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Physical Domestic Violence and Subsequent Contraceptive Adoption Among Women in Rural India

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Abstract

This study examines the relationship between male to female physical domestic violence and contraceptive adoption among women in four economically and culturally distinct areas of India. Data from India's 1998–1999 National Family Health Survey–2 and a follow-up survey in 2002–2003 for which the same women in four states were reinterviewed are analyzed. The focus of the analysis is on how baseline exposure to physical domestic violence is associated with the intersurvey adoption of contraception. Women who experience physical violence from their husbands are significantly less likely to adopt contraception in the intersurvey period, although this relationship varies by State. This study builds upon previous work by using an indicator of physical domestic violence exposure that is measured before contraceptive adoption, thus allowing the identification of how exposure to violence shapes the adoption of contraception. The results demonstrate that for women living in Bihar and Jharkhand there is a clear negative relationship between physical domestic violence and a woman's adoption of contraception; this relationship was not found for women in Maharashtra and Tamil Nadu. The results point to the need to include domestic violence screening and referral services into family planning services.

Keywords

alcohol and drugs; domestic violence; cultural contexts

Introduction

This study examines the relationship between male to female physical domestic violence and contraceptive adoption among women in four economically and culturally distinct areas of India, a subject matter that has been under researched for women in resource-poor settings. The issue of violence against women in resource poor countries has emerged as a growing concern among researchers and policy makers concerned with women's health and empowerment. In this While women in in these contexts are vulnerable to many forms of violence, domestic violence, which is commonly comprised of a male perpetrator and female victim, but may also affect male victims, represents the most common form of

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violence (Heise, Pitanguy, & Germain, 1994). The World Health Organization [WHO] has defined domestic violence as "... the range of sexually, psychologically and physically coercive acts used against adult and adolescent women by current or former male intimate partners," illustrating that domestic violence includes more than physical violence (World Health Organization [WHO], 1996). Domestic violence is increasingly being recognized as having significant consequences for women's mental, physical, sexual, and reproductive health (Chandra, Satyanarayana, & Carey, 2009; Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2006; Garcia-Moreno & Stockl, 2009; Gazmararian et al., 2000). Numerous studies have revealed associations between domestic violence and adverse health outcomes for women and their children. For instance, domestic violence during pregnancy has been associated with adverse pregnancy outcomes for infants (Ntaganira et al., 2008) including low birth weight, preterm delivery, and neonatal death (Sarkar, 2008). Another indirect health consequence of domestic violence for woman and child is the effect on nutritional status, with high a prevalence of anemia reported amongst pregnant women who face domestic violence (Ackerson & Subramanian, 2008). Recent studies have also explored the relationship between domestic violence and women's mental health, detailing associations between domestic violence and depressive symptoms and posttraumatic stress disorder (Chandra et al., 2009).

The current study is especially relevant given that the relationships between domestic violence and women's health outcomes have mainly been explored in studies from developed countries (Glander, Moore, Michielutte, & Parsons, 1998; Kazi, Reeves, & Creinin, 2008; Khawaja & Tewtel-Salem, 2004; McCarraher, Martin, & Bailey, 2006; Yoshihama & Sorenson, 1994). Underreporting and cultural acceptance of domestic violence in many developing countries (Heise, Ellsberg, & Gottmoeller, 2002) contribute to unreliable statistics on the prevalence of domestic violence in resource-poor settings. Population-based surveys in the United States and Canada estimate between 25% and 30% of women of all ages report lifetime intimate partner violence (Campbell, 2002). The World Health Organization (WHO) estimates suggest that the lifetime prevalence of partner violence range from 13% in Japan, to 61% in Peru, with most countries surveyed falling between 23% and 49% (Garcia-Moreno et al., 2006).

