Intimate partner violence and social connection among married women in rural Bangladesh

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ABSTRACT

Background Intimate partner violence (IPV) is high among married women in Bangladesh. Social isolation is a well-established correlate of women’s exposure to IPV, but the role of such factors in low-income and middle-income countries is not well understood. In this study, we explore whether social connection is protective against IPV among married women in rural Bangladesh.

Methods Data were drawn from a multistage, stratified, population-based longitudinal sample of 3355 married women in rural Bangladesh, who were surveyed on individual and contextual risk factors of IPV. Negative binomial regression models were used to estimate the association between three different domains of social connection (natal family contact, female companionship and instrumental social support), measured at baseline in 2013, and the risk of three different forms of IPV (psychological, physical and sexual), approximately 10 months later, adjusted for woman’s level of education, spouse’s level of education, level of household wealth, age and age of marriage.

Results Adjusted models showed that instrumental social support was associated with a lower risk of past year psychological IPV (risk ratio (RR)=0.84, 95% CI 0.769 to 0.914), sexual IPV (RR=0.90, 95% CI 0.822 to 0.997) and physical IPV (RR=0.81, 95% CI 0.718 to 0.937). Natal family contact was also associated with a lower risk of each type of IPV, but not in a graded fashion. Less consistent associations were observed with female companionship.

Conclusion Our findings suggest that social connection, particularly in the form of instrumental support, may protect married women in rural Bangladesh from experiencing IPV.

Intimate partner violence (IPV) is a pervasive public health concern that is detrimental to the health and well-being of women worldwide.1 Defined as any behaviour of an intimate partner that causes some type of physical, psychological or sexual harm,2 women are at significantly greater risk of experiencing IPV than men,3 and experiences of IPV generally represent patterns of ongoing abuse.2 Rates of IPV victimisation remain particularly high among women in South Asia.4 For example, married women in Bangladesh report lifetime IPV victimisation rates ranging from 53% to 95%.4,6

Psychological IPV is the most common and frequent form of IPV experienced by women in rural Bangladesh, with 67% of women experiencing psychological IPV in their lifetimes.7,8 However, physical and sexual IPV risks are also high, with 32%–47% of women reporting lifetime physical and 15%–26% of women reporting lifetime sexual IPV.9,10 These three IPV types often co-occur. Poor health outcomes associated with IPV include injuries, pelvic pain, irritable bowel syndrome, reproductive tract infection, memory loss, unwanted pregnancy, depression, distress and suicidal ideation.2,11,12 Women of reproductive age are at particularly high risk for IPV victimisation.11,13–15

The relationship between social isolation and IPV in high-resource settings like the USA is well established.16–21 For example, in a US population-based sample, women experienced a lower likelihood of IPV as their levels of family support increased.15 However, to our knowledge, only a few researchers have explored this relationship empirically in low-income settings. As exceptions, greater social support has been associated with lower partner abuse in Pakistan.16 In a sample of pregnant women in Tanzania, financial social support and monthly communication with family members were associated with lower odds of experiencing IPV and repeated abuse.19 The present study adds to the limited body of empirical research exploring the relationship between social connection and IPV in low-income settings.

Research in high-income settings suggests that social isolation may increase IPV risk through two distinct mechanisms: (1) women who are more socially isolated are more vulnerable to entering into and staying in abusive relationships20,22; and (2) withholding social relationships from women is a common tactic of abusive partners to isolate their victims.22 However, in rural Bangladesh, a context in which IPV is highly normative and women have little to no recourse to exit an abusive marriage,10,12 it is likely that the mechanisms behind social connection and IPV operate differently than in other settings. For example, women who are more socially connected in Bangladesh may be at lower risk of IPV, which is less socially normative and more likely to provoke community opprobrium or intervention.15 To explore this hypothesis, we use a severity measure of IPV rather than the typical dichotomous measure commonly used in empirical studies. This operationalisation of IPV allows us to identify whether women with more social connections are more likely to have less severe levels of IPV. Using IPV severity, we explore effects of three different types of social connection (natal family contact, female companionship, instrumental social support) on married women’s risk of experiencing physical, psychological and sexual IPV in rural Bangladesh.
METHODS

Sample
We used data from a population based, multistage prospective cohort study which aimed to identify the contextual determinants of IPV risk among married women in rural Bangladesh in 2013-2014. Villages and households were selected through stratified random sampling procedures. In the first stage, the Bangladesh 2011 census was used to stratify districts into four groups based on the magnitude and direction of girls’ versus boys’ school attendance: (1) girls’ attendance lower by 9%-23%, (2) lower by 4%-8%, (3) lower by 0%-3% and (4) higher by 1%-9%. Within each stratum, villages with more than 200 and less than 500 households were eligible for selection, yielding a sample of 78 villages at baseline. In each sampled village, all households were enumerated; within sampled households, one eligible individual was selected per household for the study. For households where multiple married women were eligible, one individual was randomly selected to participate. Women in the current analysis were married 4-12 years, and ranging in age from 16 to 37 years, at baseline.

