in more detail next.

5.2. Time trends

To mitigate concerns about possible time trends confounding our estimates, we do an event study analysis as outlined in Eq. 2. Recall that β_τ is the vector of the weekly regression coefficients for the corresponding τ . Figures 2a, 2b and 2c show the corresponding diagram with the β_τ s for emotional, physical, and sexual violence respectively keeping the week just before the lockdown as the reference period.

Figure 2a. Emotional violence

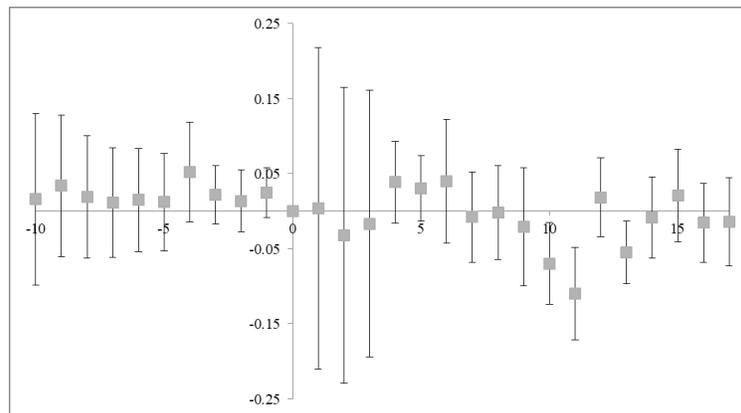


Figure 2b. Physical violence

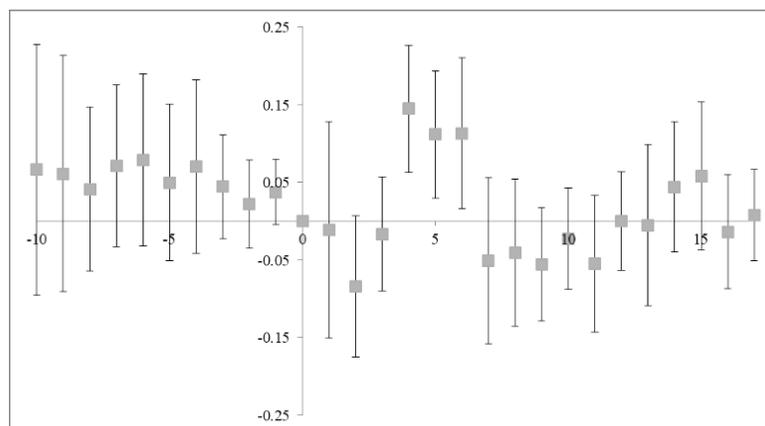
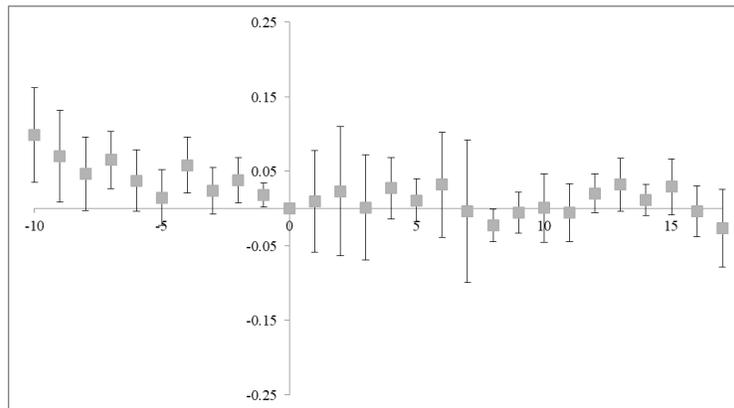


Figure 2c. Sexual violence



Note: Marginal effects from Linear Probability Regression model are presented along with the 95% CI calculated through standard errors clustered at PSU level.

