Husband's report of physical violence against wife and couple's modern contraceptive use

Mai Do
Department of International Health and Development
Tulane School of Public Health and Tropical Medicine
1440 Canal Street, Suite 2200
New Orleans, LA 70112
Tel: 504-988-1283/Fax: 504-988-3655
Email: mdo@tulane.edu

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ABSTRACT

This study examines the relationship between husband's report of ever use of physical violence against wife and couple's use of modern contraceptives reported by wife, as well as their determinants among Bangladeshi couples. Data come from the Bangladeshi Demographic and Health Survey 2007, which included a Domestic Violence module. The study is limited to 3,042 couples, in which husbands were interviewed with the Domestic Violence module. The test of exogeneity, using the biprobit procedure, did not provide any evidence of the endogeneity between husband's report of ever using physical violence against wife and wife's report of modern contraceptive use. Logistic regressions were employed. The study showed a positive, significant association between husband's ever use of physical violence and wife's current use of modern contraceptives. Visits by a family planning (FP) worker and talking with husband about FP were associated with increased use of modern contraceptives, as was men's positive opinion about women's decision making power. Factors related to reduced use of physical violence against wife among husbands included: high education, disagreement with belief that women who used contraception might become promiscuous, and positive attitudes towards domestic violence. The study has important program implications. It underlines the need for the integration of FP and domestic violence related services. The findings also emphasize the importance of men in FP programs as well as future research on contraceptive use within marital relationships.

INTRODUCTION

Domestic violence (DV) is increasingly recognized as a human right problem on the global scale. Besides serious, long-term physical and mental health consequences, negative reproductive health outcomes of DV, including unwanted pregnancy (Heise, Ellsberg, & Gottemoeller, 1999; M.A. Koenig et al., 2003; Krug, Dalhberg, Mercy, Zwi, & Lozano, 2002; Pallitto & O'Campo, 2004), induced abortions (Jejeebhoy, 1998; Kaye, Mirembe, Bantebya, Johansson, & Ekstrom, 2005), miscarriage (Kabeer, 2001; Sidney Schuler, Hashemi, & Badal), fetal death (Hindin & Adair, 2002; Jejeebhoy & Cook, 1997; Kaye, et al., 2005), and non-use or discontinuation of contraception (McCarraher, Martin, & Bailey, 2005; Stephenson, Koenig, Acharya, & Roy, 2008; Stephenson, Koenig, & Ahmed, 2006; Williams, Larsen, & McCloskey, 2008; Wilson-Williams, Stephenson, Juvekar, & Andes, 2008) are of significant concern for many women. Population based surveys have reported that as many as half of women have been abused during their life time in some settings(Heise, et al., 1999). The vast majority of the existing studies, however, relied on women's report of DV, which is subject to recall bias and under-reporting due to social stigma (M. Ellsberg, Heise, Pena, Agurto, & Winkvist, 2001; Pallitto & O'Campo, 2004). Very few studies have been based on partner's report of violence (Silverman, Gupta, Decker, Kapur, & Raj, 2007). This study will examine the association between DV based on husband's report and wife's report of modern contraceptive use, as well as their determinants in Bangladesh, where DV against women is prevalent.

While common, DV against women in Bangladesh was not considered a significant public health problem until recently. A survey conducted in 2004 based on a nationally representative sample revealed that three in four Bangladeshi women had experienced violence from their husbands (Silverman, et al., 2007). Other studies reported a prevalence of DV between 40% and 70% of among married Bangladeshi women (Mason & Smith, 2000; Riyami, Afifi, & Mabry, 2004; S. R. Schuler & Hashemi, 1994). An increasing trend in the number of reported cases of DV has been attributed to increased poverty, social crisis, and population pressure, as well as increased women's willingness to disclose the abuse (Salam, Alim, & Noguchi, 2006). DV is closely linked to marriage in Bangladesh and often used within marriage as a way for men to enforce women's subordinate position, to control their capacity to take independent actions, and to reinforce nonegalitarian gender norms (Bates, Schuler, Islam, & Islam, 2004; SR Schuler, Hashemi, Riley, & Akhter, 1996). So far there has been only one study in Bangladesh that reported a negative association between DV and contraceptive use (Salam, et al., 2006).