Participants completed a baseline in-person interview between June and September 2013, and response rates were 94.7% (N=3902). Approximately 10 months later, participants completed a follow-up in-person interview, where response rates were 86.3% (in 2014; N=3369, N=77 villages; 1 village lost to a flood). A total of 3355 (81.8%) married women completed both baseline and follow-up interviews, and are the focus for the current study.

The study followed WHO guidelines for research on IPV to protect the safety of participants and interviewers. All interviews were conducted in-person, at the participants’ homes, by masters-level trained, female Bangladeshi interviewers. At the completion of each interview, each participant was informed of their rights under local law, and provided with information about the nearest legal and health-related services.

Variables
IPV outcomes
Incidence of psychological, physical and sexual IPV was separately measured using an adaptation of the Revised Conflict Tactics Scale (CTS2) and the WHO standardised questionnaire on IPV. Sample items from this scale ask if the respondent’s husband has ‘done things that scared or intimidated you on purpose,’ ‘kicked, dragged, or hit you repeatedly,’ and ‘physically forced you to have sexual intercourse when you did not want to.’ The CTS2 has been validated for use in heterosexual couples, and has been used previously in Bangladesh.

We used women’s report of IPV at follow-up, which was measured 10 months after baseline, indicating past-year incidence of IPV. Baseline IPV measures were not available for this analysis due to difficulties with data collection. To operationalise IPV, we generated a severity score, used previously with this scale, for a more granular estimation of IPV exposure than a binary measure of whether or not IPV occurred at all during the reference period. For each IPV type (psychological, physical and sexual), women were asked if they had experienced specific behaviours in the last year. For each behaviour a woman endorsed, she reported the frequency with which it occurred. Frequency response options were: 1 or 2 times, (coded ‘1’) 3-5 times, (coded ‘2’) 6-10 times, (coded ‘3’) 11-20 times, (coded ‘4’) and more than 20 times (coded ‘5’) in the past year. These frequency scores for each IPV type were then summed to calculate a type-specific severity scale. Each IPV scale contained a different number of items (ie, physical=7; psychological=10; sexual=3), resulting in different potential ranges (eg, 0-40 for psychological, 0-28 for physical and 0-12 for sexual IPV). Spearman’s rank-order correlations were run to determine the relationship between each IPV severity outcome. Correlations were all significant (p<0.0001) with rho values ranging from 0.46 to 0.59.

Social connection exposures
We used three items from the baseline survey to capture different domains of social connection hypothesised to influence risk of IPV: (1) natal family contact; (2) female companionship; and (3) instrumental social support. Together, the three items capture differences in both the source and type of social connection. The intercorrelation was low; therefore, rather than including all social connection variables in one model, we chose to measure each exposure separately in order to generate associations between each exposure and each outcome. Natal family contact measured the number of times participants reported seeing members of their natal family in the past year (0–1, 2–5, 6–10 or more than 10 times). Female companionship was captured by the frequency with which women reported visiting other women in the village just for socialising, (never, rarely, sometimes, often). Instrumental social support was measured with a binary item indicating if participants had someone in the village to go to when they are in financial trouble, sick or need help with some other problem. Higher values indicate higher social connection.

Confounders
Previous research suggests a strong link between socioeconomic and demographic factors and risk of IPV. We included the following covariates measured at baseline as potential confounders in final models if they were significantly associated with both the exposure (social connection) and outcome (IPV): age; age at marriage; woman’s highest attended level of education; spouse’s highest attended level of education; and level of household wealth. Level of household wealth was measured by a principal components analysis factor score derived from 19 items loading on the principal factor, and modelled as tertiles. See table 1 for operationalisation of these variables.

Statistical analyses
We generated descriptive statistics and frequency histograms of each IPV outcome. Histograms revealed heavily-skewed non-normal distributions of IPV, which are common due to a preponderance of zeroes. We examined bivariate associations between each social connection exposure and IPV outcome using analysis of variance (ANOVA) comparisons of means. We specified negative binomial models to account for the highly skewed, zero-inflated distribution of IPV severity scores, which is a more flexible model than Poisson, accommodating over-dispersion in heavily skewed distributions. Such models are often used for modelling count outcomes in violence research, and with the CTS2. We adjusted for the complex sample design; all bivariate and negative binomial models were adjusted for sampling weights, stratified design and clustering.