Recent studies have shifted attention to understanding the prevalence of and cultural acceptance of the high levels of domestic violence in South Asia, including India (Jejeebhoy, 1998; Jeyaseelan et al., 2007; Kaur & Garg, 2009; Martin et al., 2002; Salam, Alim, & Noguchi, 2006). Due to the existence of social institutions in India that legitimize spousal abuse (Heise et al., 2002), the actual prevalence of domestic violence is difficult to ascertain. Studies have found estimates of sexual domestic violence ranging from 56% in Eastern India (Babu & Kar, 2009), to 75% in South India (Solomon et al., 2009); estimates that only reflect sexual abuse, not other forms of domestic abuse such as physical and verbal violence. The most recent estimates for national prevalence of domestic violence is from the National Family Health Survey (NFHS-3) conducted in 2005–2006. The survey places national domestic violence prevalence at 37%, with regional estimates ranging from 59% in North India, to 31% in Western India (International Institute for Population Sciences [IIPS], 2009). There are also several studies that have documented high levels of physical violence within the context of India (e.g., Babu & Kar, 2009; Koenig, Stephenson, & Ahmed, 2006).

The experience of domestic violence has the potential to constrain contraceptive use through limiting access to health services and reducing a woman's ability to negotiate around sex. Evidence of the impact of domestic violence on contraceptive use comes largely from studies conducted in resource-rich countries (Kazi et al., 2008; Williams, Larsen, & McCloskey, 2008), summarized as follows. Heise et al. (2002) state that women's use of contraception may be limited because of fears about partner response and a lack of ability to

negotiate the timing of sex or use of contraceptive methods with their partner. Women consequently either use no contraception or rely on methods that can be concealed from their partner (Coker, 2007; Diop-Sidibe, Campbell, & Becker, 2006; Gazmararian et al., 2000; Heise et al., 2002; Rickert, Wiemann, Harrykissoo, Berenson, & Kolb, 2002). Physical and sexual violence have been shown to be significantly associated with lower contraceptive use and a higher incidence of unintended pregnancy (Gee, Mitra, Wan, Chavkin, & Long, 2009). While most studies find that women facing domestic violence have lower rates of contraceptive use (Coker, 2007; Diop-Sidibe et al., 2006; Gazmararian et al., 2000; Rickert et al., 2002), some studies find contrasting evidence. Abused women reported higher use of condoms, while nonabused women reported higher rates of oral contraceptive use (Williams et al., 2008). Similarly, women with a high lifetime prevalence of domestic violence were significantly more likely to report having ever used contraception, compared with women who had not experienced domestic violence (Fanslow, Whitehead, Silva, & Robinson, 2008).

There is a recent emergence of evidence for a relationship between domestic violence and contraceptive use in India (Stephenson, Koenig, & Ahmed, 2006b; Stephenson, Koenig, Acharya, & Roy, 2008; Wilson-Williams, Stephenson, Juvekar, & Andes, 2008), however, quantitative evidence from India about the causal role of domestic violence on contraceptive use remains limited. Previous studies have found lower odds of contraceptive adoption among Indian women who have experienced physical domestic violence from their husbands (Stephenson, Koenig, & Ahmed, 2006a). A study of North Indian men found a positive and systematic association between physical and sexual violence and husbands' reports that their wives had one or more unplanned pregnancies, but failed to demonstrate an association between spousal abuse and contraceptive use (Martin et al., 1999). A qualitative study conducted in rural India found that covert contraceptive use precipitated domestic violence (Wilson-Williams et al., 2008), although a direct link between the two remains unclear. Another study from South India showed a positive relationship between domestic violence and women having been sterilized, which was suggested to be an outcome of husbands' increased fears about their partner's fidelity following sterilization (Rao, 1997). This existing evidence base provides the justification for further examining the intersection between domestic violence and contraceptive use in the current article; while previous studies have identified a relationship between domestic violence and contraceptive use; they have also raised questions about the temporal ordering of the relationship: Does violence prevent contraceptive use, or does contraceptive use precipitate violence? The current article focuses on attempting to disentangle the temporal ordering of domestic violence and contraceptive use.

The main limitation of most previous studies of the impact of domestic violence on contraceptive use has been their cross-sectional nature, which prohibits inferences regarding causal associations. In this present study, baseline measures of physical domestic violence and follow-up measures of contraceptive use are used in order to establish a clear pathway between abuse and contraceptive adoption in the intersurvey period. It is hypothesized that women who experience domestic violence will subsequently have lower odds of adopting a modern contraceptive method. The experience of violence is thought to constrain women's access to family planning services, reduce her ability to negotiate around fertility and contraceptive use, and ultimately heighten the extent to which she is controlled by her spouse. An understanding of the relationship between domestic violence and contraceptive use, and the extent to which this varies across States, has the potential to inform current family planning service provision for women in India, by highlighting the unique needs of women who experience violence.