Several studies have shown that poverty is an important factor influencing DV as poor women often lack resources and familial and social support (Salam, et al., 2006; Silverman, et al., 2007). Women's low level of education has also been found to be related to DV (Koenig, Ahmed, Hossain, & Khorshed Alam Mozumder, 2003; Riyami, et al., 2004; Salam, et al., 2006; Silverman, et al., 2007). Similar associations have been observed between DV and husband's education (Koenig, et al., 2003). Compared to other women, Islamic women are often at greater risk of being abused by their husband or partner (Koenig, et al., 2003; Silverman, et al., 2007). Women status, measured in three dimensions: mobility, familial decision making power, and control of resources, has been found in one study to be positively related to experience of DV (Koenig, et al., 2003), consistent with earlier studies conducted in South and Southeast Asia

(Hindin & Adair, 2002; Jejeebhoy, 1998; Jejeebhoy & Cook, 1997). The authors attributed this association to the increased willingness to report abuse among women of higher power status.

DATA

Data come from the Bangladesh Demographic and Health Survey (DHS) 2007. The survey was based on a nationally representative sample, designed to provide up-to-date information on a number of reproductive and child health indicators. Two-stage stratified sampling of households was employed; more details of the sampling procedure can be found in the survey final report (National Institute of Population Research and Training (NIPORT), 2009). Among others, the survey included a Women's Questionnaire and a Men's Questionnaire, from which data collected are used in this study. A total of 10,819 households were included in the survey. All ever married women age 10-49 in selected households were eligible for interview using the Women's Questionnaire; all ever married men age 15-54 in every second household were eligible for interview using the Men's Questionnaire. The survey sample consisted of 11,178 women age 15-49 and 10,996 men age 15-54, among them there were 3,336 couples, in which both men and women were interviewed.

Both Women's and Men's Questionnaires include a Domestic Violence module. In each selected household, only one eligible man or woman was selected to be interviewed with this module. This selection further limits the current study sample to 3,042 couples in which both husband and wife were interviewed and the husband was selected for the Domestic Violence module.

Dependent variable

The dependent variable is current use of modern contraceptive methods as reported by women. This is a binary variable based on responses to two questions in the Women's Questionnaire: "Are you currently doing something or using any method do delay or avoid getting pregnant?", and if the answer was positive, "Which method are you using?" Modern methods of contraception in this study include: female and male sterilization, oral pills, IUD, injectables, implants, and condoms.

Independent variable

The main independent variable of interest is husband's report of ever use of physical violence against wife. This is a binary variable based on responses to a question in the Men's DV module: "At any time, were there any circumstances or family disagreements which caused you to [USE PHYSICAL VIOLENCE]….?" A man is considered having used physical violence to his wife if he said "yes" to any of the following types of actions: push, shake or throw something at his wife; slap his wife; twist her arm or pull her hair; punch her with his fists or with something that could hurt her; kick, drag or beat her up; try to choke her or burn her on purpose; or threaten or attack her with a knife, gun or any other weapons.

Other variables

Also included in the analysis is a number of men's and women's socio-demographic characteristics, including age, education, wealth, religion, the number of living children, and whether a man or a woman watched TV every day. Watching TV is theoretically related to modern contraceptive use, as it may increase knowledge related to FP methods as well as sources of services. Women were also asked if they were visited by a government FP worker in the last six months or if they talked to their husband about FP in the last three months. These two factors could potentially be directly related to modern contraceptive use.

Women's power in decision making is theoretically related to experience of physical violence. It has also been documented as an important predictor of modern contraceptive use (M. Koenig, et al., 2003; Mason & Smith, 2000; Riyami, et al., 2004; S. R. Schuler & Hashemi, 1994). Women's power is measured in this study based on women's responses to four questions related to decision makers in women's own health care, major household purchases, daily household purchases, and visits to relatives. Women are considered empowered if they made decisions on these matters either jointly with their husband or by themselves.

In addition, women were also asked about their attitudes towards DV. Specifically, they were asked if it was justified for a husband to beat his wife in the following situations: if she went out without telling him, neglected the children, argued with the husband, refused to have sex with her husband, or if she did not obey elders in the family. For each of these situations, a score of 1 is given if a woman did not think it was justified. A high score means that a woman had positive attitudes towards DV (i.e. DV was not justified).

Similarly, men were asked about their perceptions of women's decision making power and their own attitudes towards DV. In terms of decision making, in addition to issues that women were asked about, men were also asked if it was acceptable for married women to work outside of the home, who made decisions about how to spend the wife's earning, and about child health care decision making. Men's attitudes towards DV were measured in the same way they were measured among women. In addition, men were asked if their father ever beat their mother. Theoretically, if the answer was positive, men who were exposed to physical violence may be more likely to engage in the behavior themselves (M. C. Ellsberg, Pena, Herrera, Liljestrand, & Winkvist, 1999).

Men's desire for more children is theoretically related to FP practice (Bankole & Sing, 1998; Dodoo, 1998; Kulczycki, 2008; Mason & Smith, 2000). Finally, men were asked about their attitudes towards FP. If men believed that women who used contraception may become promiscuous, it may present a barrier to women's use of contraceptives.