We fit nine multilevel negative binomial regression models to assess the crude and covariate-adjusted associations between social connection and IPV. Because crude and adjusted results were so similar, we present only adjusted models. To account for multiple comparisons, we adjusted the threshold of significance to p≤0.01. We chose this multiple adjustment technique because...
In terms of social connection, 70% of women reported receiving instrumental support, 57% reported seeing members of their natal family at least six times in the past year including 37% who had seen natal family members more than 10 times in the past year. Conversely, 8% of women reported low levels of natal family contact (one time or less in the past year), 8% of women reported never experiencing female companionship and another 9% reported rarely experiencing any female companionship.

### Bivariate analyses

ANOVA tests illustrate bivariate associations between social connection and IPV severity (table 2). The presence (compared with absence) of instrumental support was significantly associated with lower mean IPV severity score, for all three forms of IPV. Patterns for the other indicators of social connection were less consistent. Although there does not appear to be a graded association between IPV severity and female companionship, women who reported socialising with other women often, compared with the other categories of female companionship, consistently had the lowest mean IPV severity scores.

### Negative binomial regression results

Instrumental support yielded the strongest and most consistent protective association with past-year IPV, across all types (table 3). Women reporting instrumental support experienced a 16% lower risk of past-year psychological IPV (risk ratio (RR)=0.84, 95% CI 0.769 to 0.914), 10% lower risk of past-year sexual IPV (RR=0.90, 95% CI 0.822 to 0.997) and 19% lower risk of past-year physical IPV (RR=0.81, 95% CI 0.718 to 0.937), compared with those without instrumental support.

Overall, as operationalised, the association between IPV and natal family contact in the past year was not statistically significant for any type of IPV. However, there does appear to be a threshold protective association: the risk of IPV is similarly lower for all three frequency categories above the reference category of 0–1 natal family visits a year, suggesting that women who are very isolated from their natal families are at increased risk but, beyond that, greater frequency of contact does not confer added protection.

Results suggested that female companionship may be protective against IPV, but were imprecise. Compared with women who never socialised with other women in the village, women who often socialised experienced 11% reduced risk of psychological IPV (RR=0.89, 95% CI 0.813 to 1.101), and 15% reduced risk of physical IPV (RR=0.85, 95% CI 0.712 to 1.138), although these associations were not significant. The RR associated with sexual IPV was similar (RR=0.89, 95% CI 0.798 to 1.115); however, the estimates for sexual and physical IPV were less precise and not statistically significant.

### DISCUSSION

The objectives of this study were to examine if different forms of social connection were associated with lower severity of past-year psychological, sexual and physical IPV among a population-based prospective panel study of married women in rural Bangladesh. We found that women reporting instrumental support also reported lower IPV severity, for all three types of IPV, in adjusted models. The findings for other forms of social connection—contact with natal family and frequency of socialisation with female village neighbours—also suggested a protective effect but the evidence was more equivocal.

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**Table 1** Descriptive characteristics of study sample: married women in rural Bangladesh, 2013–2014 (N=3355)

|                      | Mean (SE) or % | Range |
|----------------------|----------------|-------|
| Intimate partner violence (IPV) severity score * |               |       |
| Physical IPV         | 1.8 (1.3)      | 1–26  |
| Psychological IPV    | 4.2 (0.3)      | 1–40  |
| Sexual IPV           | 2.0 (2.4)      | 1–12  |
| Social connection, %  |                |       |
| Instrumental support†| 70.4%          |       |
| Natal family contact‡|                |       |
| 0–1 times            | 7.9%           |       |
| 2–5 times            | 35.0%          |       |
| 6–10 times           | 19.9%          |       |
| >10 times            | 37.3%          |       |
| Female companionship§|                |       |
| Never                | 8.4%           |       |
| Rare                 | 9.3%           |       |
| Sometimes            | 42.9%          |       |
| Often                | 39.5%          |       |
| Age in years (mean)  | 24.4 (0.1)     | 16–37 |
| Number of lifetime births (mean) | 1.8 (1.1) | 0–8 |
| Highest level of education attended, % |               |       |
| Less than primary school | 10.2% |       |
| Primary school       | 27.1%          |       |
| Secondary school     | 54.7%          |       |
| College or higher    | 8.0%           |       |
| Highest level of education attended by spouse, % |               |       |
| Less than primary school | 22.5% |       |
| Primary school       | 32.9%          |       |
| Secondary school     | 32.0%          |       |
| College or higher    | 12.6%          |       |
| Level of household wealth, % |             |       |
| Low                  | 33.3%          |       |
| Medium               | 33.5%          |       |
| High                 | 33.2%          |       |

Descriptive statistics generated from proc surveymeans and proc surveyfreq, and adjusted for sampling weights, clusters, and stratified design. Standard errors generated from unadjusted, unweighted commands.