Study Setting

This article analyzes data from four economically and culturally distinct states of India, namely Bihar and Jharkhand in the North, Maharashtra in the West, and Tamil Nadu in the South. These four states vary widely across a range of indicators related to socioeconomic and women's status—age at marriage, literacy (mean number of years of education) and parity (number of children; Table 1). Bihar and Jharkhand fare considerably worse in these characteristics than their counterparts in Maharashtra and Tamil Nadu. There is a noticeable developmental, social, and cultural divide that characterizes and distinguishes each geographical area. A key difference between the states is the unique kinship structure of North India, which assigns relatively little autonomy to females (Stephenson et al., 2008). Domestic violence is a common feature of North Indian families (Kaur & Garg, 2009), and women even justify being beaten as a part of marriage (Kaur & Garg, 2009). On the other hand, women in South Indian society on the other hand have higher levels of education and autonomy, which interestingly have been associated with high levels of domestic violence (Rocca, Rathod, Falle, Pande, & Krishnan, 2009). The NFHS-3 study finds a range in the prevalence of domestic violence among the four states of interest. Bihar has the highest prevalence with 59%, while Maharashtra is the lowest at 31%. Jharkhand and Tamil Nadu also have relatively high domestic violence prevalence, at 37% and 42% respectively (IIPS, 2009).

Data and Method

Two data sets are used for this analysis. The National Family Health Survey–2 (NFHS-2) and a 2002–2003 follow-up survey conducted with participants of the NFHS-2. The NFHS-2—the Indian equivalent of the Demographic and Health Survey (nationally representative surveys of reproductive aged men and women carried out in resource-poor countries)—was India's second national survey, carried out in 1998–1999. The NFHS-2 sample covered 99% of India's population residing in its 26 states and ultimately included a total of 89,199 reproductive aged (15–49 years) women residing in 91,196 households (IIPS & Macro, 2000). The NFHS-2 included three questionnaires: a household questionnaire that collected basic sociodemographic information about all usual residents of the household; a village questionnaire that collected information on the availability of specific facilities, programs, and services in the village; and a women's questionnaire that collected information concerning the following: sociodemographic characteristics; fertility behavior and intentions; use, knowledge, and quality of family planning methods; maternal and child health care; reproductive health; and domestic violence. Overall response rates for sampled women were high (96%), and ranged from 94% to 100% in the states included in the present study (IIPS & Macro, 2000)

Following completion of the NFHS-2 survey, a prospective follow-up study of the original NFHS-2 respondents was planned by the International Institute for Population Sciences (IIPS), India and the Johns Hopkins Bloomberg School of Public Health. The follow-up study was motivated by a number of research interests, including (a) the relationship between family planning service quality and subsequent contraceptive use and (b) the predictive validity of stated fertility intentions (IIPS & Johns Hopkins University, 2005). The sampling frame for the NFHS-2 follow-up survey, conducted in 2002–2003, consisted of all rural respondents interviewed in the original 1998–1999 study in four Indian states: Bihar and Jharkhand (which had been part of Bihar at the time of the NFHS-2 survey) in the North, Maharashtra in the West, and Tamil Nadu in the South. These four states were chosen to represent different demographic, socioeconomic, and service-program contexts in India. The follow-up survey aimed to examine associations between contraceptive use and service quality. Thus, the sample was restricted to rural NFHS-2 respondents because of the

expectation that gaining complete information on family planning services in rural areas would be easier than gathering it in urban areas in light of the diverse and complex nature of family planning service-delivery points in urban India. The sample was further restricted to currently married women who were usual residents of the household at the time of the 1998–1999 NFHS-2 interviews, given the study’s focus on subsequent fertility and contraceptive behavior. The survey instrument included questions pertaining to respondents’ background characteristics, reproductive behavior and intentions, quality of family planning care, use of family planning methods and services, an event calendar covering the intervening months between the baseline (NFHS-2) and follow-up survey (to assess intervening pregnancies, pregnancy outcomes, and monthly contraceptive-use status), antenatal care and immunization, women’s status, premarital pregnancy planning, and domestic violence. High rates of reinterview were achieved in all four states, ranging from 76% in Maharashtra to 94% in Tamil Nadu. As documented elsewhere (IIPS & Johns Hopkins University, 2005), with the exception of lower levels of baseline contraceptive use and prevalence of domestic violence in Bihar and Tamil Nadu, the reinterviewed and non-re-interviewed samples of women were generally similar in characteristics, indicating no significant selectivity in our reinterviewed sample. The final sample size for the follow-up survey was 6303 rural women aged 15 to 39.