In the weeks before the pandemic, we find no difference in women getting exposed to emotional violence when compared to the week just prior to the lockdown period. However, post first wave, we find significant fall in some of the weeks. With respect to sexual violence, in the weeks prior to the start of the pandemic, the prevalence was higher in some of the weeks. Nevertheless, there is a discernible fall in women getting exposed to sexual violence. For physical violence, we observe no particular direction of the effect post the first wave, which potentially explains the insignificant results we observe in Table 2. Overall, we find that prior to the lockdown, there is no significant evidence of any systematic trend in terms of exposing women to emotional, or physical violence when compared to the reference period. However, after the survey resumed since the lockdown, we observe a downward trend in the likelihood of being mistreated emotionally. Notably, in some of the periods, this effect is statistically significant at 95% level. There is also some downward trend for sexual violence, however in the pre-COVID period, a positive prevalence in sexual violence is evident. This broadly assures us that the observed declining trend IPV are not merely time-trends but influenced through the COVID-19 induced lockdown.

5.3. Rural-urban heterogeneous effects

Desai et al. (2021) find varied effects of COVID-19 lockdown across rural and urban India since a stringent lockdown was implemented across urban areas in comparison to the rural areas. We examine these effects on IPV in rural and urban areas to examine if the implications are similar in terms of the IPV across these two areas. Findings from the regressions (akin to Eq. 1, reported in

Table 4) run separately for rural and urban areas indicate that women from rural areas were less likely to report facing IPV (especially emotional and sexual violence, and indicative of physical violence) after the first lockdown, whereas no such changes are observed in urban areas.

Table 4. Effects across rural and urban areas

	Urban areas			Rural areas		
	Emotional violence	Physical violence	Sexual violence	Emotional violence	Physical violence	Sexual violence
Post-COVID lockdown	-0.024 (0.026)	-0.004 (0.024)	-0.015 (0.015)	-0.034** (0.014)	-0.030* (0.018)	-0.022** (0.009)
Constant	0.259*** (0.069)	0.356*** (0.088)	0.182*** (0.065)	0.145*** (0.024)	0.344*** (0.039)	0.091*** (0.018)
Observations	1,845	1,845	1,845	4,580	4,580	4,580
R-squared	0.074	0.160	0.086	0.046	0.101	0.036

Note: Marginal effects from Linear Probability Regression model are presented along with standard errors clustered at PSU level given in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

A possible explanation of these differences in urban and rural areas relies on the sudden and strict month-long national lockdown imposed during the first wave of the COVID-19 pandemic by the central government in India. The sudden announcement of the lockdown resulted in an unprecedented reverse migration from urban to rural areas. Consequently, women were absorbed into domestic and caregiving work, which greatly increased their time poverty making it difficult to re-enter the job market (Saha et al., 2022). Our result is also consistent with fact that women job loss in informal sector was also one of the driving forces for the decrease in reporting for domestic violence (Bhalotra et al., 2022).

5.4. Gender equality and the effects on the IPV

A report on gender inequality by the NITI Aayog in 2018, which “serves as the apex public policy think tank of the Government of India” measured the state level gender equality based on several indicators and produced a score for each state.⁶ Based on that report, we classify the 7 states featuring in our analysis of 57 districts into those two categories depending on whether the state score is higher or lower than the all-India score: states with high and low gender equality. We separate out these two categories of states and run regressions for each. Table 5 indicate no change in IPV exposure among women from high equality states after the lockdown. However, it shows a

⁶ The indicators and the score, as well as further explanations are available here: <https://sdgindiaindex.niti.gov.in/#/>

significant reduction in emotional and sexual violence in the states with lower gender equality. It may be possible that because of the higher base effect in the high gender equality states, we do not observe any discernible change. While in the states with low gender parity, the lockdown lowered women facing IPV substantially.

