

Individual and Contextual Determinants of Domestic Violence in North India

Michael A. Koenig, PhD, Rob Stephenson, PhD, Saifuddin Ahmed, PhD, Shireen J. Jejeebhoy, PhD, and Jacquelyn Campbell, PhD, RN

Over the last decade, violence against women in developing countries has emerged as a growing concern among researchers and policymakers interested in women's health and empowerment. In developing countries, women are vulnerable to many forms of violence, and domestic violence represents the most common form.¹ The World Health Organization defines 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."² In a review of population-based studies, Krug et al. found that 10% to 69% of women reported that they had experienced physical violence from a male partner.³ There is growing recognition of the possible linkages between domestic violence and a range of adverse physical, mental, and reproductive health outcomes.^{1,3-6}

Studies conducted during the last decade have identified a number of individual- and household-level risk factors for domestic violence. Higher socioeconomic status levels and higher levels of education among women have generally been found to be protective factors against women's risk of domestic violence.⁷⁻¹⁰ Several studies have shown that demographic factors such as age, number of living male children, and extended family residence are inversely associated with risk of domestic violence.¹¹⁻¹³ In addition, studies from India have shown lower dowry levels to be associated with significantly higher subsequent risks of violence.^{8,11}

The possible link between women's status and empowerment and domestic violence has also received considerable attention, with several studies revealing that increased status—as reflected by women's control over resources or membership in group-based savings and credit programs—is associated with significantly lower rates of domestic violence.^{8,13} Other studies, however, have shown that increased women's empowerment may actually

Objectives. We examined individual- and community-level influences on domestic violence in Uttar Pradesh, North India.

Methods. Multilevel modeling was used to explore domestic violence outcomes among a sample of 4520 married men.

Results. Recent physical and sexual domestic violence was associated with the individual-level variables of childlessness, economic pressure, and intergenerational transmission of violence. A community environment of violent crime was associated with elevated risks of both physical and sexual violence. Community-level norms concerning wife beating were significantly related only to physical violence.

Conclusions. Important similarities as well as differences were evident in risk factors for physical and sexual domestic violence. Higher socioeconomic status was found to be protective against physical but not sexual violence. Our results provide additional support for the importance of contextual factors in shaping women's risks of physical and sexual violence. (*Am J Public Health.* 2006;96:132-138. doi:10.2105/AJPH.2004.050872)

exacerbate the risk of violence, at least in the short run.^{12,14} One of the most systematic findings from previous studies relates to the intergenerational transmission of violence, with the witnessing of violence between parents as a child emerging as a strong predictor of subsequent domestic violence.¹⁵⁻²¹ The prominent role of alcohol as well has been highlighted in several studies, the results of which have shown that alcohol consumption played a significant precipitating role in incidents of violence.^{11,22-25}

The role of contextual and community-level factors in shaping risk of domestic violence has also recently been the focus of increased attention.²⁶ Although strong anthropological evidence exists indicating that community-level cultural and contextual variables are important in determining levels of intimate partner violence across cultures,^{27,28} until recently there has been little quantitative evidence supporting this association. Studies from the United States have revealed significant associations between contextual variables reflecting neighborhood poverty and risk of domestic violence.^{29,30} In addition, recent studies conducted in rural Bangladesh and Colombia have shown that community-level measures of women's status

and domestic violence, respectively, have significant effects on women's risk of domestic violence.^{12,31}

A general understanding of the underlying precipitating factors for domestic violence in developing countries remains limited. Previous research has been characterized by a predominant focus on the perspective of female respondents, despite evidence that the principal perpetrators of domestic violence in almost all developing country settings are men. Previous studies, moreover, have focused almost exclusively on physical violence, with few investigations also considering within-marriage sexual violence. A final limitation has been an almost exclusive focus on the roles of individual-level determinants, with much less attention given to the roles of broader community and contextual factors in precipitating or protecting against violence.

We analyzed data from a large, representative sample of married men in 4 districts in the North Indian state of Uttar Pradesh and assessed the respective contributions of individual (socioeconomic, demographic, relationship, and intergenerational exposure to domestic violence) and contextual (economic development, gender and wife beating norms, violent crime levels) factors hypothesized as important

in conditioning the likelihood of male-to-female physical and sexual domestic violence.

