Maternal Experiences of Intimate Partner Violence and Child Morbidity in Bangladesh

Evidence From a National Bangladeshi Sample

Jay G. Silverman, PhD; Michele R. Decker, ScD; Jhumka Gupta, ScD; Nitin Kapur, MD, MPH; Anita Raj, PhD; Ruchira T. Naved, PhD

Objective: To provide an estimate of the risk of recent acute respiratory tract infection (ARI) and diarrhea among children 5 years and younger based on recent violence against their mothers.


Setting: Selected urban and rural areas of Bangladesh.

Participants: A total of 1592 women currently married, with at least 1 child 5 years of age or younger, each living with her husband and child(ren).

Main Exposure: Intimate partner violence (IPV) against women.

Outcomes Measures: The prevalence of past-year IPV was calculated. The risk of ARI and diarrhea within the past 2 weeks among young children was determined based on maternal experiences of IPV within the past year via analyses adjusted for demographics and environmental risks.

Results: More than 2 of 5 married Bangladeshi mothers (42.4%) with children aged 5 years and younger experienced IPV from their husbands in the past year. Mothers who experienced IPV were more likely to report recent ARI (adjusted odds ratio, 1.37; 95% confidence interval, 1.03-1.83) and diarrhea (adjusted odds ratio, 1.65; 95% confidence interval, 1.15-2.38) among their young children compared with those who did not experience IPV.

Conclusions: Large numbers of married Bangladeshi women with young children experience IPV. Associations of maternal experiences of IPV with 2 leading causes of childhood mortality strongly suggest that such abuse threatens not only the health of women but also that of their children. Prevention of IPV perpetration by men may be critical to the improvement of maternal and child health.


Despite substantial improvements during the past decade, Bangladesh remains a leader in childhood mortality, with a mortality rate in those younger than 5 years of 77 per 1000 live births, and diarrhea and acute respiratory tract infection (ARI) constituting the leading causes of such deaths. Violence against mothers by their husbands is a factor hypothesized to relate directly and indirectly to the poor health of young children via exposure to violence, the incapacitation of mothers, and direct mistreatment and neglect of children. Specific mechanisms for these hypothesized relationships include immunosuppression based on stress-related trauma associated with both exposure to violence against a parent and direct violence, injury, and mistreatment of children from fathers who abuse their female partners, as well as depression and reduced parenting capacity among abused women.

Extensive research has documented both high rates of intimate partner violence (IPV; 22%-48%) among South Asian women of childbearing age and the relationship of these IPV experiences to miscarriage and fetal and infant death. Although such evidence supports the consideration of IPV as a high-priority maternal and child health concern within the region, few studies have assessed the relationship between maternal experiences of IPV and major sources of child mortality.

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A recent study conducted among women within 1 district of Uganda found support for the hypothesis that the history of women subjected to IPV from their husbands predicts the poor health of their children. Within South Asia, a recent in-
vestigation indicates that family members in Indian households in which women are abused by their husbands, including the children of those women, are more likely to have asthma. A similar study found that young children of Indian women recently abused by a family member were more likely to exhibit a subset of indicators of malnutrition. However, the relationship between maternal experiences of IPV and the leading causes of mortality among young children in South Asia, ARI and diarrhea, remain to be studied. This lack of study has limited our understanding of the extent to which childhood morbidity may be affected by the violence of husbands against their wives, which is the most likely mechanism in operation in previously observed relations of maternal experiences of IPV and childhood mortality.

The present study builds on previous research by the use of a nationally representative sample at high risk for both IPV and childhood morbidity, married Bangladeshi mothers of children aged 5 years and younger, to assess both exposure to IPV among this population and the relationship of such violence to major sources of child morbidity and mortality. Specifically, the present analyses provide (1) estimates of past-year IPV among married Bangladeshi mothers of children aged 5 years and younger and (2) the risk of recent ARI and diarrhea among children aged 5 years and younger based on the IPV experiences of their mothers in the past year.