Women were asked about their contraceptive use in both the NFHS-2 and follow-up surveys. Respondents who answered that they were currently using a modern method of contraception (oral pill, IUD, injection, condom, male/ female sterilization) at baseline were excluded from the analysis (2,192 women) since the outcome of interest was intersurvey adoption of contraceptive use. Women who reported being sterilized at time of baseline survey were also excluded from analysis (1,884 women) since they could not adopt another method at follow-up. The final sample size is thus 4,111 rural women aged 15 to 39 who were nonsterilized and not using contraception at baseline. The outcome variable is women who report at follow-up that they adopted a modern method of contraception in the intersurvey period.

Questions related to domestic violence were included in both the 1998–1999 NFHS-2 and the 2002–2003 follow-up surveys; however for this analysis, measures of physical violence are taken from the baseline data to ensure the correct temporal ordering of events. The NFHS-2 collected data on the recent (12 months prior to the survey) experience of physical violence: questions were not asked on the experience of sexual or emotional violence. Women were asked whether they had ever been physically attacked (including beating, kicked, punched, or strangled), the timing of the first episode of violence and the perpetrator of the violence. For this analysis, the exposure variable of interest is whether the woman experienced physical violence from her husband in the last 12 months prior to the baseline survey.

Scales were created to measure the respondent’s standard of living and decision-making power. The standard of living index was determined according to the respondent’s answers regarding living in a home with electricity, toilet facility, a refrigerator, source of drinking water, and ownership of car, motorcycle, radio, or television: the answers were summed to create a scale (0–12), which is then categorized as low, medium and high. Decision making power is measured by questions around decisions regarding cooking choices at home, obtaining health care, purchasing jewelry, and staying with family: the answers were summed to create a scale (0–12), which is then categorized as low, medium, and high.

A logistic regression model was fitted for modern contraceptive use—with the key exposure variable being the experience of baseline physical domestic violence. The model controls for state, age, education level (of both respondent and partner), spousal age difference, parity,

standard of living index. To control for the effect of fertility intentions on contraceptive adoption the model includes a binary variable coded one if the respondent reports at baseline they do not want to have any more children. The model also tests an interaction term between state of residence and the experience of violence, to examine whether the relationship between violence and contraceptive adoption varies across states. To further examine this, analysis is then stratified by state, with separate contraceptive models fitted for Bihar & Jharkhand, Maharashtra and Tamil Nadu. For the purpose of analysis, Bihar and Jharkhand are combined, as they were one state at the time of the baseline survey.

Results

About a quarter of women in the sample reported adopting a modern method of contraception in the intersurvey period (24.1%), with nearly half of the women in Maharashtra adopting a method (53%), followed by Tamil Nadu (38%) and lower levels of contraceptive adoption in Bihar (15.7%) and Jharkhand (16.9%). Female sterilization was the most prevalent method of contraception, with 75% of women among those who adopted a method, choosing it. Maharashtra has the lowest levels of reported violence at baseline (NHFS-2), with 7.6% of women reporting having faced physical domestic violence, while Bihar had the highest, at 23.2%: reported levels of baseline violence were 17.3% in Jharkhand and 17.9% in Tamil Nadu (Table 2). Similarly, 14.2% of women in Maharashtra reported experiencing physical violence in the 12 months prior to follow-up; however, reports of violence at follow-up were highest among women in Tamil Nadu (28.5%), with 21.2% of women in Bihar and 26.9% of women in Jharkhand reporting experiencing violence in the 12 months prior to follow-up.