METHODS

Uttar Pradesh is characterized by high levels of domestic violence and low levels of overall socioeconomic development and women's status.^{32,33} Uttar Pradesh ranks near the bottom of Indian states in terms of social and economic development levels, with 80% of its population characterized as rural and a majority of female residents being illiterate. The total fertility rate during the period from 1990 through 1992 was 4.8 children per woman, a figure roughly 40% higher than the national average. Marriage is largely universal and frequently occurs at very young ages, with 40% of women aged 15 to 19 years already married. At the time of our study, one third of the villages in the state had no educational facility, and, in three fourths of villages, the nearest health facility was 5 km or more away.³⁴

Our primary data source was the Male Reproductive Health Survey (MHRHS), a component of the larger PERFORM Survey, a stratified, multistage cluster sample survey of women carried out in 1995 in 28 districts of Uttar Pradesh to provide benchmark indicators for improving family planning services in the state.^{35,36} The MRHS was undertaken in 5 districts to obtain detailed information on men's knowledge and behavior related to their wives' and their own reproductive health.^{7,37} The sampling frame for the MRHS was all husbands in households identified in the first stage sample in 5 of the sampled districts, representing all 5 regions of Uttar Pradesh. To be eligible, men had to be married, aged between 15 and 59 years, and currently residing with their wives.

Of 8296 eligible men, 6727 (83.2%) were successfully contacted and consented to be interviewed. Exclusion of an additional 121 men who had not yet begun to formally reside with their wives, primary sampling units (PSUs) with fewer than 10 respondents, and respondents in 1 district for which crime data could not be obtained (as described subsequently) resulted in a final sample of 4520 husbands residing in 92 PSUs in 4 districts.

Questionnaires were administered by trained male interviewers, outside the respon-

dent's home or in a private area. The survey, roughly 20 minutes in duration, covered household socioeconomic and demographic status, health expenditures, and reproductive health and health behavior, including a series of questions on husbands' exposure to, and perpetration of, physical violence and sexual violence. Husbands were asked whether they had ever committed physical violence against their wives, the timing of the initial and most recent episodes of such violence, and the total number of episodes. Husbands were also asked whether they ever had sexual intercourse with their wives when the women were unwilling and, if so, whether they had ever physically forced their wives to have sexual relations, as well as the timing of the most recent episode.

Outcome Variables

Two principal domestic violence outcome variables, following conventional definitions, were considered in our analysis. *Physical violence* was determined from the response to a single question asking whether the husband had physically hit, slapped, kicked, or tried to hurt his wife during the year preceding the survey. *Sexual violence* was determined from the response to a single question asking whether the husband had physically forced his wife to have sexual relations during the year preceding the survey.

Individual-Level Variables

The MRHS collected data on a number of individual-level variables that have been theoretically or empirically linked to domestic violence (Table 1). The sociodemographic variables we used in our models included husband's and wife's education, area of residence (urban or rural), duration of the marriage, and childlessness. In addition, an index of household assets was constructed based on ownership of household items (radio, television, refrigerator, cooler, telephone, bicycle). An indicator of household economic pressure—whether the husband reported borrowing money in the past year to pay for medical expenses—was also included (no general question on borrowing money for any reason was available in the MHRHS). As a measure of the husband's propensity for high-risk sexual behavior, we asked husbands

TABLE 1—Distribution of Dependent and Independent Individual-Level Variables: Male Reproductive Health Survey, Uttar Pradesh, India, 1995

| | Percentage |
|---|------------|
| Dependent variables | |
| Physical violence in past 12 months | |
| No | 74.9 |
| Yes | 25.1 |
| Coercive sexual intercourse in past 12 months | |
| No | 69.9 |
| Yes | 30.1 |
| Independent variables | |
| Husband's education, y | |
| None | 32.1 |
| 1-6 | 17.2 |
| ≥ 7 | 50.7 |
| Wife's education, y | |
| None | 71.7 |
| 1-6 | 8.6 |
| ≥ 7 | 19.7 |
| Household asset index ^a | |
| None | 15.9 |
| 1-2 | 37.7 |
| 3-4 | 27.5 |
| 5-6 | 18.9 |
| Economic pressure | |
| No | 65.5 |
| Yes | 34.5 |
| Area of residence | |
| Urban | 26.6 |
| Rural | 73.4 |
| Marital duration, y | |
| <5 | 10.5 |
| 5-10 | 16.1 |
| 11-14 | 18.3 |
| ≥ 15 | 55.2 |
| Childless | |
| No | 90.9 |
| Yes | 9.1 |
| Husband history of extramarital relationship | |
| No | 95.3 |
| Yes | 4.7 |
| Intergenerational exposure to violence | |
| No | 67.1 |
| Yes | 32.9 |