METHODS

STUDY SAMPLE

The present study used the 2004 Bangladesh Demographic Health Survey (BDHS), conducted by the National Institute for Population Research and Training of the Ministry of Health and Family Welfare of Bangladesh from January 1 to May 31, 2004. The BDHS sample was drawn from all Bangladeshi adults who reside in private dwellings. A stratified, multistage cluster sample of 361 primary sampling units, 122 in urban areas and 239 in rural areas, was constructed. Of the 11,601 women deemed eligible to participate in the survey, 11,440 participated (98.6% response rate). After the development of the sampling frame for the questionnaire given to women, 50% of selected households were systematically targeted for implementation of the questionnaire given to men. One man between 15 and 54 years of age was chosen at random from each of these households. Of 4,490 eligible men identified, 4,297 participated (95.7% response rate). Details of data collection and management procedures are described elsewhere. Observations from data collected from men were matched to those from their wives, and a merged data set of husband-wife dyads was created. For purposes of the present analyses, only those women currently married, with at least 1 child aged 5 years or younger, and living with both their husband and their child(ren) were included (N=1,592).

MAIN OUTCOME MEASURES

The BDHS questionnaire was drafted in English and then translated into Bengali, the national language of Bangladesh. All variables were assessed via self-report, with the exception of household wealth. Demographics (age and education level) were assessed via single items. A relative index of household wealth was calculated based on interviewer-observed assets, including ownership of consumer items and the characteristics of the dwelling place; individual household wealth scores were grouped by quintile, with 1 indicating the poorest and 5 indicating the wealthiest 20% of households. Perpetration by the husband of IPV in the year prior to the survey was assessed via 6 items included in the survey given to the men. A positive response to any of the following questions indicated IPV perpetration: “In the past year, have you ever pushed or shaken your wife or thrown something at her,” “slapped her or twisted her arm,” “punched her with your fist or something that could hurt her,” “kicked her or dragged her,” “tried to strangle her or kill her by burning her,” or “physically forced her to have sexual intercourse even when she didn’t want to?” These assessments were recoded to create a dichotomous variable that reflected any experiences of IPV in the past year (ie, the endorsement by the husband of participation in ≥1 IPV perpetration assessment) compared with no IPV (ie, the rejection by the husband of participation in all IPV perpetration assessments). For the purposes of the present study, IPV perpetration by men was equated to the IPV experience among the wives of these men.

Child health outcomes were assessed via responses to the BDHS questionnaire given to women. For each child aged 5 years or younger, women indicated whether the child had been ill with fever, ill with a cough, breathing with short rapid breaths and/or ill with diarrhea in the 2 weeks prior to the survey. Consistent with the most common symptoms, ARI was defined as report of cough, fever, and breathing with short rapid breaths reported for the same child. Both the ARI and diarrhea assessments were recoded into dichotomous variables, which indicated the presence of each of these outcomes among any of their children in the past 2 weeks, with data from women that reported no such morbidities among their young children serving as the referent group for each variable.

Three variables were constructed to adjust for potential confounding by environmental factors. A single dichotomous household sanitation variable was created based on 2 items that reflected the household drinking water source and type of toilet facility. Respondents who indicated both that their water source consisted of piped-in or tube-delivered well water and that their toilet facility was a modern toilet or septic tank were classified as having sanitary water and facilities. To adjust for potential confounding by cooking fuel, a single item that assessed the type of cooking fuel was recoded into a dichotomous variable that reflected biomass fuel (eg, crop residue or wood) and charcoal compared with electricity, kerosene, and liquid natural gas. Finally, because household crowding is seen to contribute to an increased likelihood of infection and transmission of both ARI and diarrhea, the number of persons per household was also considered. Data collection procedures for the BDHS were approved by the ORC Macro Institutional Review Board; analyses of these data were exempted from the Harvard School of Public Health institutional review board review based on the anonymous nature of the database.