Table 5. Effects across gender equal and unequal states

	Gender equality > all-India level			Gender equality <= all-India level		
	Emotional violence	Physical violence	Sexual violence	Emotional violence	Physical violence	Sexual violence
Post-COVID lockdown	-0.016 (0.014)	-0.006 (0.017)	-0.012* (0.007)	-0.046** (0.019)	-0.034 (0.021)	-0.025** (0.012)
Constant	0.114*** (0.041)	0.322*** (0.046)	0.074*** (0.027)	0.203*** (0.035)	0.435*** (0.058)	0.139*** (0.032)
Observations	3,349	3,349	3,349	3,076	3,076	3,076
R-squared	0.047	0.119	0.038	0.044	0.085	0.036

Note: Marginal effects from Linear Probability Regression model are presented along with standard errors clustered at PSU level given in parenthesis. States having higher gender equality than the all-India level are Punjab, Uttarakhand, National Capital Region and Delhi, Rajasthan, Odisha, Chhattisgarh and Tamil Nadu. *** p<0.01, ** p<0.05, * p<0.1.

6. Discussion

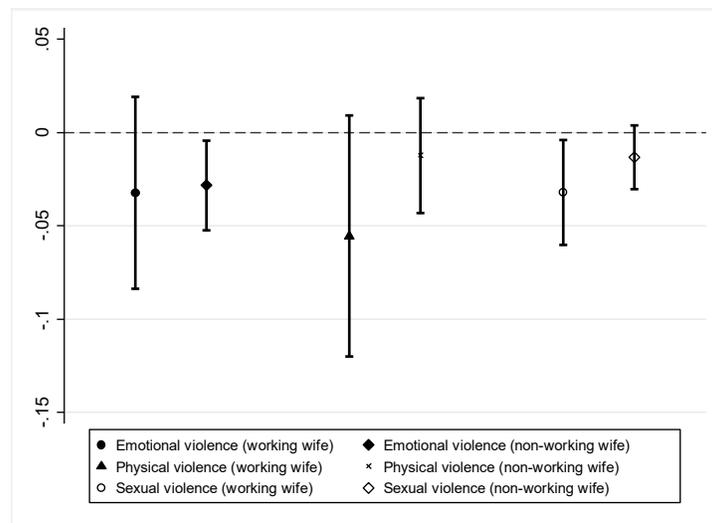
A substantial number of studies have shown a worldwide increase in the Intimate Partner Violence as a result of the COVID-19 pandemic and the related lockdown. There also were forecast of an increase in the IPV due to the economic and mental stress resulting from the pandemic and the lockdown (Chowdhury, 2000). Indeed, studies have documented a severe drop in the employment post-lockdown in India both among men and women (Despande, 2020; Desai et al., 2021). However, using a nation-wide survey data and an identification strategy to find the causal effect of the COVID-19 pandemic on IPV in India, we find that the COVID-19 induced lockdown has produced some significant effect in reducing emotional and sexual violence on women in some Indian states. There is also a downward trend of emotional and physical mistreatment, although a rising trend of women suffering from sexual violence is evidenced during COVID-19 induced lockdown period. The downward trend is more pronounced in rural areas and states with low gender equality. Here we offer some explanations for our results.

On one hand, being employed may lower the prevalence of IPV because of the higher bargaining power within the household. Therefore, in the event of a job loss, women may end up facing more

IPV from the partner. This may have been the driving force for the results obtained in the developed countries. However, on the other hand, when a woman gets employed, she is often seen, especially in a society such as India, to deviate from the conventional gender identity role of being primarily responsible for managing the household chores and as caregivers for the children and the elderly. This deviation from norms can lead to dissatisfaction among husbands.⁷

Therefore, when a woman starts working, it is possible that her husband – especially in the areas with strong gender inequality norms (such as the rural area, or areas with lower education) – may attempt to regain his perceived household authority and restore the sense of satisfaction he has lost due to diminished power within the household by resorting to violence against his wife. This pattern is referred to as the ‘male backlash channel’ (Luke and Munshi, 2011). Indeed, earlier investigations have revealed that working women often face more IPV in India (Biswas, 2017), and the job status does not reduce such experience. Hence, when a woman loses her job because of the pandemic and comes back to the rural area as a result of the reverse migration, a reverse male backlash effect may arise and the chances of husband resorting to violence may decline.