^aNumber of household items owned.

to report on ever having extramarital sexual intercourse. To determine the possible effects of intergenerational transmission of violence, we asked husbands to report on ever having

TABLE 2—Description of Contextual-Level Variables: Male Reproductive Health Survey, Uttar Pradesh, India, 1995

| | Operational Definition | Variable Range | Mean (SD) |
|------------------------------|---|----------------|--------------|
| Community economic index | Cumulative index of presence of 7 institutions in PSU: industry, medical store, tobacco shop, cooperative, voluntary organization, fair trade shops, general merchant store | 0-7 | 2.20 (0.35) |
| Community electricity | Percentage of sample households in each PSU with electricity connection | 4.0-100.0 | 43.0 (26.2) |
| Community female education | Mean number of years of education for women in the PSU | 0.23-8.97 | 2.73 (2.00) |
| Community gender norms | Mean PSU-level factor score for men's gender attitudes on the basis of following items (1 = <i>strongly disagree</i> , 4 = <i>strongly agree</i>): Wife should always show respect to her husband Wife should always follow instructions of her husband No harm if wife disagrees with instructions of her husband | -2.29-3.10 | -1.16 (0.28) |
| Community wife beating norms | Mean PSU-level factor score for men's attitudes toward wife beating based on following items (1 = <i>strongly disagree</i> , 4 = <i>strongly agree</i>): Necessary to use verbal insults/physical abuse against wife when she does not follow husband's instructions No physical beating/verbal insults should be used against wife if she disobeys husband's instructions The following measures should be taken against wife if she disobeys husband's instructions: persuasion (1), verbal insults (2), physical isolation or physical beating (3) | -2.01-3.04 | -1.04 (0.43) |
| | | 1-4 | 3.5 |
| | | 1-4 | 2.7 |
| | | 1-4 | 0.6 |
| District-level murder rate | Number of reported murders annually per 100 000 population | 3.31-8.23 | 6.17 (1.71) |

Note. PSU = primary sampling unit.

witnessed their fathers beating their mothers as a child.

Contextual-Level Variables

Six contextual variables were also considered in our analysis (Table 2). We included an index of community economic development, a continuous variable ranging in value from 0 to 7 and determined from the presence of 7 establishments in the PSU (industry, medical stores, pan shops, cooperatives, voluntary organizations, fair trade shops, and general merchant stores). We obtained data on other community-level variables by aggregating individual-level survey responses at the PSU level. We considered 2 aggregated indicators of community socioeconomic development: the proportion of households in the PSU that had electricity and the mean number of years of schooling among wives of male respondents. We based the community gender norms variable on husbands' re-

sponses to 3 individual-level attitudinal items focusing on gender roles. We based the domestic violence norms variable on husbands' responses to 3 individual-level attitudinal items focusing on the acceptability of domestic violence.

Wide variation was evident across PSUs in terms of attitudes toward gender roles as well as domestic violence; for example, the percentages of men who either agreed or strongly agreed with the statement that a wife should always follow the instructions of her husband ranged from 35% to 82% across PSUs. Similarly, the percentages of husbands who believed that physical isolation or punishment is justified when a wife disobeys her husband's instructions ranged from 12% to 84% across PSUs. In the case of both measures, factor analysis was used to create an index, and individual factor scores were aggregated to the PSU level³⁸; higher scores reflected norms that are more conservative

regarding gender roles and more condoning of domestic violence, respectively.

The final contextual variable we considered was an indicator of the district-level rate of violent crime, specifically the murder rate. We gathered data on murder rates by visiting all police precincts in the sample districts to obtain the numbers of registered murder cases for the calendar years 1992 through 1995. The choice of district-level murder case rate data as our primary indicator of violent crime in Uttar Pradesh was informed by previous work in India that indicated that murder data are much more likely to be reliably reported than data on other types of violent crime.³⁹⁻⁴¹ These murder case data were converted into rates using 1991 census data to allow estimation of annual midyear denominator populations,⁴² with unweighted rates averaged over the 4-year period to smooth out fluctuations. We were able to obtain reliable data on murder rates from 4 of the 5 districts included in our survey; respondents from the fifth district (Nainital) were excluded. Substantial variability in murder rates was evident across these 4 districts, ranging from a low of 3.3 cases to a high of 8.2 cases per 100 000 population.