STATISTICAL ANALYSES

Prevalence estimates for experience of past-year IPV were calculated for the total sample of married Bangladeshi women with children aged 5 years and younger who were living with them and by demographic characteristics. Prevalence estimates for ARI and diarrhea within the past 2 weeks were calculated for the total sample and based on maternal experience of IPV within the past year. Differences were assessed via χ² analyses; statistical significance for all analyses was set at P < .05. Logistic regression models were constructed to estimate odds ratios (ORs) and 95% confidence
intervals (CIs) for the association of IPV with child morbidity outcomes, with the use of data from respondents who experienced no past-year IPV as the referent group. Models were adjusted for a set of demographic characteristics determined a priori, specifically, maternal age, education level, wealth category, and urban vs rural residence. Because the structure of the present data set necessitated analyses at the mother level rather than the child level, analyses were also adjusted for the number of children younger than 5 years in each household to account for differences in the likelihood of the incidence of infection based on the number of young children per female respondent. Furthermore, because children younger than 2 years are more likely than children older than 2 years to become infected with ARI and diarrhea, a variable was constructed to reflect the presence of children younger than 2 years and was entered into all models. To account for potential environmental confounders, diarrhea-related analyses were adjusted for sanitation status (ie, household drinking water source and type of toilet facility), ARI-related analyses were adjusted for type of cooking fuel, and all analyses were adjusted for household crowedness. All analyses were weighted, and a commercially available software program (Stata, version 9; StataCorp, College Station, Texas) was used for all analyses to account for the complex sampling design of the BDHS.

### RESULTS

A total of 1592 currently married women with a child 5 years of age or younger and living with their husband and child(ren) were selected for inclusion in the current analyses. Past-year prevalence of IPV and demographic associations are given in Table 1. More than 2 of 5 married Bangladeshi mothers (42.4%) with at least 1 child aged 5 years or younger experienced IPV from their husbands in the year prior to the survey. The analyses revealed several significant differences in the prevalence of IPV across demographic groups. Specifically, younger mothers were more likely to experience IPV, and higher levels of maternal education, specifically secondary and higher education, appeared to be protective against IPV. Mothers of very young children (ie, those <2 years of age) were more likely than mothers with children aged 3 through 5 years to become abused by husbands than women living in smaller households (3-4 persons) were at higher risk for IPV relative to women living in larger households. Notably, no differences in past-year IPV experiences were detected across urban or rural residence.

### Table 1. Sample Demographics and Past-Year IPV Among 1592 Married Bangladeshi Mothers of Children Aged 5 Years and Younger