Statistical methods

Bivariate and multivariate logistic regressions are used to examine the relationships between the husband's ever use of physical violence against wife and the wife's report of current modern contraceptive use. Theoretically, there is a possibility of endogeneity between husband's use of physical violence and wife's modern contraceptive use. On the one hand, it is plausible that women rely on modern contraceptive to prevent unwanted fertility in an abusive marital relationship. In this case, physical violence is a cause of modern contraceptive use. On the other

hand, it is also possible that men used physical violence because they disapproved of their wife's use of modern contraceptives. In other words, there may be reversed causality between independent and dependent variables. In addition, the temporal relationship between husband's ever use of physical violence and wife's current use of contraception is not completely clear in the cross-sectional survey.

Empirically, we test for exogeneity between a binary outcome and a binary independent variable using the biprobit procedure (Bollen, Guilkey, & Mroz, 1995). A positive test (i.e. rho is significantly different from 0) means that husband's ever use of physical violence against wife is endogenous to wife's current use of modern contraceptives. In this case, instrumental variables should be used in the estimation of each of these variables. A negative test means that these two variables are exogenous and husband's ever use of physical violence can be used as an explanatory variable in the equation for current use of modern contraceptive methods, using logistic regressions. All analyses are carried out using Stata 11/SE (StataCorp, 2009).

FINDINGS

1. Sample description

Table 1 describes the distribution of the study sample of 3,042 married couples. Overall, modern contraceptive use was common: 54.7% of women reported using a modern contraceptive method. Many husbands (58.1%), however, reported having used physical violence to their wife.

About one in five couples lived in urban areas. The sample is relatively young with more than half (53%) of women under the age of 30. Thirty-seven percent of them did not have any education, one third had primary schooling, and 30% had secondary schooling or higher. The sample is relatively equally distributed across wealth quintiles. The majority (71.7%) of women did not watch TV every day; the vast majority (90%) of them were Islamic.

On average, the study couples had 2.5 children. Yet, only 18% of women were visited by a government P worker within the last six months. Nearly half (48.5%) of them never talked about FP with their husband in the last three months; only one in ten did more than twice. Women reported an average decision making power: on a scale from 0 to 4, women reported a score of 2.64 on average. However, they held positive attitudes (a score of 4.1 on a 0-5 scale) towards DV.

Table 1 about here

In terms of husband's characteristics, the husbands in this sample were also relative young: more than half (53%) of them were under the age of 40. Thirty-six percent did not have any education; but the same proportion had secondary education or more. Nearly two-thirds (63.1%) did not watch TV every day. Three-quarters (73%) did not want to have more children. The vast majority (89.1%) of men in this sample believed that women who used contraception might become promiscuous.

Similarly to women, husbands in this sample reported a somewhat positive perception of women's decision making: a score of 4.1 on a scale from 0 to 7. Their attitudes towards DV, however, were very positive with an average score of 4.12 on a 0-5 scale. About a quarter (25.9%) of them had a father who beat their mother.

2. Distribution of husband's ever use of physical violence and wife's current use of modern contraceptives

Table 2 presents the distribution of the proportions of husbands who reported ever use of physical violence against wife and wife's current use of modern contraceptives, by couple's and individual characteristics.

2.1. Husband's ever use of physical violence against wife

Among women's and couples' characteristics, it is noteworthy that the proportion of husbands who ever used physical violence against their wives seemed reduced with increased women's education, wealth quintile, and women's frequency of watching TV. It also seemed lower in urban than in rural areas. Sixty percent of Islamic husbands reported ever used of physical violence, compared to 49.2% of husbands of other religious groups. Differences by government FP worker visit and discussion with husband about FP were not clear.

Among husband's characteristics, there might be an inverse U-shape association between age group and ever use of physical violence, in which the proportion of physical violence use increases as men approaches age 35-39 and decreases again among the oldest group. Use of physical violence seemed to decrease with husband's education, frequency of watching TV, and desire for more children. The proportion of ever use of physical violence was substantially higher among men whose father beat their mother (77.4%), compared to other men (52.65%). The difference between men who believed that women who used contraception may become promiscuous and those who did not was not clear.

Table 2 about here

2.2. Current modern contraceptive use

First, it is important to note that current modern contraceptive use was higher among women whose husband used physical violence against them (58.11%) than among women whose husband never used physical violence (49.73%).