* Actual ranges of IPV severity scores are presented; theoretical ranges are: 0–28 (physical), 0–40 (psychological) and 0–12 (sexual).
† Instrumental support: “Do you have someone in the village to go to when they are in financial trouble, sick, or need help with some other problem?” (Y/N).
‡ Natal family contact: “How often have you seen members of your natal family in the past year?” (0–1 times, 2–5 times, 6–10 times, more than 10 times).
§ Female companionship: “How often do you visit other women in the village just for socialising?” (0–1 times, 2–5 times, 6–10 times, more than 10 times).
Instrumental support was consistently associated with lower risks of IPV. These findings align with those of previous research for women during pregnancy in rural Tanzania and rural Bangladesh. Instrumental support is defined as having someone to assist with financial, health, or other difficulties, and this form of social connection was consistently associated with lower IPV in our study. These findings point to the broad impact that instrumental support may play in limiting women’s exposure to violence. In this setting where violence is highly prevalent and normalised, the provision of instrumental support, or possibly other types of social support or social connection, may mean a friend or family member intervenes in cases of extreme violence. Our severity measure of IPV allows us to interpret findings as limiting or diminishing the exposure of violence—which often happens through intervention from family and friends—rather than preventing it altogether, which may be less likely in this setting.

Overall, the results for natal family contact suggest a threshold effect whereby receiving any amount of natal family contact more than once a year is associated with a lower risk of IPV. Women in rural Bangladesh typically marry outside of their village, and move away from their natal family, so physical distance can represent a significant barrier to accessing natal family support. Women who marry within their natal village likely have more contact with natal family members, including greater support, and potentially greater recourse in an abusive marriage. Families may intervene to reduce IPV or women may have a viable option to return to their natal families if abuse is extreme.

Finally, our results for female companionship were somewhat consistent with other research in Bangladesh indicating that

### Table 2 Bivariate analyses: intimate partner violence (IPV) severity by social connection among study sample (N=3355)

| Variable            | Psychological IPV |               | Sexual IPV |               | Physical IPV |               |
|---------------------|-------------------|---------------|------------|---------------|--------------|---------------|
|                     | Mean  | P value | Mean    | P value | Mean     | P value | Mean     | P value |
| Instrumental support|       |         |       |         |          |         |          |         |
| Yes                 | 1.61  | <0.001** | 1.92   | 0.001** | 1.61     | <0.001** |
| No                  | 2.14  |         | 2.23   |         | 2.14     |         |
| Natal family contact|      |         |       |         |          |         |          |         |
| >10 times           | 4.17  | 0.198   | 1.92   | 0.240   | 1.72     | 0.292   |
| 6–10 times          | 3.93  |         | 1.99   |         | 1.78     |         |
| 2–5 times           | 4.25  |         | 2.03   |         | 1.76     |         |
| 0–1 times           | 4.92  |         | 2.45   |         | 2.03     |         |
| Female companionship|       |         |       |         |          |         |          |         |
| Often               | 3.95  | 0.008*  | 1.91   | 0.097   | 1.68     | 0.021   |
| Sometimes           | 4.24  |         | 2.04   |         | 1.74     |         |
| Rarely              | 5.18  |         | 2.36   |         | 2.21     |         |
| Never               | 4.18  |         | 2.02   |         | 1.86     |         |

Means generated from proc surveymeans, and adjusted for sampling weights, clusters, and stratified design. Comparison of means p values generated from F-tests using proc anova and adjusted for clusters and stratified design.

*P≤0.01; **p≤0.001.