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Mothers, % (95% CI)a</th>
<th>Past-Year IPV, % (95% CI)a</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age, y</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13-20</td>
<td>21.36 (19.12-23.79)</td>
<td>58.49 (52.32-64.41)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>21-30</td>
<td>58.14 (55.13-61.09)</td>
<td>41.86 (37.78-46.06)</td>
<td></td>
</tr>
<tr>
<td>31-40</td>
<td>19.32 (17.06-21.80)</td>
<td>26.95 (21.40-33.32)</td>
<td></td>
</tr>
<tr>
<td>≥41</td>
<td>1.81 (0.73-1.90)</td>
<td>30.96 (13.30-56.73)</td>
<td></td>
</tr>
<tr>
<td><strong>Education level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>39.88 (36.85-42.98)</td>
<td>42.69 (37.88-47.64)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Primary</td>
<td>31.84 (29.50-34.27)</td>
<td>48.71 (43.48-53.97)</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>24.89 (22.53-27.41)</td>
<td>36.84 (31.70-42.29)</td>
<td></td>
</tr>
<tr>
<td>Higher</td>
<td>3.39 (2.61-4.40)</td>
<td>20.71 (12.62-32.10)</td>
<td></td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td></td>
<td></td>
<td>.82</td>
</tr>
<tr>
<td>Urban</td>
<td>22.20 (19.57-25.08)</td>
<td>43.17 (35.74-50.91)</td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>77.80 (74.92-80.43)</td>
<td>42.19 (38.41-46.05)</td>
<td></td>
</tr>
<tr>
<td><strong>Wealth index</strong></td>
<td></td>
<td></td>
<td>.15</td>
</tr>
<tr>
<td>Poorest</td>
<td>28.05 (25.08-31.22)</td>
<td>46.56 (40.29-52.94)</td>
<td></td>
</tr>
<tr>
<td>Poorer</td>
<td>33.65 (31.10-36.20)</td>
<td>41.27 (35.68-47.09)</td>
<td></td>
</tr>
<tr>
<td>Middle</td>
<td>18.91 (17.28-20.56)</td>
<td>45.52 (39.3-51.88)</td>
<td></td>
</tr>
<tr>
<td>Richer</td>
<td>14.68 (12.78-16.80)</td>
<td>39.80 (31.89-48.28)</td>
<td></td>
</tr>
<tr>
<td>Richest</td>
<td>14.81 (12.52-17.43)</td>
<td>34.94 (26.66-44.25)</td>
<td></td>
</tr>
<tr>
<td><strong>Water and toilet facilities</strong></td>
<td></td>
<td></td>
<td>.01</td>
</tr>
<tr>
<td>No sanitary water and/or no latrine</td>
<td>92.66 (90.75-94.20)</td>
<td>43.42 (39.95-46.96)</td>
<td></td>
</tr>
<tr>
<td><strong>Type of cooking fuel</strong></td>
<td></td>
<td></td>
<td>.56</td>
</tr>
<tr>
<td>Biomass, charcoal</td>
<td>91.89 (88.73-94.21)</td>
<td>42.82 (39.35-46.37)</td>
<td></td>
</tr>
<tr>
<td>Kerosene, LNG, electric</td>
<td>8.11 (5.79-11.27)</td>
<td>38.11 (24.30-54.16)</td>
<td></td>
</tr>
<tr>
<td><strong>No. of children &lt;5 years old</strong></td>
<td></td>
<td></td>
<td>.26</td>
</tr>
<tr>
<td>1</td>
<td>61.48 (58.44-64.43)</td>
<td>40.99 (37.02-45.08)</td>
<td></td>
</tr>
<tr>
<td>≥2</td>
<td>38.53 (35.57-41.56)</td>
<td>44.66 (39.30-50.15)</td>
<td></td>
</tr>
<tr>
<td><strong>Presence of child(ren) &lt;2 years of age</strong></td>
<td></td>
<td></td>
<td>.02</td>
</tr>
<tr>
<td>Yes</td>
<td>68.78 (66.05-71.38)</td>
<td>44.57 (40.80-48.42)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>31.22 (28.62-33.95)</td>
<td>37.62 (32.54-42.99)</td>
<td></td>
</tr>
<tr>
<td><strong>Total household members (tertiles)</strong></td>
<td></td>
<td></td>
<td>.002</td>
</tr>
<tr>
<td>3-4</td>
<td>36.96 (34.20-39.82)</td>
<td>48.87 (44.16-53.59)</td>
<td></td>
</tr>
<tr>
<td>5-6</td>
<td>38.11 (35.56-40.72)</td>
<td>39.64 (34.56-44.95)</td>
<td></td>
</tr>
<tr>
<td>≥7</td>
<td>24.93 (22.42-27.62)</td>
<td>37.05 (31.57-42.88)</td>
<td></td>
</tr>
<tr>
<td><strong>Prevalence of IPV among the total sample</strong></td>
<td></td>
<td></td>
<td>42.40 (39.01-45.87)</td>
</tr>
</tbody>
</table>
Current findings indicate that large numbers of married Bangladeshi women with young children experience IPV, with this violence occurring in more than 2 in 5 such households each year. This high past-year prevalence is consistent with recent work conducted among married Bangladeshi women and illustrates the alarming extent to which young children are exposed to IPV in their earliest stages of development. Moreover, currently identified associations of maternal experiences of IPV with 2 leading causes of childhood mortality (ARI and diarrhea) in Bangladesh and worldwide strongly suggest that this violence threatens not only the health and well-being of children but also that of their young children. Importantly, because the present analyses were adjusted for potential confounders, these effects persist after consideration of socioeconomic status (eg, poverty), household characteristics, and environmental factors (eg, sanitation).