Multivariate Models of Determinants of Domestic Violence

A multilevel modeling strategy was used to account for the hierarchical structure of the data, because male respondents were clustered within communities with shared characteristics. This multilevel strategy accommodated the hierarchical nature of the data and corrected the estimated standard errors to allow for clustering of observations.⁴³ Separate multilevel logistic models were fitted for each of the 2 binary outcomes: occurrence of physical violence and of sexual coercion in the year before the survey. The models took a 2-level form, with men (level 1) nested within PSUs (level 2):

$$(1) \quad \log \text{it}(p_{ij}) = x_{ij}\beta + u_j,$$

where p_{ij} is the probability of experiencing the outcome for the i th respondent in the j th PSU, x_{ij} is a vector of covariates corresponding to the i th respondent in the j th PSU, β is a vector of unknown parameters, and u_j is the random effect at the PSU level. The Stata software package⁴⁴ was used in analyzing the data.

RESULTS

A significant percentage of husbands reported having committed one or more episodes of physical violence (25.1%) or sexual violence (30.1%) against their wives during the preceding year (Table 1). While considerable overlap between these 2 violence outcomes would be expected, it is notable that among husbands reporting recent physically forced sexual intercourse with their wives, 39% also reported recent physical violence;

conversely, among those reporting recent physical violence, 45% reported having physically forced their wives to have sexual intercourse during the previous year. Lifetime reports of physical violence and coercive sexual intercourse were 34.1% and 31.8%, respectively.

Tables 3 and 4 present the results of multilevel logistic models focusing on domestic violence in the preceding year. In both tables, model 1 shows the effects of individual-level variables only, with community-level (model 2)

and district-level (model 3) variables sequentially added. Several individual-level sociodemographic factors emerged as significant predictors of recent physical violence (Table 3, model 1). Relative to the reference group (no education), the likelihood of recent physical violence was significantly lower among more educated husbands and wives (7 or more years of schooling); moderate levels of schooling on the part of either spouse were not protective against physical violence.

The risk of physical violence was significantly lower as well among households at higher socioeconomic levels, as measured by number of assets owned. The role of economic pressure in precipitating physical violence was also highly significant, with husbands who reported having had to borrow money during the previous year to pay for medical expenses significantly more likely to have beaten their wives. Longer marriage durations and childlessness were both associated with a significantly higher risk of recent physical violence. Significantly higher risks of recent physical violence were also evident among the subgroup of husbands who reported having had an extramarital relationship. Finally, intergenerational exposure to violence on the part of husbands was associated with a markedly higher likelihood of recent physical violence.

When contextual variables were added to the models (models 2 and 3 in Table 3), the previously discussed individual-level effects were largely maintained. Neither the 3 community socioeconomic development indicators nor the community gender norms index emerged as statistically significant determinants of recent physical violence. Community attitudes toward wife beating were, in contrast, strongly predictive of recent violence, with significantly higher risks of recent physical abuse among women residing in communities where wife beating was condoned. Women who resided in districts characterized by higher average district-level murder rates were also at significantly higher risk of recent physical violence.

Table 4 shows the effects of individual and contextual variables on the outcome variable of sexual coercion during the preceding year. Several individual-level factors—household economic pressure, childlessness, and husband’s extramarital relationships—remained

TABLE 3—Results of Multilevel Logistic Model of Reports of Physical Violence Toward Wife in Preceding Year: Male Reproductive Health Survey, Uttar Pradesh, India, 1995