Modern contraceptive use seemed slightly higher in urban than in rural areas. Examining women's characteristics, one could note that modern contraceptive use was lower than average among the youngest group (15-19 year olds); it increased with age, peaked among women aged 25-39, then lowered again among older women. It was also higher among women who watched TV every day (59.77%), compared to those who did not (52.67%).

Visit by a government FP worker within the last six months could potentially be important as nearly three-quarters of women who were visited were using a modern method of contraception,

compared to half of women who were not visited. Similarly, the majority of women who discussed FP with their husband in the last three months (72.33% among those who discussed once or twice and 69.49% among those who discussed more frequently) were practicing modern contraceptives, compared to just over a third (36.56%) of women who did not discuss FP with their husband.

Some of men's characteristics also seemed important to women's use of modern contraceptives. For example, women's modern contraceptive use seems to increase with increased husband's education and among men who did not want more children. It is interesting to note that 55.92% of women whose husband believed that women who used contraception may become promiscuous were using modern contraceptives, compared to 44.55% of other women.

3. Factors influencing husband's ever use of physical violence and wife's current use of modern contraceptives

Results of the text of exogeneity, as well as unadjusted and adjusted associations between women's and men's characteristics and husband's use of physical violence and women's modern contraceptive use are presented in Table 3. The biprobit procedure results in a rho of -.17 and not significantly different from 0 (p=.13), which means that there is no evidence of endogeneity between husband's report of ever use of physical violence against wife and women's current use of modern contraceptives. As a result, husband's ever use of physical violence can be considered exogenous and included as an explanatory variable in the equation for current use of modern contraceptives. In this two equation system, it is necessary for each exogenous outcome to be identified by a different variable or set of variables (i.e. instrumental variables), although some of the explanatory variables can be overlapped.

These instrumental variables should be based on both theoretical and empirical grounds (Bollen, et al., 1995). Specifically, women's report of visits by government FP worker and men's desire for more children are theoretically related to only contraceptive use. Empirically, the log-likelihood ratio test shows that their exclusion from the model for husband's ever use of physical violence did not make any difference to the model ($\chi2$=5.77, p=.06). Similarly, men's attitudes towards DV and report of their father ever beating their mother are theoretically related only to their use physical violence. The log-likelihood ratio test confirms that their exclusion did not change the model for modern contraceptive use ($\chi2$=2.94, p=.23).

3.1. Husband's ever use of physical violence against wife

Column 1 of Table 3 suggests several potentially important predictors of this outcome. Religion and attitudes towards DV appeared consistently associated with husband's use of physical violence. Most of men's characteristics, except their belief that women who use contraception may become promiscuous, also seemed important.

In the multivariate model presented in column 2 of Table 3, religion and the number of living children were significantly related to husband's physical violence use. Compared to other religious groups, the odds of ever use of physical violence was 1.61 times higher among couples of Islamic group (p<.001). An increase of one living child was also associated with a 13%

increase in the odds of the husband's ever use of physical violence ($p<.001$). Women's attitudes towards DV was marginally, negative related to husband's use of physical violence ($p<.10$).

Among men's characteristics, there were several important predictors of men's use of physical violence against their wife. Men who had positive attitudes towards DV were less likely to use physical violence against their wife (OR=.71, $p<.001$). Those who believed that women who used contraception might become promiscuous also had an increased odds of ever using physical violence, compared to others (OR=1.32, $p<.05$). As expected, men whose father ever beat their mother had a more than three-fold increase in the odd of using physical violence themselves, compared to other men (OR=3.16, $p<.001$). Surprisingly, men who held a positive opinion about women's decision making power were also more likely than others to have ever used physical violence against their wife, controlling for other factors (OR=1.07, $p<.01$).

Table 3 about here

3.2. Current modern contraceptive use

Column 3 of Table 3 shows many women's and men's characteristics that are potentially important to modern contraceptive use. Women's basic characteristics, including age, education, and frequency of watching TV, may be important. Factors that are theoretically related to contraceptive use, including the number of children, visits by a government FP worker, and discussion about FP with husband, all seemed to have a positive association with modern contraceptive use. Women's decision making power, as well as their attitudes towards DV may also be related to current modern contraceptive use.

Similarly to women's characteristics, most of men's characteristics examined, including desire for more children, opinion about women's decision making power, and belief that women who use contraception may become promiscuous, showed a positive unadjusted association with modern contraceptive use. The association between men's education and current modern contraceptive use did not seem consistent.