Figure 3. The marginal effects of the COVID-19 first wave



Note: Marginal effects from Linear Probability Regression model are presented along with 95% confidence interval calculated through standard errors clustered at PSU level.

⁷ In other words, adhering to established norms brings benefits and satisfaction to individuals and other groups, while deviation results in disutility (Akerlof and Kranton, 2010).

To explore further if there are differential effects among respondents who is working in comparison to those who are not working, we run regressions separately for women from these two categories. Fig. 3 presents the marginal effects of the COVID-19 first wave (Eq. 1, separately for working and non-working females). We find a discernible reduction in emotional violence among women who is not working, potentially indicating a reversal of the male backlash. However, sexual violence is observed to have reduced among the working women indicating that the bargaining power through employment allows women to resist sexual violence against her. Note, however, that we are unable to assess the specific channels due to the paucity of our data. Understanding and exploring these channels can be marked for future research.

The current study has certain limitations. First, it is important to note that the specific impacts of the initial COVID-19 lockdown in India cannot be accurately determined since our post-survey in the sampled districts commenced in December 2020, encompassing both the lockdown period and the subsequent unlocking phase. Consequently, the dynamics related to IPV might have undergone changes during this timeframe, which we are unable to discern. Second, due to the utilization of repeated cross-sectional data, we are unable to assess changes within the same households before and after the first wave of the pandemic. This limits our ability to provide insights into individual household-level transformations. Third, the scarcity of relevant data prevents us from identifying the potential mechanisms underlying the observed changes in IPV. Whereas we can ex-post rationalize some of the results, the exploration of these mechanisms remains a subject for future research efforts. Similarly, it impediments one to run further analyses such as an ordered probit regression to find further insights. Nevertheless, our study offers a broad overview of the changes in IPV that could have been associated with the outbreak of COVID-19 based on a nationally representative survey and opens the avenues for various future research.

References

- Agüero, J. M. (2021). COVID-19 and the rise of intimate partner violence. *World Development*, 137, 105217.
- Akerlof, George A., and Rachel E. Kranton. 2010. *Identity Economics: How Our Identities Shape Our Work, Wages, and Well-Being*. Princeton: Princeton University Press.
- Arenas-Arroyo, E., Fernandez-Kranz, D., & Nollenberger, N. (2021). Intimate partner violence under forced cohabitation and economic stress: Evidence from the COVID-19 pandemic. *Journal of Public Economics*, 194, 104350.
- Banerjee, T., & Mishra, T. (2023). COVID Pandemic and Spousal Violence Against Indian Women: An Exploration of NFHS-4 (2015–2016) and NFHS-5 (2019–2021) Data Sets. *Millennial Asia*, 09763996231169702.
- Barbara, G., Facchin, F., Micci, L., Rendiniello, M., Giulini, P., Cattaneo, C., Vercellini, P., and Kustermann, A. (2020). COVID-19, Lockdown, and Intimate Partner Violence: Some Data from an Italian Service and Suggestions for Future Approaches. *Journal of Women's Health*. 29 (10), 1239-1242.
- Barret, P. & Chen, S. (2021). The Economics of Social Unrest. IMF Finance and Development paper. Available at: <https://www.imf.org/external/pubs/ft/fandd/2021/08/economics-of-social-unrest-imf-barrett-chen.htm>.
- Berniell, I., & Facchini, G. (2021). COVID-19 lockdown and domestic violence: Evidence from internet-search behavior in 11 countries. *European Economic Review*, 136, 103775.
- Bhalotra, S., Brito, E., Clarke, D., Larroulet, P., & Pino, F. J. (2022). Dynamic impacts of lockdown on domestic violence: Evidence from multiple policy shifts in Chile. CEPR Discussion Paper No. DP17254.
- Bhalotra, S., GC Britto, D., Pinotti, P., & Sampaio, B. (2021). Job displacement, unemployment benefits and domestic violence. CEPR Discussion Paper No. DP16350.
- Biswas, C. S. (2017). Spousal violence against working women in India. *Journal of family violence*, 32(1), 55-67.
- Chowdhury, S. M. (2020). Conflict in the Time of (Post-) Corona: Some assessments from behavioral economics. *Peace Economics, Peace Science and Public Policy*, 26(3), 20200052.
- Chowdhury, S. M., & Karmakar, S. (2023). The Interrelationship between the COVID-19 Pandemic and Conflict Behavior: A Survey. *Journal of economic Surveys*, 1-17.
- Das, M., Das, A., & Mandal, A. (2020). Examining the impact of lockdown (due to COVID-19) on Domestic Violence (DV): An evidences from India. *Asian Journal of Psychiatry*, 54, 102335–102335.
- Das, U., & Biswas, S. (2023). Fuelling down after a lockdown: Effects of the first COVID wave on clean fuel usage in India. *Energy Economics*, 106940.
- Desai, S., Deshmukh, N., & Pramanik, S. (2021). Precarity in a time of uncertainty: gendered employment patterns during the covid-19 lockdown in India. *Feminist Economics*, 27(1-2), 152-172.