| | Coefficient (SE) | | |
|--|-------------------|-------------------|-------------------|
| | Model 1 | Model 2 | Model 3 |
| Individual-level variables | | | |
| Husband's education, y (reference: none) | | | |
| 1-6 | -0.161 (0.109) | -0.162 (0.110) | -0.165 (0.110) |
| ≥7 | -0.442 (0.095)*** | -0.427 (0.096)*** | -0.444 (0.096)*** |
| Wife's education, y (reference: none) | | | |
| 1-6 | 0.225 (0.172) | 0.213 (0.173) | 0.225 (0.173) |
| ≥7 | -0.429 (0.218)** | -0.459 (0.218)** | -0.470 (0.218)** |
| Household asset index (reference: none) | | | |
| 1-2 | 0.031 (0.101) | 0.032 (0.101) | 0.002 (0.102) |
| 3-4 | -0.208 (0.111) | -0.227 (0.111)** | -0.246 (0.112)** |
| 5-6 | -0.344 (0.148)** | -0.390 (0.149)*** | -0.438 (0.151)*** |
| Economic pressure (reference: no) | 0.410 (0.081)*** | 0.405 (0.081)*** | 0.384 (0.081)*** |
| Rural residence (reference: urban) | 0.044 (0.108) | 0.108 (0.220) | 0.127 (0.221) |
| Marital duration, y (reference: <5) | | | |
| 5-10 | 0.686 (0.155)*** | 0.699 (0.155)*** | 0.704 (0.156)*** |
| 11-14 | 0.964 (0.139)*** | 1.023 (0.139)*** | 1.022 (0.139)*** |
| ≥15 | 1.008 (0.138)*** | 1.063 (0.138)*** | 1.063 (0.138)*** |
| Childless (reference: no) | 0.175 (0.092)* | 0.184 (0.091)** | 0.181 (0.092)** |
| Husband history of extramarital relationship (reference: no) | 0.791 (0.164)*** | 0.815 (0.163)*** | 0.826 (0.164)*** |
| Intergenerational exposure to violence (reference: no) | 1.554 (0.078)*** | 1.546 (0.078)*** | 1.544 (0.078)*** |
| Contextual variables | | | |
| Community economic index | ... | 0.016 (0.110) | 0.037 (0.111) |
| Community electricity | ... | 0.376 (0.431) | 0.375 (0.432) |
| Community female education | ... | 0.041 (0.041) | 0.044 (0.042) |
| Community gender norms | ... | 0.195 (0.173) | 0.204 (0.173) |
| Community wife beating norms | ... | 0.404 (0.129)*** | 0.402 (0.129)*** |
| District murder rate | ... | ... | 0.054 (0.023)** |
| Random intercept for PSU level | 0.009 (0.042) | 0.009 (0.041) | 0.0009 (0.036) |

Note. PSU = primary sampling unit.
^aNumber of household items owned.
 *P < .05; **P < .01; ***P < .001.

TABLE 4—Results of Multilevel Logistic Model of Reports of Sexual Coercion of Wife in Preceding Year: Male Reproductive Health Survey, Uttar Pradesh, India, 1995

| | Coefficient (SE) | | |
|--|------------------|-----------------|-----------------|
| | Model 1 | Model 2 | Model 3 |
| Individual-level variables | | | |
| Husband's education, y (reference: none) | | | |
| 1-6 | 0.150 (0.103) | 0.149 (0.103) | 0.147 (0.103) |
| ≥7 | 0.182 (0.080)* | 0.181 (0.081)* | 0.159 (0.081)* |
| Wife's education, y (reference: none) | | | |
| 1-6 | -0.105 (0.154) | -0.108 (0.154) | 0.101 (0.154) |
| ≥7 | -0.146 (0.148) | -0.117 (0.149) | -0.107 (0.149) |
| Household asset index ^a | | | |
| 1-2 | -0.068 (0.096) | -0.070 (0.096) | -0.104 (0.097) |
| 3-4 | -0.144 (0.103) | -0.157 (0.103) | -0.179 (0.103) |
| 5-6 | -0.129 (0.128) | -0.147 (0.129) | -0.203 (0.130) |
| Economic pressure (reference: no) | 0.205 (0.075)** | 0.204 (0.075)* | 0.180 (0.075)* |
| Rural residence (reference: urban) | -0.011 (0.114) | -0.013 (0.257) | -0.033 (0.256) |
| Marital duration, y (reference: <5) | | | |
| 5-10 | 0.023 (0.119) | 0.032 (0.119) | 0.040 (0.119) |
| 11-14 | -0.064 (0.106) | -0.040 (0.105) | -0.037 (0.106) |
| ≥15 | -0.238 (0.107)* | -0.216 (0.106)* | -0.213 (0.106)* |
| Childless (reference: no) | 0.220 (0.079)** | 0.218 (0.079)** | 0.219 (0.079)** |
| Husband history of extramarital relationship (reference: no) | 1.167 (0.148)** | 1.169 (0.148)** | 1.189 (0.148)** |
| Intergenerational exposure to violence (reference: no) | 1.101 (0.071)** | 1.107 (0.071)** | 1.107 (0.071)** |
| Contextual variables | | | |
| Community economic index | ... | -0.084 (0.132) | -0.056 (0.132) |
| Community electricity | ... | -0.191 (0.501) | -0.196 (0.498) |
| Community female education | ... | 0.058 (0.048) | 0.061 (0.047) |
| Community gender norms | ... | 0.043 (0.203) | 0.047 (0.202) |
| Community wife beating norms | ... | 0.144 (0.153) | 0.145 (0.152) |
| District murder rate | ... | ... | 0.063 (0.020)** |
| Random intercept for PSU level | 0.283 (0.050)** | 0.279 (0.023)** | 0.276 (0.022)** |