In column 4, results of the multivariate regression showed a strong and positive association between husband's ever use of physical violence against wife and wife's report of current modern contraceptive use. Those women whose husbands reported ever use of physical violence had a 45% increase in the odds of currently practicing modern contraception ($p<.001$), controlling for other women's and men's characteristics. Other women's characteristics that were positive predictors of current modern contraceptive use include: the number of living children, visits by a government FP worker, discussion with husband about FP, decision making power, and attitudes towards DV. For example, compared to women who were not visited by a FP worker, those who were were 2.30 times more likely to be using a modern method of contraception ($p<.001$). Discussion with husband was important: compared to those who never discussed FP with their husband, those who did once or twice during the last three month had an odds of 3.91, and those who did more often had an odds of 3.38 of using modern contraceptives ($p<.001$ in both cases). Women's increased decision making power score and positive attitudes towards DV are also associated with increased odds of practicing modern contraceptives.

Negative predictors of modern contraceptive use include women's age and religion. Compared to the youngest group, most of the older age groups were less likely to use modern contraceptives. Islamic couples also seemed less likely than other couples to use modern methods of contraception (OR=.78, p<10).

Among men's characteristics, positive opinion about women's decision making power was significantly associated with modern contraceptive use (OR=1.05, p<.05). Desire for more children, as expected, was negatively, significantly related to modern contraceptive use: compared to men who did not want to have more children, those who did were half as likely to use a modern contraceptive (OR=.50; p<.001). Men's education and belief that women who used contraception may become promiscuous were not related to modern contraceptive use.

DISCUSSION

This study examines the relationship between husband's report of ever use of physical violence against wife and wife's current use of modern contraceptive methods, as well as factors contributing to these two outcomes. Modern contraceptive use was common among married women (55%); as was physical violence among husbands in the sample (58%). The prevalence of physical violence is within the range of what has been documented in many developing settings (Diop-Sidibé, Campbell, & Becker, 2006; M. C. Ellsberg, et al., 1999; Heise, et al., 1999; Jewkes, Penn-Kekana, Levin, Ratsaka, & Schrieber, 2001; M.A. Koenig, et al., 2003; Krug, et al., 2002; Pallitto & O'Campo, 2004). It is also consistent with what has been reported in Bangladesh (M. Koenig, et al., 2003; Salam, et al., 2006; SR Schuler, et al., 1996; Silverman, et al., 2007).

The analysis shows a significant and positive association between husband's ever use of physical violence and wife's modern contraceptive use, after other factors that may influence contraceptive use are controlled for. Bangladeshi women whose husbands reported ever use of physical violence were significantly more likely than other women to use modern contraceptives at the time of the survey. This finding is unexpected and not consistent with a previous study in Bangladesh that found a significantly lower level of contraceptive use among abused women, compared to non-abused women (Salam, et al., 2006). It should be noted, however, that the study by Salam et al. (2006) was conducted among a small sample (less than 500) of poor women living in urban slums in four metropolitan cities of Bangladesh; therefore, the result may not be generalizable to all Bangladeshi married women. Access to FP among them might also be limited. In addition, the authors acknowledged that their study was limited by information being collected only from women, which may bias the result related to spousal violence. On the other hand, results similar to ours have been observed in several African settings, as well as developed settings like the U.S. and New Zealand (Alio, Daley, Nana, Duan, & Salihu, 2009; Chan & Martin, 2009; Fanslow, Whitehead, Silva, & Robinson, 2008). It is possible that married Bangladeshi women in an abusive relationship would rely on contraception to avoid unwanted/unintended pregnancy, especially when contraceptives are available and widely used. In this case, it is important for FP programs to reach out to women who are vulnerable or have been victimized by their husbands as they may have high demand for contraception. In contrast, if women are victimized because of their use of modern contraceptives, it is important for FP providers to be sensitized to risks and challenges that women face with in using FP services.

Screening for potential DV may necessarily be part of FP services in a highly patriarchal context and where DV is widespread.

Among factors associated with contraceptive use, it is important to note that visit by a FP worker within the last six months was one of the strongest predictor of modern contraceptive use. The finding underlines the importance of home visits by FP workers that were the principal approach of the Bangladeshi FP for many years. Even when FP practice has been widespread, FP workers may still play a very important role in motivating women and supplying them with contraceptive methods. This finding is of particular importance as oral pills were the main method of contraception: two-thirds of married women in this sample were using oral pills at the time of the study (results not shown). The strongest predictor of modern contraceptive use is discussion with husbands about FP in the last three months. It is possible that talking with husbands and having their approval significantly motivate women to use contraception, which highlights the role of men in FP practice. On the other hand, we cannot rule out the possibility that women who were currently using contraceptives were in a marriage where men were already open to the idea of FP practice; therefore, they were more likely than non-users of contraceptives to talk about FP with their husbands. Both women's decision making power and attitudes towards DV were positively associated with modern contraceptive use. This finding suggests that strategies to improve women's autonomy may have positive effects on modern contraceptive use. An example of such strategies in Bangladesh is income generation through micro-credit programs that have been well documented (Hashemi, Schuler, & Riley, 1996; Kabeer, 2001; Koenig, et al., 2003; Sidney Schuler, et al., 1998)