- Deshpande, A. (2020). The COVID-19 pandemic and lockdown: first effects on gender gaps in employment and domestic work in India. Ashoka University Department of Economics Working Paper No. 30.
- Dhanaraj, S., & Mahambare, V. (2022). Male backlash and female guilt: Women's employment and intimate partner violence in urban India. *Feminist economics*, 28(1), 170-198.
- Fernandes, N. (2020). Economic effects of coronavirus outbreak (COVID-19) on the world economy. IESE Business School Working Paper No. WP-1240-E.
- Graham, M., Weale, V., Lambert, K. A., Kinsman, N., Stuckey, R., & Oakman, J. (2021). Working at home: The impacts of COVID 19 on health, family-work-life conflict, gender, and parental responsibilities. *Journal of Occupational and Environmental Medicine*, 63(11), 938.
- Hsu, L. C., & Henke, A. (2021). COVID-19, staying at home, and domestic violence. *Review of Economics of the Household*, 19, 145-155.
- Joseph, S. J., Mishra, A., Bhandari, S. S., & Dutta, S. (2020). Intimate partner violence during the COVID-19 pandemic in India: From psychiatric and forensic vantage points. *Asian journal of psychiatry*, 54, 102279.
- Kulik, L., & Ramon, D. (2021). The relationship between family-work conflict and spousal aggression during the COVID-19 pandemic. *Community, Work & Family*, 1-20.
- Kumar, D., & Anupama, A. (2022). Impact of COVID-19 pandemic on Prevalence of complaints related to violence against women in India - A cross-sectional comparative research study from 2014 to 2022. Available at SSRN 4034155.
- Leslie, E., & Wilson, R. (2020). Sheltering in place and domestic violence: Evidence from calls for service during COVID-19. *Journal of public economics*, 189, 104241.
- Luetke, M., Hensel, D., Herbenick, D., & Rosenberg, M. (2020). Romantic relationship conflict due to the COVID-19 pandemic and changes in intimate and sexual behaviors in a nationally representative sample of American adults. *Journal of Sex & Marital Therapy*, 46(8), 747-762.
- Luke, N., & Munshi, K. (2011). Women as agents of change: Female income and mobility in India. *Journal of Development Economics*, 94(1), 1-17.
- Lyons, M., Brewer, G. Experiences of Intimate Partner Violence during Lockdown and the COVID-19 Pandemic. *Journal of family Violence*, 37, 969–977 (2022).
- Marchetta, F., & Champeaux, H. (2021). Couples in lockdown, “La vie en rose”? Evidence from France. CERDI Working Paper No. hal-03149087.
- McCrary, J., & Sanga, S. (2021). The impact of the coronavirus lockdown on domestic violence. *American Law and Economics Review*, 23(1), 137-163.
- Miller, A. R., Segal, C., & Spencer, M. K. (2022). Effects of COVID-19 shutdowns on domestic violence in US cities. *Journal of urban economics*, 131, 103476.
- Nair, V. S., & Banerjee, D. (2021). “Crisis within the walls”: rise of intimate partner violence during the pandemic, Indian perspectives. *Frontiers in global women's health*, 2, 614310.
- Nduna, M., & Tshona, S. O. (2021). Domesticated poly-violence against women during the 2020 COVID-19 lockdown in South Africa. *Psychological studies*, 66(3), 347-353.