Table 3 shows the results of the modeling of modern contraceptive adoption in the intersurvey period. Women who experienced physical violence at baseline (OR: 0.73, CI: [0.55, 0.96]) were significantly less likely to adopt a modern method of contraception in the intersurvey period. Women who reported they wanted no more children had significantly higher odds of reporting modern contraceptive use adoption in the intersurvey period (OR: 2.75, CI: [2.25, 3.36]). Women surveyed in Maharashtra (OR: 6.39, CI: [5.06, 8.58]) and Tamil Nadu (OR: 2.95, CI: [1.98, 7.33]) were more likely than women in Bihar and Jharkhand to adopt modern contraception adoption in the intersurvey period. Parity, respondent education, partner education and standard of living were positively associated with women's adoption of modern contraception in the intersurvey period (Table 3). Women who reported high levels of decision making ability had higher odds of reporting modern contraceptive adoption in the intersurvey period (OR: 1.36 CI: [1.05, 2.76]), relative to women who reported low decision-making ability.

There was a significant interaction between state and the experience of violence. Relative to women in Bihar and Jharkhand who experienced violence, women living in Tamil Nadu who experienced violence were more likely to adopt contraception in the intersurvey period (OR: 1.91, CI: [1.18, 3.32]; Table 4). However, there was no significant difference in the odds of adopting modern contraception in the intersurvey period between women living in Bihar and Jharkhand who experienced violence and women living in Maharashtra who experienced violence. In the state stratified analysis, the relationship between experience of violence and adoption of modern contraception in the intersurvey period remained significant only for women in Bihar and Jharkhand, and no significant association was found between experience of physical violence and modern contraceptive adoption in the intersurvey period for women in Maharashtra or Tamil Nadu (Table 5).

Discussion

Previous studies have demonstrated a restrictive effect of domestic violence on contraceptive adoption for women in India; however, studies have often focused on one state in India, or have used reports of domestic violence from males (Stephenson et al., 2006a). This study adds substantially to our body of knowledge on violence and contraceptive use in India by examining the experience of physical violence from female reports, and the impact on contraceptive adoption, using a longitudinal study design. When analyzed together, the results demonstrate a clear relationship between a woman's experiences of violence on her ability to adopt contraception in these four culturally and economically contrasting States. However, stratified analysis shows that this relationship exists only for women living in Bihar and Jharkhand, and that for women in Tamil Nadu and Maharashtra there is no significant constraining effect of violence on modern contraceptive adoption (reasons for these state-level differences are discussed below). However, the lack of significance in the stratified analysis may be influenced by the smaller sample sizes in these states, and the smaller numbers of women reporting violence in these states, reducing statistical power to detect significant associations. Interestingly, when interaction terms were tested, women who live in Tamil Nadu and experience violence were more likely to adopt modern contraception than women who live in Bihar and Jharkhand and experience violence. As in previous studies of the association between violence and contraceptive use, the results for the effects of violence exist after controlling for other known correlates of contraceptive use (age, parity, education, and presence of a living son; Gee et al., 2009; Stephenson et al., 2008); thus the relationships identified here are not likely to be a product of other confounding factors. In particular, the associations exist after controlling for fertility intentions.

Domestic violence represents an extreme form of control, in which husbands use violence as a form of punishment for perceived misconduct, or to hold their wives to preconceived gender roles. The finding that the relationship between violence and modern contraceptive use is significant only in the Northern States of Bihar and Jharkhand may be explained by the striking cultural and demographic differences between the states. In North Indian culture, where a high priority is placed on the birth of a son and levels of female autonomy are low, domestic violence is highly prevalent. Results from the PERFORM Survey show that 32% of men in Uttar Pradesh believe that a husband is justified in beating his wife, suggesting that domestic violence towards women is tolerated as an acceptable cultural norm (MEASURE Evaluation, 1995). In this context, the lower contraceptive use among women who have experienced physical domestic violence may reflect the more conservative gender roles perceived by husbands prone to the perpetration of violence. That is, domestic violence that originates from a desire to enforce perceived gender roles or to ensure women meet preconceived fertility responsibilities, has obvious implications for limiting a woman's access to modern contraceptive methods. There are striking differences in educational attainment among women across the four states (Table 1), that may be influencing the relationship between violence and modern contraceptive use. Women in Bihar and Jharkhand report significantly lower numbers of years of education than women in both Maharashtra and Tamil Nadu. Exposure to education may provide women with greater awareness of norms and behaviors outside the household, access to social support and resources, and create a sense of independence and autonomy. While these may not directly act to reduce domestic violence, they provide women with greater personal resources to cope with the effects of violence, and to access family planning services. Additionally, a household in which women are given access to education may also be a household that places a higher value on women: thus women who receive education may come from households that are less supportive of violence.