Among men's characteristics, it is noteworthy that men's positive opinion about women's decision making power was positively associated with modern contraceptive use. This relationship has been observed elsewhere in South Asia (Stephenson, et al., 2006). The finding further underlines the role of men not only in FP practice but also in matters related to women's rights. It suggests that it may be desirable for strategies to improve women's status to target men as well since the outcomes may be beyond increased women's status. However, it is unexpected to find that men who held positive opinion about women's decision making power were significantly more likely than others to report ever use of physical violence against their wife, even after controlling for other confounders. Because men were asked about ever use of physical violence against their wife, it may be possible that their use of physical violence occurred a long time before the survey, when their opinion about women's decision making was asked. In that case, the relationship between these two variables may be null or reversed. A prospective study, in which men are first asked about their perceptions related to women's decision making, then followed up to examine incidence of DV against their wives might be needed to further explore this relationship.

Husband's education does not seem consistently associated with ever use of physical violence in this study. Compared to men without any education, only those with secondary school or higher were significantly less likely to report use of physical violence. This finding suggests that a moderate improvement in men's education is not likely to significantly reduce their use of physical violence. In other words, education interventions to reduce DV are unlikely to have a noticeable impact unless they improve the overall education level substantially. In this study, increased use of physical violence is also observed among men who agreed that women who

used contraception might become promiscuous. It is plausible that married men feel threatened by women's use of contraception as it might give women an increased sense of capacity to control their reproductive health and men may fear of losing power over women as a result.

As expected, men who had positive attitudes towards DV were significantly less likely than others to report ever use of physical violence against their wife. The finding suggests that interventions that aim to change men's attitudes towards DV and related gender norms in Bangladesh may have positive results, even with a small change in attitudes. Finally, as documented elsewhere, men whose father ever beat their mother was significantly more likely than others to use physical violence themselves, suggesting that men with family history of using DV may be particularly vulnerable to using DV themselves and need to be targeted.

The study has some limitations. While the possibility of under-reporting of violence by women is not a concern in this current study (Ellsberg, et al., 2001; Pallitto & O'Campo, 2004), in a setting like Bangladesh, where women are often at disadvantage in family and social matters (Koenig, et al., 2003), it is possible that men over-reported DV to prove their power over their wives. However, such a bias has not been documented and it is difficult to assess its magnitude. In addition, the extent of husband's over-reporting, if existent, is unlikely to be different between users and non-users of modern contraceptives; therefore, any bias due to husband's report of DV would be unlikely to change the results of this study. Another limitation related to the measurement of DV is that the question posed to husbands lacks a specified reference period. "Ever use" of physical violence could be interpreted as DV that was used long ago in the past or very recently; the latter could be overlapped with the reference period in which women were "currently" using contraceptives. Therefore, the temporal relationship between husband's ever use of physical violence and wife's use of modern contraceptives is not absolutely clear (Wilson-Williams, et al., 2008).

The fact that this study limits the current study sample to only couples in which husbands were interviewed with the Domestic Violence module may also introduce biases. Our analysis shows some differences between couples who are included in this study and those who are not. For example, couples in this study were less educated, poorer, and wives were more likely to be within the age range of 25-39 years, compared to couples excluded from this study (results not shown). However, there were no statistically significant differences in modern contraceptive use between couples included in the study and other couples. Therefore, it is unlikely that differences in basic demographic characteristics will bias the results of this analysis.

These limitations notwithstanding, our study makes important contributions to the current literature on the relationships between DV and contraceptive use. First, results of the study suggest that married Bangladeshi women who have been victimized by their husbands may have increased need for FP and should be targeted by FP programs. DV related services should be integrated into FP programs to meet reproductive health needs of married Bangladeshi women. The findings also underline the importance of both men's and women's perceptions and attitudes related to decision making and DV in both husband's use of physical violence against wife and modern contraceptive use. In addition, the study emphasizes the role of home visits by FP workers in promoting modern contraceptive use, even when FP practice has been widespread. The findings suggest several potential strategies to reduce DV within marriage and to promote

modern contraceptive use among married Bangladeshi women. Finally, the study emphasizes the importance of the inclusion of men in research on contraceptive use within marital relationships as they may influence women's decision in several different ways.

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TABLES

Table 1. Sample distribution of married couples, Bangladesh, 2007.