Note. PSU = primary sampling unit.

^aNumber of household items owned.

* $P < .01$; ** $P < .001$.

positively and significantly related to the likelihood of recent coercive sexual intercourse. Similar to physical violence, witnessing domestic violence as a child remained strongly predictive of likelihood of recent coercive sexual intercourse. The determinants of sexual coercion also differed from those for physical violence in several noteworthy ways.

In contrast to recent physical violence, the likelihood of recent coercive sexual intercourse was no longer significantly inversely related to either spousal education or household

assets; higher levels of education (7 or more years) among husbands were actually significantly *positively* associated with risk of recent sexual coercion. Moreover, longer marital duration (15 or more years) was significantly negatively associated with risk of recent sexual coercion. With respect to contextual-level variables, neither the 3 community-level socioeconomic status indicators nor the measures of gender or domestic violence norms emerged as significant predictors of coercive sexual intercourse. As observed for physical violence,

residence in districts with higher murder rates was found to be strongly associated with a higher likelihood of sexual coercion.

The PSU-level random effect was not statistically significant in the physical violence model but was significant in the sexual coercion model. This finding indicates that whereas the variables included in our model adequately explained the variability in physical violence, a substantial amount of unexplained variability remained for the outcome of coercive sexual intercourse.

DISCUSSION

Our study builds on previous research on domestic violence involving the MRHS data set^{20,45,46} and makes several new and important contributions to understanding the determinants of domestic violence from the perspective of male partners. Among individual-level risk factors, the divergent effects of socioeconomic status on physical versus sexual violence are of particular interest. Although higher levels of education among both husbands and wives and greater household wealth were found to be highly protective factors against risk of physical violence, no such associations were evident with respect to sexual violence.

In fact, women married to more educated husbands (7 or more years of schooling) experienced significantly higher risks of coercive sexual intercourse. This may reflect the widely held view across much of Indian society that it remains the husband's prerogative to physically compel his wife to engage in sexual relations when desired,^{47,48} behavior not attenuated and perhaps even more pronounced with increased levels of schooling on the part of the husband. Alternatively, this finding may reflect a greater reluctance among wives of more educated husbands to simply accede to the husband's wishes regarding sexual relations, negotiations that may in turn be met by physical force by the husband to compel sexual intercourse. More research is clearly warranted on the neglected issue of sexual violence in this and other developing country settings.

Two other individual-level effects were also noteworthy. Our findings underscore the pivotal importance of intergenerational transmission of domestic violence. Even after control

for the effects of other risk factors, husbands who had witnessed their fathers beating their mothers as children were 4.7 times more likely to physically beat their own wives than men who had not witnessed such violence, and they were 3 times more likely to sexually coerce their wives. Although the possibility of response bias exists—that is, men who report physical or sexual violence against their wives may also be more willing to report having witnessed physical violence of their father toward their mother—such bias is unlikely to represent a primary explanation for so strong an effect. An additional finding of interest is the significant relationship between childlessness and both physical and sexual violence, highlighting an additional negative social consequence for Indian women associated with childlessness.⁴⁹

Our study adds to the growing body of evidence on the importance of contextual factors for understanding health outcomes and behavior.^{50,51} Our community-level indicators of socioeconomic development levels were not significant predictors of physical or sexual violence, indicating that socioeconomic effects on violence appear to operate largely at the household level. Two contextual effects were prominent in our analysis. We found a systematic association between violent crime rates and domestic violence, with residence in areas characterized by higher murder rates characterized by significantly higher likelihoods of perpetration of both physical and sexual violence against wives. Similarly, residence in communities characterized by norms more supportive of the physical punishment of wives was associated with significantly higher risks of physical—but not sexual—violence against wives. The absence of data in the MRHS on men's views regarding women's sexual obligations and men's sexual entitlement limited our ability to explore the effects of community sexual behavior norms on coercive sexual intercourse.