- Neo, L. S., Tan, J. Y. C., & Chew, T. W. Y. (2022). The influence of COVID-19 on women's perceptions of work-family conflict in Singapore. *Social Sciences*, 11(2), 73.
- Nicolaidis, C., & Paranjape, A. (2009). Defining intimate partner violence: Controversies and implications. *Intimate partner violence: A health-based perspective*, 19-29.
- Nigam, S. (2020). COVID-19, lockdown and violence against women in homes. Available at SSRN: 3587399.
- Pal, A., Gondwal, R., Paul, S., Bohra, R., Aulakh, A.P.S., & Bhat, A. (2021). Effect of COVID-19-related lockdown on intimate partner violence in India: an online survey-based study. *Violence and gender*, 8(3), 157-162.
- Pandit, A. (2020). Lockdown Saw Significant Rise in Domestic Violence Complaints to NCW. Available at: <https://timesofindia.indiatimes.com/india/lockdown-saw-significant-rise-in-domestic-violence-complaints-to-ncw/articleshow/76240502.cms>.
- Peterman, A., Potts, A., O'Donnell, M., Thompson, K., Shah, N., Oertelt-Prigione, S., & Van Gelder, N. (2020). Pandemics and violence against women and children. Center for Global Development working paper 528.
- Piquero, A. R., Jennings, W. G., Jemison, E., Kaukinen, C., & Knaul, F. M. (2021). Domestic violence during the COVID-19 pandemic-Evidence from a systematic review and meta-analysis. *Journal of criminal justice*, 74, 101806.
- Porter, C., Favara, M., Sánchez, A., & Scott, D. (2021). The impact of COVID-19 lockdowns on physical domestic violence: Evidence from a list randomization experiment. *SSM-population health*, 14, 100792.
- Ravindran, S., & Shah, M. (2023). Unintended consequences of lockdowns: COVID-19 and the shadow pandemic in India. *Nature Human Behavior*, 7, 323-331.
- Ray, D., & Subramanian, S. (2022). India's lockdown: An interim report. In *The Impact of COVID-19 on India and the Global Order: A Multidisciplinary Approach* (pp. 11-61). Singapore: Springer Nature Singapore.
- Roman, S., Aguiar-Palma, M., & Machado, C. (2023). A tale of two cities: Heterogeneous effects of COVID-19 quarantine on domestic violence in Brazil. *Social Science & Medicine*, 331, 116053.
- Saha, S., Peer, K., & Saha, S. (2022). Reverse migration, sustainable development, and innovation during COVID-19 pandemic: A case study of Indian women and children. *International Journal of Innovation and Sustainable Development*. Forthcoming.
- Shalu, N., (2020). COVID-19, Lockdown and Violence against Women in Homes. Available at SSRN: 3587399.
- Tripathi, P., Dwivedi, P. S., & Sharma, S. (2023). Psychological impact of domestic violence on women in India due to COVID-19. *International journal of human rights in healthcare*, 16(2), 146-161.
- World Health Organization. (2020). COVID-19 and violence against women: what the health sector/system can do, No. WHO/SRH/20.04.

Appendix – I

The domestic violence module in the NFHS-5 survey is collected through questionnaire administered to women ages 15–49 years. The survey collects data on emotional, physical and sexual abuse (Dhanaraj and Mahambre, 2021). The English version of the survey is given below.