Characteristic	Distribution
	% or mean (s.d.)
Current modern contraceptive use	54.68
Husband ever had physical violence against wife	58.11
Wife's characteristics	
Urban	21.87
Age group	
15 – 19	12.17
20 – 24	20.52
25 – 29	20.12
30 – 34	16.82
35 – 39	15.78
40 – 44	10.06
45 - 49	4.52
Highest education level	
No education	37.05
Primary school	33.42
Secondary school or higher	30.54
Wealth quintile	
Poorest	20.79
Poor	20.99
Middle	20.91
Rich	18.53
Richest	18.79
Watch TV everyday	
No	71.69
Yes	28.31
Religion	
Christian, Buddhist and others	9.67
Islam	90.33
Number of living children (range: 0 – 10)	2.47 (1.63)
Visited by a government FP worker in the last 6 months	
No	82.00
Yes	18.00
Talked to husband about FP in the last 3 months	
Never	48.51
Once or twice	40.95
More often	10.53

Characteristic	Distribution
	% or mean (s.d.)
Decision making power score (range: 0 - 4)	2.64 (1.42)
Attitudes toward domestic violence (range: 0 – 5)	4.09 (1.47)
Husband's characteristics	
Age group	
15 – 29	21.53
30 – 34	12.58
35 – 39	18.99
40 – 44	16.05
45 – 49	16.88
50 - 54	13.96
Highest education level	
No education	35.64
Primary school	28.18
Secondary school or higher	36.18
Watch TV everyday	
No	63.10
Yes	36.90
Want to have more children	
No	72.93
Yes	27.07
Opinion about women's decision making power (range: 0 – 7)	4.06 (1.98)
Attitudes toward domestic violence (range: 0 – 5)	4.17 (1.36)
Agree that women who use contraception may become promiscuous	89.06
Husband's father ever beat his mother	25.86
N	**3,042**

Table 2. Percent of couples, in which husband reported ever used of physical violence to wife and wife reported modern contraceptive use, Bangladesh, 2007.

Characteristics	Husband's ever use of physical violence against wife	Current modern contraceptive use
	%	%
Husband's ever use of physical violence against wife	—	
No		49.73
Yes		58.11
Couple's characteristics		
Residence		
Rural	60.59	53.41
Urban	53.56	59.23
Wealth quintile		
Poorest	62.17	52.52
Poor	68.87	51.99
Middle	62.21	52.98
Rich	57.21	57.57
Richest	42.94	59.11
Religion		
Christian, Buddhist and others	49.23	56.70
Islam	60.10	54.46
Number of living children	—	—
Wife's characteristics		
Age group		
15 – 19	47.11	47.32
20 – 24	58.54	54.14
25 – 29	61.19	60.34
30 – 34	64.36	59.02
35 – 39	62.28	60.82
40 – 44	56.73	44.55
45 - 49	58.19	36.72
Highest education level		
No education	63.19	52.07
Primary school	63.83	55.84
Secondary school or higher	48.96	56.60
Watch TV everyday		
No	62.08	52.67
Yes	51.38	59.77
Visited by a government FP worker in the last 6 months	58.13	50.52
No	63.25	73.62
Yes		
Talked to husband about FP in the last 3 months		
Never	61.00	36.56
Once or twice	58.41	72.33

More often	52.59	69.49
Decision making power score	—	—
Attitudes toward domestic violence	—	—
Husband's characteristics		
Age group		
15 – 29	52.93	52.20
30 – 34	55.35	57.76
35 – 39	62.56	59.52
40 – 44	64.93	60.47
45 – 49	63.38	52.91
50 - 54	55.07	44.61
Highest education level		
No education	68.18	51.70
Primary school	63.89	52.66
Secondary school or higher	46.30	59.18
Watches TV everyday		
No	61.01	53.99
Yes	55.71	55.86
Want to have more children		
No	61.55	58.85
Yes	52.31	43.44
Opinion about women's decision making power	—	—
Attitudes toward domestic violence	—	—
Agree that women who use contraception may become promiscuous		
No	56.29	44.55
Yes	59.39	55.92
Husband's father ever beat his mother		
No	52.65	53.73
Yes	77.40	57.39
TOTAL	**59.05**	**54.68**