Several normative pathways have been proposed through which the observed contextual-level factors might influence the risks of domestic violence, most notably through the fostering of norms that condone men's sense of entitlement and ownership of women, support the use of violence in conflict resolution, and condone the physical punishment of women.⁵² More in-depth re-

search is clearly needed on the specific pathways through which contextual norms and violence levels place women at elevated risks of domestic violence.

Three potential limitations of our study should be noted. First, the cross-sectional nature of the study complicates establishing temporal ordering between domestic violence and several of the covariates considered. We therefore restricted our analysis to those determinants for which temporal ordering and nonreciprocal causality with violence could be firmly established, and we restricted our violence outcome variables to the year preceding the survey. A second drawback relates to the limited number and range of attitudinal violence questions available to develop community violence norms and the limited number of data points for district-level murder rates, both of which were likely to have constrained the predictive value of these measures. The fact that these contextual measures were highly predictive of violence, even with these constraints, underscores their possible importance and the need to replicate this study with better measures.

A final potential limitation concerns our reliance on the domestic violence reports of husbands, who, as the principal aggressors, might be expected to underreport violent behavior. The high levels of normative support and limited social sanctions for wife beating in this setting, the finding that prevalence levels of physical violence reported by husbands in our study were comparable to those observed in previous surveys of women in Uttar Pradesh,^{8,32,53} and findings of high levels of agreement between partners in reports of physical violence in this and other settings^{54,55} collectively lead us to believe that, to the extent underreporting of domestic violence and resultant measurement error existed, they were unlikely to have compromised the validity of our findings. (We could not locate data on the prevalence of coercive sexual intercourse in India. However, our finding of a prevalence level for recent coercive sexual intercourse above 30% is comparable to or higher than levels reported in surveys of women elsewhere.³)

Our results have potentially important implications for public health policies and programs aimed at reducing domestic violence levels. At the individual level, our results indicate that although improvements in education

or household socioeconomic status may lead to significantly lower risks of physical violence among women, the same cannot be assumed with respect to sexual violence within marriage. Our findings argue for a particular focus on the subgroup of couples wherein the husband witnessed domestic violence while growing up, a key marker of heightened risk of subsequent physical and sexual domestic violence.

Our findings also highlight the potential role of broader contextual or community-level interventions in reducing domestic violence in settings such as rural India. We have found little evidence that improvements in community socioeconomic development levels will, in and of themselves, lead to significant reductions in the risk of domestic violence. Our findings do suggest that interventions for both men and women that challenge and attenuate the normative underpinnings condoning wife beating or decrease broader levels of violent crime may represent important steps toward reducing levels of within-marriage physical and sexual violence in such settings. ■

About the Authors

Michael A. Koenig and Saifuddin Ahmed are with the Johns Hopkins University Bloomberg School of Public Health, Baltimore, Md. Rob Stephenson is with the Rollins School of Public Health, Emory University, Atlanta, Ga. Shireen J. Jejeebhoy is with the New Delhi Office of the Population Council, New Delhi, India. Jacquelyn Campbell is with the Johns Hopkins University School of Nursing, Baltimore.

Requests for reprints should be sent to Michael A. Koenig, PhD, Department of Population and Family Health Sciences, 615 N Wolfe St, Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD 21205 (e-mail: mkoenig@jhsph.edu).

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Contributors

M. A. Koenig initiated and designed the study and led the writing of the article. R. Stephenson contributed to the design of the study and conducted the data analysis. S. Ahmed assisted in the design of the study and with data analysis and interpretation. S. J. Jejeebhoy assisted with interpretation of results. J. Campbell provided input into the design of the study and interpretation of results.

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Human Participation Protection

The original survey protocol was reviewed and approved by the State Innovations in Family Planning Services Project Agency in Uttar Pradesh, India; by staff of the United States Agency for International Development; and by the committee on human subjects of the School of Public Health, University of North Carolina at Chapel Hill. The present study was also reviewed and approved by the institutional review board of the Bloomberg School of Public Health, Johns Hopkins University. Participants provided informed consent to take part in the study.

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