Table A1. Relevant parts of the NFHS-5 survey questions

Did your husband ever:	No	If yes, how often did it happen in the last 12 months?		
		Often	Sometimes	Not in last 12 months
<i>Emotional violence</i>				
• Say or do something to humiliate you in front of others?				
• Threaten to hurt or harm you or someone close to you?				
• Insult you or make you feel bad about yourself?				
<i>Physical violence</i>				
• Push you, shake you, or throw something at you?				
• Twist your arm or pull your hair?				
• Slap you?				
• Punch you with his fist or with something that could hurt you?				
• Kick you, drag you or beat you up?				
• Try to choke you or burn you on purpose?				
• Threaten or attack you with a knife, gun, or any other weapon?				
<i>Sexual violence</i>				
• Physically force you to have sexual intercourse with him even when you did not want to?				
• Physically force you to perform any other sexual acts you did not want to?				
• Force you with threats or in any other way to perform sexual acts you did not want to?				

We code a woman faced any of these three types of violence if she reports “often” or “sometimes” for the above questions in that category. For example, we code a woman to have faced emotional violence if she reports “often” or “sometimes” for any of the three questions under it.

Appendix - II

Table A2. Descriptive statistics of pre- and post-COVID lockdown report on IPV incidences

	Emotional violence			Physical violence			Sexual violence		
	Pre-COVID	Post-lockdown	Difference	Pre-lockdown	Post-lockdown	Difference	Pre-lockdown	Post-lockdown	Difference
Full sample	0.116	0.073	0.043*	0.251	0.170	0.081*	0.053	0.028	0.025*
Observations	4,790	1,925	-	4,790	1,925	-	4,790	1,925	-
Caste									
SC	0.138	0.069	0.069*	0.280	0.150	0.130*	0.071	0.025	0.046*
ST	0.153	0.051	0.102*	0.321	0.237	0.084*	0.085	0.030	0.055*
OBC	0.113	0.087	0.026*	0.265	0.205	0.06*	0.048	0.034	0.014
Upper	0.082	0.067	0.015	0.158	0.104	0.054*	0.029	0.021	0.008
Religion									
Hindu	0.120	0.074	0.046*	0.260	0.174	0.086*	0.053	0.030	0.023*
Muslim	0.127	0.078	0.049	0.252	0.215	0.037	0.071	0.023	0.048*
Others	0.065	0.058	0.007	0.143	0.065	0.078*	0.031	0.006	0.025
Improved toilet	0.094	0.072	0.022*	0.214	0.139	0.075*	0.041	0.026	0.015*
Clean fuel usage	0.101	0.066	0.035*	0.225	0.134	0.091*	0.042	0.025	0.017*
Wealth index									
Group 1 (poorest)	0.178	0.100	0.078*	0.371	0.318	0.053	0.088	0.052	0.037*
Group 2	0.134	0.080	0.054*	0.290	0.186	0.104*	0.067	0.029	0.038*
Group 3	0.114	0.079	0.035	0.236	0.184	0.052*	0.036	0.035	0.001
Group 4	0.087	0.056	0.031	0.237	0.155	0.082*	0.044	0.017	0.027*
Group 5 (richest)	0.059	0.060	-0.001	0.109	0.071	0.038*	0.027	0.015	0.012
Area									
Rural	0.123	0.077	0.046*	0.266	0.197	0.069*	0.056	0.028	0.028*
Urban	0.097	0.065	0.032*	0.210	0.119	0.091*	0.044	0.026	0.018*
Gender equality									
High states	0.096	0.058	0.038*	0.206	0.143	0.063*	0.043	0.019	0.024*
Low states	0.138	0.090	0.047*	0.300	0.201	0.099*	0.063	0.037	0.026*
Wife working									
Yes	0.157	0.088	0.069*	0.321	0.225	0.096*	0.075	0.029	0.046*
No	0.103	0.069	0.033*	0.228	0.155	0.073*	0.045	0.027	0.018*
Observations	4,790	1,925	-	4,790	1,925	-	4,790	1,925	-

Note: This table is generated using households surveyed in those districts where survey was carried out both before and after the first COVID lockdown. * means $p < 0.05$.