The finding of a significant interaction between state and the experience of violence is interesting, and appears to suggest that women in the southern state of Tamil Nadu face a less constrictive effect of violence on contraceptive use than women in Bihar and Jharkhand. Much recent work has detailed the high levels of domestic violence in both settings (Babu & Kar, 2009; Srinivasan & Bedi, 2007). The prevalence of baseline violence was similar for women in Jharkhand and Tamil Nadu, although the percentage of women adopting modern contraception was significantly higher among women in Tamil Nadu. It is possible that stronger family planning programming in Southern India and perhaps a greater availability of services in Tamil Nadu reduces the restrictive effects of violence on contraceptive adoption. The higher contraceptive prevalence in Tamil Nadu points to contraceptive adoption as a more normative behavior in this context than in Bihar and Jharkhand. Thus, in Tamil Nadu, contraceptive adoption may not be viewed as such a challenge to traditional gender roles than it is in Bihar and Jharkhand; women already experiencing violence may be more willing to adopt contraception with less fear of further violence. However, further research is needed to understand how the state specific contexts are shaping the relationship between violence and modern contraceptive use in India.

Clearly there is a need for family planning programming efforts to include measures to screen women for exposure to domestic violence and to broaden definitions of violence to include frequency of all forms of violence, especially physical violence. The NFHS-3 survey reports that 76.9% of all women in India using female sterilization as their main method of contraception, and our results indicate the same, with 74% of intersurvey contraceptive adopters using female sterilization. Female sterilization requires the permission of the husband; hence the limiting effect of violence on the adoption of contraception may work through conservative gender attitudes among husbands prone to violence, that limit willingness to approve their partner's use of contraception (Stephenson et al., 2008). Further research is required to examine whether the relationship between domestic violence and contraceptive use is mediated by the type of contraceptive methods available: that is, where there are more temporary methods available to women, that can be used without the knowledge of her husband, is there less of constraining effect of domestic violence on contraception? The small numbers of women reporting temporary contraceptive method use in the samples limit the ability to answer this question with the current data set.

A potential limitation of this study is the use of self-reported measures of domestic violence and possible underreporting of domestic violence. Previous studies have shown that domestic violence is culturally acceptable in this setting (Coker, 2007; Kaur & Garg, 2009; Koenig, Ahmed, Hossain, & Khorshed Alam Mozumder, 2003), thus we argue that women may be less likely to underreport violence than in some other settings. Additionally, the outcome measure—contraceptive adoption is also self-reported, and women who are experiencing violence may be less likely to report their contraceptive use if they are doing so without the knowledge of their husband and family. The analysis focuses only on the associations between contraceptive use and physical violence; further work is required to examine how sexual and emotional violence may also constrain contraceptive use. The analysis controls for a number of covariates known to influence contraceptive use (e.g., parity), however, there are several other factors that may influence the relationship between domestic violence and contraceptive use, such as changing gender attitudes, or shifts in autonomy, that are not measured in the existing data sets. Additionally, the small number of women in Maharashtra and Tamil Nadu reporting violence may limit the statistical power to detect associations with modern contraceptive use. Finally, the follow-up sample was restricted to rural women, and the relationships between contraceptive use and domestic violence may be different for urban women where there is a greater accessibility to family planning services. However, the ability to disentangle the temporal ordering of the

relationship between physical violence and family planning use far outweighs these limitations.

Conclusion

This study contributes toward a better understanding of how experiencing domestic physical violence restricts a woman's ability to adopt a modern method of contraception. Previous studies have been cross-sectional in nature, have used small sample sizes, or have largely focused on resource-rich countries: the current study focused on rural women in India, who are significantly understudied in terms of how violence influences their lives, and benefits from the analysis of large, longitudinal data sets. While other studies have not been able to unravel the temporal relationship between violence and contraceptive use—it is possible that violence arises from a husband's dissatisfaction with his partner's contraceptive adoption—this study uses data from two time points to demonstrate that the exposure to physical violence has a substantial restrictive effect on a woman's use of contraception, although this relationship appears to be confined to the more conservative North. There is clearly a need to incorporate physical domestic violence education and services in current family planning delivery in highly gender-stratified settings such as North India. Such efforts should recognize the restrictive effects of physical violence on contraceptive use, and take steps to broaden their definitions of violence in screening procedures. Given the high levels of violence in these settings, it is possible that current low levels of contraceptive use are substantially restricted by high levels of violence. Efforts to increase contraceptive use and unwanted fertility in these settings could be improved by integrating domestic violence and family planning efforts, and providing violence screening to women who attend family planning services, and community-based outreach activities to women for whom violence prevents them from attending services.