Findings from this first nationally representative examination of leading childhood morbidities and maternal experiences of IPV build on previous work that demonstrates a range of negative health consequences to women who experience IPV and of compromised child health outcomes based on exposure to IPV. Currently identified associations of IPV with childhood ARI and diarrhea provide a critical context for the elevated rates of infant and early childhood deaths demonstrated in prior work among women who experience IPV (ie, the currently documented increased rates of serious illness likely relate to increased risk of child death).

Both direct and indirect mechanisms are likely responsible for an elevated diarrhea and ARI risk among children based on maternal experience of IPV. Experiences of trauma and anxiety are more common among children exposed to violence against a parent compared with children not exposed to such abuse and such responses to this violence likely compromise the immune systems of young children. Moreover, children living in homes characterized by IPV are also more likely to directly experience violence themselves. Thus, the health of these children may be compromised not only based on emotional trauma and consequent vulnerability to illness incurred because of exposure to violence against their mother but also based on physical injury via direct abuse by their father.

A growing body of work demonstrates that IPV occurs within a context of male-partner control, which can include interference in the ability of women to meet basic health needs for themselves and their children. These factors indicate an additional likely mechanism for the currently observed effects of maternal experiences of IPV on the health of young children. For example, underimmunization of children and lower rates of breastfeeding based on IPV, both of which are known to compromise child health, suggest a reduced ability among abused women to attend to the health of their children.

Low birth weight and prematurity may also represent mechanisms by which IPV may increase the risk of

### Table 2. Prevalence of Health Symptoms Within the Past 2 Weeks Among Children Aged 5 Years or Younger and Associations With Past-Year IPV Against the 1592 Married Bangladeshi Mothers of Those Children

<table>
<thead>
<tr>
<th>Child Health</th>
<th>Prevalence, % (95% CI)</th>
<th>Past-Year IPV, % (95% CI)</th>
<th>No Past-Year IPV, % (95% CI)</th>
<th>Adjusted OR for Past-Year IPV (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any child with ARI in the past 2 weeks</td>
<td>16.02 (14.04-18.23)</td>
<td>19.21 (15.90-23.01)</td>
<td>13.68 (11.50-16.20)</td>
<td>1.37 (1.03-1.83)</td>
</tr>
<tr>
<td>Any child with diarrhea in the past 2 weeks</td>
<td>9.28 (7.77-11.06)</td>
<td>11.58 (9.12-14.59)</td>
<td>7.59 (6.02-9.53)</td>
<td>1.65 (1.15-2.38)</td>
</tr>
</tbody>
</table>

Abbreviations: ARI, acute respiratory tract infection; CI, confidence interval; IPV, intimate partner violence; OR, odds ratio.

- Adjusted for maternal age, educational level, wealth index, urban versus rural status, number of household members, number of children aged 5 years and younger, and presence of children aged 2 years and younger.
- Adjusted for type of cooking fuel.
- Adjusted for water and toilet facilities.
- Adjusted for maternal age, educational level, wealth index, urban versus rural status, number of household members, number of children aged 5 years and younger, and presence of children aged 2 years and younger, and relevant environmental factors, Bangladeshi mothers who experienced IPV in the previous year continued to be at increased risk for having a child aged 5 years or younger experience illness that met the criteria for ARI compared with those who had not experienced IPV (19.2% vs 13.7%; P = .008). Recent diarrhea in young children was reported by approximately 1 of 10 women (9.3%), with those who experienced IPV more likely to report this illness among their children compared with mothers who did not experience IPV (11.6% vs 7.6%; P = .001).

In logistic regression analyses adjusted for maternal age, education level, household wealth, urban vs rural status, household size, number of children younger than 5 years, presence of children aged 2 years or younger, and relevant environmental factors, Bangladeshi mothers who experienced IPV in the previous year continued to be at increased risk for having a child aged 5 years or younger experience illness that met the criteria for ARI (adjusted OR, 1.37; 95% CI, 1.03-1.83) and diarrhea (adjusted OR, 1.65; 95% CI, 1.15-2.38) within the 2 weeks prior to the survey.
childhood illness; both factors relate to a significantly increased likelihood of child morbidity and mortality, and both have been shown to be associated with IPV against women. In addition, undernutrition of women and their young children appears to be associated with IPV: a recent study indicates that women are less able to seek food supplementation programs owing to violence from husbands, qualitative research with abused South Asian women indicates that such women have limited access to food, and recent quantitative data indicate that family violence is associated with malnutrition among abused women and their children.