### Table 3 Multilevel negative binomial regression models assessing the effects of social connection on past-year intimate partner violence (IPV) severity (N=3355)

| Model            | Psychological IPV |               | Sexual IPV |               | Physical IPV |               |
|------------------|-------------------|---------------|------------|---------------|--------------|---------------|
|                  | RR   | 95% CI       | P value†  | RR   | 95% CI       | P value   | RR   | 95% CI       | P value   |
| Instrumental support|     |               |           |     |               |           |     |               |           |
| Yes              | 0.84 | 0.769 to 0.914| <0.001** | 0.90 | 0.822 to 0.997| 0.042     | 0.81 | 0.718 to 0.937| 0.002*    |
| No               | REF  |               |           | REF |               |           | REF |               |           |
| Natal family contact|      |               |           |     |               |           |     |               |           |
| >10 times        | 0.86 | 0.729 to 0.996| 0.106     | 0.82 | 0.680 to 0.962| 0.173     | 0.88 | 0.657 to 1.067| 0.631     |
| 6–10 times       | 0.82 | 0.677 to 0.948| 0.86      | 0.86 | 0.692 to 1.004| 0.91      | 0.91 | 0.654 to 1.125|           |
| 2–5 times        | 0.89 | 0.774 to 1.006| 0.85      | 0.85 | 0.700 to 0.993| 0.86      | 0.86 | 0.662 to 1.079|           |
| 0–1 times        | REF  |               |           | REF |               |           | REF |               |           |
| Female companionship|      |               |           |     |               |           |     |               |           |
| Often            | 0.89 | 0.813 to 1.101| 0.012     | 0.89 | 0.798 to 1.115| 0.206     | 0.85 | 0.712 to 1.138| 0.083     |
| Sometimes        | 0.95 | 0.868 to 1.173| 0.95      | 0.95 | 0.840 to 1.171| 0.87      | 0.87 | 0.730 to 1.164|           |
| Rarely           | 1.12 | 1.024 to 1.492| 1.05      | 1.05 | 0.931 to 1.411| 1.09      | 1.09 | 0.885 to 1.587|           |
| Never            | REF  |               |           | REF |               |           | REF |               |           |

Models adjusted for the following covariates: respondent’s level of education, spouse’s level of education, level of household wealth, age and age of marriage. Results generated from proc genmod and adjusted for sampling weights, clusters and stratified design.

*P<0.01; **p<0.001.
†P value based on results from type III analysis.
friends and neighbours are useful sources of social connection, but serve as less frequent sources of support than immediate family members. Overall, female companionship exhibited weaker associations with IPV than other forms of social connection. However, similar to natal family contact, the pattern of associations between female companionship and IPV suggests a threshold effect whereby women who never or rarely socialise with other women in the village are at highest risk of IPV severity. These results could be due to a number of factors, one of which could be women’s experience of controlling behaviours by their partner. The WHO Multi-country Study on Women’s Health and Domestic Violence against Women found that women who experienced abuse were more likely to report controlling behaviours by their partners, including keeping her from socialising with friends and/or family, ignoring her and restricting her from accessing care and support.

The design of our study contributes significant strengths to the research evidence. First, the population-based design allows for high generalisability for married women in rural Bangladesh. We also controlled for the geographic design features in our analytic plan, including clustering. Modelling severity of IPV provided a more robust measure, by leveraging more information on the distribution of IPV severity, in lieu of simple binary assessments. As such, we were able to incorporate factors such as prevalence, diversity, and frequency of behaviours into the IPV measures. Additionally, we controlled for several potential confounders, to better estimate the effects of social connection, although admittedly as with any observational study, potential uncontrolled confounding remains a possibility.

Our results suggest that married women in rural Bangladesh would benefit from strategies aimed at both providing and accessing support, particularly instrumental support. One way to increase instrumental support is by providing opportunities for women to affiliate and identify with others around common endeavours, particularly economic endeavours. Men are more likely to be supportive of these because of their potential value to themselves and their families. Widespread existing interventions such as microcredit, skills training and local industries employing women may promote women’s access to instrumental support if designed to encourage group interaction and collaboration. Systems-level interventions such as these can improve women’s access to instrumental support by promoting independence and collective empowerment of women.

Limitations

Despite this study’s notable strengths, we encountered some limitations. Our operationalisation of the exposures may not fully capture social connection. Common measures exist, such as Cohen’s Social Network Index and the Berkman-Syme Social Network Index, but there is no gold standard. Although we leveraged a prospective study that established approximate temporal ordering between exposure and IPV, it is possible that reverse causality is at play, because a woman’s prior experience of IPV could influence her social exposures.

CONCLUSIONS

In conclusion, we found that women reporting social connection, particularly instrumental support, exhibited lower IPV severity in the low-income context of rural Bangladesh. As lifetime risk of IPV victimisation among married women in low and middle-income countries remains high, strategies to incorporate social support may aid efforts to reduce the risk of IPV victimisation and its effects.
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