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Table 1

Background Characteristics of Sample of Baseline Noncontracepting Women Aged 15–39, From Rural India ($n = 4,111$)

	Bihar	Jharkhand	Maharashtra	Tamil Nadu	Total
Mean age (<i>SE</i>)	26.10 (0.13)	25.94 (0.25)	23.67 (0.29)	25.9 (0.21)	25.78 (0.10)
Mean age at marriage (<i>SE</i>)	16.08 (0.05)	16.01 (0.10)	16.12 (0.13)	18.28 (0.11)	16.49 (0.04)
Mean number of years of education (<i>SE</i>)	1.23 (0.06)	1.10 (0.11)	3.84 (0.20)	4.25 (0.15)	2.05 (0.06)
Mean total children ever-born (<i>SE</i>)	2.86 (0.05)	2.54 (0.08)	1.9 (0.08)	1.58 (0.05)	2.46 (0.03)

Table 2

Distribution of Independent Variables Considered in Analysis of Contraceptive Use Among Baseline Noncontracepting Women Aged 15–39, From Rural India ($n = 4,111$)

	Bihar	Jharkhand	Maharashtra	Tamil Nadu	Total
1998–1999 NFHS-2					
Physical violence frequency (baseline)					
No	1,745 (76.8)	518 (82.7)	401 (92.4)	640 (82.1)	3,304 (80.4)
Yes	525 (23.2)	108 (17.3)	33 (7.6)	139 (17.9)	807 (19.6)
Fertility intentions					
Wants a child in the next 2 years	1257 (55.3)	380 (60.7)	62.9 (273)	457 (58.6)	2367 (57.6)
Wants no more children/undecided	1013 (44.7)	246 (39.3)	161 (37.1)	322 (41.4)	1744 (42.4)
2002–2003 Follow-up survey					
Family planning					
Nonadopters	1,914 (84.3)	520 (83.1)	204 (47.0)	482 (61.8)	3,120 (75.9)
Age					
Adopters	357 (15.7)	106 (16.9)	230 (53.0)	298 (38.2)	991 (24.1)
<=24	578 (25.4)	170 (27.1)	162 (37.3)	145 (18.5)	1055 (25.6)
25–29	637 (28.1)	181 (28.9)	127 (29.2)	280 (35.9)	1,225 (29.8)
30–34	525 (23.1)	144 (23.0)	73 (16.8)	180 (23.1)	992 (22.4)
35–39	531 (23.3)	131 (20.9)	72 (16.6)	195 (22.2)	909 (22.1)
Education					
None	1,906 (83.9)	522 (83.4)	192 (44.2)	288 (36.9)	2,908 (70.7)
Primary	102 (4.5)	41 (6.5)	86 (19.8)	214 (27.4)	443 (10.8)
Secondary +	263 (11.6)	63 (10.1)	156 (35.9)	278 (35.6)	760 (18.5)
Husband's education					
None	1,076 (47.4)	319 (51.0)	112 (25.8)	155 (19.9)	1,662 (40.4)
Primary	271 (11.9)	85 (13.6)	74 (17.1)	237 (30.4)	667 (16.2)
Secondary +	924 (40.7)	222 (35.5)	248 (57.1)	388 (49.7)	1,782 (43.4)
Spousal age difference (years)					
None	752 (33.1)	200 (31.9)	135 (31.1)	248 (31.8)	1,335 (32.5)
1 to 5	937 (41.3)	278 (44.4)	213 (49.1)	345 (44.2)	1,773 (43.1)
6+	582 (25.6)	148 (23.6)	86 (19.8)	187 (24.0)	1,003 (24.4)