Finally, the decreased childhood mortality rate and increased health care utilization appear to coincide with elevated levels of autonomy among women offer insight into the present findings. Examination of limited access to food and health care, interference with parenting, and other measures of relative disempowerment within the household may partially explain the currently identified associations of IPV with child illness; such investigations should be prioritized in future efforts to clarify the mechanisms by which IPV may threaten child health. On the basis of the identification of these mechanisms, both clinic- and community-based interventions should be developed and evaluated to reduce the potential negative impact of violence against women on child health. Until such time, maternal and child health programs should screen mothers of young children for IPV as a marker for elevated risk for child illness and refer women to local services that may assist them in reducing their risk of future abuse.

The present findings should be considered in light of several limitations. Although the intent of the BDHS is to create a sample representative of all Bangladeshi adults, sampling from private dwelling places may have led to underrepresentation of the poorest and most marginalized individuals who live in public institutional settings. Furthermore, migrant and other highly mobile sectors of society are also likely to have been undersampled. Thus those under greater stress and who experience the greatest health burden may not be adequately represented in the BDHS sample, a factor that potentially biases the present results toward the null. The cross-sectional nature of the study limits the ability to draw causal inference between exposure to IPV and child morbidity outcomes. All data were self-reported; although measurement error may be introduced by the self-reported nature of the data analyzed, it is unclear to what extent such errors may differentially relate to the exposure variable of IPV or to the outcomes of recent child health, as would be required to bias the current findings. Our sample includes only women with living children aged 5 years or younger; given previous studies that suggest differential neonatal and infant death rates based on IPV experiences, the current study may be prone to selection bias based on the inclusion of only those mothers whose children have survived until the age of 5 years. Assessment of IPV against women was based on reports from their husbands. Men may have underestimated sexual violence, in particular, based on their likely underestimate of coerced or forced sex because limited communication regarding sex in the South Asian marital context is normative. It may also be possible that men overreported IPV perpetration, possibly as a boast regarding their power over their wives. However, such overreporting has not been documented and is unlikely to be differentially related to the reports of women regarding the health of their children. The need to include only those households in which husbands and wives were currently living together may have led to the elimination of cases of severe IPV in which women have been expelled from their homes or have been abandoned by their husbands; the inability to include such cases may have further biased current findings toward the null. Finally, it was not possible to estimate the access of children to adequate nutrition via available maternal reports. Because nutritional status is clearly related to susceptibility to both ARI and diarrhea and potentially also susceptibility to IPV, future designs should strive to include such indicators.

The current findings demonstrate elevated risk for ARI and diarrhea among young Bangladeshi children based on recent IPV against their mothers, even after adjustments based on demographic and salient environmental factors, which strongly suggests that the violence of men against their wives plays a significant role in compromising child health. Given the high prevalence of IPV among Bangladeshi women coupled with high rates of childhood mortality in the country primarily driven by diarrhea and ARI, findings of the present study underscore calls for prevention of IPV as a priority in improving maternal and child health and the critical need to integrate IPV prevention and intervention efforts within the existing maternal and child health infrastructure.

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Author Contributions: Study concept and design: Silverman, Decker, Gupta, Raj, and Naved. Acquisition of data: Decker and Kapur. Analysis and interpretation of data: Silverman, Decker, Kapur, and Naved. Drafting of the manuscript: Silverman, Decker, and Kapur. Critical revision of the manuscript for important intellectual content: Gupta, Raj, and Naved. Statistical analysis: Silverman, Decker, Kapur, and Raj. Administrative, technical, and material support: Silverman, Gupta, and Naved. Study supervision: Silverman.

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