Table 3. Bivariate and multivariate results

Characteristics	Husband's ever use of physical violence against wife		Current modern contraceptive use	
	Unadj. O.R. (s.d.)	Adj. O.R. (s.d.)	Unadj. O.R. (s.d.)	Adj. O.R. (s.d.)
	(1)	(2)	(3)	(4)
Husband's ever use of physical violence against wife			1.40 (.10)***	1.45 (.12)***
Couple's characteristics				
Residence				
Rural	1.00	1.00	1.00	1.00
Urban	.75 (.07)**	1.14 (.11)	1.27 (.11)**	1.12 (.11)
Wealth quintile				
Poorest	1.00	1.00	1.00	1.00
Poor	1.35 (.16)*	1.39 (.19)*	.98 (.11)	1.00 (.13)
Middle	1.00 (.12)	1.22 (.17)	1.02 (.11)	.92 (.13)
Rich	.81 (.10)†	1.17 (.17)	1.23 (.14)†	1.16 (.18)
Richest	.46 (.05)***	.70 (.11)*	1.31 (.15)*	1.22 (.21)
Religion				
Christian, Buddhist and others	1.00	1.00	1.00 .91 (.11)	1.00 .78 (.10)†
Islam	1.55 (.19)***	1.61 (.21)***		
Number of living children		1.14 (.03)***	1.09 (.02)***	1.12 (.04)**
Wife's characteristics				
Age group				
15 – 19			1.00	1.00
20 – 24			1.31 (.17)*	.74 (.11)*
25 – 29			1.69 (.22)***	.88 (.15)
30 – 34			1.60 (.22)**	.73 (.13)†
35 – 39			1.73 (.24)***	.67 (.13)*
40 – 44			.89 (.14)	.45 (.10)***
45 - 49			.65 (.13)*	.41 (.11)**
Highest education level				
No education			1.00	1.00
Primary school			1.16 (.10)†	1.05 (.12)
Secondary school or higher			1.20 (.11)*	1.06 (.12)
Watch TV everyday				
No	N/A	N/A	1.00	1.00
Yes			1.34 (.11)***	1.18 (.13)
Visited by a government FP worker in the last 6 months	—	—		
No			1.00	1.00
Yes			2.73 (.29)***	2.30 (.26)***

Characteristics	Husband's ever use of physical violence against wife		Current modern contraceptive use	
	Unadj. O.R. (s.d.)	Adj. O.R. (s.d.)	Unadj. O.R. (s.d.)	Adj. O.R. (s.d.)
Talked to husband about FP in the last 3 months				
Never	1.00	1.00	1.00	1.00
Once or twice	.90 (.07)	.93 (.08)	4.54 (.38)***	3.91 (.35)***
More often	.71 (.09)**	.84 (.11)	3.95 (.52)***	3.38 (.46)***
Decision making power score	1.04 (.03)	1.05 (.03)	1.10 (.03)***	1.06 (.03)*
Attitudes toward domestic violence	.93 (.02)**	.95 (.03)†	1.04 (.03)†	1.06 (.03)*
Husband's characteristics				
Age group				
15 – 29	1.00	1.00		
30 – 34	1.10 (.14)	1.23 (.18)		
35 – 39	1.49 (.17)**	1.30 (.18)†		
40 – 44	1.65 (.20)***	1.48 (.21)**		
45 – 49	1.54 (.18)***	1.33 (.20)†		
50 - 54	1.09 (.14)	.93 (.16)		
Highest education level				
No education	1.00	1.00	1.00	1.00
Primary school	.83 (.08)*	.84 (.09)	1.04 (.09)	1.06 (.12)
Secondary school or higher	.40 (.04)***	.54 (.06)***	1.35 (.12)***	1.19 (.14)
Watches TV everyday				
No	1.00	1.00		
Yes	.84 (.06)**	1.05 (.09)		
Want to have more children	—	—		
No			1.00	1.00
Yes			.54 (.04)***	.50 (.06)***
Opinion about women's decision making power	1.08 (.02)***	1.07 (.02)**	1.10 (.02)***	1.05 (.02)*
Attitudes toward domestic violence	1.00 .70 (.02)***	.71 (.03)***	—	—
Agree that women who use contraception may become promiscuous	1.14 (.13)	1.32 (.16)*	1.58 (.18)***	1.27 (.16)
Husband's father ever beat his mother	3.08 (.29)***	3.16 (.32)***	—	—
Test of exogeneity				
Rho		-.17		
$\chi 2$ (df)		2.32 (1)		
Probability > $\chi 2$		.13		
Likelihood-ratio test				
$\chi 2$ (df)		5.77 (2)		2.94 (2)

Characteristics	Husband's ever use of physical violence against wife		Current modern contraceptive use	
	Unadj. O.R. (s.d.)	Adj. O.R. (s.d.)	Unadj. O.R. (s.d.)	Adj. O.R. (s.d.)
Probability > $\chi 2$		.06		.23

†p<.10; * p<.05; ** p<.01; *** p<.001

– Variables excluded from the respective equation for theoretical and empirical reasons.