	Bihar	Jharkhand	Maharashtra	Tamil Nadu	Total
Decision-making scale					
Low	1037 (45.6)	187 (29.8)	133 (30.8)	300 (38.4)	1657 (40.3)
Medium	682 (30.3)	341 (54.7)	224 (51.8)	357 (45.8)	1604 (39.0)
High	552 (24.1)	98 (15.5)	77 (17.4)	123 (15.7)	850 (20.7)
Standard of living index					
Low	1,397 (61.5)	432 (69.0)	228 (52.5)	351 (45.0)	2,408 (58.6)
Medium	754 (33.2)	179 (28.6)	161 (37.1)	358 (45.9)	1,452 (35.3)
High	120 (5.3)	15 (2.4)	45 (10.4)	71 (9.1)	251 (6.1)
Parity					
0	371 (16.3)	116 (18.5)	103 (23.7)	165 (21.2)	755 (18.4)
1-2	757 (33.3)	226 (36.1)	195 (44.9)	459 (58.9)	1,637 (39.8)
3-4	627 (27.6)	172 (27.5)	99 (22.8)	126 (16.2)	1,024 (24.9)
5+	516 (22.7)	112 (17.9)	37 (8.5)	30 (3.9)	695 (16.9)
No	1851 (78.8)	468 (73.1)	378 (85.8)	564 (71.5)	3,263 (76.9)
Physical violence in the last 12 months					
Yes	419 (21.2)	158 (26.9)	56 (14.2)	215 (28.5)	848 (23.1)

Table 3

Adjusted Odds Ratios For Intersurvey Contraceptive Adoption Among Rural Baseline Nonconceiving Women Aged 15 to 39, From Rural India ($n = 4,111$)

	Odds Ratios (95% CI)
1998–1999 NFHS-2	
Physical violence frequency (baseline)	
No	1.00
Yes	0.73 [0.55, 0.96]
Fertility intentions	
Wants a child in the next 2 years	1.00
Wants no more children/undecided	2.75 [2.25, 3.36]
2002–2003 Follow-up survey	
Age	
<=24	1.00
25–29	0.76 [0.56, 1.01]
30–34	0.42 [0.26, 0.61]
35–39	0.13 [0.08, 0.21]
Education	
None	1.00
Primary	1.56 [1.23, 1.98]
Secondary +	2.52 [1.81, 3.52]
Husband's education	
None	
Primary	1.19 [0.93, 1.54]
Secondary +	1.62 [1.32, 2.01]
Spousal age difference (years)	
None	1.00
1–5	0.92 [0.75, 1.11]
6+	0.76 [0.61, 0.97]
Decision-making scale	
Low	1.00
Medium	1.20 [0.99, 1.45]
High	1.36 [1.05, 2.76]
Standard of living index	
Low	1.00
Medium	1.31 [1.09, 1.59]
High	1.77 [1.24, 2.53]
Parity	
0	1.00
1–2	3.55 [2.64, 4.77]
3–4	5.64 [3.92, 8.11]
5+	4.80 [3.10, 7.44]

	Odds Ratios (95% CI)
State	
Bihar/Jharkhand	1.00
Maharashtra	6.39 [5.06, 8.58]
Tamil Nadu	2.95 [1.98, 7.33]

Table 4

Adjusted Odds Ratios for Intersurvey Contraceptive Adoption From Interaction Between State and Experience of Baseline Violence and Among Rural Baseline Nonconceiving Women Aged 15–39, From Rural India ($n = 4,111$)

Interaction Term	Odds Ratios (95% CI)
State of residence and experience of baseline violence	
Women living in Bihar/Jharkhand who experienced violence	1.00
Women living in Maharashtra who experienced violence	1.51 [0.68, 3.48]
Women living in Tamil Nadu who experienced violence	1.91 [1.18, 3.32]

Note: Adjusted for age, parity, education, partner's education, fertility desires, spousal age difference, standard of living.

Table 5

State Stratified Analysis: Adjusted Odds Ratios for Intersurvey Contraceptive Adoption Among Rural Baseline Noncontracepting Women Aged 15–39 From Rural Areas of Indian States

	Bihar/Jharkhand (N = 2,896)	Maharashtra (N = 434)	Tamil Nadu (N = 779)
Physical violence at baseline			
No	1.00	1.00	1.00
Yes	0.75 [0.57, 0.98]	1.07 [0.51, 1.43]	1.12 [0.76, 1.64]

Note: Adjusted for age, parity, education, partner's education, fertility desires, spousal age difference, standard of living.